REGULAR MEETING
PLANNING BOARD
PORTSMOUTH, NEW HAMPSHIRE

EILEEN DONDERO FOLEY COUNCIL CHAMBERS
CITY HALL, MUNICIPAL COMPLEX, 1 JUNKINS AVENUE

Members of the public also have the option to join the meeting over Zoom
*(See below for more details)**

6:00 PM CIP PRESENTATION AND PUBLIC HEARING

7:00 PM REGULAR PLANNING BOARD MEETING **December 16, 2021**

AGENDA

I. PRESENTATIONS (*Time: 6:00 pm*)

A. FY 2023-2028 Capital Improvement Plan

II. APPROVAL OF MINUTES (*Time: 7:00pm*)

A. Approval of the Planning Board minutes from the November 18, 2021 meeting.

III. DETERMINATIONS OF COMPLETENESS

SITE PLAN REVIEW

A. The request of **North Mill Pond Holdings LLC (Applicant), and One Raynes Ave LLC, 31 Raynes Ave LLC, and 203 Maplewood Ave LLC (Owners)** for property located at **31 Raynes Avenue, 203 Maplewood Avenue, and 1 Raynes Avenue** requesting Site Plan Review approval.

B. The request of **Martingale, LLC (Owner),** for property located at **99 Bow Street**, requesting Site Plan Review approval.

C. The request of **Dagny Taggart, LLC (Owner),** for property located at **93 Pleasant Street** requesting Site Plan Review approval.

D. The request of **Torrington Properties Inc. (Applicant),** on behalf of **2422 Lafayette Road Associates, LLC (Owner)**, for property located at 2454 Lafayette Road requesting Site Plan Review approval.

IV. PUBLIC HEARINGS – OLD BUSINESS

The Board's action in these matters has been deemed to be quasi-judicial in nature. If any person believes any member of the Board has a conflict of interest, that issue should be raised at this point or it will be deemed waived.

A. REQUEST TO POSTPONE Request of **Ricci Construction Company Inc., (Owner)** and **Green & Company Building & Development Corp., (Applicant)** for property located at **3400 Lafayette Rd** requesting a wetland Conditional Use Permit under section 10.1017 to construct 50 town homes on an undeveloped lot. The (Applicant) is proposing five areas of wetland impact for a total of 21,350 square feet of permanent impact and three areas of temporary impact for a total of 2,350 square feet. Said property is shown on Assessor Map 297 Lot 11 and lies within the Gateway Neighborhood Mixed Use Corridor (G1) District and the Natural Resource Protection (NRP) District. **REQUEST TO POSTPONE** (LU-21-98)

B. REQUEST TO POSTPONE Request of **Ricci Construction Company Inc., (Owner)** and **Green & Company Building & Development Corp., (Applicant)** for property located at **3400 Lafayette Rd** requesting Conditional Use Permit for a Development Site in accordance with Section 10.5B40 of the Zoning Ordinance and Site Plan Review approval for construction of a 50-unit multi-family residential development that includes community space and related landscaping, drainage, paving, utilities and other site improvements. Said property is shown on Assessor Map 297 Lot 11 and lies within the Gateway Neighborhood Mixed Use Corridor (G1) District and the Natural Resource Protection (NRP) District. **REQUEST TO POSTPONE** (LU-21-98)

C. REQUEST TO POSTPONE The request of **Gregory J. Morneault and Amanda B. Morneault (Owners)** and **Darrell Moreau, (Applicant)** for property located at **137 Northwest Street** requesting a Wetland Conditional Use Permit under Section 10. 1017 of the Zoning Ordinance to impact 5,062 square feet of wetland buffer and 45 square feet of tidal wetland. The proposed new home and existing turnaround is partially within the 100' tidal buffer zone of the North Mill Pond. In addition to the new home the applicant is proposing to remove an existing gravel turnaround and install a new paved parking apron for City vehicles to turn around. This new turnaround and the City pump station are all within a new easement. In addition, there is a plan to upgrade the stormwater outfall to protect against erosion. Said property is shown on Assessor Map 122 Lot 2 and lies within the General Residence A (GRA) District and Historic District. **REQUEST TO POSTPONE (LU-20-222)**

V. PUBLIC HEARINGS – CITY COUNCIL REFERRALS (OLD BUSINESS)

VI. PUBLIC HEARINGS – NEW BUSINESS

A. The request of **North Mill Pond Holdings LLC (Applicant), and One Raynes Ave LLC, 31 Raynes Ave LLC, and 203 Maplewood Ave LLC (Owners)** for property located at **31 Raynes Avenue, 203 Maplewood Avenue, and 1 Raynes Avenue** requesting a Conditional Use Permit as permitted by Section 10.1112.62 of the Zoning Ordinance and according to the requirements of Section 10.1112.14 to allow 113 off-street parking spaces including 18 reserved spaces to be provided on-site and 25 spaces to be provided on a separate lot where a total of 138 are required and Site Plan Review approval for the demolition of three existing buildings and construction of the following: 1) a 5-story mixed use building with 66,676 gross floor area and 16,629 sq. ft. building footprint including 7,720 sq. ft. of commercial use on the ground story and 32 residential units on the upper stories; 2) a 5-story 124-room hotel with 65,980 gross floor area and 14,622 sq. ft. of building footprint; 3) 34,427 sq. ft. of community space as well as associated paving, lighting, utilities, landscaping and other site improvements. Said properties are shown on Assessor Map 123 Lot 14, Map 123 Lot 13, Map 123 Lot 12, Map 123 Lot 10 and lie within the Character District 4 (CD4) District, Downtown Overlay District (DOD), Historic District, and the North End Incentive Overlay District. (LU-21-54)

B. The request of **North Mill Pond Holdings LLC (Applicant), and One Raynes Ave LLC, 31 Raynes Ave LLC, and 203 Maplewood Ave LLC (Owners)** for property located at **31 Raynes Avenue, 203 Maplewood Avenue, and 1 Raynes Avenue** requesting a Wetland Conditional Use Permit under section 10.1017 to construct two buildings 1) a 5 story mixed use commercial and residential building and 2) a five story hotel building with 124 rooms. The project has removed all of the impervious surface from the 25' tidal buffer, proposes 67 square feet of impervious surface in the 25-50’ tidal buffer and 21,190 square feet of impervious in the 50-100’ tidal buffer. Overall the project is able to demonstrate a reduction of 7,070 square feet of impervious surface in the tidal wetland buffer from the existing condition or a reduction of 10,107 square feet if the reserve parking is not constructed. Said properties are shown on Assessor Map 123 Lot 14, Map 123 Lot 13, Map 123 Lot 12, Map 123 Lot 10 and lie within the Character District 4 (CD4) District, Downtown Overlay District (DOD), Historic District, and the North End Incentive Overlay District. (LU-21-54)

C. The request of **Martingale, LLC (Owner),** for property located at **99 Bow Street**, requesting Site Plan Review Approval to allow the expansion of the existing deck to include expanded seating for the business as well as public access to the Piscataqua River. Said property is shown on Assessor Map 106 as Lot 54 and lies within the Character District 5 (CD5), Downtown Overlay, and Historic Districts. (LU-21-181)

D. The request of **Dagny Taggart, LLC (Owner),** for property located at **93 Pleasant Street** requesting Site Plan Review approval for the redevelopment of the existing 4 story structure and the construction of a new structure totaling 34,266 square feet of commercial space and 18 parking spaces. Said property is shown on Assessor Map 107 Lot 74 and lies within the Historic, Downtown Overlay, and CD4 Districts. (LU-21-183)

E. The request of **Torrington Properties Inc. (applicant),** on behalf of **2422 Lafayette Road Associates, LLC (Owner),** for property located at **2454 Lafayette Road** requesting to amend a previously granted Conditional Use Permit to provide less than required parking in accordance with Section 10.1112.14 of the Zoning Ordinance and Conditional Use Permits for increased housing density and for increased building height as allowed by Section 10.5B72.10 and Section 105B72.20 of the Zoning Ordinance, and development within the Gateway Neighborhood Mixed Use District in accordance with Section 10.5B40 of the Zoning Ordinance; and for Site Plan Review to demolish the existing structure and construct a five (5) story structure with 95 condominium units with 20% designated as workforce housing units and provide 21,896 square feet of community space. Said property is shown on Assessor Map 273 Lot 3 and lies within the Gateway Neighborhood Mixed Use Corridor (G1) District. (LU-21-192)

F. The request of **35 Pines LLC, (Owner),** for the property located at **295 Maplewood, Unit 1** requesting a Conditional Use Permit Approval in Accordance with Section 10.1112.14 of the Zoning Ordinance, for the provision of no on-site parking spaces where three (3) spaces are required. Said property is shown on Assessor Map 141 Lot 35 and is located in the Character District 4-L2 (CD4-L2) and Historic District. (LU-21-211)

G. The request of **Public Service CO of NH (Owner),** for the property located at **300 Gosling Road** requesting a Wetland Conditional Use approval according to section 10.1017 is requested for the replacement of 8 utility poles adjacent to Gosling Road. The project proposed temporary impact of 98,984 square feet in the wetland area and of 25,224 square feet in the wetland buffer. The proposal is to replace existing wooden structures with equivalent steel structures. Said property is shown on Assessor Map 214 Lot 3 and is located in the Office Research (OR) and Waterfront Industrial (WI) Districts. (LU-21-205)

H. The request of **ADL 325 Little Harbor road Trust (Owner),** for the property located at **325 Little Harbor Road** requesting a Wetland Conditional Use Permit under section 10.1017. The applicant is proposing 81,865 square feet of disturbance in the tidal wetland buffer the disturbance includes replacement of an existing home with a new home with a footprint of 3,382 square feet, construction of a new garage 1,300 square feet, renovation of an existing guest cottage 1,217 square feet, construction of a pool cabana 368 square feet and replacement of an existing shed 384 square feet along with other impacts/improvements including utility connections, playground, drainage improvement and extensive landscape improvements (LU-21-189*)*

I. The request of **The City of Portsmouth (Owner),** for property located at **0 Vaughan Street** requesting a Wetland Conditional Use Permit under section 10.1017 to restore a piece of property along the North Mill Pond into a City Park, Greenway and Living Shoreline project. The project as proposed includes restoration of 57,520 square feet of restoration work in the Wetland and Buffer with project impacts of 262 square feet in the wetland and 5,490 square feet of impact in the 100' wetland buffer. The project includes the removal of invasive plants, planting of native species to restore the vegetation on the site. The restoration work is proposed in the subtidal, intertidal, and tidal buffer portions of the site. Said property is shown on the Assessor Map 123 Lot 15 and lies within the Character District 4 (CD-4). (LU-21-187)

VII. CITY COUNCIL REFERRALS

VIII. PRELIMINARY CONCEPTUAL CONSULTATION

A. The request of **Port Harbor Land LLC**, for the property located at **2 Russell Street** requesting Preliminary Conceptual Site Consultation for a mixed use project consisting of office, retail/commercial, and residential uses in one 4-story and two 5-story buildings. The site is located between, Russell Street, Deer Street, Maplewood Avenue and the Railroad Corridor. Said property is located on Assessor Map 124-12 and lies within the Character District 5 (CD-5). (LUPD-21-10)

IX. DESIGN REVIEW

X. OTHER BUSINESS

XI. ADJOURNMENT

**Members of the public also have the option to join the meeting over Zoom, a unique meeting ID and password will be provided once you register. To register, click on the link below or copy and paste this into your web browser:*

: https://us06web.zoom.us/webinar/register/WN_G5wMpbZLRXunT1biv7OqQQ

REGULAR MEETING
PLANNING BOARD
PORTSMOUTH, NEW HAMPSHIRE

EILEEN DONDERO FOLEY COUNCIL CHAMBERS
CITY HALL, MUNICIPAL COMPLEX, 1 JUNKINS AVENUE

7:00 PM **November 18, 2021**

MINUTES

MEMBERS PRESENT: Peter Britz, Interim Planning Director; Dexter Legg, Chair; Karen Conard, City Manager; Peter Whelan, City Councilor; Ray Pezzullo, Assistant City Engineer; Colby Gamester; Corey Clark; Peter Harris; Rick Chellman; and Polly Henkel, Alternate; Stefanie Casella, Planner 1

ALSO PRESENT:

MEMBERS ABSENT: Elizabeth Moreau, Vice Chair

I. PRESENTATIONS

A. FY 2023-2028 Capital Improvement Plan Update

Peter Britz spoke to the presentation. This purpose of this presentation is to provide an update on the process and explain the next steps. The deadline for citizen suggestions was in October. The Advisory Committee will meet in the beginning of December. After that it will be presented to the Planning Board at the December 16, 2021, meeting. The Planning Board will refer it to the City Council. In January the City Council will hold a public work session and public hearing. The City Council will vote to adopt the CIP at the March meeting. The CIP is made up of large projects that are infrequent or non-reoccurring. There is currently 99 projects in the CIP draft. There are 12 new projects that have been proposed by residents making it a total of 30 CIP projects that are proposed by residents. There are 14 new projects proposed by city departments. There are 85 existing projects that are being carried forward. 57% of the projects are needed within 3 years, 13% are needed for 6 years, 29% are ongoing projects, and 1% are projects that are needed beyond 6 years. The CIP is comprised of 2% of the prior year's general fund budget. Then debt target for the CIP is a net debt service of no more than 10%.

B. Recommendation to the City Council regarding the proposed acquisition of the Community Campus

Public Works Director Peter Rice commented on the acquisition of the Community Campus property. This is a long-term investment for the city, and it will still support city services. The purchase of this property is consistent with the Recreation Department's Master Plan to

consolidate recreation services to one centralized location. This is also adjacent to recreation fields. Currently it is an underserviced side of the city as far as recreation space goes. The property adds 10 buildable acres to the city as well.

Mr. Chellman questioned if it was confirmed those 10 acres were buildable. Mr. Rice responded that there was a total of 37 acres and 10 acres are upland.

City Manager Conard commended Public Works Director Rice and Recreation Director Henley for bringing this idea forward and working to make it a reality.

City Council Representative Whelan moved to recommend the acquisition of the Community Campus to the City Council, seconded by Mr. Gamester. The motion passed unanimously.

II. APPROVAL OF MINUTES

A. Approval of the Planning Board minutes from the October 21, 2021 meeting.

Mr. Clark moved to approve the Planning Board minutes from the October 21, 2021, meeting, seconded by Mr. Gamester. The motion passed unanimously.

III. DETERMINATIONS OF COMPLETENESS

SUBDIVISION REVIEW

A. The request of **Gregory J. Morneault and Amanda B. Morneault, (Owners)** and **Darrell Moreau**, **(Applicant)** for property located at **137 Northwest Street** requesting Preliminary and Final Subdivision Approval.

Mr. Gamester moved to determine that the application is complete according to the Subdivision Rules and Regulations and to **accept** the application for consideration, seconded by Mr. Clark. The motion passed unanimously.

IV. PUBLIC HEARINGS – OLD BUSINESS

The Board's action in these matters has been deemed to be quasi-judicial in nature. If any person believes any member of the Board has a conflict of interest, that issue should be raised at this point or it will be deemed waived.

A. REQUEST TO POSTPONE The request of **Banfield Realty, LLC, (Owner)** for property located at **375 Banfield Road** requesting a Wetland Conditional Use Permit according to Section 10.1017 of the Zoning Ordinance for work related to the construction of an industrial building that will require the removal of pavement in the 100' wetland buffer to create a vegetated area which will receive some of the stormwater runoff from the property. Said property is shown on Assessor Map 266, Lot 7 and lies within the Industrial (I) District. **REQUEST TO POSTPONE** (LU-20-259)

DISCUSSION AND DECISION OF THE BOARD

Mr. Harris moved to postpone the public hearing on the request indefinitely until the applicant is ready to proceed, seconded by Mr. Gamester. The motion passed unanimously.

B. REQUEST TO POSTPONE The request of **Banfield Realty, LLC, (Owner)** for property located at **375 Banfield Road** requesting Site Plan review approval to demolish two existing commercial buildings and an existing shed and construct a 75,000 s.f. industrial warehouse building with 75 parking spaces as well as associated paving, stormwater management, lighting, utilities and landscaping. Said property is shown on Assessor Map 266 Lot 7 and lies within the Industrial (I) District. **REQUEST TO POSTPONE** (LU-20-259)

DISCUSSION AND DECISION OF THE BOARD

Mr. Harris moved to postpone the public hearing on the request indefinitely until the applicant is ready to proceed, seconded by Mr. Gamester. The motion passed unanimously.

C. REQUEST TO POSTPONE Request of **Ricci Construction Company Inc., (Owner)** and **Green & Company Building & Development Corp., (Applicant)** for property located at **3400 Lafayette Rd** requesting a wetland Conditional Use Permit under section 10.1017 to construct 50 town homes on an undeveloped lot. The (Applicant) is proposing five areas of wetland impact for a total of 21,350 square feet of permanent impact and three areas of temporary impact for a total of 2,350 square feet. Said property is shown on Assessor Map 297 Lot 11 and lies within the Gateway Neighborhood Mixed Use Corridor (G1) District and the Natural Resource Protection (NRP) District. **REQUEST TO POSTPONE** (LU-21-98)

DISCUSSION AND DECISION OF THE BOARD

Mr. Clark moved to postpone to the December 16, 2021, Planning Board Meeting, seconded by Mr. Chellman. The motion passed unanimously.

D. REQUEST TO POSTPONE Request of **Ricci Construction Company Inc., (Owner)** and **Green & Company Building & Development Corp., (Applicant)** for property located at **3400 Lafayette Rd** requesting Conditional Use Permit for a Development Site in accordance with Section 10.5B40 of the Zoning Ordinance and Site Plan Review approval for construction of a 50-unit multi-family residential development that includes community space and related landscaping, drainage,

paving, utilities and other site improvements. Said property is shown on Assessor Map 297 Lot 11 and lies within the Gateway Neighborhood Mixed Use Corridor (G1) District and the Natural Resource Protection (NRP) District. **REQUEST TO POSTPONE** (LU-21-98)

DISCUSSION AND DECISION OF THE BOARD

Mr. Clark moved to postpone to the December 16, 2021, Planning Board Meeting, seconded by Mr. Chellman. The motion passed unanimously.

E. REQUEST TO POSTPONE Request of **Elizabeth B Larsen Trust, (Owner)** for property located at **668 Middle Street** requesting Preliminary and Final Subdivision approval to subdivide 1 existing lot with 81,046 square feet of lot area, and 69.83 feet of street frontage into 3 lots as follows: Proposed Lot 1 with 18,646 square feet of lot area and no street frontage; Proposed Lot 2 with 18,756 square feet of lot area and no street frontage; Proposed Lot 3 with 43,644 square feet of lot area and 69.83 feet of street frontage. The existing buildings will remain and be on Proposed Lot 3. Said property is shown on Assessor Map 147 Lot 18 and lies within the General Residence A (GRA) and Historic Districts. (LU-21-23) **REQUEST TO POSTPONE**

DISCUSSION AND DECISION OF THE BOARD

City Council Representative Whelan moved to postpone the public hearing on the request indefinitely until the applicant is ready to proceed, seconded by Mr. Clark. The motion passed unanimously.

F. Request of Green & Company, (Applicant) and **Philip J. Stokel and Stella B. Stokel, (Owners)** for property located at **83 Peverly Hill Road** to name the new 2,950-foot public road to serve the approved 56 single-family homes, public space, and associated utilities approved at the October 21, 2021 Planning Board meeting. Said property is shown on Assessor Map 242 Lot 4 and lies within the Single Residence A (SRA) and Single Residence B (SRB) Districts. Please note: this discussion item was postponed from the October Planning Board meeting. (LU-21-74)

SPEAKING TO THE APPLICATION

Mr. Britz commented that the subdivision was approved at the last meeting. The street naming was delayed to make sure there were no conflicts. The project owner has suggested the name Sage Lane. There is also a list of other suggestions that have been vetted. The Board can discuss and refer it to City Council. This will be a city street.

PUBLIC HEARING

Chairman Legg asked if anyone was present from the public wishing to speak to, for, or against the petition. Seeing no one rise, the Chair closed the public hearing.

DISCUSSION AND DECISION OF THE BOARD

Mr. Clark moved to recommend to name the new public street, located at 83 Peverly Hill Road as approved in Land Use Application LU-21-74 on October 21, 2021, to "Sage Lane", seconded by City Council Representative Whelan. The motion passed unanimously.

Mr. Clark commented that this was a better name than the original proposal. The original proposal was too close to an existing road.

V. PUBLIC HEARINGS – NEW BUSINESS

Mr. Clark moved to consider Public Hearings – New Business Item A and B together and vote on them separately. The motion passed unanimously.

A. The request of **Gregory J. Morneault and Amanda B. Morneault, (Owners)** and **Darrell Moreau**, **(Applicant)** for property located at **137 Northwest Street** requesting Preliminary and Final Subdivision Approval to subdivide 1 existing lot with 18,134 square feet of lot area, 19 feet of lot depth, and 537 feet of street frontage into 2 lots as follows: Proposed Lot 1 with 7,500 square feet of lot area, 44 feet of lot depth, and 179 feet of street frontage; Proposed Lot 2 with 10,634 square feet of lot area, 25 feet of lot depth, and 357 feet of street frontage. The existing residence will remain and be on Proposed Lot 1 and a new home will be constructed on Proposed Lot 2. Said property is shown on Assessor Map 122 Lot 2 and lies within the General Residence A (GRA) District and Historic District. (LU-20-222)

SPEAKING TO THE APPLICATION

John Chagnon from Ambit Engineering, Attorney Monica Kaiser, and Reggie Monreault spoke to the application. Mr. Chagnon commented that the subdivision proposal was to divide that lot into 2 lots. It is a unique property. The lot is long, and the existing home is on the west end of the property. There are abutting properties to the east and across the street. The North Mill Pond is adjacent to the south. There is a water line easement that crosses the property today. That was created when the Bypass bridge was redone. During the survey work it was discovered that the city's pump station and gravel turnaround was partially over the property line. It is a long and skinny lot so it required a variance for lot depth. They worked with the DPW to identify how much area was needed for a new turnaround. This plan includes the pump station and turn around easements. The site plan shows the proposed development on lot 2. It would be a single-family residence with a driveway. The proposal places it on the west side. At the ZBA meeting an abutter requested that the driveway and garage not align with their windows to avoid

headlights shining in their home. The driveway and garage were moved to line up with the abutting driveway. The garage entrance will not face the street. This plan will need approval from the HDC. At TAC they requested adding a visual barrier for the garage. Landscaping walls were added to break up the view of the garage doors and a spruce tree was also added. The gravel turnaround will be removed. A new turn out that was coordinated with DPW will be added so vehicles can access it. The application has received setback relief from the ZBA. There is a low catch basin on the property. Raising the grade of the catch basin will make it work more efficiently. The outfall pipe has had some erosion around it and the pipe is sticking out in the air. The plan will be to fill in the hole with rip rap and cut the pipe back to make it work. The utilities will connect in the street. The plan shows the impacts in the buffer. The gravel drive will be removed, and it will be reduced to a smaller paved area. The rest will return to its' natural state and buffer plants will be added. They are requesting a CUP to construct in the buffer. The plan shows buffer impact for the structure and wetland impact for the rip rap. An abutting property has recently received approval and undergone a renovation.

Ms. Kaiser commented that this project has evolved over time based on the feedback from various boards and abutters. Originally this was going to be a duplex and it has since reduced to a single-family home. The ZBA recognized the challenge of the lot. The proposed division is at the lot's narrowest section. It's 20 feet wide. There is a variance to create a new lot with setback relief. The driveway was realigned after getting abutter feedback. They made additional changes for the garage door placement and landscaping after going through TAC. By the time this plan was submitted to the Planning Board the house was decreased to 1,687 sf and 16% building coverage. This application has been to the Conservation Commission a couple times. The last proposal of this house had a sunroom on the right. That's been removed. The buffer plantings were added at the request of the Conservation Commission. The house is 1,527 sf and the garage is a little less than 500 sf. It is a modest house that is appropriate for the site. The Conservation Commission did have some concerns. One about putting a new structure in the buffer. That is an appropriate concern, but it also misses what is happening on the lot now. This plan will remove 1,954 sf of gravel driveway in the buffer. That is going down to 1,449 sf with the house and new turn around. That goes a long way toward addressing abutter concerns about runoff. The Conservation Commission requested that the new turnaround be a permeable surface. The applicant is willing to do that, but it will be a city-maintained road. DPW needs to approve the surface. This application has support from the Advocates of the North Mill Pond. Feedback from the abutters and boards has resulted in a better plan. Understanding the Conservation Commission's position, they respectfully disagree. This plan will vastly improving the current conditions and will clean up a lot of issues related to the property. The owner of the property has the opportunity to develop, and the city can maintain the turnaround. It will be formalized with the easement. The pump station will remain, and the drainpipe will be restored. The site will also be improved with various features of the house with drip edges etc. Ms. Kaiser addressed the CUP criteria. The land is reasonably suited because there is existing development in the area, and it is disturbed already. They have gotten the most pushback about an alternate location for the proposed use. That is where the characteristics of the lot come into play. The property is narrow. The proposed garage is 22 feet wide, and the house is 28 feet wide. Neither are particularly large. The structure cannot be moved to the west because of the setbacks relief. There will be a decrease of impervious surfaces and the drain will be repaired. It is an improvement to the wetland. The alteration of the natural vegetated state will be limited to the

construction areas and plantings. The proposal has been refined over time to be the least adverse impact under the jurisdiction of this section.

Mr. Chellman questioned if the house could shift to the west to be out of the buffer. The application would need a new variance for the setbacks, but it would fit. Mr. Chagnon responded that the dimensions don't work if they slide it. Mr. Chellman agreed a new variance would be needed. If this application had gone to the Conservation Commission first the ZBA application may have been different. The entire building can be out of the buffer, so it's hard to accept that there is no feasible alternative. Mr. Chagnon commented that it was a reasonable structure and is not overly large. They can't slide it to the west without asking the applicant to get additional relief. It would start another round of back and forth. There are more impacts to the resource from the property on the other side with boats and docks. There is also a city street between the house and the resource. That is a bigger impact than the structure. Ms. Kaiser commented that if they slid the house the driveway would have to be on the right. The abutter did not like that. If the house is not in the buffer, then it would be the driveway. There is something else in the buffer now and it is bigger. The plan includes drainage elements and improved storm water. Mr. Chagnon added that there was a slope into the lot and a tow of the highway embankment.

Mr. Clark questioned what the two black rectangles in the aerial image were. Mr. Chagnon responded that it was the map lot number designation. It's just a CAD setting. Mr. Clark questioned if the garage needed to be attached to the home. The house could go without a garage or a narrower garage on that end disconnected from the home. The existing home on the lot is smaller in footprint than what is proposed. Mr. Monreault commented that 22 feet wide is the smallest they can go for a garage. They slid it as far it could go. The garage cannot be separated because there is a pinch point on the lot.

Mr. Chagnon showed the neighborhood exhibit. The property in front did not have a garage until they received a CUP to build one. A garage has become a natural feature of a home. It is better environmentally to have car in the garage than sitting outside.

Chairman Legg commented that the applicants have presented two constraints about moving the house. The first is the variances and the second is that the HDC won't want the garage doors facing the street. There are a lot of properties in the HDC that have garages facing the street. If this garage is turned to face the street, then the driveway could be shorter, the garage could be slightly bigger, and the structure could slide over. The Planning Board has approved structures in the wetland buffer, but it seems like this has the ability to shift a portion or totally out of the buffer. If these are the only 2 constraints, then the land use boards would be receptive to both constraints to help move this out of the buffer.

Mr. Pezzullo agreed with the Chairman and requested more details on the easements for the turnaround and pump station. Mr. Chagnon responded that there were no easement lengths on that because they haven't completed it with meets and bounds yet. If the Board approves the plan, then they will work with the Legal Department to put in the dimensions.

Mr. Chagnon requested that they vote on the two applications separately. If they receive subdivision approval, then they know they are going in the right direction. Chairman Legg confirmed that they would be two separate votes.

Mr. Chellman commented that the subdivision was a pretty clean proposal. There is work to do on the CUP. Mr. Chellman did not see the tow slope problem on the existing conditions plan. The house can slide to the left.

Mr. Gamester requested that the applicant speak to the eastern part of the proposed turnaround and the abutter's concerns about drainage. Mr. Chagnon responded that the proposed city turnaround has been graded to slope directly to the drain. The rest of the property would also slope to the drain. Mr. Gamester questioned where they would be plowing. Mr. Chagnon responded they would be banking behind the turnout. The city would be plowing. They moved the buffer plants to the west so snow would not be piled on the plantings. There are proposed buffer plantings coming down from the Bypass.

PUBLIC HEARING

Chairman Legg asked if anyone was present from the public wishing to speak to, for, or against the petition. Seeing no one rise, the Chair closed the public hearing.

DISCUSSION AND DECISION OF THE BOARD

Mr. Clark moved to **grant** preliminary and final subdivision approval as presented and advertised, seconded by Mr. Chellman.

Mr. Clark commented that the stipulations in the memo should go with the CUP not the subdivision approval. These stipulations could impact any reconfiguration that may happen.

Mr. Britz agreed that it could be limiting. These came out of the TAC meeting, so the stonewall was part of the subdivision application. Mr. Clark agreed that the stone wall made sense to screen the garage doors as shown. If the doors are moved, then maybe they are not needed. Chairman Legg agreed.

The motion passed unanimously.

B. The request of **Gregory J. Morneault and Amanda B. Morneault (Owners)** and **Darrell Moreau**, **(Applicant)** for property located at **137 Northwest Street** requesting a Wetland Conditional Use Permit under Section 10. 1017 of the Zoning Ordinance to impact 5,062 square feet of wetland buffer and 45 square feet of tidal wetland. The proposed new home and existing turnaround is partially within the 100' tidal buffer zone of the North Mill Pond. In addition to the new home the applicant is proposing to remove

an existing gravel turnaround and install a new paved parking apron for City vehicles to turn around. This new turnaround and the City pump station are all within a new easement. In addition, there is a plan to upgrade the stormwater outfall to protect against erosion. Said property is shown on Assessor Map 122 Lot 2 and lies within the General Residence A (GRA) District and Historic District. (LU-20-222)

DISCUSSION AND DECISION OF THE BOARD

Chairman Legg commented that he did not want to presuppose the vote, but they should not vote to deny if there is an opportunity to reconfigure. The motion should be to postpone and ask the applicant to take the input they have received and come back responding to that feedback.

Mr. Gamester moved to postpone the Wetland Conditional Use Permit hearing to the December 16, 2021, Planning Board Meeting, seconded by City Council Representative Whelan.

Mr. Gamester commented that he agreed with the Board's feedback. This is a site that should be built on. There is more room for improvement. It would be good to see the house move more west.

City Council Representative Whelan agreed that they should turn the garage. It's a tough lot.

The motion passed unanimously.

C. The request of **Omar R. Gordon Revocable Trust and Carrol L. Gordon Revocable Trust, (Owners) Michah Denner, (Applicant)** for property located at **797 Elwyn Road** requesting wetland Conditional Use Permit according to Section 10.1017 of the Zoning Ordinance for an in-kind septic replacement and a new addition at the rear of the house with 240 square feet of disturbance within 100' of jurisdictional wetland. Said property is shown on Assessor Map 225 Lot 2 and lies within the Single Residence A (SRA) District. (LU-21-93)

SPEAKING TO THE APPLICATION

Micah Denner spoke to the application. The plan is to replace the septic system on this lot in the 100-foot setback from drainage swales. Along the left side of the property line is a drainage swale from the culvert that crosses Elwyn Rd. The septic will be replaced in the same location. There is also a back side addition. There is only a couple hundred square feet inside the wetland buffer. The Conservation Commission requested that they add a similar square footage in plantings and that was included.

PUBLIC HEARING

Chairman Legg asked if anyone was present from the public wishing to speak to, for, or against the petition. Seeing no one rise, the Chair closed the public hearing.

DISCUSSION AND DECISION OF THE BOARD

Mr. Clark moved to **approve** the Wetland Conditional Use Permit, seconded by Mr. Gamester with the following stipulations:

1. Erosion control measures be put in place during installation of the septic system and construction of the addition.

2. A drip edge along the foundation or other infiltration practice for stormwater be included in the plan to capture the roof runoff from the new addition.

3. The applicant install a planting bed of native plants at least 300 square feet in size in the wetland buffer adjacent to the wetland edge.

4. While it is outside the 100' buffer the Commission requests that the area under the deck be porous material such as crushed stone or other material to infiltrate stormwater.

5. The applicant consider following NNOFO standards for yard maintenance.

Mr. Clark commented that it was good the septic was going in the same location. The area would have been disturbed anyway while the addition. The proposed impacts in the buffer proposed are very small as far as square footage goes.

The motion passed unanimously.

VI. DESIGN REVIEW – PUBLIC HEARING

A. WITHDRAWN AT THE REQUEST OF THE APPLICANT The proposed project is the application of **Hill Hanover Group, LLC (Owner)** and **JPK Properties, LLC, (Owner** and **Applicant)** for the property located at **181 Hill Street,** for the demolition of three existing buildings and the construction of one three story building containing 12 units with basement level parking accessed from Autumn Street. Said property is shown on Assessor Map 125 Lot 14 and lies within the Character District 4-L1 (CD4-L1) (LUPD-21-9). **WITHDRAWN AT THE REQUEST OF THE APPLICANT**

DISCUSSION AND DECISION OF THE BOARD

The Board acknowledged that the petition for 181 Hill Street has been withdrawn at the request of the applicant.

VII. OTHER BUSINESS

City Manager Conard announced that they recently hired a new Planning Director, and they would be starting January 10, 2022.

VIII. ADJOURNMENT

City Council Representative Whelan moved to adjourn the meeting at 8:45 pm, seconded by Mr. Gamester. The motion passed unanimously.

Respectfully submitted,

Rebecca Frey,
Secretary for the Planning Board

City of Portsmouth
Planning Department
1 Junkins Ave, 3rd Floor
Portsmouth, NH
(603)610-7216

Memorandum

To:	Planning Board
From:	Peter Britz, Acting Planning Director Stefanie L. Casella, Planner
Date:	December 10, 2021
Re:	Recommendations for the December 16, 2021 Planning Board Meeting

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I. PRESENTATIONS

A. FY 2023-2028 Capital Improvement Plan

City department heads will be presenting each chapter of the drafted Capital Improvement Plan (CIP). The draft CIP has been uploaded as a separate document for reference. Should the Board find the draft suitable for adoption a motion and vote should be taken to adopt the plan with stipulations if applicable.

III. DETERMINATIONS OF COMPLETENESS

SITEPLAN REVIEW

A. The request of **North Mill Pond Holdings LLC (Applicant), and One Raynes Ave LLC, 31 Raynes Ave LLC, and 203 Maplewood Ave LLC (Owners)** for property located at **31 Raynes Avenue, 203 Maplewood Avenue, and 1 Raynes Avenue** requesting Site Plan Review approval.

B. The request of **Martingale, LLC (Owner),** for property located at **99 Bow Street,** requesting Site Plan Review approval.

C. The request of **Dagny Taggart, LLC (Owner),** for property located at **93 Pleasant Street** requesting Site Plan Review approval.

D. The request of **Torrington Properties Inc. (applicant),** on behalf of **2422 Lafayette Road Associates, LLC (Owner)**, for property located at **2454 Lafayette Road** requesting Site Plan Review approval.

Planning Department Recommendation

Vote to determine that the applications are complete according to the Subdivision Rules and Regulations (contingent on the granting of any required waivers under Sections IV and VI of the agenda) and to accept the applications for consideration.

IV. PUBLIC HEARINGS -- OLD BUSINESS

The Board's action in these matters has been deemed to be quasi-judicial in nature.
If any person believes any member of the Board has a conflict of interest,
that issue should be raised at this point or it will be deemed waived.

A. REQUEST TO POSTPONE Request of **Ricci Construction Company Inc., (Owner)** and **Green & Company Building & Development Corp., (Applicant)** for property located at **3400 Lafayette Rd** requesting a wetland Conditional Use Permit under section 10.1017 to construct 50 town homes on an undeveloped lot. The (Applicant) is proposing five areas of wetland impact for a total of 21,350 square feet of permanent impact and three areas of temporary impact for a total of 2,350 square feet. Said property is shown on Assessor Map 297 Lot 11 and lies within the Gateway Neighborhood Mixed Use Corridor (G1) District and the Natural Resource Protection (NRP) District. (LU-21-98) **REQUEST TO POSTPONE**

B. REQUEST TO POSTPONE Request of **Ricci Construction Company Inc., (Owner)** and **Green & Company Building & Development Corp., (Applicant)** for property located at **3400 Lafayette Rd** requesting Conditional Use Permit for a Development Site in accordance with Section 10.5B40 of the Zoning Ordinance and Site Plan Review approval for construction of a 50-unit multi-family residential development that includes community space and related landscaping, drainage, paving, utilities and other site improvements. Said property is shown on Assessor Map 297 Lot 11 and lies within the Gateway Neighborhood Mixed Use Corridor (G1) District and the Natural Resource Protection (NRP) District. (LU-21-98) **REQUEST TO POSTPONE**

Planning Department Recommendation
Vote to Postpone to the January 20, 2022 Planning Board Meeting.

IV. PUBLIC HEARINGS -- OLD BUSINESS

The Board's action in these matters has been deemed to be quasi-judicial in nature.
If any person believes any member of the Board has a conflict of interest,
that issue should be raised at this point or it will be deemed waived.

C. REQUEST TO POSTPONE The request of **Gregory J. Morneault and Amanda B. Morneault (Owners)** and **Darrell Moreau**, **(Applicant)** for property located at **137 Northwest Street** requesting a Wetland Conditional Use Permit under Section 10. 1017 of the Zoning Ordinance to impact 5,062 square feet of wetland buffer and 45 square feet of tidal wetland. The proposed new home and existing turnaround is partially within the 100' tidal buffer zone of the North Mill Pond. In addition to the new home the applicant is proposing to remove an existing gravel turnaround and install a new paved parking apron for City vehicles to turn around. This new turnaround and the City pump station are all within a new easement. In addition, there is a plan to upgrade the stormwater outfall to protect against erosion. Said property is shown on Assessor Map 122 Lot 2 and lies within the General Residence A (GRA) District and Historic District. **REQUEST TO POSTPONE** (LU-20-222)

Planning Department Recommendation

Vote to Postpone to the January 20, 2022 Planning Board Meeting.

VI. PUBLIC HEARINGS – NEW BUSINESS

The Board's action in these matters has been deemed to be quasi-judicial in nature. If any person believes any member of the Board has a conflict of interest, that issue should be raised at this point or it will be deemed waived.

It is recommended that Item VA and VB be discussed together and voted on separately.

A motion is required to consider these items together.

A. The request of **North Mill Pond Holdings LLC (Applicant), and One Raynes Ave LLC, 31 Raynes Ave LLC, and 203 Maplewood Ave LLC (Owners)** for property located at **31 Raynes Avenue, 203 Maplewood Avenue, and 1 Raynes Avenue** requesting a Conditional Use Permit as permitted by Section 10.1112.62 of the Zoning Ordinance and according to the requirements of Section 10.1112.14 to allow 113 off-street parking spaces including 18 reserved spaces to be provided on-site and 25 spaces to be provided on a separate lot where a total of 138 are required and Site Plan Review approval for the demolition of three existing buildings and construction of the following: 1) a 5-story mixed use building with 66,676 gross floor area and 16,629 sq. ft. building footprint including 7,720 sq. ft. of commercial use on the ground story and 32 residential units on the upper stories; 2) a 5-story 124-room hotel with 65,980 gross floor area and 14,622 sq. ft. of building footprint; 3) 34,427 sq. ft. of community space as well as associated paving, lighting, utilities, landscaping and other site improvements. Said properties are shown on Assessor Map 123 Lot 14, Map 123 Lot 13, Map 123 Lot 12, Map 123 Lot 10 and lie within the Character District 4 (CD4) District, Downtown Overlay District (DOD), Historic District, and the North End Incentive Overlay District. (LU-21-54)

B. The request of **North Mill Pond Holdings LLC (Applicant), and One Raynes Ave LLC, 31 Raynes Ave LLC, and 203 Maplewood Ave LLC (Owners)** for property located at **31 Raynes Avenue, 203 Maplewood Avenue, and 1 Raynes Avenue** requesting a Wetland Conditional Use Permit under section 10.1017 to construct two buildings 1) a 5 story mixed use commercial and residential building and 2) a five story hotel building with 124 rooms. The project has removed all of the impervious surface from the 25' tidal buffer, proposes 67 square feet of impervious surface in the 25-50' tidal buffer and 21,190 square feet of impervious in the 50-100' tidal buffer. Overall the project is able to demonstrate a reduction of 7,070 square feet of impervious surface in the tidal wetland buffer from the existing condition or a reduction of 10,107 square feet if the reserve parking is not constructed. Said properties are shown on Assessor Map 123 Lot 14, Map 123 Lot 13, Map 123 Lot 12, Map 123 Lot 10 and lie within the Character District 4 (CD4) District,

Downtown Overlay District (DOD), Historic District, and the North End Incentive Overlay District. (LU-21-54)

Technical Advisory Committee (Parking CUP and Site Plan Review)

The applicant met with the TAC committee various times to review the proposed site plan and parking conditions.

Section 10.1112.14 of the Zoning Ordinance found below.

10.1112.14 *The Planning Board may grant a conditional use permit to allow a building or use to provide less than the minimum number of off-street parking spaces required by Section 10.1112.30, Section 10.1112.61 or Section 10.1115.20, as applicable, or to exceed the maximum number of off-street parking spaces allowed by Section 10.1112.51.*

> ***10.1112.141*** *An application for a conditional use permit under this section shall include a parking demand analysis, which shall be reviewed by the City's Technical Advisory Committee prior to submission to the Planning Board, demonstrating that the proposed number of off-street parking spaces is sufficient for the proposed use.*
>
> ***10.1112.142*** *An application for a conditional use permit under this section shall identify permanent evidence-based measures to reduce parking demand, including but not limited to provision of rideshare/microtransit services or bikeshare station(s) servicing the property, proximity to public transit, car/van-pool incentives, alternative transit subsidies, provisions for teleworking, and shared parking on a separate lot subject to the requirements of 10.1112.62.*
>
> ***10.1112.143*** *The Planning Board may grant a conditional use permit only if it finds that the number of off-street parking spaces required or allowed by the permit will be adequate and appropriate for the proposed use of the property. In making this determination, the Board may accept, modify or reject the findings of the applicant's parking demand analysis.*
>
> ***10.1112.144*** *At its discretion, the Planning Board may require more off-street parking spaces than the minimum number requested by the applicant, or may allow fewer spaces than the maximum number requested by the applicant.*

According to the reports and third party reviews performed on the available parking and predicted traffic patterns the TAC members accepted the proposed conditions as adequate for a Conditional Use Permit.

TAC Recommendation to the Planning Board:

The committee voted to recommend approval to the Planning Board with the following stipulations:

1) The Community space plan is to include all the public space types.

2) Dock, kayak launch, and pier are included as public spaces

3) Parking spaces are reduced to 138 with specific space reduction on Maplewood Ave.

4) Lights will include full cut off feature with a shield to prevent light pollution across the water.

5) Mountable curb is included on pedestrian walkway between proposed hotel and 3S Art Space.

6) Grease traps will be designed to meet code requirements.

7) Sewer connection permit will be obtained from DES.

8) Applicant and City will enter into a Community Space Agreement.

9) Fertilizing within the buffer zone will follow city guidance.

10) Third party inspection services are required during construction.

11) Square footage will be added to the public space plan, matrix and exhibits.

12) Wide pedestrian sidewalks and alleyways, including seating, are to be included as Community Space.

13) Exposed parking shall be screened from view.

14) Proposed greenway trail along the abutting property is shown on the site and landscape plan.

The application as submitted to the Planning Board has resolved stipulations 1-5, 11, 12, and 14. The remaining stipulations have been included as conditions of approval in the staff recommendation below.

<u>Conservation Commission</u> (Wetland Conditional Use Permit review and recommendation)

This item was heard at the Conservation Commission meeting on **Wednesday June 16, 2021.** According to *Article 10 Section 10.1017.50* the applicant must satisfy the following conditions for approval of this project:

1. *The land is reasonably suited to the use activity or alteration.* This project is located in an area along the North Mill Pond that is currently private and not open to the public. The current property is being improved to include a bicycle and pedestrian trail made of porous pavement and a new landscaping plan which enhances what is there today and provides public access along the water consistent with the North Mill Pond

Greenway plan. The overall project reduces the amount of impervious surface. For these reasons the land is reasonably suited to the proposed alterations.

2. *There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use, activity or alteration.* The location of the property is primarily within the 100' wetland buffer. The applicant has removed the majority of the impacts from the first fifty feet of the wetland buffer. Given the small amount of developable area outside of the wetland buffer there is no alternative location that is reasonable for a project in this area.

3. *There will be no adverse impact on the wetland functional values of the site or surrounding properties.* The proposed development is significantly further from the edge of wetland and there is a reduction in impervious surface with this proposal. The proposal also seeks to improve the treatment of stormwater on the site with a treatment and detention system. The pedestrian trail that is proposed is planned for porous pavement. This project provides community space that will allow people to walk along the pond on a safe accessible trail and proposed a landscape plan which is an improvement over the existing pavement and small area of vegetation currently in the buffer.

4. *Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals.* The proposed project has plans to remove a good deal of building and impervious surface from the buffer. The plans include a landscape plan which will provide adjacent wetland habitat and an amenity to the public using the greenway trail.

5. *The proposal is the alternative with the least adverse impact to areas and environments under the jurisdiction of this section.* This application propose to provide enhancements to the tidal buffer zone over what exists today. The project will provide enhanced landscaping over what exists today and will provide public access this portion of the North Mill pond where none exists today. Given these improvements and the reduction of impervious surface and treatment of stormwater on the site staff believes this project has worked to provide an application which reduces the overall impacts.

6. *Any area within the vegetated buffer strip will be returned to a natural state to the extent feasible.* The applicant provided a landscape plan which includes plantings around the proposed building and within the 100' tidal wetland buffer. The use of native plantings within the 100 foot buffer and removal of invasive species on this site will provide a benefit over the vegetation in buffer which exists today.

A motion was made to recommend approval of the conditional use request to the Planning Board with the following stipulations:

1) Relating to the porous asphalt maintenance requirements, monitor periodically to ensure the pavement surface drains effectively after storms, and if not look into replacing the porous pavement.

2) The clause 'no salt and de-icing material shall be used in the 100-ft buffer' shall be added to the Operations and Maintenance Plan, probably in Section 1.7.

3) Add instructions for the two-plus year time span on eliminating mulching and maintenance to allow for natural growth and esthetics on some of the planted islands.

4) Add frequency of inspection of the jellyfish.

5) Store salt indoors.

6) Add the clause 'sweeping of de-icing material after storm events' to the general sweeping section in the Operations and Maintenance Plan.

7) Restore the pier to something vegetative and porous and investigate it in that stage.

The Commission's vote to approve failed 3-3.

At the July 14, 2021 Conservation Commission meeting the applicant submitted a letter requesting reconsideration and re-vote of the recommendation. The Commission voted to reconsider the application. The vote to reconsider failed 1-5 (with one abstention). Therefore, the application was not reconsidered.

Project Update

Since the Conservation Commission reviewed the project there has been a further reduction of buffer impacts of 3,270 square feet to the wetland buffer area.

Staff Recommendation:

1) Board members should evaluate if the new plan meets the standards and criteria for a Wetland Conditional Use Permit.
2) Vote to find that the number of off street parking spaces provided will be adequate and appropriate for the proposed use of the property and to grant the conditional use permit as presented.
3) Vote to grant Site Plan Approval with the following stipulations:

Conditions Precedent (to be completed prior to the issuance of a building permit):

3.1 The site plan and any easement plans and deeds shall be recorded at the Registry of Deeds by the City or as deemed appropriate by the Planning Department.

3.2 The applicant shall record a notice of voluntary lot merger.

3.3 Any easement plans and deeds for which the City is a grantor or grantee shall be reviewed and approved by the Planning and Legal Departments prior to acceptance by City Council.

3.4 The applicant shall prepare a Construction Management and Mitigation Plan (CMMP) for review and approval by the City's Legal and Planning Departments.

3.5 The applicant shall agree to pay for the services of an oversight engineer, to be selected by the City, to monitor the construction of improvements within the public rights-of-way and on site

3.6 Owner shall provide an access easement to the City for water valve access and leak detection. The easement shall be reviewed and approved by the Planning and Legal Departments prior to acceptance by the City Council.

3.7 The Applicant or its engineer shall submit a copy of a completed Land Use Development Tracking Form using the Pollutant Tracking and Accounting Program (PTAP) online portal currently managed by the UNH Stormwater Center or similar form approved by the City.

3.8 Grease traps will be designed to meet code requirements.

3.9 Sewer connection permit will be obtained from DES.

3.10 Applicant and City will enter into a Community Space Agreement.

3.11 Fertilizing within the buffer zone will follow City guidance.

3.12 Exposed parking shall be screened from view.

Conditions Subsequent:

3.13 The Engineer of Record shall submit a written report (with photographs and engineer stamp) certifying that the stormwater infrastructure was constructed to the approved plans and specifications and will meet the design performance;

3.14 A stormwater inspection and maintenance report shall be completed annually and copies shall be submitted to the City's Planning and Public Works Departments.

V. PUBLIC HEARINGS – NEW BUSINESS

The Board's action in these matters has been deemed to be quasi-judicial in nature.
If any person believes any member of the Board has a conflict of interest,
that issue should be raised at this point or it will be deemed waived.

C. The request of **Martingale, LLC (Owner)**, for property located at **99 Bow Street**, requesting site plan approval to allow the expansion of the existing deck to include expanded seating for the business as well as public access to the Piscataqua River. Said property is shown on Assessor Map 106 as Lot 54 and lies within the Character District 5 (CD5), Downtown Overlay, and Historic Districts. (LU-21-181)

Project Description

This application proposes an expansion of the existing deck to include more seating, public access, and an art installation. This application has been before the Technical Advisory Committee and the findings are below.

Technical Advisory Committee (Site Plan review)
On Tuesday November2, 2021 the Technical Advisory Committee voted to recommend approval to the Planning Board with the following stipulations:

1) Public access along the waterfront is increased to 20 feet.
2) Public access signage will be displayed.
3) Owner reserves the right to close gate after hours for public safety

The updated plans, as provided to the Planning Board, have resolved conditions 1-3 as articulated above.

Staff Recommendation:

Vote to grant Site Plan Approval with the following stipulations:

Conditions Precedent (to be completed prior to the issuance of a building permit):

1. The site plan and any easement plans and deeds shall be recorded at the Registry of Deeds by the City or as deemed appropriate by the Planning Department.

2. The applicant shall record a notice of voluntary lot merger.

3. Any easement plans and deeds for which the City is a grantor or grantee shall be reviewed and approved by the Planning and Legal Departments prior to acceptance by City Council.

V. PUBLIC HEARINGS – NEW BUSINESS

D. The request of **Dagny Taggart, LLC (Owner)**, for property located at **93 Pleasant Street** requesting Site Plan Review approval for the redevelopment of the existing 4 story structure and the construction of a new structure totaling 34,266 square feet of commercial space and 18 parking spaces. Said property is shown on Assessor Map 107 Lot 74 and lies within the Historic, Downtown Overlay, and CD4 Districts. (LU-21-183)

Project Description

The original application proposed 52 micro units with 18 spaces of parking. The applicant has since changed the scope of the project to be commercial space throughout the entirety of the building. As the property is commercial and located in the Downtown Overlay District, there is no parking requirement.

This application has been before the Zoning Board of Adjustment and the Technical Advisory Committee. The findings are below.

Zoning Board of Adjustment (Review of requested relief to the Zoning Ordinance)

On Tuesday, November 16, 2021 the Zoning Board of Adjustment considered the application of the following variances for this project:

1) Variances from Section 10.5A41.10C to allow a) a finished floor surface of the ground floor to be 60" where 36" is the maximum allowed; b) a ground story height of 10'8" where 12' is the minimum required; and c) to allow entrance spacing greater than 50' where 50' is the maximum.

2) A Variance from Section 10.5A41.10C & 10.642 (1) to allow residential uses on the ground floor where it is prohibited in the Downtown Overlay District.

3) A Variance from Section 10.5A44.35 to allow an above-ground portion of a parking structure without a liner building.

The Board determined the following:

1) Deny the request for Variance 2, to allow residential uses on the ground floor where it's prohibited in the Downtown Overlay District;

2) Grant the request for Variance 1, sections A, B and C as presented and advertised; and,

3) Determine that Variance 3 was not required.

Technical Advisory Committee (Site Plan Review)

The Board voted to recommend approval to the Planning Board with the following stipulations:

1. Applicant is to provide a complete drainage system plan prior to the building permit issuance.
2. Applicant will provide a memo from GPI speaking to the new traffic flow in and out of the parking garage.
3. Applicant is to continue discussion with Eversource to relocate the proposed transformer.
4. Sidewalk ramps are to be hatched on plan to show they are brick.
5. The HDC should administratively approve the proposed pedestrian alert signs.
6. The basement level parking shall only be used for tenants in the building and not be open for public use.
7. Any future change of use for the property shall require subsequent traffic study and approval by City.
8. Correct the Court Street sewer pipe size to show 8" on Court Street from 6" shown on plan.
9. Change landscape stone shown on the plan to river stone.
10. Pedestrian and vehicle alert system is to be located on private property.

Staff Recommendation:

Vote to grant Site Plan Approval with the following stipulations:

Conditions Precedent (to be completed prior to the issuance of a building permit):

1. The site plan and any easement plans and deeds shall be recorded at the Registry of Deeds by the City or as deemed appropriate by the Planning Department.

2. The applicant shall record a notice of voluntary lot merger.

3. Any easement plans and deeds for which the City is a grantor or grantee shall be reviewed and approved by the Planning and Legal Departments prior to acceptance by City Council.

4. The applicant shall prepare a Construction Management and Mitigation Plan (CMMP) for review and approval by the City's Legal and Planning Departments.

5. The applicant shall agree to pay for the services of an oversight engineer, to be selected by the City, to monitor the construction of improvements within the public rights-of-way and on site

6. Owner shall provide an access easement to the City for water valve access and leak detection. The easement shall be reviewed and approved by the Planning and Legal Departments prior to acceptance by the City Council.

7. The Applicant or its engineer shall submit a copy of a completed Land Use Development Tracking Form using the Pollutant Tracking and Accounting Program (PTAP) online portal currently managed by the UNH Stormwater Center or similar form approved by the City.

Conditions Subsequent:

8. The Engineer of Record shall submit a written report (with photographs and engineer stamp) certifying that the stormwater infrastructure was constructed to the approved plans and specifications and will meet the design performance;

9. A stormwater inspection and maintenance report shall be completed annually and copies shall be submitted to the City's Planning and Public Works Departments.

V. PUBLIC HEARINGS – NEW BUSINESS

E. The request of **Torrington Properties Inc. (applicant),** on behalf of **2422 Lafayette Road Associates, LLC (Owner),** for property located at **2454 Lafayette Road** requesting to amend a previously granted Conditional Use Permit to provide less than required parking in accordance with Section 10.1112.14 of the Zoning Ordinance and Conditional Use Permits for increased housing density and for increased building height as allowed by Section 10.5B72.10 and Section 105B72.20 of the Zoning Ordinance, and development within the Gateway Neighborhood Mixed Use District in accordance with Section 10.5B40 of the Zoning Ordinance; and for Site Plan Review to demolish the existing structure and construct a five (5) story structure with 95 condominium units with 20% designated as workforce housing units and provide 21,896 square feet of community space. Said property is shown on Assessor Map 273 Lot 3 and lies within the Gateway Neighborhood Mixed Use Corridor (G1) District. (LU-21-192)

Project Description

This application has been before the Technical Advisory Committee. The findings are below.

Technical Advisory Committee (Conditional Use Permit request and Site Plan review)

Section 10.1112.14 of the Zoning Ordinance found below.

10.1112.14 *The Planning Board may grant a conditional use permit to allow a building or use to provide less than the minimum number of off-street parking spaces required by Section 10.1112.30, Section 10.1112.61 or Section 10.1115.20, as applicable, or to exceed the maximum number of off-street parking spaces allowed by Section 10.1112.51.*

> ***10.1112.141*** *An application for a conditional use permit under this section shall include a parking demand analysis, which shall be reviewed by the City's Technical Advisory Committee prior to submission to the Planning Board, demonstrating that the proposed number of off-street parking spaces is sufficient for the proposed use.*
>
> ***10.1112.142*** *An application for a conditional use permit under this section shall identify permanent evidence-based measures to reduce parking demand, including but not limited to provision of rideshare/microtransit services or bikeshare station(s) servicing the property, proximity to public transit, car/van-pool incentives, alternative transit subsidies, provisions for teleworking, and shared parking on a separate lot subject to the requirements of 10.1112.62.*
>
> ***10.1112.143*** *The Planning Board may grant a conditional use permit only if it finds that the number of off-street parking spaces required or allowed*

by the permit will be adequate and appropriate for the proposed use of the property. In making this determination, the Board may accept, modify or reject the findings of the applicant's parking demand analysis.

10.1112.144 *At its discretion, the Planning Board may require more off-street parking spaces than the minimum number requested by the applicant, or may allow fewer spaces than the maximum number requested by the applicant.*

According to the traffic analysis performed on the available parking and predicted traffic patterns the TAC members accepted the proposed conditions as adequate for a Conditional Use Permit.

Section 10.5B43 of the Zoning Ordinance found below.

10.5B43.10 *Conditional Use Permit Criteria: Prior to granting a conditional use permit for development sites in the Gateway Neighborhood Mixed Use Districts according to the requirements of this Article, the Planning Board shall make the following findings.*

1) *The development project is consistent with the Portsmouth Master Plan.*
2) *The development project has been designed to allow uses that are appropriate for its context and consistent with City's planning goals and objectives for the area.*
3) *The project includes measures to mitigate or eliminate anticipated impacts on traffic safety and circulation, demand on municipal services, stormwater runoff, natural resources, and adjacent neighborhood character.*
4) *The project is consistent with the purpose and intent set forth in Section 10.5B11.*

10.5B11.20 *The standards set forth herein are intended to:*

a) *Promote development that is consistent with the goals of the Master Plan to create vibrant, authentic, diverse, connected and resilient neighborhoods;*
b) *Encourage high quality housing for a variety of household types and income ranges.*
c) *Guide the physical character of development by providing a menu of building and site development types that are based on established community design principles;*
d) *Create quality places by allowing for whole site development with meaningful public spaces and neighborhood centers.*

The TAC review process consisted of the analysis of community spaces, accessibility, design, site layout, existing and proposed traffic flow, and

engineering analyses. Through this review the members worked with the applicant to develop a project that meets the above criteria.

Section 10.5B72 Of the Zoning Ordinance can be found below with other relevant sections for the Density Bonus Incentives.

***10.5B72** Density Bonus Incentives*

A conditional use permit may be granted by the Planning Board for increased housing density or for increased building height and footprint as described in this section. Such conditional use permit shall be contingent upon satisfying the requirements of Section 10.5B73.

***10.5B72.10** Dwelling Units Per Building: The Planning Board may, by conditional use permit, allow up to a maximum of 36 dwelling units per building.*

***10.5B72.20** Dwelling Units per Acre: The Planning Board may, by conditional use permit, allow higher density up to the maximum established in Section 10.5B71.*

***10.5B72.30** Building Height and Building Footprint: The Planning Board may, by conditional use permit, allow an increase in the maximum building height by one (1) story or 10' and an increase in the maximum building footprint and square footage by 20 percent.*

***10.5B73** Bonus Incentive Requirements*

In order to be eligible one of the bonus incentives outlined in section 10.5B72, a development shall include workforce housing according to the requirements of 10.5B73.10. In order to be eligible for multiple bonus incentives outlined in Section 10.5B72 a development shall also provide public realm improvements according to the requirements of 10.5B73.20. Required documentation for these improvements must be submitted with the application as outlined in Section 10.5B74.

***10.5B73.10** Workforce Housing Requirement: At least 20% of the dwelling units in the development, but no less than three units, shall be workforce housing units for sale or rent complying with the following criteria:*

1) For sale units shall be at least the average gross floor area of the proposed units in the building or 1,000 sq. ft., whichever is greater.

2) Rental units shall be at least the average gross floor area of the proposed units in the building or 800 sq. ft., whichever is greater.

3) The workforce housing units shall be distributed throughout the building wherever dwelling units are located.

10.5B73.20 *Public Realm Improvements: All public realm improvements used for a density bonus shall be recommended in plans adopted by the City of Portsmouth including but not limited to the Master Plan, Bicycle and Pedestrian Plan, and Capital Improvement Program. Eligible improvements include the following:*

1) Design and construction of an off-road trail or path that is at least equal to the linear public street frontage of the site and expands the Portsmouth Bicycle and Pedestrian Network consistent with the Portsmouth Bicycle and Pedestrian Plan. The trail or path shall be located on or adjacent to the project's building lot or development site, except as provided in (4) below.

2) Design and construction of a public park or athletic facility that is designed for active or passive recreation equal to at least 20% of the project's gross floor area that is located on or adjacent to the project's building lot or development site, except as provided in (d) below.

3) On-site public realm improvements provided for the purpose of satisfying the requirements of this section shall not be counted toward the required minimum community space coverage.

4) The Planning Board may allow a proposed public realm improvement to be located on a different lot than the development it if finds that all of the following criteria will be met:

(a) An appropriate public realm improvement cannot feasibly be provided on the same lot as the development.

(b) The proposed public realm improvement is within the same Zoning District as the development.

10.5B74 *Approval of Density Bonus Incentives*

10.5B74.10 *Required Information: In order to be eligible for bonus incentives as described in 10.5B72, the following submissions must be included with an application for a Conditional Use Permit:*

10.5B74.11 *Workforce Housing:*

1) A description of the workforce housing units, identifying quantity, location, and type;

2) Documentation that the proposed units qualify as workforce housing units as defined by this Ordinance;

3) Proposed covenant or other legally binding documents that provide enforceable restrictions as to price and occupancy to ensure long-term availability and affordability of the units.

***10.5B74.12** Public Realm Improvements:*

1) A written description of the intended site development or District improvements, the relevant City plan, the public benefit provided, provision for design, construction, management and maintenance if required, and plans showing the location and type, size and extent of each of the eligible improvements.

2) A specific time frame for the completion of all required on-site and off-site improvements shall be incorporated as a condition of approval of the Planning Board.

3) A list of all permits and approvals required in connection with any proposed public realm improvements with the application. These approvals shall be obtained prior to approval of the development, unless authorized by the Planning Board.

***10.5B74.13** Any requests by the applicant for the Planning Board to modify specific standards and requirements set forth in this Section 10.5B70 as allowed under Section 10.5B74.30 and a detailed justification for the requested modification.*

***10.5B74.20** Planning Board Findings: Prior to granting a conditional use permit for density bonus incentives under this section, the Board shall make the following findings:*

***10.5B74.21** The proposed project (and any conditions of approval) satisfies the requirements in Section 10.5B73;*

***10.5B74.22** The proposed project is consistent with the purpose and intent set forth in Section 10.5B11.*

***10.5B74.30** Modification of Standards: In granting a conditional use permit, the Planning Board may modify specific standards and requirements set forth in Section 10.5B20, 10.5B30, 10.5B40 and 10.5B70 provided that the Planning Board finds such modification will promote design flexibility and overall project quality, or that such modification is required for the development to provide a proposed workforce housing component, and that such modification is consistent with the purpose and intent set forth in Section 10.5B11.*

10.5B74.31 *In considering a request for a modification of the standards and requirements, the Planning Board may request that the applicant provide additional documentation and information from the applicant demonstrating that the requirements of this Ordinance are prohibitive to the successful completion of the project as proposed. Such information shall include, but not be limited to, project cost factors related to land acquisition, improvements for roads, utilities & drainage, insurance, labor, building materials, and profit to identify a total gross cost of the project and per unit gross costs.*

The TAC found that this application satisfied the requirements of the Density Bonus Incentives. It allows for affordable housing accessibility in the gateway district for workers at this location and throughout Portsmouth. Additionally it allows residents and site users to access to community spaces such as the dog park, pickelball courts, and the pedestrian path expansion along Constitution Avenue.

The Board voted to recommend approval to the Planning Board with the following stipulations:

1. The applicant will clean out the drainage system on site upon completion of construction.
2. Locate manholes in parking lot that have been paved over and remove asphalt.
3. Insure sufficient lighting for dog park and pickle ball courts.
4. Add note to second floor plan about life safety that the interior floor plan will be amended to meet life safety code.
5. Remove existing permanent striping and replace with temporary striping on Constitution before removal of pavement begins for multi-use path extension.
6. All structures in Constitution in the area of construction (both sides of street) are to be reset and fitted with catch basin liners prior to overlay.
7. The sump is added to the catch basin detail.
8. The Constitution Ave work will be to DPW standards and that pavement mix designs will need to be approved through the DPW prior to paving.

As of December 10, 2021 the applicant has submitted an updated plan that has resolved stipulations 1-8 as identified by TAC.

Staff Recommendation:

1) Vote to find that the number of off-street parking spaces provided will be adequate and appropriate for the proposed use of the property and to grant the conditional use permit as presented.

2) Vote to find that the application meets the requirements of Section 10.5B43.10 and to grant a conditional use permit for a Development Site subject to the requirements and conditions of site plan review approval.

3) Vote to find that the application meets the requirements of 10.5B11 and 10.5B73 of the Zoning Ordinance and to grant a conditional use permit for density bonus incentives as presented.

4) Vote to grant Site Plan Approval with the following stipulations:

Conditions Precedent (to be completed prior to the issuance of a building permit):

3.1 The site plan and any easement plans and deeds shall be recorded at the Registry of Deeds by the City or as deemed appropriate by the Planning Department.

3.2 The applicant shall record a notice of voluntary lot merger.

3.3 Any easement plans and deeds for which the City is a grantor or grantee shall be reviewed and approved by the Planning and Legal Departments prior to acceptance by City Council.

3.4 The applicant shall agree to pay for the services of an oversight engineer, to be selected by the City, to monitor the construction of improvements within the public rights-of-way and on site

3.5 Owner shall provide an access easement to the City for water valve access and leak detection. The easement shall be reviewed and approved by the Planning and Legal Departments prior to acceptance by the City Council.

3.6 The Applicant or its engineer shall submit a copy of a completed Land Use Development Tracking Form using the Pollutant Tracking and Accounting Program (PTAP) online portal currently managed by the UNH Stormwater Center or similar form approved by the City.

Conditions Subsequent:

3.7 The Engineer of Record shall submit a written report (with photographs and engineer stamp) certifying that the stormwater infrastructure was constructed to the approved plans and specifications and will meet the design performance;

3.8 A stormwater inspection and maintenance report shall be completed annually and copies shall be submitted to the City's Planning and Public Works Departments.

V. PUBLIC HEARINGS – NEW BUSINESS

F. The request of **35 Pines LLC, (Owner),** for the property located at **295 Maplewood, Unit 1** requesting a Conditional Use Permit Approval in Accordance with Section 10.1112.14 of the Zoning Ordinance, for the provision of no on-site parking spaces where three (3) spaces are required. Said property is shown on Assessor Map 141 Lot 35 and is located in the Character District 4-L2 (CD4-L2) and Historic District. (LU-21-211)

Project Description

Applicant is seeking a conditional use permit to provide 0 parking spaces for their one chair barber shop.

September 28, 2010 – The Board **granted** a variance to allow the first floor space to be used by a use permitted in the zoning district with no off-street parking spaces.

This project is also applying for a Special Exception to provide personal services in the Character District 4-L2 district and is scheduled to be heard at the December 21, 2021 Zoning Board of Adjustment Meeting.

Technical Advisory Committee

See section 10.1112.14 of the Zoning Ordinance below.

10.1112.14 *The Planning Board may grant a conditional use permit to allow a building or use to provide less than the minimum number of off-street parking spaces required by Section 10.1112.30, Section 10.1112.61 or Section 10.1115.20, as applicable, or to exceed the maximum number of off-street parking spaces allowed by Section 10.1112.51.*

> ***10.1112.141*** *An application for a conditional use permit under this section shall include a parking demand analysis, which shall be reviewed by the City's Technical Advisory Committee prior to submission to the Planning Board, demonstrating that the proposed number of off-street parking spaces is sufficient for the proposed use.*
>
> ***10.1112.142*** *An application for a conditional use permit under this section shall identify permanent evidence-based measures to reduce parking demand, including but not limited to provision of rideshare/microtransit services or bikeshare station(s) servicing the property, proximity to public transit, car/van-pool incentives, alternative transit subsidies, provisions for teleworking, and shared parking on a separate lot subject to the requirements of 10.1112.62.*

10.1112.143 *The Planning Board may grant a conditional use permit only if it finds that the number of off-street parking spaces required or allowed by the permit will be adequate and appropriate for the proposed use of the property. In making this determination, the Board may accept, modify or reject the findings of the applicant's parking demand analysis.*

10.1112.144 *At its discretion, the Planning Board may require more off-street parking spaces than the minimum number requested by the applicant, or may allow fewer spaces than the maximum number requested by the applicant.*

The Technical Advisory Committee review the application at the Tuesday December 7, 2021 meeting and recommended the Planning Board Approve the request with the following stipulation:

1) If additional cutting chairs are added to the business the applicant shall resubmit for review and approval of any traffic- or parking-related impacts.

Given the property was previously granted a variance of no off-street parking for an office use and this use is a one chair barber shop which is a less intensive use. Committee decided this was a reasonable request.

Staff Recommendation:
Vote to find that the number of off-street parking spaces provided will be adequate and appropriate for the proposed use of the property and to grant the conditional use permit as presented.

V. PUBLIC HEARINGS – NEW BUSINESS

G. The request of **Public Service CO of NH (Owner),** for the property located at **300 Gosling Road** requesting a Wetland Conditional Use approval according to section 10.1017 is requested for the replacement of 8 utility poles adjacent to Gosling Road. The project proposed temporary impact of 98,984 square feet in the wetland area and of 25,224 square feet in the wetland buffer. The proposal is to replace existing wooden structures with equivalent steel structures. Said property is shown on Assessor Map 214 Lot 3 and is located in the Office Research (OR) and Waterfront Industrial (WI) Districts. (LU-21-205)

Conservation Commission

This is a transmission pole replacement project with work throughout the Portsmouth transmission corridor between Gosling and Greenland Road. The Site crosses through residential, commercial, and rural properties, as well as three public roads including Gosling Road, Borthwick Avenue, and Greenland Avenue. Work in the right of way is proposed in upland shrublands and wetland emergent and scrub-shrub habitats. In total, the proposed project requires approximately 98,984 sq. ft. of temporary wetland impact for equipment access and work pad placement. The proposed project also proposes 25,224 sq. ft. of temporary buffer impact in uplands for access and work pad placement.

According to *Article 10 Section 10.1017.650* the applicant must satisfy the following conditions for approval of this utility project.

1. *The proposed project is in the public interest.* The project is necessary to support electricity demand in the region.

2. *Design, construction, and maintenance methods will utilize best management practices to minimize any detrimental impact of such use upon the wetland and will include restoration of the site as nearly as possible to its original grade condition and vegetated state.* The applicant has stated that the work will be conducted in accordance with NHDES Best Management Practices Manual for Utilities in and Adjacent to Wetlands and Waterbodies (March 2019). Prior to placement of timber mats the applicant has stated they will inspect the mats to insure cleanliness to prevent spread of invasive plants and upon completion of work once timber mats are removed the area will be stabilized with straw and restored using a native herbaceous seed mix.

3. *No alternative feasible route exists which does not cross or alter a wetland or have a less detrimental impact on a wetland.* The applicant has chosen the only routes available to access the replacement poles but the applicant has selected access designed to utilize existing historical access routes where possible to minimize impacts.

4. *Alterations of natural vegetation or managed woodland will occur only to the extent necessary to achieve construction goals.* Generally the vegetation is expected to return to its original configuration after the timber mats are removed. However, there will be some vegetation removed exactly where the structure replacement is proposed to occur.

Staff believes the applicant has provided a work plan which is best suited to the nature of the work required to maintain the utility lines in this corridor and recommends this application be approved as proposed.

Staff Recommendation

Vote to grant the Wetland Conditional Use Permit as presented.

V. PUBLIC HEARINGS – NEW BUSINESS

H. The request of **ADL 325 Little Harbor road Trust (Owner),** for the property located at **325 Little Harbor Road** requesting a Wetland Conditional Use Permit under section 10.1017. The applicant is proposing 81,865 square feet of disturbance in the tidal wetland buffer the disturbance includes replacement of an existing home with a new home with a footprint of 3,382 square feet, construction of a new garage 1,300 square feet, renovation of an existing guest cottage 1,217 square feet, construction of a pool cabana 368 square feet and replacement of an existing shed 384 square feet along with other impacts/improvements including utility connections, playground, drainage improvement and extensive landscape improvements (LU-21-189*)*

Conservation Commission

Conservation Commission Approved the application as presented on November 17th. The Commission had a site visit to this property on November 8th and the meeting was on November 10th where the project was approved. There was no staff memo for this application due to the timing of the site visit. Excerpt from Nov 10 minutes: Commission expressed support from the decrease of impervious surface from 26,000 square feet to 23,000 square feet as well as the decrease in lawn area from 120,000 down to 50,000 square feet. Support also expressed for improvements to stormwater treatment and the removal of the septic system by tying in to City sewer. General support seen for removal of invasive species on the site.

At the Wednesday November 10, 2021 Conservation Commission meeting, the commission voted to recommend approval to the Planning Board by a vote of 5-1.

Staff Recommendation:

Vote to grant the Wetland Conditional Use Permit as presented.

V. PUBLIC HEARINGS – NEW BUSINESS

I. The request of **The City of Portsmouth (Owner),** for property located at **0 Vaughan Street** requesting a Wetland Conditional Use Permit under section 10.1017 to restore a piece of property along the North Mill Pond into a City Park, Greenway and Living Shoreline project. The project as proposed includes restoration of 57,520 square feet of restoration work in the Wetland and Buffer with project impacts of 262 square feet in the wetland and 5,490 square feet of impact in the 100' wetland buffer. The project includes the removal of invasive plants, planting of native species to restore the vegetation on the site. The restoration work is proposed in the subtidal, intertidal, and tidal buffer portions of the site. Said property is shown on the Assessor Map 123 Lot 15 and lies within the Character District 4 (CD-4). (LU-21-187)

Project Description

This project was originally presented to the Conservation Commission at their October 13, 2021 meeting. The Commission voted to hold a work session for the project at their November 10, 2021 meeting to discuss potential improvements to the design. The plans provided address the improvements recommended by the Commission during the November Conservation Commission work session. The revisions included the reducing in size of the boardwalk, the removal of the 1’ gravel shoulders on either side of the bike/pedestrian path and protection of trees (including Norway Maples) larger than 6” in diameter where grading or path alignment does not create a conflict.

Conservation Commission

The Conservation Commission voted unanimously to approve this project with two stipulations:

1. The applicant shall incorporate “No Digging” signage into the site signage.

2. To prevent impacts by gees on the new plantings the applicant shall consider measures in the planting plan to work towards reducing the number of geese on site.

Staff Recommendation

Vote to grant the Wetland Conditional Use Permit with the following stipulations:

1. The applicant shall incorporate “No Digging” signage into the site signage.
2. The applicant shall consider measures in the planting plan to work towards reducing the number of geese on site.

VIII. Preliminary Conceptual Consultation

A. The request of **Port Harbor Land LLC**, for the property located at **2 Russell Street** requesting Preliminary Conceptual Site Consultation for a mixed use project consisting of office, retail/commercial, and residential uses in one 4-story and two 5-story buildings. The site is located between, Russell Street, Deer Street, Maplewood Avenue and the Railroad Corridor. Said property is located on Assessor Map 124-12 and lies within the Character District 5 (CD-5). (LUPD-21-10)

The applicant has provided a set of preliminary plans for discussion with the Board. See Section 2.4.2 of the Site Plan Review Regulations below for reference.

2.4.2 Preliminary Conceptual Consultation Phase

1. The applicant may request a meeting with the Planning Board to discuss a proposal in conceptual form. The preliminary conceptual consultation phase is mandatory for a site plan that meets any of the following criteria:

(a) Includes the construction of 30,000 square feet or more gross floor area;

(b) Includes the creation of 20 or more dwelling units;

(c) Includes the construction of more than one principal structure on a single parcel.

2. A request for preliminary conceptual consultation accompanied by all plans and exhibits shall be submitted to the Planning Department at least 14 days prior to the date of a scheduled meeting of the Board via the City's online permitting system and in hard copy. The total number of hard copies required shall be determined by the Planning Director.

3. Preliminary conceptual consultation may occur only at formal meetings of the Planning Board. However, such discussions shall not be the subject of a public hearing, and formal notice of abutters and the public shall not be required.

4. Preliminary conceptual consultation shall be directed at review of the basic concept of the proposal and suggestions that might be of assistance in resolving problems with meeting requirements during final consideration. The Board and the applicant may discuss proposals in conceptual form only and in general terms such as the desirability of the proposed development type, scale, intensity and layout under the Master Plan.

P-0595-007
November 24, 2021

Mr. Dexter Legg, Chair
City of Portsmouth Planning Board
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: Request for Site Review, & Conditional Use Permits
Proposed Mixed-Use Development, Raynes Avenue, Portsmouth, NH

Dear Chairman Legg:

On behalf of One Raynes Ave, LLC, 31 Raynes Ave, LLC & 203 Maplewood Ave, LLC (owners), and North Mill Pond Holdings, LLC (applicant), we are pleased to submit one (1) set of hard copies and one electronic file (.pdf) of the following information to support a request for a Site Review Permit, Conditional Use Permit for Shared Parking on Separate Lots, and a Wetland Conditional Use Permit for the above referenced project:

- One (1) 22x34 & one (1) 11x17 copy of the Site Plan Set, last revised October 20, 2021;
- TAC Stipulations Response Report, dated November 24, 2021;
- Drainage Analysis, last revised November 24, 2021;
- Long-Term Operation & Maintenance Plan, dated May 19, 2021;
- Grade Plane Exhibit, last revised November 24, 2021;
- Front Lot Line Buildout Exhibit, dated November 24, 2021;
- Colored Landscape Plan, last revised November 24, 2021;
- Landscape Precedent Images Plan, last revised November 24, 2021;
- Wetland and Buffer Report, last revised January 7, 2021;
- Wetland Buffer Impervious Surface Exhibit, last revised November 24, 2021;
- Community Space Exhibit, last revised November 24, 2021;
- Truck Turning Exhibit, last revised November 24, 2021;
- Traffic Impact Study, last revised August 2, 2021;
- Unitil Will Service Letter, dated February 22, 2021;
- Eversource Will Serve Letter, dated November 23, 2021;
- Green Building Statement, dated March 16, 2021;
- Site Review Checklist, last revised May 19, 2021;
- Parking Management Letter, dated May 20, 2021;
- Mitigation of Subsurface Environmental Conditions Memo by McPhail Associates, LLC, dated April 30, 2021;
- Conceptual Pier Plan, Sections & Details, July 21, 2021;
- Kayak Launch Rendering, dated April 24, 2021;
- Conservation Commission Staff Report, dated June 11, 2021;
- Conservation Commission Objection and Request for Reconsideration, dated June 22, 2021;
- Project Impacts Comparison Exhibit, dated November 24, 2021

PROJECT SUMMARY

Existing Conditions

The project is located at 1 Raynes Avenue, 31 Raynes Avenue & 203 Maplewood Avenue consisting of properties identified as Map 123 Lots 10, 12, 13 & 14. The existing parcels are bound by Raynes Avenue to south, Maplewood Avenue to the west, North Mill Pond to the north and the municipal land to the east, which is the future site of the North Mill Pond community park. The properties include 425+/- linear feet of tidal wetlands and buffers along the North Mill Pond. The limited functions and values of these areas are described in the enclosed Wetland and Buffer Report and Photograph Log.

The existing lots were found to have been highly disturbed and historically filled. Three existing buildings are located on the project properties including the former Cindy Ann Cleaners building, a vacant office building, and the Vanguard Gym. Each existing building includes paved parking areas and a maintained lawn area between the vacant office building and the Vanguard Gym. The northern portion of the site along the edge of North Mill Pond includes an old boat ramp, an old pier filled with sand and crushed stone, and culvert outlet and headwall. Much of the 100-foot tidal buffer is previously disturbed urban uplands consisting of maintained lawn, buildings and parking lots. There are some small patches of vegetation where the site abuts the Maplewood Ave bridge and north of the existing pier along the abutting parcel that is between the project site and future City park site. These pockets of vegetation are largely invasive species.

The properties in question include a portion of the City of Portsmouth's long planned improvements to the shoreline of the North Mill Pond, the concept of which has been a focus of the City's planning for years. It was included in the Portsmouth Bicycle and Pedestrian Plan in 2014 and the North End Vision Plan in 2015. Many of the stated goals set forth in the City's Master Plan in 2016 called for its creation. The Final Report on the North Mill Pond Greenway and Community Park was issued in 2019.

The Final Plan calls for "*a linear greenway and community park along the North Mill Pond which will create a new north-south pedestrian and bicycle connection from Bartlett Street to Market Street. This multi-use public path with civic amenities in envisioned to be constructed along the southeast shoreline of the pond, will include wetland restoration and pond edge stabilization and is anticipated and constructed through a series of public-private partnerships with private landowners.*"

Through a public process, the City of Portsmouth amended the City Zoning Ordinance in 2016 to create an overlay district specifically allowing the construction of taller buildings in the area as incentive for real estate developers to join in these important public private partnerships.

Proposed Redevelopment

The proposed project will include the construction of two (2) 5-story buildings. The first is a mixed-use residential building that has a first-floor residential lobby and two (2) commercial spaces, 32 upper floor residential units. The second is a hotel building with 124 rooms at the corner of Raynes Ave and Vaughan Street. The project includes associated site improvements that consist of screened parking management lift systems within the mixed-use building, surface parking, pedestrian and bicycle enhancements, emergency access, utilities, lighting, landscaping and stormwater management systems that provide treatment for runoff.

The existing condition of the development property does not provide any stormwater treatment. The proposed development will provide stormwater management improvements which are described in further detail in the enclosed Drainage Analysis. The following is a summary:

- Proposed treatment to runoff from the new buildings and surface parking will be provided via stormwater treatment units. In addition, underground detention systems have been incorporated into the design to address temperature of the runoff from the surface parking area. The underground detention systems will detain and slowly release runoff for a 24-hour draw down time in order regulate temperature of runoff before discharging it to the North Mill Pond. An additional benefit of the underground detention system is that it will also reduce peak rates of runoff to the North Mill Pond even though peak rate reduction is not required for direct discharges to tidal waters.
- A porous asphalt design has been incorporated into the stormwater design for North Mill Pond greenway trail at the direction of City staff. The path will be lined and underdrained as infiltration of stormwater is not permitted on this site per NHDES regulations.
- The existing stormwater runoff from the Vaughan Street neighborhood is conveyed through a culvert on the site discharging untreated to the North Mill Pond through the existing onsite outlet structure. The project will be replacing the existing drainage culvert on-site, as well as installing a Water Quality Unit, which will improve the water quality of the runoff from the City streets prior to discharging to North Mill Pond.

The proposed development will provide landscape improvements including an enhanced streetscape and plantings within the wetland buffer. The streetscape design includes a variety of vibrant site elements such as shade trees, foundation plantings, public benches, and retail spill out zones. Combined, these site features will create a friendly, safe pedestrian experience and connect users with first floor programs. The proposed wetland buffer and site plantings will enhance the ecological value of the upland edge and allow those on the multi-use path to connect with nature. The selected plant species will be coordinated to match the proposed planting plan of North Mill Pond Greenway and Community Park. A unified restoration approach along the pond will greatly enhance how the shoreline performs, encourage a healthy unified ecology, and create a local beautiful aesthetic. Along the head in parking will be a mix of hardy evergreens and deciduous trees and shrubs ranging in height and clustered in linear patterns to establish an organic edge. Where possible, landscape berms have been added to help buffer the seating niches and pedestrian recreational opportunities by the pond from the proposed building.

Open Space & Buffer Enhancement

The project is located in the North End incentive overlay district. The applicant will be providing 34,427 SF of community spaces, which will include 27,352 SF of Greenway Community Space located from the North Mill Pond mean high water line to the 50-foot wetland buffer setback. Providing this community space will contribute towards the City realizing a goal of the Master Plan to create public access along the North Mill pond with a multi-use trail. The applicant is also providing 2,920 SF of wide sidewalk community space and 4,155 SF of greenway connection community space as part of the project. The total Community Space is 31.2% of the development parcel exceeding the 20% required by the Zoning Ordinance to receive the incentive bonus for one additional story (10 ft) above the maximum height requirement. Overall, the project will be providing 35.0% open space on the development lot where only 10% is required by zoning.

Proposed work within the 100-foot Tidal Buffer and subject to conditional use approval includes demolition and construction activities. The 100-foot tidal buffer within the development area includes impervious parking surface, walkways and building and a maintained lawn area. The project will provide an overall improvement by reducing the impervious cover within the 100-foot tidal buffer. The impervious surface impacts from the design are shown in Table 1. In addition to the summary in Table 1 below, detailed calculations

of the impervious surfaces within the buffer for the existing and proposed condition are depicted in the enclosed Wetland Buffer Impervious Surface Exhibit.

The projects landscape plan proposes to replace existing maintained lawn with native grass mix and plant native trees in an effort to enhance the previously disturbed wetlands buffer. The work done by the proposed project within the 25-foot buffer to North Mill Pond is limited to the re-construction of the City's stormwater outlet.

Table 1. Raynes Avenue, Wetland Buffer Impervious Surfaces

Buffer Segment	Existing Impervious (SF)	Final Impervious (SF)
0-25 feet	848	0
25-50 feet	3,006	67
50-100 feet	24,473	21,190
Total	28,327	21,257
Net Impervious Surface	**-7,070**	

Section 10.1017.24 of the Zoning Ordinance which indicates "Where feasible, the application shall include removal of impervious surfaces at least equal in area to the area of impervious surface impact. The intent of this provision is that the project will not result in a net loss of pervious surface within a jurisdictional wetland buffer." As shown in Table 1, the proposed project exceeds this requirement by providing a 7,070 SF reduction in impervious surface. If the reserve parking spaces, described below, are not constructed in the future, the project will result in a 10,107 SF net impervious surface reduction in the buffer.

LAND-USE PERMIT APPLICATIONS

Local Permitting Timeline

The applicant is pleased to provide the enclosed information to support requests to the Planning Board to grant the following land-use permits:

- Site Plan Review
- Conditional Use Permit for Shared Parking on Separate Lots
- Wetland Conditional Use Permit

The enclosed information has been prepared and/or revised in response to comments and feedback received over the past 12 months from the Planning Board, Technical Advisory Committee (TAC), Conservation Commission and public comment during the local land-use permitting process. The following is a summary of meetings with the various land use-boards and public:

1. December 8, 2020 – Technical Advisory Committee Work Session
2. December 9, 2020 – Conservation Commission Work Session
3. December 17, 2020 – Planning Board Conceptual Consultation
4. March 25, 2021 – Planning Board Design Review
5. April 6, 2021 - Technical Advisory Committee Meeting

6. April 12, 2021 – Conservation Commission Site Walk
7. April 14, 2021 – Conservation Commission Regular Meeting
8. May 4, 2021 - Technical Advisory Committee Meeting
9. May 12, 2021 – Conservation Commission Regular Meeting
10. June 1, 2021 - Technical Advisory Committee Meeting
11. June 9, 2021 – Conservation Commission Regular Meeting
12. August 3, 2021 – Technical Advisory Committee Meeting
13. September 7, 2021 – Technical Advisory Committee Meeting
14. November 2, 2021 – Technical Advisory Committee Meeting

Response to Land-Use Board & Public Comments

As noted above, the last time the project was before the Planning Board was on March 25, 2021 for Preliminary Design Review. The following is summary of improvements to design made in response to feedback from the various land-use boards and public since that time:

- Reduced density of the residential building from 60 dwelling units to 32 dwelling units.
- Reduced density of the hotel building from 128 rooms to 124 rooms.
- Reduced surface parking on the lot from 111 to 59 spaces. This further reducing buffer impact and pulling the surface parking further from the North Mill Pond trail.
- Re-aligned the path by pulling it away from the North Mill Pond and out of the 25 vegetated foot buffer, except where the it connects to the kayak launch. In addition, the path has been designed as porous asphalt to provide stormwater treatment to runoff on the path.
- The pier and kayak launch are proposed as a public amenity that would be provided beyond the community space requirement the project is fulfilling with the North Mill Pond Greenway. At this time, design intent would be to replace the pier and kayak ramp in-kind. A Conceptual Pier Plan and Sections have been provided as part of this submission which show the design intent for the pier.
- Provided additional buffer enhancement measures with additional native plantings and groundcovers, incorporated invasive species removal measures and planted the 25-foot vegetated buffer along the North Mill Pond with a native seed mix that is only mowed periodically.
- Winter maintenance provisions have been added to the Operation and Maintenance (O&M) plan in response to feedback from the Conservation Commission. The O&M plan requires the applicant's snow removal operations to haul snow off-site site and legally disposed of it. The O&M plan also prohibits salt storage withing the 100' wetland buffer.

Site Plan Review Permit

The project will require a Site Plan Review Permit for the site improvements described above in the project summary. The project has previously been before the Planning Board for Conceptual Consultation and Preliminary Design Review. In addition, the project has been before the Technical Advisory Committee (TAC) seven (7) times. On November 2, 2021, TAC recommended to the Planning Board that a Site Plan Review Permit be granted with stipulations. Enclosed with this package is a Stipulation Report addressing each of the TAC stipulations of approval.

Conditional Use Permit for Shared Parking

Parking Demand Summary

A Conditional Use Permit for parking on a separate lot is requested for the project. For this project, off-street parking requirements were reviewed for the proposed multi-family and hotel uses using the City of Portsmouth Zoning Ordinance, Section 10.1115.20, Number of Required Off-Street Parking Spaces. For a 124-key hotel in the Downtown Overlay District (DOD), peak parking demand is 93 parking spaces. For residential use, Section 10.1115.21 requires that parking demand be calculated using Section 10.1112.30 of the Zoning Ordinance. For the proposed 32 dwelling unit multi-family use, peak parking demand was calculated based on the proposed unit sizes of over 750 SF, and results in 42 parking spaces. Section 10.1112.312 requires that one visitor parking space be provided for every five dwelling units for a total of 7 parking spaces. As allowed under Section 10.1115.23 of the Zoning Ordinance, the project is allowed to reduce the number of spaces calculated under Section 10.1115.21 by 4 parking spaces. Thus, based on the City of Portsmouth Zoning Ordinance, the total parking demand for the project is 138 spaces.

The total parking provided on the proposed site plan is 138 spaces. This includes 41 on-site surface parking spaces, 54 puzzle lift spaces, 25 shared parking spaces on a separate lot, and 18 future reserve parking spaces. The puzzle lift spaces are proposed to be used as valet spaces as part of the managed parking for both the residential and hotel uses with a valet parking operator that will operate and manage the parking 24/7/365. The puzzle lifts will be screened so that the puzzle systems will not be visible from Maplewood Avenue.

Shared Parking on Separate Lots

The applicant will have the ability to share private parking with the office building that was recently constructed across the street at 145 Maplewood Avenue. With the off-setting peaks of these complimenting uses, the applicant intends to enter into a shared parking agreement with 145 Maplewood Avenue LLC for the use of 25 parking spaces on the 145 Maplewood parcel. The hotel and residential uses on the development parcel are complimentary to the office use on the 145 Maplewood Parcel, a use that does not have a parking requirement in the DOD. With the 25 shared parking spaces, the project is providing a total of 138 parking spaces which meets the parking demand of 138 spaces.

Per Article 11 Section 10.1112.62 the shared parking arrangement shall be secured by a covenant acceptable to the City and recorded at the Rockingham County Registry of Deeds. The applicant understands that should the Planning Board grant the shared parking CUP, as a condition of approval the applicant will be required to record the agreement. The applicant the shared parking analysis with the Kane Company / 145 Maplewood LLC and they support the analysis and have committed to entering into a shared parking agreement to be secured with a covenant acceptable to the City and recorded at the RCRD.

The applicant will manage the parking for both the residential and hotel uses with a valet parking operator that will operate and manage the parking 24/7/365 onsite as well as on the separate lot to optimize the use of the available parking.

In addition to seeking the Conditional Use Permit for shared parking on separate lot, the applicant has explored creative parking solutions to achieve the City's parking requirements. The applicant has designed the mixed-use building parking layout such that 18 future reserved surface parking spaces can be constructed utilizing the proposed drive aisle layout and the proposed drainage system has been sized to account for the additional area. The future reserve parking spaces would provide an additional 18 parking spaces bringing the total number of on-site parking spaces to 113. These 113 on-site parking spaces and 25 shared spaces on a separate lot, brings the total parking provided to 138 spaces. The applicant

proposes to include these surface spaces as "reserve spaces" to not be built at this time, but that could be constructed in the future if the applicant deems that this additional parking is in fact needed to support the developments building program.

Conditional Use Permit of Wetland Buffer

Through the course of the land-use permitting process, the applicant has continued to be responsive to comments regarding buffer impact and concerns with density. The applicant has submitted four (4) versions of the Site Plan to the Conservation Commission for review from the Conceptual Site Plan reviewed at the December 2020 Work Session through the last Conservation Commission meeting on June 9, 2021. Additionally, since the project was last before the Conservation Commission, impacts to the buffer have been further reduced while addressing TAC comments.

The following includes a summary of four prior (4) iterations of the Site Plan previously submitted to the Conservation Commission and the latest enclosed package as it relates to improvement in the buffer and reduction in density.

Table 2 – Overall Project Buffer Impact Reduction

Submission Date	Existing Condition Buffer Impact (SF)	Overall Project Buffer Impact (SF)	Net Buffer Impact (SF)
12/1/2020	28,327	32,393	4,066
3/22/2021	28,327	24,595	(3,732)
4/28/2021	28,327	24,595	(3,732)
5/19/2021	28,327	24,527	(3,800)
11/22/2021	28,327	21,257	**(7,070)(1)**

(1) Total net reduction includes impervious surfaces for reserve parking spaces if constructed. If the reserve spaces are not constructed, total reduction of impervious surface will be 10,107 SF.

As depicted in Table 2, the applicant has continued to make a good faith effort to be responsive to comments from the local land-use boards and public by conceding allowed density and further improving buffer impact for the overall project that far exceeds the net zero requirements of Section 10.1017.24.

Based on the above described and enclosed materials, the following addresses how the proposed project warrants the granting of a Wetland Conditional Use Permit by satisfying the following six (6) criteria for approval in Section 10.1017.50 of the Zoning Ordinance:

(1) The land is reasonably suited to the use, activity or alteration.

The land is currently a previously disturbed site which consists of the former Cindy Ann Cleaners building, a vacant office building, the Vanguard Gym and parking lots and is suited for enhancement. Section 10.5A41.10D of the Zoning Ordinance defines the CD4 district as consisting "of medium-to-high density transitional area with a mix of building types and residential, retail and other commercial uses". The proposed project design is consistent with the descriptions of uses in these zoning districts. Additionally, the proposed project site consists of previously

disturbed tidal buffer area which has historically been used as a commercial area. The proposed project will result in impervious surface reduction in the buffer, buffer enhancement, and will provide public access along North Mill Pond which is a goal of the City's Master Plan.

(2) There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use, activity or alteration.

The placement of the proposed buildings and parking areas were done in a way to reduce the areas of impervious surface within the 25-, 50-, and 100-foot tidal buffers. The proposed project design reduces the impervious surface within the 25-, 50-, and 100' buffers and proposes to replace existing maintained lawn with native grass mix and plant native trees and shrubs.

(3) There will be no adverse impact on the wetland functional values of the site or surrounding properties;

There will be no adverse impact on the wetland functional values of the site as the existing condition is previously disturbed and consists of buildings, maintained lawn, parking area and minor scrub at the water's edge. There is no real functional wetland buffer area on the project site. The proposed project designs site and landscape plans enhance the previously disturbed tidal buffer area given the existing condition and provide added value by creating public open space for recreation along the North Mill Pond.

(4) Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals; and

The proposed project design proposes no alteration to any natural woodland or wetlands area. The area impacted consists of impervious surfaces and maintained lawn. Any temporary disturbances of the wetland buffer for re-construction of the stormwater outlet will be restored following construction.

(5) The proposal is the alternative with the least adverse impact to areas and environments under the jurisdiction of this Section.

The proposed project design is not an adverse impact to the site as it would enhance the buffer by reducing overall impervious surface on the site, improve water quality through stormwater treatment and provide public access to the North Mill Pond which is a goal of the City's master plan. Impervious surfaces have been reduced by eliminating buildings and parking within the 25-, 50-foot tidal buffers. The proposed project will reduce the impervious area within the 25, 50, and 100-foot tidal buffers.

(6) Any area within the vegetated buffer strip will be returned to a natural state to the extent feasible.

The proposed project design within the vegetated buffer strip is limited to the removal of impervious parking area, construction of the porous paved North Mill Pond greenway trail and the replacement of the existing stormwater outlet. The existing outlet conveys runoff from the Vaughan Street neighborhood as the property has no stormwater treatment measures. The proposed project will collect and treat the onsite impervious surfaces prior to discharging to North Mill Pond. Implementing these treatment measures will help improve the water quality in North Mill Pond. In order for this system to work, disturbances with the buffer strip are necessary. Areas temporarily disturbed for the construction of the outlet will be restored following construction. The landscape plan proposes replacing the

existing lawn within the 25' foot wetland buffer with a native grass mix, mown as required to keep the space open and avoid incursions of invasive species, and the addition of several native trees and shrubs on the water side of the path.

Conclusion

We trust the above described and enclosed materials address the criteria and requirements for the Planning Board to grant a Site Plan Review Permit, Conditional Use Permit for Shared Parking and Wetland Conditional Use Permit for the proposed project. The proposed project meets requirements of the Zoning Ordinance. The proposed project achieves the goals of City's Master Plan to provide public access along the North Mill Pond with a Greenway Community Space and to provide buffer enhancement.

In the past 12 months, the applicant has in good faith, continued to respond to feedback from the community and local land-use boards. As shown in the enclosed information, the latest proposal will provide additional housing stock for the City but will reduce density from earlier proposals, reduce buffer area impacts, improve stormwater management, enhance the North Mill Pond tidal wetland buffer, and provide public benefit in the form of open space along the North Mill Pond. Based on this, the applicant respectfully requests approval for the various land-use permits noted above.

We respectfully request to be placed on the Planning Board agenda for December 16, 2021. If you have any questions or need any additional information, please contact Patrick Crimmins by phone at (603) 988-8066 or by email at pmcrimmins@tighebond.com.

Sincerely,
TIGHE & BOND, INC.

Patrick M. Crimmins, PE
Senior Project Manager

Neil A. Hansen, PE
Project Engineer

Copy: North Mill Pond Holdings, LLC (via E-mail)

PROPOSED MIXED USE DEVELOPMENT

RAYNES AVENUE
PORTSMOUTH, NEW HAMPSHIRE

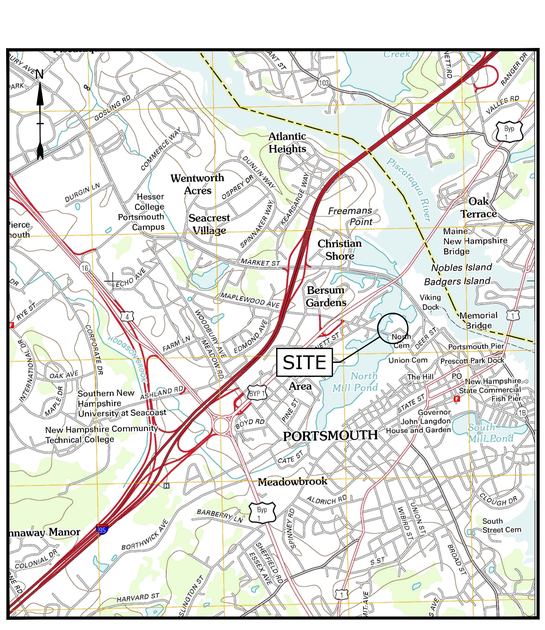
MARCH 22, 2021

LAST REVISED: NOVEMBER 24, 2021

LIST OF DRAWINGS		
SHEET NO.	SHEET TITLE	LAST REVISED
	COVER SHEET	11/24/2021
G-100	GENERAL NOTES AND LEGEND	11/24/2021
1 OF 3	EXISTING CONDITIONS PLAN	5/17/2021
2 OF 3	EXISTING CONDITIONS PLAN	5/17/2021
3 OF 3	EXISTING CONDITIONS PLAN	5/17/2021
C-101	DEMOLITION PLAN	11/24/2021
C-102	OVERALL SITE PLAN	11/24/2021
C-102.1	SITE PLAN	11/24/2021
C-102.2	NEIGHBORHOOD SIGNAGE PLAN	11/24/2021
C-103	GRADING, DRAINAGE AND EROSION CONTROL PLAN	11/24/2021
C-104	UTILITIES PLAN	11/24/2021
C-201	EASEMENT PLAN	11/24/2021
L-100	LANDSCAPE MATERIAL PLAN LEGEND AND NOTES	11/24/2021
L-101	LANDSCAPE PLANTING PLAN	11/24/2021
L-102	LANDSCAPE DETAILS	11/24/2021
C-501	EROSION CONTROL NOTES AND DETAILS SHEET	11/24/2021
C-502	DETAILS SHEET	11/24/2021
C-503	DETAILS SHEET	11/24/2021
C-504	DETAILS SHEET	11/24/2021
C-505	DETAILS SHEET	11/24/2021
C-506	DETAILS SHEET	11/24/2021
C-507	DETAILS SHEET	11/24/2021
C-508	DETAILS SHEET	11/24/2021
A3.00	EXTERIOR ELEVATIONS	11/24/2021
1 of 1	LIGHTING PLAN	4/21/2021

LIST OF PERMITS		
LOCAL	STATUS	DATE
SITE PLAN REVIEW PERMIT		
CONDITIONAL USE PERMIT- WETLAND BUFFER		
CONDITIONAL USE PERMIT- PARKING		
STATE		
NHDES - ALTERATION OF TERRAIN PERMIT		
NHDES - WETLAND PERMIT		
NHDES - SEWER CONNECTION PERMIT		

T & B PROJECT NO: P-0595-007



LOCATION MAP
SCALE: 1" = 2,000'

PREPARED BY:
Tighe&Bond
177 CORPORATE DRIVE
PORTSMOUTH, NEW HAMPSHIRE 03801
603-433-8818

APPLICANT:
NORTH MILL POND HOLDINGS LLC
1359 HOOKSETT ROAD
HOOKSETT, NEW HAMPSHIRE 03106

OWNERS:
TAX MAP 123, LOT 10 & 13
31 RAYNES LLC C/O
PORTSMOUTH CHEVROLET
549 ROUTE 1 BYPASS
PORTSMOUTH, NEW HAMPSHIRE 03801

TAX MAP 123, LOT 12
203 MAPLEWOOD AVENUE LLC
549 HIGHWAY 1 BYPASS
PORTSMOUTH, NH 03801

TAX MAP 123, LOT 14
ONE RAYNES AVE LLC
1359 HOOKSETT RD
HOOKSETT, NEW HAMPSHIRE 03106

SURVEYOR:
DOUCET SURVEY, LLC
102 KENT PLACE
NEWMARKET, NH 03857

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 09830 LICENSED PROFESSIONAL ENGINEER – 11/24/21

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER – 11/24/21

PB SUBMISSION
COMPLETE SET 25 SHEETS

Last Saved 10/19/2021
Plotted: Nov 24, 2021 - 1:09pm By: CKrzcuik
Tighe & Bond: J:\P\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings, Figures\AutoCAD\Sheet\P-0595-007_C-COVER.dwg

GENERAL NOTES:

1. THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK.
2. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
3. THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED LAND SURVEYOR TO DETERMINE ALL LINES AND GRADES.
4. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES. CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES AND COMPLY WITH THE CONDITIONS OF ALL OF THE PERMIT APPROVALS.
6. THE CONTRACTOR SHALL OBTAIN AND PAY FOR AND COMPLY WITH ADDITIONAL PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION.
7. THE CONTRACTOR SHALL PHASE DEMOLITION AND CONSTRUCTION AS REQUIRED TO PROVIDE CONTINUOUS SERVICE TO EXISTING BUSINESSES AND HOMES THROUGHOUT THE CONSTRUCTION PERIOD. EXISTING BUSINESS AND HOME SERVICES INCLUDE, BUT ARE NOT LIMITED TO ELECTRICAL, COMMUNICATION, FIRE PROTECTION, DOMESTIC WATER AND SEWER SERVICES. TEMPORARY SERVICES, IF REQUIRED, SHALL COMPLY WITH ALL FEDERAL, STATE, LOCAL AND UTILITY COMPANY STANDARDS. CONTRACTOR SHALL PROVIDE DETAILED CONSTRUCTION SCHEDULE TO OWNER PRIOR TO ANY DEMOLITION/CONSTRUCTION ACTIVITIES AND SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH THE UTILITY COMPANY AND AFFECTED ABUTTER.
8. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES & SPECIFICATIONS.
9. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
10. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
11. CONTRACTOR SHALL THOROUGHLY CLEAN ALL CATCH BASINS AND DRAIN LINES, WITHIN THE LIMIT OF WORK, OF SEDIMENT IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
12. SEE EXISTING CONDITIONS PLAN FOR BENCH MARK INFORMATION.
13. APPLICANT SHALL SUBMIT, AS PART OF THE FINAL POST APPROVAL PROCEDURES, RELEVANT PTAP INFORMATION USING THE MOST RECENT ONLINE DATA PORTAL CURRENTLY MANAGED BY THE UNH STORMWATER CENTER. THE PLANNING DEPARTMENT SHALL BE NOTIFIED AND COPIED OF THE PTAP DATA SUBMITTAL.

DEMOLITION NOTES:

1. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.
2. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES.
3. COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
4. ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO MATCH ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
5. SAW CUT AND REMOVE PAVEMENT ONE (1) FOOT OFF PROPOSED EDGE OF PAVEMENT OR EXISTING CURB LINE IN ALL AREAS WHERE PAVEMENT TO BE REMOVED ABUTS EXISTING PAVEMENT OR CONCRETE TO REMAIN.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK, EXCEPT FOR WORK NOTED TO BE COMPLETED BY OTHERS.
7. ALL UTILITIES SHALL BE TERMINATED AT THE MAIN LINE PER UTILITY COMPANY AND CITY OF PORTSMOUTH STANDARDS. THE CONTRACTOR SHALL REMOVE ALL ABANDONED UTILITIES LOCATED WITHIN THE LIMITS OF WORK UNLESS OTHERWISE NOTED.
8. CONTRACTOR SHALL VERIFY ORIGIN OF ALL DRAINS AND UTILITIES PRIOR TO REMOVAL/TERMINATION TO DETERMINE IF DRAINS OR UTILITY IS ACTIVE, AND SERVICES ANY ON OR OFF-SITE STRUCTURE TO REMAIN. THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY OF ANY SUCH UTILITY FOUND AND SHALL MAINTAIN THESE UTILITIES UNTIL PERMANENT SOLUTION IS IN PLACE.
9. PAVEMENT REMOVAL LIMITS ARE SHOWN FOR CONTRACTOR'S CONVENIENCE. ADDITIONAL PAVEMENT REMOVAL MAY BE REQUIRED DEPENDING ON THE CONTRACTOR'S OPERATION. CONTRACTOR TO VERIFY FULL LIMITS OF PAVEMENT REMOVAL PRIOR TO BID.
10. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, CONCRETE PADS, UTILITIES AND PAVEMENT WITHIN THE WORK LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ITEMS TO BE REMOVED INCLUDE BUT ARE NOT LIMITED TO: CONCRETE, PAVEMENT, CURBS, LIGHTING, MANHOLES, CATCH BASINS, UNDER GROUND PIPING, POLES, STAIRS, SIGNS, FENCES, RAMPS, WALLS, BOLLARDS, BUILDING SLABS, FOUNDATION, TREES AND LANDSCAPING.
11. REMOVE TREES AND BRUSH AS REQUIRED FOR COMPLETION OF WORK. CONTRACTOR SHALL GRUB AND REMOVE ALL STUMPS WITHIN LIMITS OF WORK AND DISPOSE OF OFF SITE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.
12. CONTRACTOR SHALL PROTECT ALL PROPERTY MONUMENTATION THROUGHOUT DEMOLITION AND CONSTRUCTION OPERATIONS. SHOULD ANY MONUMENTATION BE DISTURBED BY THE CONTRACTOR, THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED SURVEYOR TO REPLACE DISTURBED MONUMENTS.
13. PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS/CURB INLETS WITHIN CONSTRUCTION LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. INLET PROTECTION BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE "HIGH FLOW SILT SACK" BY ACF ENVIRONMENTAL OR EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN EVENT OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED OR SEDIMENT HAS ACCUMULATED TO 1/3 THE DESIGN DEPTH OF THE BARRIER.
14. THE CONTRACTOR SHALL PAY ALL COSTS NECESSARY FOR TEMPORARY PARTITIONING, BARRICADING, FENCING, SECURITY AND SAFETY DEVICES REQUIRED FOR THE MAINTENANCE OF A CLEAN AND SAFE CONSTRUCTION SITE.
15. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL UTILITIES TO BE REMOVED AND PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN.
16. THE CONTRACTOR SHALL REMOVE AND SALVAGE EXISTING GRANITE CURB FOR REUSE.
17. DEMOLITION OF DRAINAGE DOWNSTREAM OF DMH 4839 SHALL BE COORDINATED WITH THE CITY OF PORTSMOUTH AND SHALL BE DEMOLISHED BY THE CITY OF PORTSMOUTH.

SITE NOTES:

1. PAVEMENT MARKINGS SHALL BE INSTALLED AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, ADA SYMBOLS, PAINTED ISLANDS, FIRE LANES, CROSS WALKS, ARROWS, LEGENDS AND CENTERLINES. ALL MARKINGS EXCEPT CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING WHITE PAVEMENT MARKINGS. ALL THERMOPLASTIC PAVEMENT MARKINGS INCLUDING LEGENDS, ARROWS, CROSSWALKS AND STOP BARS SHALL MEET THE REQUIREMENTS OF AASHTO M249. ALL PAINTED PAVEMENT MARKINGS INCLUDING CENTERLINES, LANE LINES AND PAINTED MEDIANS SHALL MEET THE REQUIREMENTS OF AASHTO M248 TYPE "F".
2. ALL PAVEMENT MARKINGS AND SIGNS TO CONFORM TO "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS, LATEST EDITIONS.
3. SEE DETAILS FOR PAVEMENT MARKINGS, ADA SYMBOLS, SIGNS AND SIGN POSTS.
4. CENTERLINES SHALL BE FOUR (4) INCH WIDE YELLOW LINES.
5. PAINTED ISLANDS SHALL BE FOUR (4) INCH WIDE DIAGONAL LINES AT 3'-0" O.C. BORDERED BY FOUR (4) INCH WIDE LINES.
6. STOP BARS SHALL BE EIGHTEEN (18) INCHES WIDE, WHITE THERMOPLASTIC AND CONFORM TO CURRENT MUTCD STANDARDS.
7. THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED LAND SURVEYOR TO DETERMINE ALL LINES AND GRADES.
8. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAW CUT LINE WITH RS-1 EMULSION IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
9. CONTRACTOR TO PROVIDE BACKFILL AND COMPACTION AT CURB LINE AFTER CONCRETE FORMS FOR SIDEWALKS AND PADS HAVE BEEN STRIPPED. COORDINATE WITH BUILDING CONTRACTOR.
10. ALL LIGHT POLE BASES NOT PROTECTED BY A RAISED CURB SHALL BE PAINTED YELLOW.
11. COORDINATE ALL WORK ADJACENT TO BUILDING WITH BUILDING CONTRACTOR.
12. SEE ARCHITECTURAL/BUILDING DRAWINGS FOR ALL CONCRETE PADS & SIDEWALKS ADJACENT TO BUILDING.
13. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
14. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
15. THE APPLICANT SHALL HAVE A SITE SURVEY CONDUCTED BY A RADIO COMMUNICATIONS CARRIER APPROVED BY THE CITY'S COMMUNICATIONS DIVISION. THE RADIO COMMUNICATIONS CARRIER MUST BE FAMILIAR AND CONVERSANT WITH THE POLICE AND RADIO CONFIGURATION. IF THE SITE SURVEY INDICATES IT IS NECESSARY TO INSTALL A SIGNAL REPEATER EITHER ON OR NEAR THE PROPOSED PROJECT, THOSE COSTS SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER. THE OWNER SHALL COORDINATE WITH THE SUPERVISOR OF RADIO COMMUNICATIONS FOR THE CITY.
16. THE PROPOSED LOADING ZONE ON RAYNES AVE SHALL BE REVIEWED BY THE PARKING & TRAFFIC SAFETY COMMITTEE. ANY ADDITIONAL LOADING ZONES WILL REQUIRE THE APPROVAL OF THE PARKING & TRAFFIC SAFETY COMMITTEE.
17. RAYNES AVE LAYOUT DESIGNED AS PART OF THE CITY OF PORTSMOUTH'S COMPLETE STREETS IMPROVEMENT PROJECT THAT IS BEING DESIGNED BY THE CITY'S CONSULTANT.
18. ALL TREES PLANTED ARE TO BE INSTALLED UNDER THE SUPERVISION OF THE CITY OF PORTSMOUTH DPW USING STANDARD INSTALLATION METHODS.
19. THE APPLICANT SHALL PREPARE A CONSTRUCTION MANAGEMENT AND MITIGATION PLAN (CMMP) FOR REVIEW AND APPROVAL BY THE CITY'S LEGAL AND PLANNING DEPARTMENTS.
20. A TEMPORARY SUPPORT OF EXCAVATION (SOE) PLAN SHALL BE PREPARED BY THE APPLICANT'S CONTRACTOR TO CONFIRM ANY TEMPORARY ENCUMBRANCES OF THE CITY'S RIGHT-OF-WAY. IF LICENSES ARE REQUIRED FOR THE SOE, THE APPLICANT WILL BE REQUIRED TO OBTAIN THESE FROM THE CITY PRIOR TO CONSTRUCTION.
21. APPLICANT SHALL COMPLETE FINAL PAVING AND PAVEMENT STRIPING PER DPW REQUIREMENTS FOR THE ENTIRE WIDTH OF RAYNES AVENUE FROM VAUGHAN STREET TO MAPLEWOOD AVENUE.
22. THE PROPERTY MANAGER WILL BE RESPONSIBLE FOR TIMELY SNOW REMOVAL FROM ALL PRIVATE SIDEWALKS, DRIVEWAYS, AND PARKING AREAS. ALL SNOW REMOVAL WILL BE HAULED OFF-SITE AND LEGALLY DISPOSED OF.

GRADING AND DRAINAGE NOTES:

1. COMPACTION REQUIREMENTS:

BELOW PAVED OR CONCRETE AREAS	95%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL	95%
BELOW LOAM AND SEED AREAS	90%

* ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557, METHOD C FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM D-1556 OR ASTM-2922.

2. ALL STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE (HANCOR HI-Q, ADS N-12 OR EQUAL) UNLESS OTHERWISE SPECIFIED.
3. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
4. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE AND LAWN AREAS FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCES, EXITS, RAMPS AND LOADING DOCK AREAS ADJACENT TO THE BUILDING.
5. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED FERTILIZER AND MULCH.
6. ALL STORM DRAIN CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE NHDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST EDITION.
7. ALL PROPOSED CATCH BASINS SHALL BE EQUIPPED WITH OIL/GAS SEPARATOR HOODS AND 4' SUMPS.
10. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
11. FINAL DESIGN OF DRAINAGE DOWNSTREAM OF PDMH 9 AND DOWNSTREAM DEFENDER SHALL BE COORDINATED WITH THE CITY OF PORTSMOUTH AND SHALL BE CONSTRUCTED BY THE CITY OF PORTSMOUTH.
12. CHECK VALVES SHALL BE INSTALLED ON THE INLET PIPES FROM BOTH JELLYFISH FILTERS.

EROSION CONTROL NOTES:

1. SEE SHEET C-501 FOR GENERAL EROSION CONTROL NOTES AND DETAILS.

UTILITY NOTES:

2. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.
   - NATURAL GAS - UNITIL
   - WATER/SEWER - CITY OF PORTSMOUTH
   - ELECTRIC - EVERSOURCE
   - COMMUNICATIONS - COMCAST/CONSOLIDATED COMMUNICATIONS/FIRST LIGHT
2. ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, CEMENT LINED DUCTILE IRON PIPE.
3. ALL WATER MAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION PRIOR TO ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE CHLORINATION AND TESTING WITH THE CITY OF PORTSMOUTH WATER DEPARTMENT.
4. ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
9. CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ABUTTING PROPERTIES THROUGHOUT CONSTRUCTION.
10. CONNECTION TO EXISTING WATER MAIN SHALL BE CONSTRUCTED TO CITY OF PORTSMOUTH STANDARDS.
11. EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE DEPARTMENT OF PUBLIC WORKS STANDARDS FOR CAPPING OF WATER AND SEWER SERVICES.
12. ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
13. THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE BUILDING DRAWINGS AND THE APPLICABLE UTILITY COMPANIES.
14. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
15. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES, AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
16. CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES.
17. A 10-FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18-INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS.
18. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN
19. HYDRANTS, GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH.
20. COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF PORTSMOUTH.
21. ALL SEWER PIPE WITH LESS THAN 6' OF COVER IN PAVED AREAS OR LESS THAT 4' OF COVER IN UNPAVED AREAS SHALL BE INSULATED.
22. CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK INCLUDING BUT NOT LIMITED TO: CONDUIT CONSTRUCTION, MANHOLE CONSTRUCTION, UTILITY POLE CONSTRUCTION, OVERHEAD WIRE RELOCATION, AND TRANSFORMER CONSTRUCTION WITH POWER COMPANY.
23. SITE LIGHTING SPECIFICATIONS, CONDUIT LAYOUT AND CIRCUITRY FOR PROPOSED SITE LIGHTING AND SIGN ILLUMINATION SHALL BE PROVIDED BY THE PROJECT ELECTRICAL ENGINEER.
24. CONTRACTOR SHALL CONSTRUCT ALL UTILITIES AND DRAINS TO WITHIN 10' OF THE FOUNDATION WALLS AND CONNECT THESE TO SERVICE STUBS FROM THE BUILDING.
25. FINAL LOCATIONS OF ALL UTILITY LINES SHALL BE APPROVED BY THE CITY OF PORTSMOUTH DPW PRIOR TO CONSTRUCTION.
26. EXISTING SEWER LINE IN RAYNES AVENUE IS AC PIPE. CONTRACTOR SHALL TAKE PROPER PRECAUTIONS WHEN CUTTING INTO EXISTING PIPE.
27. THE APPLICANT SHALL COORDINATE WITH THE CITY OF PORTSMOUTH DPW ON THE FINAL SCOPE OF WORK FOR THE REPAIR OR REPLACEMENT OF THE RAYNES AVENUE WATER MAIN.
28. CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION, PARTICULARLY WATER MAIN AND GAS MAIN CONSTRUCTION AS TO MAINTAIN CONTINUOUS SERVICE TO ABUTTING PROPERTIES. CONTRACTOR SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH THE UTILITY COMPANY AND AFFECTED ABUTTER.
29. CONTRACTOR SHALL PERFORM TEST PITS TO VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION AND SHALL NOTIFY ENGINEER IF LOCATIONS DIFFER FROM PLAN.

LANDSCAPE NOTES:

1. SEE SHEET L-100 FOR LANDSCAPE NOTES.

EXISTING CONDITIONS PLAN NOTES:

1. EXISTING CONDITIONS ARE BASED ON A FIELD SURVEY PERFORMED BY DOUCET SURVEY INC. SEE REFERENCE PLAN #1.
2. FLOOD HAZARD ZONE BASED ON REFERENCE PLAN #1.
3. HORIZONTAL DATUM BASED ON REFERENCE PLAN #2.
4. VERTICAL DATUM BASED ON REFERENCE PLAN #1.

REFERENCE PLANS:

1. ""EXISTING CONDITIONS PLAN OF TAX MAP 123, LOT 10, 12, 13 & 14" PREPARED BY DOUCET SURVEY INC., DATED JUNE 17, 2020.
2. "SITE PLAN PLAN FOR 111 MAPLEWOOD AVENUE" PREPARED BY TIGHE & BOND INC., DATED MARCH 18, 2019, LAST REVISED NOVEMBER 21, 2019.
3. "EXISTING CONDITIONS PLAN OF TAX MAP 123, LOT 15 & TAX MAP 124, LOTS 10 & 11" PREPARED BY DOUCET SURVEY INC., DATED FEBRUARY 3, 2016.
4. "UTILITIES PLAN" AC HOTEL AND COMMUNITY SPACE, PREPARED BY TIGHE & BOND INC., DATED JULY 23, 2018
5. "DISPOSITION PLAN PARCEL 3" DATED 6/73 BY ANDERSON-NICHOLS & CO., INC., R.C.R.D. PLAN #D-4019.
6. "PLAN OF LAND, VAUGHAN AND GREEN STREETS, PORTSMOUTH NH" DATED JULY 1955 BY JOHN W. DURGIN R.C.R.D. PLAN #02541.
7. "SEVERINO TRUCKING CO., INC. ELECTRIC DUCT BANK LOCATION PLAN" DATED MARCH 25, 2014.
8. "EXISTING FEATURES PLAN, TAX MAP 118 - LOT 28, TAX MAP 119 - LOT 4, TAX MAP 124 - LOT 12 & TAX MAP 125 LOT 21" DATED NOVEMBER 27, 2013, REVISED 1/16/15 BY MSC CIVIL ENGINEERS & LAND SURVEYORS, INC.
9. "FIGURE 1 AREA OF INVESTIGATION WITH EMI", 111 MAPLEWOOD AVENUE, DATED JULY 2019, PREPARED BY RADAR SOLUTIONS INTERNATIONAL, INC.
10. "VAUGN ST. BNDER ELEVATIONS AS BUILT DRAWING" BY S.U.R. CONSTRUCTION, INC. DATED 8/12/2019.
11. COMPLETE STREETS CONCEPTUAL DESIGN BY SEBAGO TECHNICS. DATED 05/31/2019.

ABBREVIATIONS

TBR	TO BE REMOVED
BLDG	BUILDING
TYP	TYPICAL
COORD	COORDINATE
30'R	CURB RADIUS
SWL	SOLID WHITE LINE
VGC	VERTICAL GRANITE CURB
SGC	SLOPED GRANITE CURB
MVGC	MOUNTABLE VERTICAL GRANITE CURB
TC	TOP OF CURB
BC	BOTTOM OF CURB
TW	TOP OF WALL
BW	BOTTOM OF WALL
TS	TOP OF STEP
BS	BOTTOM OF STEP
HDPE	HIGH-DENSITY POLYETHYLENE
FF	FINISH FLOOR
VIF	VERIFY IN FIELD

LEGEND

- APPROXIMATE LIMIT OF PROPOSED SAW CUT
- LIMIT OF WORK
- PROPOSED SILT SOCK
- APPROXIMATE LIMIT OF PAVEMENT TO BE REMOVED
- PROPOSED CONSTRUCTION EXIT
- BUILDING TO BE REMOVED
- LOCATION OF PROPOSED BUILDING
- INLET PROTECTION SILT SACK
- PROPERTY LINE
- PROPOSED PROPERTY LINE
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB
- PROPOSED BUILDING
- PROPOSED PAVEMENT SECTION
- PROPOSED CONCRETE SIDEWALK
- PROPOSED BRICK SIDEWALK
- PROPOSED BOLLARD
- PROPOSED MAJOR CONTOUR LINE (10)
- PROPOSED MINOR CONTOUR LINE (9)
- PROPOSED DRAIN LINE (TYP)
- PROPOSED SILT SOCK
- INLET PROTECTION SILT SACK
- PROPOSED CATCHBASIN
- PROPOSED DOUBLE GRATE CATCHBASIN
- PROPOSED DRAIN MANHOLE
- PROPOSED YARD DRAIN
- EXISTING STORM DRAIN
- EXISTING SANITARY SEWER (SS)
- EXISTING SANITARY SEWER TO BE REMOVED (SS)
- EXISTING UNDERGROUND TELECOMMUNICATION (T)
- EXISTING WATER (W)
- EXISTING GAS (G)
- EXISTING UNDERGROUND ELECTRIC (E)
- EXISTING OVERHEAD UTILITY (OHW)
- PROPOSED SANITARY SEWER (SS)
- PROPOSED WATER (PW)
- PROPOSED GAS (PG)
- PROPOSED UNDERGROUND ELECTRIC (PE)
- PROPOSED UNDERGROUND TELECOMMUNICATION (COM)
- PROPOSED UNDERGROUND COMBINED ELECTRIC & TELECOMMUNICATION (PE&C)
- EXISTING CATCHBASIN
- EXISTING DRAIN MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING ELECTRIC MANHOLE
- EXISTING TELEPHONE MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED DRAIN MANHOLE
- PROPOSED SEWER MANHOLE
- PROPOSED WATER VALVE
- PROPOSED HYDRANT
- PROPOSED GAS VALVE
- PROPOSED ELECTRIC MANHOLE
- PROPOSED LIGHT POLE BASE

Tighe&Bond

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 – LICENSED PROFESSIONAL ENGINEER – 11/24/21

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 – LICENSED PROFESSIONAL ENGINEER – 11/24/21

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
K	11/24/2021	PB Submission
J	10/20/2021	TAC Resubmission
I	8/23/2021	TAC Resubmission
H	7/21/2021	TAC Resubmission
G	5/26/2021	CC Resubmission
F	5/19/2021	TAC Resubmission
E	4/28/2021	CC Resubmission
D	4/21/2021	TAC Resubmission
C	3/22/2021	TAC Submission
B	3/10/2021	Design Review Resubmission
A	12/1/2020	TAC Work Session

PROJECT NO:	P-0595-007
DATE:	December 22, 2020
FILE:	P-0595-007-C-DSGN.DWG
DRAWN BY:	CJK
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

GENERAL NOTES AND LEGEND

SCALE: AS SHOWN

G-100

Last Saved: 11/18/2021
Plotted: Nov 19, 2021-1:15pm By: CKrzcuik
Tighe & Bond: J:\P\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings_Figures\AutoCAD\Sheet\P-0595-007-C-DSGN.dwg

NOTES:

1. REFERENCE: TAX MAP 123, LOT 10
TAX MAP 123, LOT 12
TAX MAP 123, LOT 13
TAX MAP 123, LOT 14
RAYNES AVENUE &
MAPLEWOOD AVENUE
PORTSMOUTH, NEW HAMPSHIRE
D.S. PROJECT NO. 6082

2. TOTAL PARCEL AREA: 71,149 SQ. FT. OR 1.633 AC. (COMBINED LOTS 10, 12 & 13)
39,459 SQ. FT. OR 0.906 AC. (LOT 14)

3. OWNER OF RECORD:
TAX MAP 123, LOTS 10 & 13
31 RAYNES LLC
C/O PORTSMOUTH CHEVROLET
549 ROUTE 1 BYPASS
PORTSMOUTH, NH 03801
R.C.R.D. BOOK 4676, PAGE 654
R.C.R.D. BOOK 4676, PAGE 657

TAX MAP 123 LOT 12
203 MAPLEWOOD AVENUE LLC
C/O PORTSMOUTH CHEVROLET
549 ROUTE 1 BYPASS
PORTSMOUTH, NH 03801
R.C.R.D. BOOK 5621, PAGE 420

TAX MAP 123, LOT 14
ONE RAYNES AVENUE LLC
1359 HOOKSETT ROAD
HOOKSETT, NH 03106
R.C.R.D. BOOK 6088, PAGE 1268

4. ZONE: CD4 OVERLAY DISTRICTS
-DOWNTOWN OVERLAY DISTRICT
-HISTORIC DISTRCIT

5. ZONING DISTRICTS BASED ON THE CITY OF PORTSMOUTH ZONING MAP DATED 11/12/15 AS AVAILABLE ON THE CITY WEBSITE ON 11/18/19. SEE CITY OF PORTSMOUTH ZONING ORDINANCE ARTICLE 5A, SECTION 10.5A40 FOR DIMENSIONAL REGULATIONS. THE LAND OWNER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE MUNICIPAL, STATE AND FEDERAL REGULATIONS.

THE SITE IS SUBJECT TO THE STATE OF NH SHORELAND WATER QUALITY PROTECTION ACT. SEE NHDES WEBSITE FOR SPECIFIC DIMENSIONAL REQUIREMENT.

6. FIELD SURVEY PERFORMED BY D.C.B. & K.J.L. DURING NOVEMBER 2019 & BY G.M.E. & J.P.E. DURING JUNE 2020 USING A TRIMBLE S7 TOTAL STATION AND A TRIMBLE R8 SURVEY GRADE GPS WITH A TRIMBLE TSC3 DATA COLLECTOR AND A TRIMBLE DINI DIGITAL LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.

FIELD SURVEY PERFORMED BY M.J.C. ON OCTOBER 2019 USING A LEICA HDS SCANNER. REGISTRATION ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.

7. JURISDICTIONAL WETLANDS DELINEATED BY TIGHE & BOND, DURING OCTOBER 2019 IN ACCORDANCE WITH 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1 AND THE INTERIM REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTH CENTRAL AND NORTHEAST REGION (OCTOBER, 2009).

8. VERTICAL DATUM IS BASED ON NGVD29 PER DISK B2 1923.

9. HORIZONTAL DATUM BASED ON NEW HAMPSHIRE STATE PLANE(2800) NAD83(2011) DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.

10. PROPER FIELD PROCEDURES WERE FOLLOWED IN ORDER TO GENERATE CONTOURS AT 2' INTERVALS. ANY MODIFICATION OF THIS INTERVAL WILL DIMINISH THE INTEGRITY OF THE DATA, AND DOUCET SURVEY, INC. WILL NOT BE RESPONSIBLE FOR ANY SUCH ALTERATION PERFORMED BY THE USER.

11. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON OBSERVABLE PHYSICAL EVIDENCE AND PAINT MARKS FOUND ON-SITE.

12. THE ACCURACY OF MEASURED UTILITY INVERTS AND PIPE SIZES/TYPES IS SUBJECT TO NUMEROUS FIELD CONDITIONS, INCLUDING; THE ABILITY TO MAKE VISUAL OBSERVATIONS, DIRECT ACCESS TO THE VARIOUS ELEMENTS, MANHOLE CONFIGURATION, ETC.

13. WATER BOUNDARIES ARE DYNAMIC IN NATURE AND ARE SUBJECT TO CHANGE DUE TO NATURAL CAUSES SUCH AS EROSION OR ACCRETION.

14. MEAN HIGH WATER (EL. 3.0' NGVD1929) AND HIGHEST OBSERVABLE TIDE (EL. 4.3' NGVD1929) ELEVATIONS PER "MAPLEWOOD AVENUE CULVERT REPLACEMENT AND NORTH MILL POND RESTORATION, WATERFRONT/STRUCTURAL BASIS OF DESIGN, BY WATERFRONT ENGINEERS, LLC, DATED DECEMBER 30, 2009", PROVIDED BY TIGHE & BOND ON 11-30-15.

15. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH AND IN RELATION TO THE CURRENT LEGAL DESCRIPTION, AND IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP, OR DEFINE THE LIMITS OF TITLE.

16. DUE TO THE COMPLEXITY OF RESEARCHING ROAD RECORDS AS A RESULT OF INCOMPLETE, UNORGANIZED, INCONCLUSIVE, OBLITERATED, OR LOST DOCUMENTS, THERE IS AN INHERENT UNCERTAINTY INVOLVED WHEN ATTEMPTING TO DETERMINE THE LOCATION AND WIDTH OF A ROADWAY RIGHT OF WAY. THE EXTENT OF GREEN STREET AS DEPICTED HEREON IS/ARE BASED ON RESEARCH CONDUCTED AT THE CITY OF PORTSMOUTH CITY HALL, THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS & THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

EDGE OF RIGHT OF WAY BASED ON HOLDING 52 FOOT WIDE RIGHT OF WAY ALONG RAYNES AVENUE PER REFERENCE PLANS #10 & #11. THE GEOMETRY FROM REFERENCE PLAN #11 WAS THEN ALIGNED TO THE REBAR SHOWN ON THE NORTHERLY SIDE OF MAPLEWOOD AVENUE.

17. ALL UNDERGROUND UTILITIES (ELECTRIC, GAS, TEL. WATER, SEWER DRAIN SERVICES) ARE SHOWN IN SCHEMATIC FASHION, THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATIONS FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE AT 1-888-DIG-SAFE.

18. TAX MAP 123, LOTS 10, 12, 13 & 14 IS/ARE EITHER SUBJECT TO OR IN BENEFIT OF, BUT NOT LIMITED TO, THE FOLLOWING EASEMENTS/RIGHTS OF RECORD:
A) 12' WIDE RIGHT OF WAY, SEE R.C.R.D. BOOK 4676, PAGE 657 AND REFERENCE PLAN #11.
B) RIGHT OF WAY, SEE R.C.R.D. BOOK 4676, PAGE 657 & BOOK 5621, PAGE 420.
C) SEWER RIGHTS, SEE R.C.R.D. BOOK 4676, PAGE 657 (LOCATION UNKNOWN).
D) 15' WIDE WALKWAY & LANDSCAPE EASEMENT, SEE R.C.R.D. BOOK 4676, PAGE 657.
E) ELECTRIC EASEMENT, SEE R.C.R.D. BOOK 3205, PAGE 1449.
F) TAX MAP 123, LOT 14 IS SUBJECT TO LEASEHOLD RIGHTS AS LISTED IN R.C.R.D. BOOK 6088, PAGE 1267.

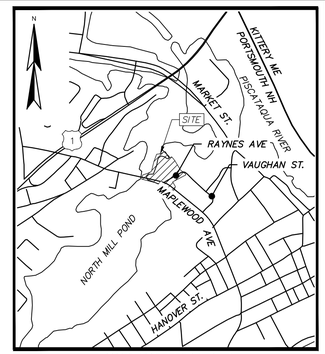
REFERENCE PLANS:

1. "STANDARD BOUNDARY SURVEY, TAX MAP 123 – LOT 15 & TAX MAP 124 LOT 10" DATED JULY 2008, REVISED 4/25/13 BY AMBIT ENGINEERING, INC. R.C.R.D. PLAN #D-37722.
2. "PROPERTY STAKEOUT SKETCH, PORTSMOUTH PROPERTY TRUST, PE SPAULDING REVOCABLE TRUST", BY AMBIT ENGINEERING, INC., DATED JANUARY 30, 2007, NOT RECORDED.
3. "VAUGHAN STREET URBAN RENEWAL PROJECT N.H. R-10 PORTSMOUTH, NH, CONDEMNATION MAP", BY ANDERSON-NICHOLS & CO., INC., DATED FEBRUARY 1971, R.C.R.D. PLAN D-2425.
4. "STANDARD BOUNDARY SURVEY, TAX MAP 123, LOTS 10 & 13 FOR RAYNES, LLC", BY AMBIT ENGINEERING, INC., NOT RECORDED.
5. "EASEMENT PLAN, EGRESS EASEMENT TO 319 VAUGHAN STREET CENTER, LLC, TAX MAP 124, LOT 9 & TAX MAP 123, LOT 15, PROPERTY OF 299 VAUGHAN STREET, LLC C/O CATHARTES PRIVATE INVESTMENTS", BY AMBIT ENGINEERING, INC., DATED MARCH 2014, R.C.R.D. PLAN #D-38358.
6. "EASEMENT PLAN SIDEWALK EASEMENT TO CITY OF PORTSMOUTH, TAX MAP 124, LOT 9 PROPERTY OF 319 VAUGHAN STREET CENTER, LLC", BY AMBIT ENGINEERING, INC., DATED FEBRUARY 2014, R.C.R.D. PLAN #D-38315.
7. "PLAN OF LAND PORTSMOUTH, NH FOR WILLIAM A. HYDER", BY JOHN W. DURGIN, DATED JUNE 1955, ON FILE AT JAMES VERRA & ASSOCIATES.
8. "STANDARD PROPERTY SURVEY FOR PROPERTY AT 111 MAPLEWOOD AVENUE", BY EASTERLY SURVEYING, INC., DATED 1/31/06, R.C.R.D. PLAN #D-33786.
9. "VAUGHAN STREET URBAN RENEWAL PROJECT N.H. R-10 PORTSMOUTH, NH, DISPOSITION PLAN PARCEL 3", BY ANDERSON-NICHOLS & CO., INC., DATED JUNE 1973, R.C.R.D. PLAN D-4019.
10. "VAUGHAN STREET URBAN RENEWAL PROJECT N.H. R-10 PORTSMOUTH, NH, DISPOSITION MAP", BY ANDERSON-NICHOLS & CO., INC., DATED NOVEMBER 1969, R.C.R.D. PLAN D-2408
11. "LAND OF HEIRS OF JOHN AUGUST HETT", BY JOHN W. DURGIN, DATED APRIL 1938, ON FILE AT JAMES VERRA AND ASSOCIATES.
12. "LAND IN PORTSMOUTH, NH OWNED BY ARMOUR & CO.", BY JOHN W. DURGIN DATED OCTOBER 1938, ON FILE AT JAMES VERRA AND ASSOCIATES.
13. "LAND ON VAUGHAN STREET PORTSMOUTH, NH ESTATE OF CARRIE HAM TO LAWRENCE V. REGAN", BY JOHN W. DURGIN, DATED AUGUST 1937, ON FILE AT JAMES VERRA AND ASSOCIATES.
14. "SKETCH TO RALPH SPINNEY", DATED APRIL 23, 1936, ON FILE AT JAMES VERRA AND ASSOCAIATES.
15. "PLOT PLAN OF LAND PORTSMOUTH, NH FOR JOHN R. AND WINNFIELD R. WELCH", BY JOHN W. DURGIN., DATED APRIL 1973, ON FILE AT JAMES VERRA AND ASSOCIATES.
16. "PLAN OF PROPERTY IN PORTSMOUTH, NH OWNED BY R.I. SUGDEN", BY WM A. GROVER, DATED APRIL 15, 1919, ON FILE AT JAMES VERRA AND ASSOCIATES.
17. "PLAN OF LAND PORTSMOUTH, NH FOR WILLIAM A. HYDER", BY JOHN W. DURGIN, DATED JUNE 1955, ON FILE AT JAMES VERRA AND ASSOCIATES.
18. "PROPERTY OF ELDRED V. AND BARBARA J. STRAW", BY C.RE. LAWSON, DATED JUNE 1971, R.C.R.D. PLAN C-3277.
19. "SUBDIVISION PLAN OF TAX MAP 123, LOT 15 FOR 299 VAUGHAN STREET, LLC", BY DOUCET SURVEY, INC., DATED MAY 19, 2017, R.C.R.D. PLAN D-40759.
20. "LICENSE, EASEMENT & LAND TRANSFER PLAN FOR 299 VAUGHAN STREET, LLC & VAUGHAN STREET HOTEL, LLC", BY DOUCET SURVEY INC., DATED AUGUST 2017, R.C.R.D. PLAN D-40760.

LEGEND

- APPROXIMATE ABUTTERS LOT LINE
- CHAIN LINK FENCE
- SEWER LINE
- DRAIN LINE
- GAS LINE
- UNDERGROUND ELECTRIC LINE
- MAJOR CONTOUR LINE
- MINOR CONTOUR LINE
- OVERHEAD WIRE
- TREE LINE
- SHRUB LINE
- GUARDRAIL
- EDGE OF WETLAND AREA (SEE NOTE #7)
- CONCRETE
- RIP RAP
- LANDSCAPED AREA
- UTILITY POLE & GUY WIRE
- LIGHT POLE W/ARM
- SIGN
- BOUND FOUND
- IRON PIPE/ROD FOUND
- POST
- FIRE HYDRANT
- WATER GATE VALVE
- WATER SHUTOFF VALVE
- GAS GATE VALVE
- PAD MOUNTED TRANSFORMER
- AIR CONDITIONING UNIT
- CATCH BASIN
- DRAIN MANHOLE
- MANHOLE
- ELECTRIC MANHOLE
- SEWER MANHOLE
- HAND HOLE
- CONIFEROUS TREE
- DECIDUOUS TREE
- MONITORING WELL LOCATION
- ROCK/BOULDER
- ×100.0 SPOT GRADE
- BND. FND. BOUND FOUND
- CONC. CONCRETE
- EP EDGE OF PAVEMENT
- VCG VERTICAL GRANITE CURB
- VCC VERTICAL CONCRETE CURB
- SWL SINGLE WHITE LINE
- EM ELECTRIC METER
- GM GAS METER
- PM PARKING METER
- 5/8" REBAR W/ID CAP TO BE SET

DRAINAGE STRUCTURES			SEWER STRUCTURES	
DMH 1096	CB 4243	DMH 4827	SMH 4242	SMH 4831
RIM ELEV.=8.2'	RIM ELEV.=12.9'	RIM ELEV.=10.4'	RIM ELEV.=13.4'	RIM ELEV.=18.2'
OUTSIDE OF SCOPE	(4241) 12" CLAY INV.=10.1'	(4046) 24" DIP INV.=2.7' (RECESSED)	(4276) 12" DIP INV.=5.1'	(A) 8" CLAY INV.=12.4'
		(A) 18" RCP INV.=2.4'	(4830) 12" DIP INV.=5.1'	(B) 10" PVC INV.=10.2'
DMH 1099	CB 4270	(OUTLET NOT FOUND)		(4271) 24" DIP INV.=2.7'
RIM ELEV.=8.2'	RIM ELEV.=11.7'	(B) 18" RCP INV.=2.3'	SMH 4271	(C) 24" DIP INV.=2.6'
OUTSIDE OF SCOPE	(A) 10" CLAY INV.=8'	(C) 12" RCP INV.=6.2'	RIM ELEV.=13.2'	
	SUMP ELEV.=6.9'		(A) 12" CLAY TOP OF PIPE=7.2'	SMH 5419
MH 4046		DMH 4829	(4411) 24" CLAY INV.=3.0'	RIM ELEV.=10.7'
RIM ELEV.=11.8'	DMH 4275	RIM ELEV.=15.8'	(4831) 24" CLAY INV.=3.0'	(4276) 10" PVC INV.=4.2'
(4275) 12" UNKN INV.=3.2'	RIM ELEV.=13.4'	(A) 12" CLAY INV.=12'		(A) 12" PVC INV.=3.7'
(4827) 24" DIP INV.=2.5'	(4099) 12" CLAY INV.=10.9'	(B) 12" CLAY INV.=11.9'	SMH 4276	
(4839) 24" DIP INV.=2.3'	(4408) 12" CLAY INV.=9.7'	(C) UNKN INV.=9.2'	RIM ELEV.=13.3'	
	(4046) 12" CLAY INV.=5.6'	(4241) UNKN INV.=9.2'	(5419) 10" PVC INV.=5.5'	
CB 4099	(4241) 12" CLAY INV.=0.5'		(4242) 10" CLAY INV.=4.9'	
RIM ELEV.=13.3'		DMH 4839		
(4275) 12" RCP INV.=11.1'	MH 4290	RIM ELEV.=9.8'	SMH 4411	
SUMP ELEV.=10.3'	RIM ELEV.=13.8'	(4046) 24" RCP INV.=1.8'	RIM ELEV.=12.0'	
	NOT OPENED	(4840) 24" RCP INV.=1.7'	(4412) 24" CLAY INV.=3.5'	
CB 4237			(4271) 24" CLAY INV.=3.5'	
RIM ELEV.=12.9'	CB 4408	DMH 4840		
(4241) 12" CLAY INV.=10.1'	RIM ELEV.=12.6'	RIM ELEV.=9.4'	SMH 4412	
SUMP ELEV.=9.3'	(4275) 12" RCP INV.=10.0'	(4839) 24" RCP INV.=1.6'	RIM ELEV.=12.0'	
	SUMP ELEV.=9.5'	(OUTFALL) 24" RCP INV.=1.6'	NOT OPENED	
DMH 4241				
RIM ELEV.=13.3'	CB 4410	CB 5564	SMH 4830	
(4243) 12" CLAY INV.=9.8'	RIM ELEV.=11.6'	RIM ELEV.=10.1'	RIM ELEV.=18.2'	
(4237) 12" CLAY INV.=9.5'	(4270) 10" CLAY INV.=6.8'	(A) 12" RCP INV.=6.3'	(A) 12" DIP INV.=10.4'	
(4275) 12" CLAY INV.=7.0'	SUMP ELEV.=6.1'		(4242) 12" DIP INV.=10.2'	
(4829) 12" CLAY INV.=7.0'				



LOCATION MAP (n.t.s.)

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE (NHRSA TITLE LXIV) AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN. I CERTIFY THAT THIS SURVEY AND PLAN WERE PREPARED BY ME OR BY THOSE UNDER MY DIRECT SUPERVISION AND FALLS UNDER THE URBAN SURVEY CLASSIFICATION OF THE NH CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS. I CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. RANDOM TRAVERSE SURVEY BY TOTAL STATION, WITH A PRECISION GREATER THAN 1:15,000.

L.L.S. #989

5/17/21
DATE

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20 0 20 40
SCALE: 1 INCH = 20 FT.

EXISTING CONDITIONS PLAN

FOR
TIGHE & BOND
LAND OF
31 RAYNES LLC
(TAX MAP 123, LOTS 10 & 13)
203 MAPLEWOOD AVENUE LLC
(TAX MAP 123, LOT 12)
&
ONE RAYNES AVENUE LLC
(TAX MAP 123, LOT 14)
MAPLEWOOD AVENUE & RAYNES AVENUE
PORTSMOUTH, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY

DRAWN BY:	E.D.P.	DATE:	JUNE 17, 2020
CHECKED BY:	M.W.F.	DRAWING NO.	6082B
JOB NO.	6082	SHEET	1 OF 3

DOUCET SURVEY LLC
Serving Your Professional Surveying & Mapping Needs
102 Kent Place, Newmarket, NH 03857 (603) 659-6560
2 Commerce Drive (Suite 202) Bedford, NH 03110 (603) 614-4060
10 Storer Street (Riverview Suite) Kennebunk, ME (207) 502-7005
http://www.doucetsurvey.com

FILE NAME: N:\PROJECTS\6082 CD\DWG\6082B ECS.dwg LAYOUT NAME: TOPO PLAN (1) PLOTTED: Monday, May 17, 2021 - 4:07pm

LEGEND

- APPROXIMATE ABUTTERS LOT LINE
- CHAIN LINK FENCE
- SS — SEWER LINE
- SD — DRAIN LINE
- G — GAS LINE
- E — UNDERGROUND ELECTRIC LINE
- 100 — MAJOR CONTOUR LINE
- 98 — MINOR CONTOUR LINE
- OHW — OVERHEAD WIRE
- TREE LINE
- SHRUB LINE
- GUARDRAIL
- EDGE OF WETLAND AREA (SEE NOTE #7)
- CONCRETE
- RIP RAP
- LANDSCAPED AREA
- UTILITY POLE & GUY WIRE
- LIGHT POLE W/ARM
- SIGN
- BOUND FOUND
- IRON PIPE/ROD FOUND
- POST
- FIRE HYDRANT
- WATER GATE VALVE
- WATER SHUTOFF VALVE
- GAS GATE VALVE
- PAD MOUNTED TRANSFORMER
- AIR CONDITIONING UNIT
- CATCH BASIN
- DRAIN MANHOLE
- MANHOLE
- ELECTRIC MANHOLE
- SEWER MANHOLE
- HAND HOLE
- CONIFEROUS TREE
- DECIDUOUS TREE
- MONITORING WELL LOCATION
- ROCK/BOULDER
- ×100.0 — SPOT GRADE
- BND. FND. — BOUND FOUND
- CONC. — CONCRETE
- EP — EDGE OF PAVEMENT
- VGC — VERTICAL GRANITE CURB
- VCC — VERTICAL CONCRETE CURB
- SWL — SINGLE WHITE LINE
- EM — ELECTRIC METER
- GM — GAS METER
- PM — PARKING METER
- ● — 5/8" REBAR W/ID CAP TO BE SET

DOUCET SURVEY, LLC — NHSPC (NAD83/2011)

5/8" REBAR FOUND DOWN 6" (HELD)

TAX MAP 123, LOT 15
CITY OF PORTSMOUTH
1 JUNKINS AVE
PORTSMOUTH, NH, 03801
R.C.R.D. BOOK 5904 PAGE 2777

TAX MAP 124, LOT 9
319 VAUGHAN STREET CENTER LLC
104 GRAFTON DRIVE
PORTSMOUTH, NH 03801
R.C.R.D. BOOK 5506, PAGE 427

5/8" REBAR FOUND UP 3" W/CAP LLS #738 (HELD)

TAX MAP 123, LOT 15-1
299 VAUGHAN STREET LLC
C/O CATHARTES PRIVATE INVESTMENTS
100 SUMMER STREET, SUITE 1600
BOSTON, MA 02110
R.C.R.D. BOOK 5434, PAGE 2905

TAX MAP 123, LOT 15
CITY OF PORTSMOUTH
1 JUNKINS AVE
PORTSMOUTH, NH, 03801
R.C.R.D. BOOK 5904 PAGE 2777

TAX MAP 124 LOT 8
111 MAPLEWOOD AVENUE LLC
210 COMMERCE WAY SUITE 300
PORTSMOUTH, NH, 03801
R.C.R.D. BOOK 6026 PAGE 2219

RAYNES AVE (SEE NOTE #6)

TOTAL PARCEL AREA
TAX MAP 123 LOT 14
39,459 SQ. FT.
0.906 ACRES
(SEE NOTES #13 & #14)

TOTAL PARCEL AREA
TAX MAP 123
LOTS 10, 12 & 13
71,149 SQ. FT.
1.633 ACRES
(SEE NOTES #13 & #14)

AREA CONVEYED TO SUBJECT PARCEL PER R.C.R.D. BOOK 1771, PAGE 330, DATED 6/14/65

TBM 6082A
BOX CHISELED ON SOUTHEAST CORNER OF CONC. PAD
ELEV.=11.48'

TBM 6082B
"X" CUT ON BONNET BOLT OF HYDRANT
ELEV.=13.18'

PARCEL LINE APPEARS TO EXTEND THROUGH THE EXISTING BUILDING IN THIS AREA. THE SAME APPEARS TO BE INDICATED ON REF. PLAN #6

OTHER THAN THE GAS LINE SHOWN, ALL OTHER UTILITY PAINT MARKINGS ARE FADED IN THIS AREA

LINE TABLE		
LINE	BEARING	DISTANCE
L1	N45°28'14"W	18.36'
L2	S59°09'46"W	74.62'

STATE OF NEW HAMPSHIRE — No. 989 — MATTHEW W. FAGGINGER-AUER — LICENSED LAND SURVEYOR — SIGNATURE

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE (NHRSA TITLE LXIV) AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN. I CERTIFY THAT THIS SURVEY AND PLAN WERE PREPARED BY ME OR BY THOSE UNDER MY DIRECT SUPERVISION AND FALLS UNDER THE URBAN SURVEY CLASSIFICATION OF THE NH CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS. I CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. RANDOM TRAVERSE SURVEY BY TOTAL STATION, WITH A PRECISION GREATER THAN 1:15,000.

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MAPLEWOOD AVENUE & RAYNES AVENUE
PORTSMOUTH, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY

DRAWN BY:	E.D.P.	DATE:	JUNE 17, 2020
CHECKED BY:	M.W.F.	DRAWING NO.	6082B
JOB NO.	6082	SHEET	2 OF 3

DOUCET SURVEY LLC
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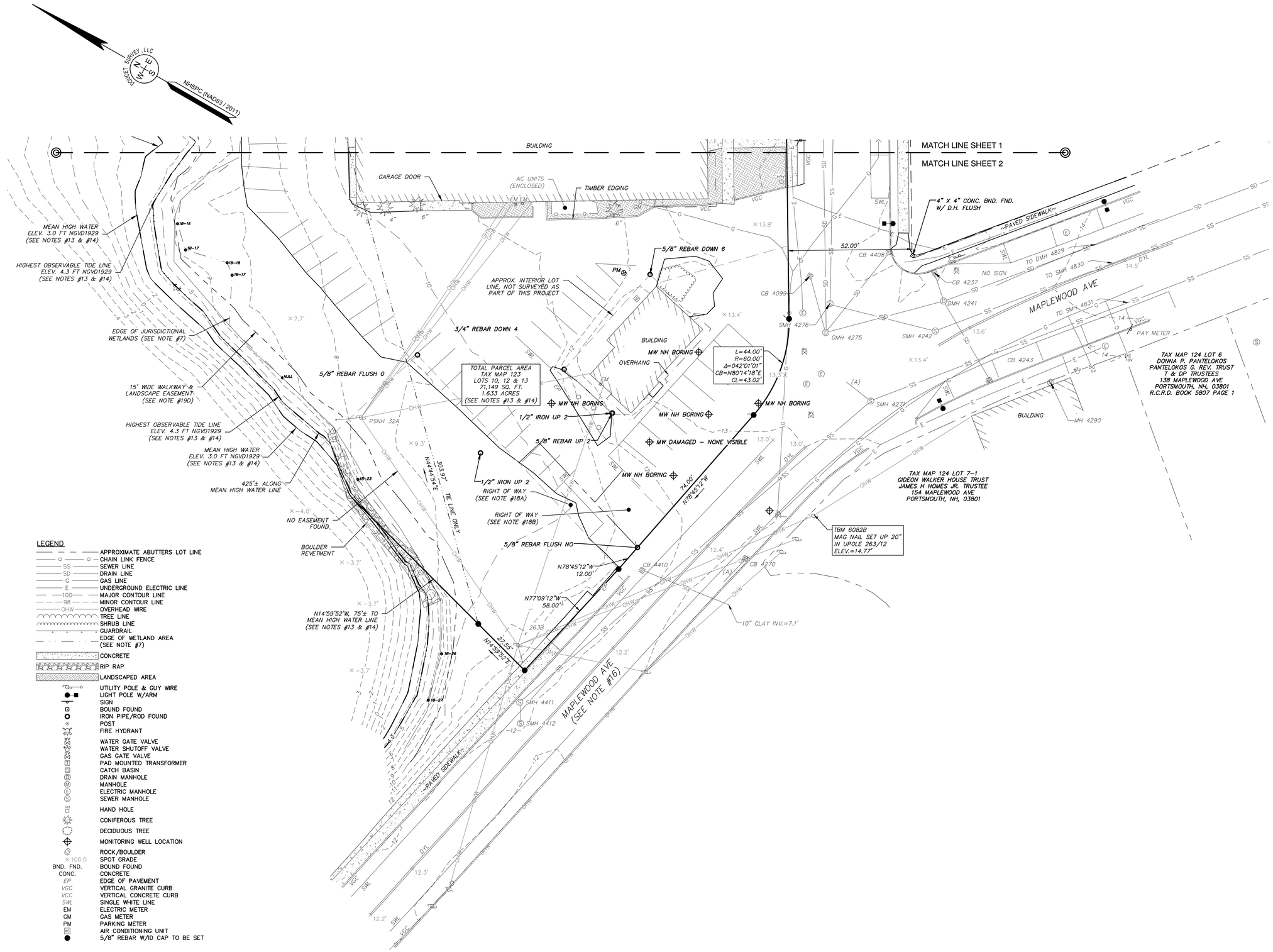
10 Storer Street (Riverview Suite) Kennebunk, ME (207) 502-7005
http://www.doucetsurvey.com

FILE NAME: Y:\PROJECTS\6082 CAD\DWG\6082B (EC).dwg LAYOUT NAME: TOPO PLAN (2) PLOTTED: Monday, May 17, 2021 - 4:08pm



LEGEND

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STATE OF NEW HAMPSHIRE — No. 989 — MATTHEW W. FAGGINGER-AUER — LICENSED LAND SURVEYOR
SIGNATURE

20 0 20 40
SCALE: 1 INCH = 20 FT.

EXISTING CONDITIONS PLAN

FOR

TIGHE & BOND

LAND OF

31 RAYNES LLC

(TAX MAP 123, LOTS 10 & 13)

203 MAPLEWOOD AVENUE LLC

(TAX MAP 123, LOT 12)

&

ONE RAYNES AVENUE LLC

(TAX MAP 123, LOT 14)

MAPLEWOOD AVENUE & RAYNES AVENUE

PORTSMOUTH, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY

DRAWN BY:	E.D.P.	DATE:	JUNE 17, 2020
CHECKED BY:	M.W.F.	DRAWING NO.	6082B
JOB NO.	6082	SHEET	3 OF 3

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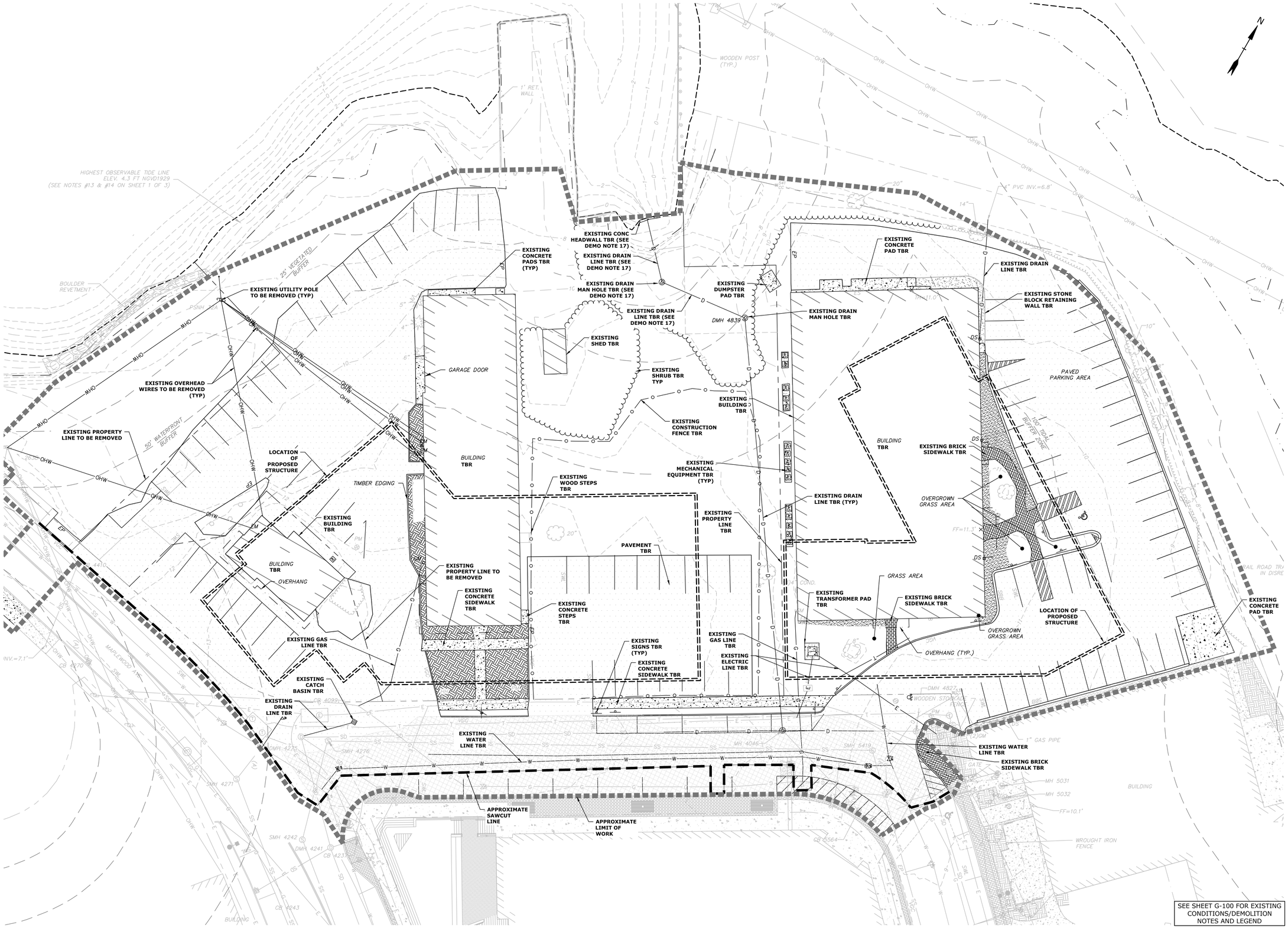
FILE NAME: N:\PROJECTS\6082 CSD\DWG\6082B ECS.dwg LAYOUT NAME: TOPO PLAN (3) PLOTTED: Monday, May 17, 2021 - 4:09pm



SEE SHEET G-100 FOR EXISTING CONDITIONS/DEMOLITION NOTES AND LEGEND

Tighe&Bond

STATE OF NEW HAMPSHIRE
BRADLEE MEZQUITA
No. 08830
LICENSED
PROFESSIONAL ENGINEER
11-24-21

STATE OF NEW HAMPSHIRE
PATRICK CRIMMINS
No. 12378
LICENSED
PROFESSIONAL ENGINEER
11/24/21

0 20' 40'
GRAPHIC SCALE

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
K	11/24/2021	PB Submission
J	10/20/2021	TAC Resubmission
I	8/23/2021	TAC Resubmission
H	7/21/2021	TAC Resubmission
G	5/26/2021	CC Resubmission
F	5/19/2021	TAC Resubmission
E	4/28/2021	CC Resubmission
D	4/21/2021	TAC Resubmission
C	3/22/2021	TAC Submission
B	3/10/2021	Design Review Resubmission
A	12/1/2020	TAC Work Session

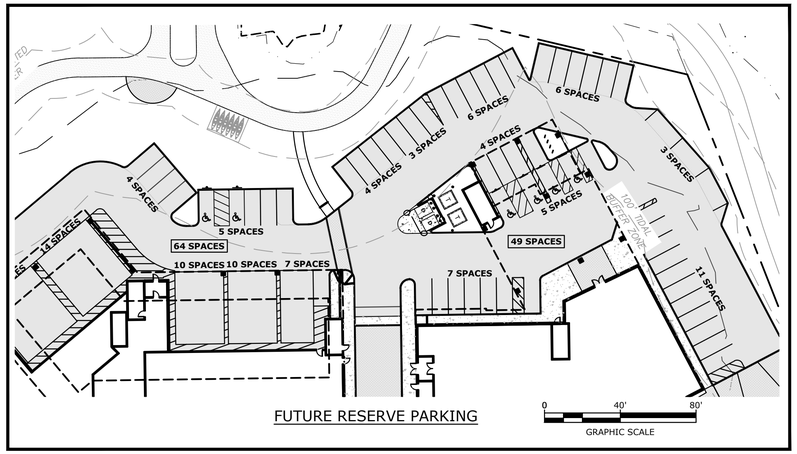
PROJECT NO:	P-0595-007
DATE:	December 22, 2020
FILE:	P-0595-007-C-DSGN.DWG
DRAWN BY:	CJK
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

DEMOLITION PLAN

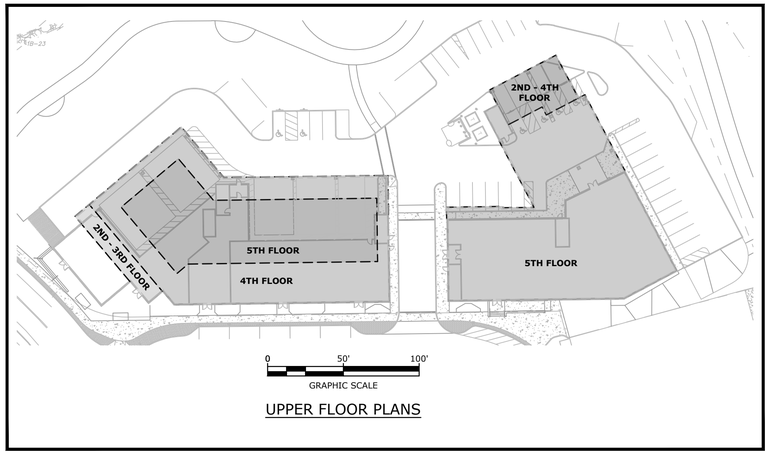
SCALE: AS SHOWN

C-101

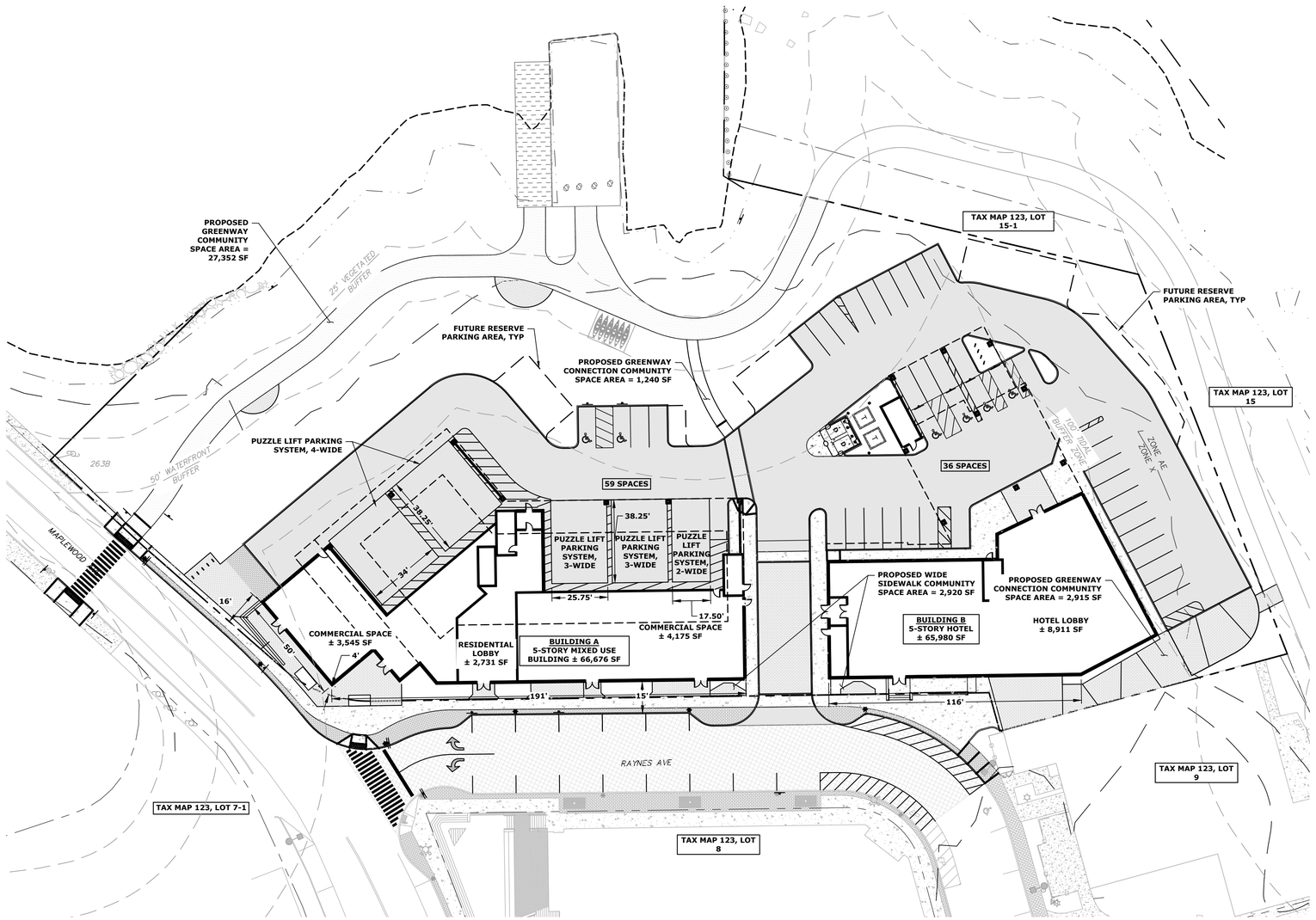
Last Saved: 11/18/2021
Plotted On:Nov 19, 2021-1:15pm By: CKrzcuik
Tighe & Bond:J:\P\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings_Figures\AutoCAD\Sheet\P-0595-007-C-DSGN.dwg



FUTURE RESERVE PARKING



UPPER FLOOR PLANS



SITE DATA:

LOCATION: TAX MAP 123, LOT 10
TAX MAP 123, LOT 12
TAX MAP 123, LOT 13
TAX MAP 123, LOT 14
TAX MAP 123, LOT 12
RAYNES AVENUE

ZONING DISTRICT: CHARACTER DISTRICT 4 (CD4)
DOWNTOWN OVERLAY DISTRICT
NORTH END INCENTIVE OVERLAY DISTRICT
HISTORIC DISTRICT

PROPOSED USE: MULTI FAMILY DWELLING
HOTEL
RETAIL/RESTAURANT

PROPOSED LOT SIZE: ±2.53 ACRES (±110,415 SF)

DEVELOPMENT STANDARDS

BUILDING PLACEMENT (PRINCIPAL BUILDING):

	REQUIRED	PROPOSED BUILDING A	PROPOSED BUILDING B
MAXIMUM PRINCIPAL FRONT YARD:	15 FT	±16 FT (1)	7.4 FT
MAXIMUM SECONDARY FRONT YARD:	12 FT	±5 FT	N/A
SIDE YARD:	NR	NR	NR
MINIMUM REAR YARD:	5 FT	N/A	N/A
MINIMUM FRONT LOT LINE BUILDOUT:	50%	78.4%	78.4%

(1) - INCREASE ABOVE THE MAXIMUM ALLOWED PER 10.5A42.12

BUILDING AND LOT OCCUPATION:

	REQUIRED	PROPOSED BUILDING A	PROPOSED BUILDING B
MAXIMUM BUILDING BLOCK LENGTH:	200 FT	191 FT	116 FT
MAXIMUM FACADE MODULATION LENGTH:	80 FT	<80 FT	<80 FT
MAXIMUM ENTRANCE SPACING:	50 FT	<50 FT	<50 FT
MAXIMUM BUILDING COVERAGE:	90%	±47.0%	±47.0%
MAXIMUM BUILDING FOOTPRINT:	30,000 SF (2)	16,629 SF	14,622 SF
MINIMUM LOT AREA:	NR		
MINIMUM LOT AREA PER DWELLING UNIT:	NR		
MINIMUM OPEN SPACE:	10%	35.4%	
MAXIMUM GROUND FLOOR GFA PER USE:	15,000 SF	7,720 SF	8,911 SF

(2) - INCREASE ABOVE 15,000 SF ALLOWED PER 10.5A46.10

BUILDING FORM (PRINCIPAL BUILDING):

	REQUIRED	PROPOSED BUILDING A	PROPOSED BUILDING B
BUILDING HEIGHT:	5 STORY (3)	5 STORY	5 STORY
	60 FT	59.77 FT	57.90 FT
MAXIMUM FINISHED FLOOR SURFACE OF GROUND FLOOR ABOVE SIDEWALK GRADE:	36 IN	<36"	<36"
MINIMUM GROUND STORY HEIGHT:	12 FT	15 FT	15 FT
MINIMUM SECOND STORY HEIGHT:	10 FT	10.5 FT	10.5 FT
FACADE GLAZING: SHOP FRONT FACADE TYPE	70%	70%	70%
ALLOWED ROOF TYPES: FLAT, GABLE, HIP, GAMBREL, MANSARD	FLAT, GABLE, HIP, GAMBREL, MANSARD	FLAT	

(3) - ADDITIONAL 1 STORY UP TO 10FT ALLOWED FOR PROVIDING AT LEAST 20% OF THE SITE TO BE ASSIGNED AS COMMUNITY SPACE AS ALLOWED PER 10.5A46.10.

COMMUNITY SPACE:

REQUIRED	PROPOSED
21,274 SF	34,427 SF
20%	31.2%

OFF-STREET PARKING REQUIREMENTS

PARKING SPACES REQUIRED:

DWELLING UNITS:		
0 SF TO 500 SF, 0.5 SPACES PER UNIT	0 UNITS	0 SPACES
500 SF TO 750 SF, 1.0 SPACES PER UNIT	0 UNITS	0 SPACES
OVER 750 SF, 1.3 SPACES PER UNIT	32 UNITS	42 SPACES
TOTAL MINIMUM RESIDENTIAL SPACES REQUIRED =		42 SPACES
VISITORS: 1 SPACES PER 5 DWELLING UNITS	32 UNITS	7 SPACES
HOTEL: 0.75 SPACES PER GUEST ROOM	124 ROOMS	93 SPACES
DOWNTOWN OVERLAY DISTRICT		- 4 SPACES
TOTAL MINIMUM PARKING SPACES REQUIRED =		138 SPACES

TOTAL PARKING SPACES PROVIDED:

ON SITE SURFACE PARKING SPACES =	41 SPACES
PUZZLE LIFT SPACES =	54 SPACES
SHARED PARKING ON SEPARATE LOT (4) =	25 SPACES
FUTURE RESERVE SURFACE SPACES (5)=	18 SPACES
TOTAL PARKING SPACES PROVIDED =	**138 SPACES**

SIX (6) ADA ACCESSIBLE SPACES REQUIRED

(4) - CONDITIONAL USE PERMIT REQUIRED FOR SHARED PARKING ON SEPARATE LOT PER 10.1112.62.
(5) - ALLOWED BY APPROVAL FROM THE PLANNING BOARD PER 10.1112.40.

	REQUIRED	PROVIDED
PARKING STALL SIZE:	8.5' X 19'	8.5' X 19'
TANDEM PARKING STALL SIZE:	9' X 38'	9' X 38'
DRIVE AISLE:	24'	24'

BIKE SPACES REQUIRED:

1 BIKE SPACE / 10 PARKING SPACES	16 SPACES	16 SPACES

PROPOSED MIXED USE GROSS FLOOR AREA

FLOOR	COMMERCIAL (SF)	LOBBY (SF)	UNITS	TOTAL FLOOR AREA (SF)
FIRST	7,720	2,731	0	10,451
SECOND	0	0	11	16,629
THIRD	0	0	11	16,629
FOURTH	0	0	10	15,707
FIFTH	0	0	0	7,260
TOTAL	7,720	2,731	32	66,676

PROPOSED HOTEL GROSS FLOOR AREA

FLOOR	LOBBY (SF)	UNITS	TOTAL FLOOR AREA (SF)
FIRST	8,911	0	8,911
SECOND	0	32	14,622
THIRD	0	32	14,622
FOURTH	0	32	14,622
FIFTH	0	28	13,203
TOTAL	8,911	124	65,980

SITE RECORDING NOTES:

1. **THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.**
2. **ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.**
3. **THIS IS NOT A BOUNDARY SURVEY AND SHALL NOT BE USED AS SUCH.**

SEE SHEET G-100 FOR SITE NOTES AND LEGEND

Tighe&Bond

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08630 LICENSED PROFESSIONAL ENGINEER – 11-24-21

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER – 11/24/21

0 30' 60'
GRAPHIC SCALE

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

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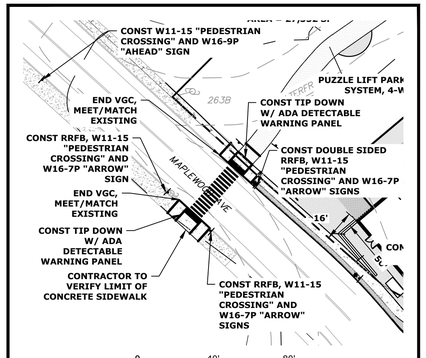
PROJECT NO:	P-0595-007
DATE:	December 22, 2020
FILE:	P-0595-007-C-DSGN.DWG
DRAWN BY:	CJK
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

SITE PLAN

SCALE: AS SHOWN

C-102

Last Saved: 11/19/2021
Plotted: Mon Nov 23, 2021 - 3:39pm By: CKrzoulk
Tighe & Bond: J:\P\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings_Figures\AutoCAD\Sheet\P-0595-007-C-DSGN.dwg



SITE PLAN INSET

RECONSTRUCTED KAYAK LAUNCH RAMP

RECONSTRUCTED TIMBER PIER

CONST WETLAND BOUNDARY SIGN

CITY TO COORDINATE WITH LANDOWNER TO RELOCATE EXISTING EASEMENT

TAX MAP 123, LOT 15

TAX MAP 123, LOT 15-1

TAX MAP 123, LOT 15

TAX MAP 123, LOT 9

TAX MAP 123, LOT 7-1

TAX MAP 123, LOT 8

25' VEGETATED BUFFER

50' WATERFRONT BUFFER

NORTH MILL POND GREENWAY TRAIL

CONST WETLAND BOUNDARY SIGN

PROPOSED GREENWAY COMMUNITY SPACE AREA = 27,352 SF

FUTURE RESERVE PARKING AREA, TYP

PROPOSED GREENWAY CONNECTION COMMUNITY SPACE AREA = 1,240 SF

CONST R7-8 "RESERVED" AND R7-8P "VAN ACCESSIBLE" SIGNS (TYP OF 2)

CONST D11-1 "BIKE ROUTE" AND M4-6 "END" SIGNS

CONST D11-1 "BIKE ROUTE" SIGN

CONST DISTRICT STANDARD, 24' POLE

CONST 10' WIDE CROSS WALK

BEGIN VGC, MEET/MATCH EXISTING

TRANSITION FROM MVGC TO VGC

TRANSITION FROM VGC TO MVGC

CONST DISTRICT STANDARD, 16' POLE

CONST W11-15 "PEDESTRIAN CROSSING" AND W16-9P "AHEAD" SIGN

CONST TIP DOWN W/ ADA DETECTABLE WARNING PANEL

CONST R5-1 "DO NOT ENTER", R1-1 "STOP" SIGNS AND BAR

CONST 10' WIDE CROSS WALK

CONST R5-1 "DO NOT ENTER" AND R1-1 "STOP" SIGNS

CONST ARROW PAVEMENT MARKING (TYP) (SEE DETAIL)

FINAL PAVING AND STRIPING AREA (SEE SITE NOTE 21)

CONST R6-1R "ONE WAY" AND R3-2 SIGNS

CONST "LOADING ZONE, NO PARKING 6AM - 9AM" SIGNS (TYP OF 2)

CONST CONC SIDEWALK W/ 2' BRICK BAND

CONST DISTRICT STANDARD, 16' POLE (TYP OF 3)

CONST FLUSH VGC

CONST PAVERS (SEE LANDSCAPE PLAN SHEET L-101)

RAYNES AVE

SWL

PROPOSED BIKE RACKS (TYP OF 5)

END MVGC

COMMERCIAL SPACE ± 3,545 SF

RESIDENTIAL LOBBY ± 2,731 SF

BUILDING A
5-STORY MIXED USE
BUILDING ± 66,676 SF

COMMERCIAL SPACE ± 4,175 SF

CONST FLUSH PAVER CROSSWALK (SEE LANDSCAPE PLAN SHEET L-101)

LIMIT OF UPPER FLOOR AREA

59 SPACES

14 SPACES

PUZZLE LIFT PARKING SYSTEM, 4-WIDE

10 SPACES

PUZZLE LIFT PARKING SYSTEM, 3-WIDE

7 SPACES

PUZZLE LIFT PARKING SYSTEM, 2-WIDE

ELEVATOR

STAIRS

CONST TIP DOWN

BEGIN VGC

END VGC

CONST CONCRETE SIDEWALK

CONST FLUSH PAVERS (SEE LANDSCAPED PLAN SHEET L-101)

PROPOSED WIDE SIDEWALK COMMUNITY SPACE AREA = 2,920 SF

BUILDING B
5-STORY HOTEL
± 65,980 SF

HOTEL LOBBY ± 8,911 SF

PROPOSED GREENWAY CONNECTION COMMUNITY SPACE AREA = 2,915 SF

TRANSITION FROM MVGC TO SGC

TRANSITION FROM MVGC TO VGC

TRANSITION FROM VGC TO MVGC

CONST TRANSFORMER (COORD W/ EVERSOURCE)

PROPOSED BOLLARDS (TYP OF 7)

36 SPACES

LIMIT OF UPPER FLOOR AREA

CONST BOLLARD MOUNTED R7-8 "RESERVED" AND R7-8P "VAN ACCESSIBLE" SIGNS (TYP OF 2)

PROPOSED BIKE RACKS (TYP OF 4)

CONST R7-8 "RESERVED" SIGN

CONST BOLLARD MOUNTED R7-8 "RESERVED" SIGN

6 SPACES

3 SPACES

4 SPACES

5 SPACES

19' TYP

8' TYP

STAIRS

100' TIDAL BUFFER ZONE

ZONE AE
ZONE X

11 SPACES

8.5' TYP

19' TYP

SGC

VGC

SITE RECORDING NOTES:

1. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
2. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.
3. THIS IS NOT A BOUNDARY SURVEY AND SHALL NOT BE USED AS SUCH.

SEE SHEET G-100 FOR SITE NOTES AND LEGEND

0
20'
40'
GRAPHIC SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER
11-24-21

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER
11/24/21

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

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B	3/10/2021	Design Review Resubmission
A	12/1/2020	TAC Work Session

PROJECT NO:	P-0595-007
DATE:	December 22, 2020
FILE:	P-0595-007-C-DSGN.DWG
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APPROVED BY:	BLM

SITE PLAN

SCALE: AS SHOWN

C-102.1

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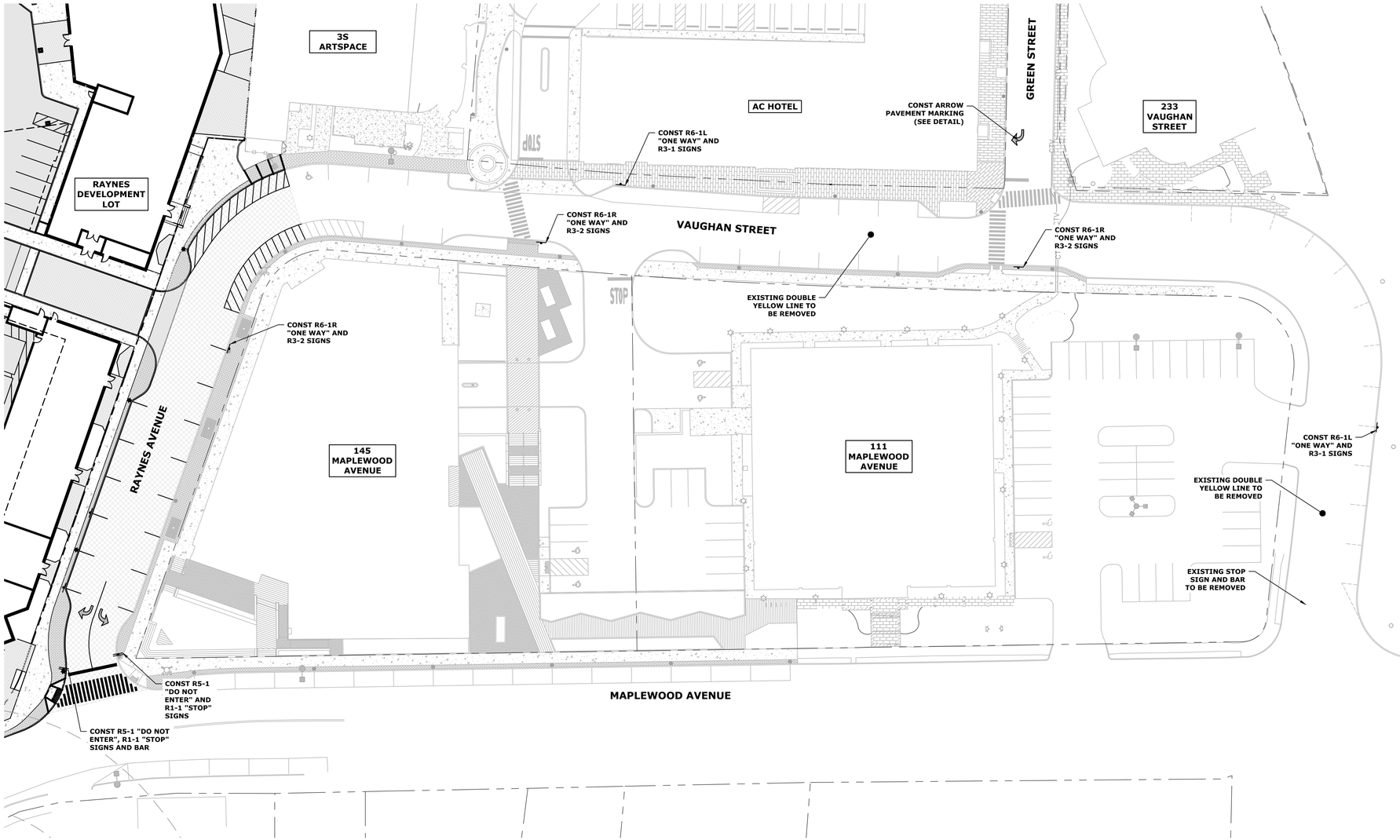

SEE SHEET G-100 FOR SITE NOTES AND LEGEND

Tighe&Bond

BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE
11-24-21

PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE
11/24/21

0 30' 60'
GRAPHIC SCALE

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

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NEIGHBORHOOD SIGNAGE PLAN

SCALE: AS SHOWN

C-102.2

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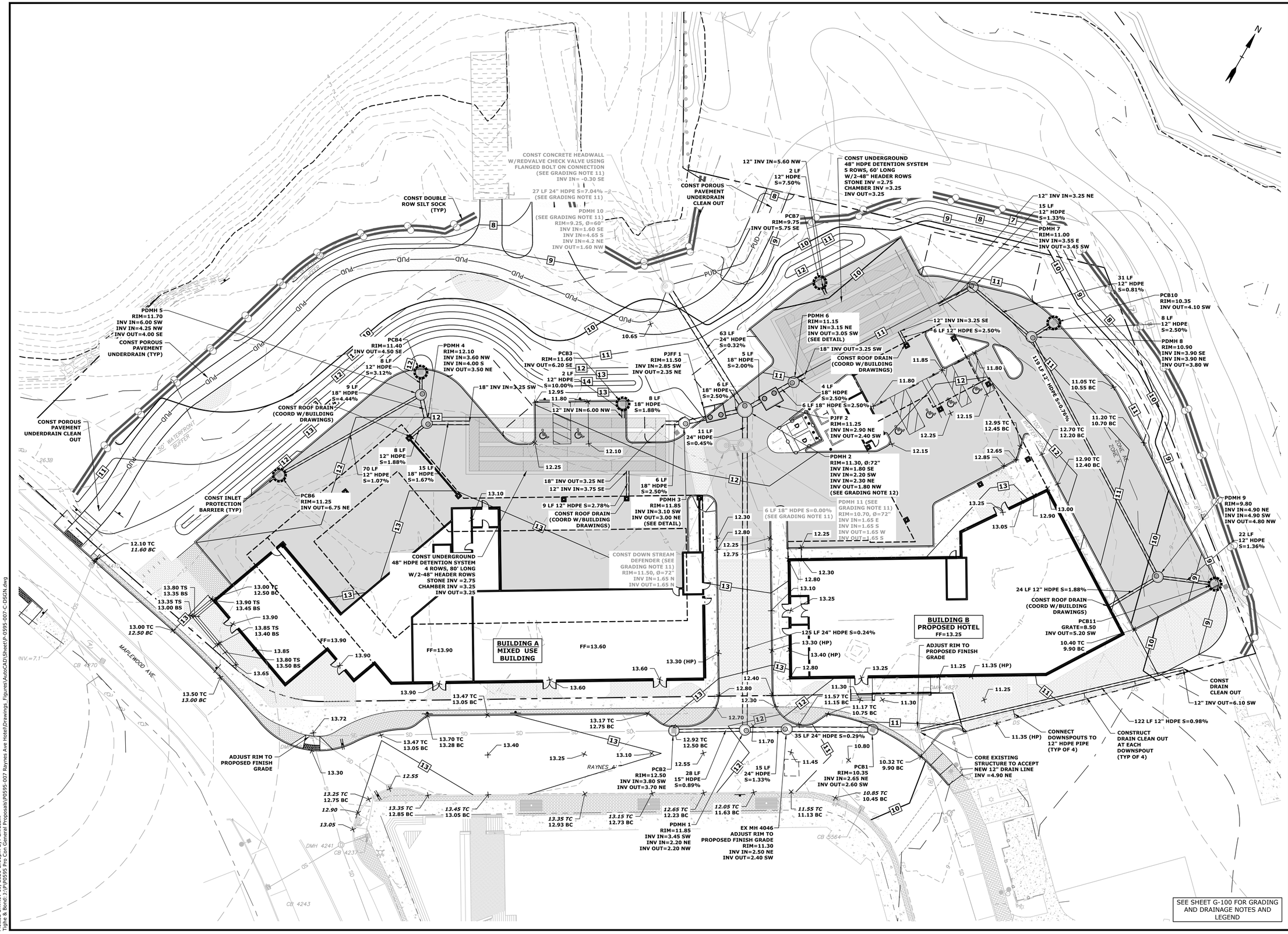

Tighe&Bond

BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE
11-24-21

PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE
11/24/21

0 20' 40'
GRAPHIC SCALE

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

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GRADING, DRAINAGE AND EROSION CONTROL PLAN

SCALE: AS SHOWN

C-103

Last Saved: 11/19/2021
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CONST GREASE TRAP 1
RIM=12.45
INV IN=8.45 S
INV OUT=7.95 E

CONST 6 LF
6" PVC SDR 35
S = 0.010

CONST 11 LF
8" PVC SDR 35
S = 0.010

CONST GREASE WASTE LINE
80 LF 6" SDR-35 PVC
S = 0.011, INV. = 9.30 N
(COORD W/ BUILDING DRAWINGS

PSMH 4
RIM=12.65
INV IN=7.85 W
INV IN=7.85 S
INV OUT=7.75 E

PSMH 3
RIM=12.95
INV IN=7.60 W
INV OUT=7.50 NE

CONST 114 LF
8" PVC SDR 35
S = 0.008

CONST SEWER SERVICE CONNECTION
80 LF 6" SDR-35 PVC
S = 0.014, INV. = 9.00 N (COORD W/
BUILDING DRAWINGS)

CONST ELECTRIC &
TELECOMMUNICATIONS
CONNECTION (COORD.
W/EVERSOURCE, COMCAST
AND BUILDING DRAWINGS)

CONST 4" DOMESTIC AND 6" FIRE
WATER SERVICE CONNECTIONS
(COORD. W/BUILDING DRAWINGS
& DPW PRIOR TO CONSTRUCTION)

CONST GAS CONNECTION
(COORD W/ UNITIL AND
BUILDING DRAWINGS)

CONST WYE INTO
SEWER LINE,
MATCH PIPE
CROWNS (TYP)

CONST UPPER FLOORS
SEWER CONNECTION (TYP)

CONST 111 LF
8" PVC SDR 35
S = 0.016

PSMH 2
RIM=12.05
INV IN=6.50 SW
INV IN=6.50 NE
INV OUT=6.40 SE

CONST TRANSFORMERS
(COORDINATE W/
EVERSOURCE)

CONST GAS CONNECTION
(COORD W/ UNITIL AND
BUILDING DRAWINGS)

PSMH 5
RIM=12.40
INV IN=7.10 NE
INV IN=7.10 SE
INV OUT=7.00 SW

CONST 5 LF
6" PVC SDR 35
S = 0.011

CONST 46 LF
8" PVC SDR 35
S = 0.010

CONST GREASE TRAP 2
RIM=12.50
INV IN=7.70 SE
INV OUT=7.20 SW

CONST GREASE WASTE LINE
30 LF 6" SDR-35 PVC
S = 0.010, INV. = 8.00 NW
(COORD W/ BUILDING DRAWINGS

CONST ELECTRIC &
TELECOMMUNICATIONS CONNECTION
(COORD. W/EVERSOURCE, COMCAST AND
BUILDING DRAWINGS)

CONST 4" DOMESTIC AND 6" FIRE
WATER SERVICE CONNECTIONS
(COORD. W/BUILDING DRAWINGS
& DPW PRIOR TO CONSTRUCTION)

CONST SEWER SERVICE CONNECTION
30 LF 6" SDR-35 PVC
S = 0.013, INV. = 7.50 NW
(COORD W/ BUILDING DRAWINGS)

PSMH 1
RIM=12.30
INV IN=4.60 NW
INV IN=4.60 SW
INV OUT=4.50 NE
(SEE UTILITY NOTE 26)

LIMIT OF WATER MAIN
RECONSTRUCTION,
CONNECT TO
MAPLEWOOD AVENUE
MAIN (CONNECTION
LOCATION TO BE VIF)

CONST GATE VALVE
(COORD W/CITY OF
PORTSMOUTH DPW)

CONST 8" DI WATER
MAIN (COORD W/CITY
OF PORTSMOUTH DPW)
(SEE UTILITY NOTE 27)

TIE INTO EXISTING GAS
LINE (COORD W/ UNITIL)

CONST TEE W/VALVE
(COORD. W/CITY OF
PORTSMOUTH DPW)

CONNECT TO
EXISTING 145
MAPLEWOOD
SERVICE LINES

LIMIT OF WATER MAIN
RECONSTRUCTION,
CONST GATE VALVE

CONNECT TO
EXISTING FIRE
HYDRANT

MAPLEWOOD AVE

RAYNES AVE

SEE SHEET G-100 FOR UTILITY
NOTES AND LEGEND

Tighe&Bond

BRADLEE MEZQUITA
No. 08830
LICENSED
PROFESSIONAL ENGINEER
STATE OF NEW HAMPSHIRE
11-24-21

PATRICK CRIMMINS
No. 12378
LICENSED
PROFESSIONAL ENGINEER
STATE OF NEW HAMPSHIRE
11/24/21

0 20' 40'
GRAPHIC SCALE

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth,
New Hampshire

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APPROVED BY:	BLM

UTILITIES PLAN

SCALE: AS SHOWN

C-104

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LEGEND

- PROPOSED DRAINAGE EASEMENT
- PROPOSED UTILITY EASEMENT
- PROPOSED COMMUNITY SPACE EASEMENT ON DEVELOPMENT LOT TO BENEFIT THE CITY OF PORTSMOUTH
- PROPOSED TEMPORARY GRADING EASEMENT
- PROPOSED TEMPORARY ACCESS EASEMENT FOR BRIDGE REPLACEMENT ON DEVELOPMENT LOT TO BENEFIT THE CITY OF PORTSMOUTH
- PROPOSEDWIDE SIDEWALK COMMUNITY SPACE ON DEVELOPMENT LOT TO BENEFIT THE CITY OF PORTSMOUTH
- PROPOSED GREENWAY CONNECTION COMMUNITY SPACE ON DEVELOPMENT LOT TO BENEFIT CITY OF PORTSMOUTH

EASEMENTS SHOWN HEREIN ARE FOR PERMITTING PURPOSES ONLY. FINAL EASEMENT PLAN SHALL BE PREPARED BY THE PROJECT SURVEYOR AND RECORDED AT THE ROCKINGHAM COUNTY REGISTRY OF DEED PRIOR TO ISSUING BUILDING PERMITS.

N

TAX MAP 123, LOT 15

10' WIDE EXISTING PEDESTRIAN EASEMENT

TAX MAP 123, LOT 15-1

PROPOSED TEMPORARY GRADING EASEMENT ON TAX MAP 123, LOT 15-1

PROPOSED TEMPORARY GRADING EASEMENT ON TAX MAP 123, LOT 15

PROPOSED COMMUNITY SPACE EASEMENT ON DEVELOPMENT LOT TO BENEFIT THE CITY OF PORTSMOUTH

PROPOSED TEMPORARY ACCESS EASEMENT FOR BRIDGE REPLACEMENT ON DEVELOPMENT LOT TO BENEFIT THE CITY OF PORTSMOUTH

DEVELOPMENT LOT

PROPOSED GREENWAY CONNECTION COMMUNITY SPACE ON DEVELOPMENT LOT TO BENEFIT CITY OF PORTSMOUTH

PROPOSED WIDE SIDEWALK COMMUNITY SPACE ON DEVELOPMENT LOT TO BENEFIT THE CITY OF PORTSMOUTH

PROPOSED 25' WIDE DRAINAGE, WATER, AND MAINTENANCE & ACCESS EASEMENT ON DEVELOPMENT LOT TO BENEFIT THE CITY OF PORTSMOUTH

PROPOSED WIDE SIDEWALK COMMUNITY SPACE ON DEVELOPMENT LOT TO BENEFIT THE CITY OF PORTSMOUTH

PROPOSED UTILITY EASEMENT ON DEVELOPMENT LOT TO BENEFIT TAX MAP 123, LOT 9

PROPOSED GREENWAY CONNECTION COMMUNITY SPACE ON DEVELOPMENT LOT TO BENEFIT CITY OF PORTSMOUTH

PROPOSED DRAINAGE EASEMENT ON DEVELOPMENT LOT TO BENEFIT TAX MAP 123, LOT 9

TAX MAP 123, LOT 15

TAX MAP 123, LOT 9

TAX MAP 123, LOT 7-1

TAX MAP 123, LOT 8

MAPLEWOOD AVE

RAYNES AVE

Tighe&Bond

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER – 11-24-21

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER – 11/24/21

0 20' 40'

GRAPHIC SCALE

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EASEMENT PLAN

SCALE: AS SHOWN

C-201

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PLANT SCHEDULE

Symbol	Quantity	*Botanical Name*	Common Name	Size	Spacing	Notes
TREES						
AC RU	9	*Acer rubrum*	Red Maple	4-5" Cal.		B&B; matched
AC KA	3	*Acer rubrum 'Karpick'*	Karpick Maple	4-5" Cal.		Single-stem, matched
BE AL	4	*Betula alleghaniensis*	Yellow Birch	4-5" Cal.		Single-stem, matched
CE OC	5	*Celtis occidentalis*	Hackberry	4-5" Cal.		Single-stem, matched
CH TH	5	*Chamaecyparis thyoides*	White Cypress	8-10' Ht, B&B		B&B; matched
CH VI	7	*Chionanthus virginicus*	Fringe Tree	4-5" Cal.		Multi-stem, matched
HA VE	12	*Hamamelis vernalis*	Vernal Witch Hazel	6-8' Ht, B&B		Multi-stem, matched
JU VI	9	*Juniperus virginiana*	Eastern Red Cedar	8-10' Ht, B&B		B&B; matched
QU BI	5	*Quercus bicolor*	Swamp White Oak	4-5" Cal.		B&B; matched
TH OC	6	*Thuja occidentalis 'Hetz Wintergreen'*	Hetz Wintergreen Arborvitae	6-8' Ht, B&B		B&B; matched
SHRUBS						
Ae Pa		*Aesculus parviflora*	Bottlebrush Buckeye	#10 Container	72" O.C.	
Ce Am		*Ceanothus americanus*	New Jersey Tea	#7 Container	48" O.C	
Co Pe		*Comptonia peregrina*	Sweet Fern	#3 Container	36" O.C.	
Co Ra		*Cornus racemosa*	Gray Dogwood	#7 Container	36" O.C.	
Fo Ga		*Fothergilla gardenii 'Mount Airy'*	Mount Airy Fothergilla	#7 Container	36" O.C.	
Hy Qu		*Hydrangea quercifolia*	Oakleaf Hydrangea	#7 Container	48" O.C	
Li Be		*Lindera Benzoin*	Spice Bush	#7 Container	36" O.C.	
Ix GI		*Ilex glabra 'Shamrock'*	Shamrock Inkberry	#7 Container	36" O.C.	
Il Ji		*Ilex verticillata 'Jim Dandy'*	Jim Dandy Winterberry	#7 Container	48" O.C	
Il Ve		*Ilex verticillata 'Red Sprite'*	Red Sprite Winterberry	#7 Container	48" O.C	
Iv Fr		*Iva frutescens*	Bigleaf Marsh Elder	#3 Container	36" O.C.	
My Pe		*Myrica pensylvanica*	Northern Bayberry	#7 Container	48" O.C.	
Rh GI		*Rhus aromatica 'Gro-Low'*	Fro-Low Fragrant Sumac	#3 Container	30" O.C.	
Sp To		*Spiraea tomentosa*	Steeplebush	#3 Container	30" O.C.	
Vi Ca		*Viburnum carlesii 'SMVCB'*	Spice Baby Viburnum	#7 Container	36" O.C.	
PERENNIALS						
am hu		*Amsonia tabernaemontana 'Walter'*	Eastern Bluestar	#2 Container	30" O.C.	
an ma		*Anaphalis margaritacea*	Pearly Everlasting	#2 Container	15" O.C.	
as in		*Asclepias tuberosa*	Butterfly Weed	#2 Container	30" O.C.	
as ob		*Aster oblongifolius 'Raydon's Favorite'*	Raydon's Favorite Aster	#2 Container	24" O.C.	
ba bi		*Baptisia australis*	Blue False Indigo	#3 Container	24" O.C.	
de pu		*Dennstaedtia punctilobula*	Hay Scented Fern	#2 Container	30" O.C.	
ec pu		*Echinacea purpurpea*	Purple Coneflower	#2 Container	24" O.C.	
on se		*Onoclea sensibilis*	Sensitive Fern	#2 Container	30" O.C.	
sa ma		*Salvia 'May Night'*	May Night Salvia	#2 Container	30" O.C.	
so ca		*Solidago simpervirens*	Seaside Goldenrod	#2 Container	24" O.C.	
ti co		*Tiarella cordifolia*	Foamflower	#2 Container	15" O.C.	
ORNAMENTAL GRASSES						
ag pe		Agrostis pernnans	Upland Bentgrass	#3 Container	30" O.C.	
bo cu		*Bouteloua curtipendula*	Side Oats Grama	#2 Container	30" O.C.	
ca ac		*Calamagrostis acutiflora 'Karl Foerster'*	Feather Reed Grass	#3 Container	30" O.C.	
de ce		*Deschampsia cespitosa 'Pixie Fountain'*	Tufted Hair Grass	#2 Container	30" O.C.	
fe ru		*Festuca rubra L.*	Coastal Red Fescue	Plug	12" O.C.	
mi si		*Miscanthus sinensis 'Adagio'*	Dwarf Silver Grass	#2 Container	30" O.C.	
pe al		*Pennisetum alopecuroides 'Hamelin'*	Hameln Dwarf Fountain Grass	#2 Container	24" O.C.	
sc sc		*Schizachyrium scoparium*	Little Bluestem	Plug	12" O.C.	
so nu		*Sorghastrum nutans*	Indian Grass			
SEED MIXES						
Buffer Seed Mix		*Ernst Seed Fescue Mix composed of 45% Creeping Red Fescue/ 27.5% Hard Fescue 'Minimus' / 27.5% Hard Fescue 'Beacon'*				

RESTORATION PLANTING NOTES

1. INVASIVE PLANT MATERIAL WILL BE REMOVED USING MECHANICAL, WHOLE PLANT REMOVAL STRATEGIES AND CHIPPED AND COMPOSTED AT AN APPROPRIATE FACILITY OR BURNED ON SITE ACCORDING TO LOCAL FIRE DEPARTMENT RULES AND REGULATIONS.

2. DISTURBED SOILS WILL BE AUGMENTED AS NEED WITH A CUSTOM BLENDED SOIL OF ONE PART LOAM, ONE PART COMPOST AND ONE PART CLEAN SAND.

3. SEEDED AREAS ARE TO BE COVERED WITH SALT MARSH HAY TO RETAIN SOIL MOISTURE AND PROTECT AGAINST SEED PREDATION BY BIRDS AND SMALL MAMMALS.

4. NATIVE PLANT MATERIAL WILL BE LAID OUT AND INSTALLED BY AN ECOLOGICAL RESTORATION SPECIALIST OR PERSONS TRAINED IN HORTICULTURAL PRACTICES. EXACT PLANT LOCATIONS WILL BE DETERMINED IN THE FIELD BASED ON SITE-SPECIFIC PLANTING CONDITIONS AND MICRO-TOPOGRAPHY.

5. THE NEW PLANTINGS WILL BE IRRIGATED FOR ONE FULL GROWING SEASON OR UNTIL THE SEED AND PLANT MATERIAL IS ESTABLISHED.

6. MONTHLY INSPECTIONS WILL BE CONDUCTED FOR THE FIRST GROWING SEASON AND TREATMENT/REMOVAL OF INVASIVE SPECIES WILL BE IMPLEMENTED AS NEEDED DURING THE ESTABLISHED PERIOD.

7. CARE IS TO BE TAKEN IN REMOVING ANY NEW COLONIZING INVASIVE PLANT MATERIAL TO MINIMIZE DISTURBANCE TO ESTABLISHING NATIVE PLANT SPECIES.

8. PRACTICES IN ASSOCIATION WITH FERTILIZERS AND PESTICIDES WILL COMPLY WITH ORDINANCES 10.1018.24 AND 10.1018.25.

PLANTING NOTES

1. LANDSCAPE ARCHITECT TO APPROVE PLANT MATERIAL PRIOR TO DELIVERY TO SITE.

2. PLANT MATERIAL SHALL CONFORM TO "THE AMERICAN STANDARD FOR NURSERY STOCK", PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.

3. NO SUBSTITUTIONS OF PLANT SPECIES WITHOUT LANDSCAPE ARCHITECT'S WRITTEN APPROVAL.

4. SUBSTITUTIONS OF PLANT SPECIES SHALL BE A PLANT OF EQUIVALENT OVERALL FORM, HEIGHT AND BRANCHING HABIT, FLOWER, LEAF AND FRUIT, COLOR AND TIME OF BLOOM, AS APPROVED BY LANDSCAPE ARCHITECT.

5. LOCATE AND VERIFY UTILITY LINE LOCATIONS PRIOR TO STAKING AND REPORT CONFLICTS TO LANDSCAPE ARCHITECT.

6. PLANTING DEMOLITION DEBRIS, GARBAGE, LUMPS OF CONCRETE, STEEL AND OTHER MATERIALS DELETERIOUS TO PLANT'S HEALTH AS DETERMINED BY LANDSCAPE ARCHITECT SHALL BE REMOVED FROM ALL PLANTING AREAS.

7. NO PLANTING TO BE INSTALLED BEFORE ACCEPTANCE OF ROUGH GRADING.

8. ALL PROPOSED TREE LOCATIONS SHALL BE STAKED OR LAID OUT IN THEIR APPROXIMATE LOCATION BY THE CONTRACTOR. REFER TO LAYOUT AND PLANTING SHEETS FOR LAYOUT INFORMATION. THE CONTRACTOR SHALL ADJUST THE LOCATIONS AS REQUESTED BY THE LANDSCAPE ARCHITECT TO ACCOUNT FOR SUBSURFACE UTILITIES AND OTHER FIELD CONDITIONS. FINAL LOCATIONS OF ALL PLANTS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING.

9. INSTALL PLANTS WITH ROOT FLARES FLUSH WITH FINISHED GRADE. IMMEDIATELY REPLANT PLANTS THAT SETTLE OUT OF PLUMB OR BELOW FINISHED GRADE.

10. PLANT UNDER FULL TIME SUPERVISION OF CERTIFIED ARBORIST, NURSERYMAN, OR LICENSED LANDSCAPE ARCHITECT. PROVIDE WRITTEN VERIFICATION OF CERTIFICATION AND/OR LICENSE FOR LANDSCAPE ARCHITECT'S APPROVAL.

11. WATER PLANTS THOROUGHLY AFTER INSTALLATION, A MINIMUM OF TWICE WITHIN THE FIRST 24 HOURS.

12. REPAIR DAMAGE DUE TO OPERATIONS INSIDE AND OUTSIDE OF LIMIT OF WORK

13. SOAK ALL PERENNIALS FOR 24 HOURS PRIOR TO INSTALLATION

14. BUFFER SEED MIX AREA TO BE WATERED AND MONITORED DURING ESTABLISHMENT TO ENSURE SEED COVERAGE AND ESTABLISHMENT IS UNIFORM AND HEALTHY AND UNTIL ACCEPTANCE.

15. MOWING OF THE BUFFER SEED MIX AREA FOLLOWING ESTABLISHED AND ACCEPTANCE SHALL OCCUR TWICE A YEAR - IN SPRING PRIOR TO NEW GROWTH AND THE AUTUMN AFTER DORMANCY. MOWING IS NOT TO OCCUR IN THE HEAT OF SUMMER. MOWING ENCOURAGES ESTABLISHMENT VIA ROOT SYSTEM GROWTH AND MITIGATES GROWTH OF WEEDS, UNDESIRABLE AND INVASIVE SPECIES.

16. MOWING HEIGHT TO BE NOT LESS THAN 3".

ZONING NOTES

10.5A44.40 PARKING LOT LANDSCAPE	
10.5A44.42 TREES	
PARKING LOTS SHALL CONTAIN AT LEAST (1) TREE FOR EVERY (7) PARKING SPACES	
TOTAL SURFACE PARKING	41
TOTAL FUTURE RESERVE SURFACE PARKING	25
TOTAL REQUIRED PARKING LOT TREES	10
TOTAL PARKING LOT TREES PROPOSED	19
10.5A44.43 LANDSCAPING	
ALL LANDSCAPING REQUIRED PURSUANT TO THIS SECTION SHALL BE LOCATED AND DESIGNED IN A MANNER TO PROTECT VEGETATION FROM VEHICULAR DAMAGE.	YES

10.1130 LANDSCAPING AND SCREENING	
10.1132.10 SCREENING OF DUMPSTERS	
NATURAL SCREENING SHALL CONSIST OF EVERGREEN SHRUBS/TREES PLANTED IN A LINE TO FORM A CONTINUOUS SCREEN AND GROWING TO A HEIGHT OF 6 FEET WITHIN 3 YEARS. THE REMAINING PORTION OF THE SCREENING AREA SHALL CONSIST OF LARGE AND SMALL TREES, GRASS, FLOWER BEDS, OR OTHER VEGETATIVE GROUNDCOVER TO FULLY COVER THE GROUND SURFACE OF THE AREA WITHIN 3 YEARS.	YES
10.1132.20 SCREENING OF DUMPSTERS	
A 6-FOOT HIGH FENCE OR MASONRY WALL MAY BE SUBSTITUTED FOR NATURAL SCREENING IF APPROVED.	YES

Tighe&Bond

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

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CHECKED BY:	RU/PMC
APPROVED BY:	BLM

LANDSCAPE MATERIAL PLAN, LEGEND AND NOTES

SCALE: AS SHOWN

L-100

Last Saved: 11/15/2021
Plotted: Nov 18, 2021 4:45pm By: OStasin
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LEGEND

- SEEDED LAWN
- BUFFER SEED MIX
- PLANTING BED
- PLANTING BED
- PLANTING BED
- BOAT/KAYAK LAUNCH RAMP
- RECONSTRUCTED TIMBER PIER
- DECIDUOUS TREE
- ORNAMENTAL TREE
- CONIFEROUS TREE
- SHRUBS

PROPOSED TRAIL CONNECTION TO ABUTTER; CITY TO COORDINATE WITH LANDOWNER TO RELOCATE EXISTING EASEMENT

OPTIONAL RECONSTRUCTED TIMBER PIER; OVERLOOK TO INCLUDE BENCHES

OVERLOOK SEATING NICHE WITH UNIT PAVERS AND FITNESS MULTIPURPOSE BENCH

PLANTING BED AT SEATING NICHE

OPTIONAL KAYAK STORAGE

OPTIONAL KAYAK/CANOE LAUNCH RAMP

PLANTING/LANDSCAPE DESIGN TO BE COORDINATED WITH ABUTTERS

1 JU VI
1 QU BI
1 AC RU
1 JU VI

1 CH VI
1 QU BI

2 QU BI
1 CH TH

BUFFER SEED MIX

1 QU BI

BUFFER SEED MIX

PROPERTY LINE

BUFFER SEED MIX

PLANTING BED AT SEATING NICHE

1 CH VI

1 CE OC
1 CH VI

BUFFER SEED MIX

OVERLOOK SEATING NICHE WITH UNIT PAVERS AND CHAIR BENCHES

1 HA VE

1 CH TH

3 HA VE
1 CH TH

1 AC RU
1 CH VI

1 AC RU

10

1 AC RU

1 JU VI
1 AC RU

1 BE AL
1 CH TH

11

1 TH OC

BIKE PARKING

5 TH OC

PERENNIALS AND ORNAMENTAL GRASS

1 AC RU

5 HA VE

2 BE AL
1 JU VI

1 CE OC

1 JU VI

12

1 JU VI

1 BE AL

PERENNIALS AND ORNAMENTAL GRASS

GRANITE POST INDICATING PATH

VEHICULAR UNIT PAVERS WITH FLUSH GRANITE BAND ON EITHER SIDE

PERENNIALS AND ORNAMENTAL GRASS

DECORATIVE DUMPSTER ENCLOSURE FENCE AND GATE

EVERGREEN SCREENING

ENTRANCE WITH UNIT PAVING, BOLLARDS; FLAGGED WITH BENCHES & RAISED SEASONAL/ANNUAL PLANTERS

1 CE OC
3 HA VE
3 AC RU

1 CE OC

3 JU VI
1 CH VI

PLANTING BED AT TRAIL ENTRANCE

PERENNIALS AND ORNAMENTAL GRASS

BIKE PARKING

13

CIRC

CIRC

CIRC

1 CH TH
1 CE OC

10

PROPERTY LINE

GRANITE POST INDICATING PATH

PROPOSED CONNECTION TO TRAIL NETWORK

WAYFINDING SIGNAGE; TO BE COORDINATED WITH THE CITY

ARRIVAL & DEPARTURE ZONE

TENANT

RESIDENTIAL

PROPOSED MIXED USE BUILDING

TENANT

BOLLARDS

RAISED VEHICULAR TABLE

CAST IN PLACE CONCRETE SIDEWALK

OTHER

OTHER

OTHER

PROPOSED HOTEL

LOBBY

CAST IN PLACE CONCRETE SIDEWALK

VEHICULAR UNIT PAVER ALLEY FOR FLEXIBLE PROGRAM USE; FIRE EMERGENCY ACCESS

PLANTING BED

PLANTING BED AT TRAIL ENTRANCE

VEHICULAR UNIT PAVER FOR FIRE EMERGENCY ACCESS

SHADE TREE & METAL TREE GRATE WITH SAND BASED STRUCTURAL SOIL

PLANTING BED

RETAIL SPILL OUT ZONE

PLANTING BED

SEATING NICHE
RETAIL SPILL OUT ZONE

SEATING NICHE

ARRIVAL & DEPARTURE ZONE

RETAIL SPILL OUT ZONE

BRICK PAVING BAND

3 AC KA

MAPLEWOOD AVE

PROPERTY LINE

PERENNIALS AND ORNAMENTAL GRASS

1 CH TH

TREE LOCATED WITHIN RIGHT-OF-WAY WILL BE REVIEWED BY THE CITY'S TREES & GREENERY COMMITTEE

PROPOSED LIGHTING

BRICK PAVING BAND

PROPOSED LIGHTING

WAYFINDING SIGNAGE; TO BE COORDINATED WITH THE CITY

BRICK STREETSCAPE FURNISHING ZONE

BRICK STREETSCAPE FURNISHING ZONE

PROPOSED LIGHTING

RETAIL SPILL OUT ZONE

RAYNES AVE

0 20' 40'
GRAPHIC SCALE

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LANDSCAPE PLANTING PLAN

SCALE: AS SHOWN

L-101

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Printed: (DOS) Nov 18, 2021 - 4:54pm By: OStasin
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CITY OF PORTSMOUTH TREE PLANTING REQUIREMENTS

THE BASE OF THE CITY OF PORTSMOUTH TREE PLANTING REQUIREMENTS IS THE ANSI A300 PART 6 STANDARD PRACTICES FOR PLANTING AND TRANSPLANTING. ANSI A300 PART 6 LAYS OUT TERMS AND BASIC STANDARDS AS SET FORTH BY INDUSTRY BUT IT IS NOT THE 'END ALL' FOR THE CITY OF PORTSMOUTH. THE FOLLOWING ARE THE CITY OF PORTSMOUTH, NH TREE PLANTING REQUIREMENTS THAT IN ADDITION TO OR THAT GO BEYOND THE ANSI A300 PART 6.

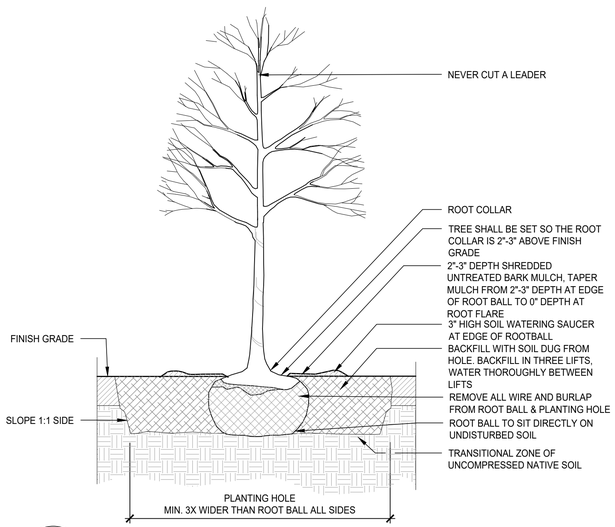
1. ALL PLANTING HOLES SHALL BE DUG BY HAND- NO MACHINES. THE ONLY EXCEPTIONS ARE NEW CONSTRUCTION WHERE NEW PLANTING PITS, PLANTING BEDS WITH GRANITE CURBING, AND PLANTING SITES WITH SILVA CELLS ARE BEING CREATED. IF A MACHINES USED TO DIG ANY OF THESE SITUATIONS AND PLANTING DEPTH NEEDS TO BE RAISED THE MATERIAL IN THE BOTTOM OF THE PLANTING HOLE MUST BE FIRMED WITH MACHINE TO PREVENT SINKING OF THE ROOT BALL.
2. ALL WIRE AND BURLAP SHALL BE REMOVED FROM THE ROOT BALL AND PLANTING HOLE.
3. THE ROOT BALL OF THE TREE SHALL BE WORKED SO THAT THE ROOT COLLAR OF THE TREE IS VISIBLE AND NO GIRDLING ROOTS ARE PRESENT.
4. THE ROOT COLLAR OF THE TREE SHALL BE 2"-3" ABOVE GRADE OF PLANTING HOLE FOR FINISHED DEPTH.
5. ALL PLANTINGS SHALL BE BACKFILLED WITH SOIL FROM THE SITE AND AMENDED NO MORE THAN 20% WITH ORGANIC COMPOST. THE ONLY EXCEPTIONS ARE NEW CONSTRUCTION WHERE ENGINEERED SOIL IS BEING USED IN CONJUNCTION WITH SILVA CELLS AND WHERE NEW PLANTING BEDS ARE BEING CREATED.
6. ALL PLANTINGS SHALL BE BACKFILLED IN THREE LIFTS AND ALL LIFTS SHALL BE WATERED SO THE PLANTING WILL BE SET AND FREE OF AIR POCKETS- NO EXCEPTIONS.
7. AN EARTH BERM SHALL BE PLACED AROUND THE PERIMETER OF THE PLANTING HOLE EXCEPT WHERE CURBED PLANTING BEDS OR PITS ARE BEING USED.
8. 2"-3" OF MULCH SHALL BE PLACED OVER THE PLANTING AREA.
9. AT THE TIME THE PLANTING IS COMPLETE THE PLANTING SHALL RECEIVE ADDITIONAL WATER TO ENSURE COMPLETE HYDRATION OF THE ROOTS, BACKFILL MATERIAL AND MULCH LAYER.

SAND BASED STRUCTURAL SOIL PLANTING MEDIUM NOTES

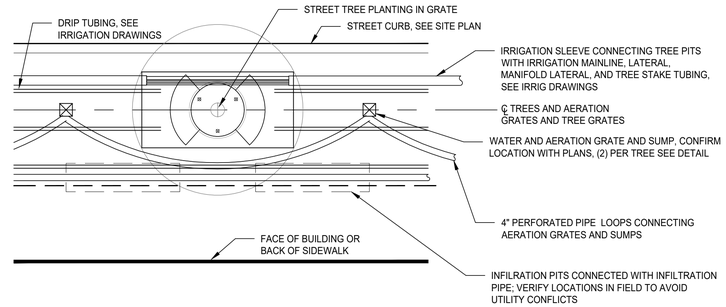
1. THE SAND-BASED STRUCTURAL SOIL PLANTING MEDIUM SHALL CONSIST OF A BLEND OF ONE PART COARSE SAND, ONE PART LOAM AND ONE PART ORGANIC AMENDMENT. BLENDING OF THE COMPONENTS SHALL BE CARRIED OUT WITH EARTH MOVING EQUIPMENT PRIOR TO PLACEMENT. THE COMPONENTS SHALL BE BLENDED TO CREATE A UNIFORM MIXTURE.
2. PROVIDE A SHOP DRAWING OF SAND BASED STRUCTURAL SOIL PLANTING MEDIUM (SIEVE, PH, ORGANIC CONTENT, SAND/LOAM/ORGANIC AMENDMENT PERCENTAGES) TO A&M FOR APPROVAL PRIOR TO PURCHASE & INSTALLATION.
3. THE FINAL BLENDED SAND-BASED STRUCTURAL SOIL PLANTING MEDIUM SHALL CONFORM TO THE FOLLOWING GRAIN SIZE DISTRIBUTION FOR MATERIAL PASSING THE #10 SIEVE:

SIEVE NO. U.S.	%PASSING BY WEIGHT	
	MIN.	MAX.
10	100	----
18	68	90
35	38	63
60	18	39
140	10	18
270	6	9
0.002MM	1	2

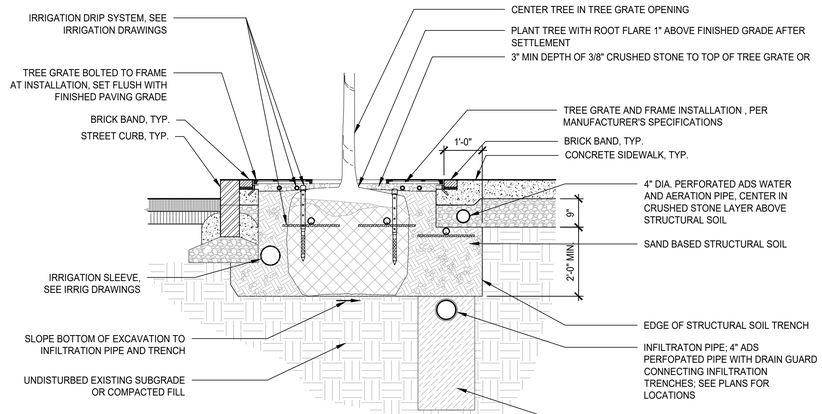
4. MAXIMUM SIZE SHALL BE ONE INCH LARGEST DIMENSION. THE MAXIMUM RETAINED ON THE #10 SIEVE SHALL BE 15% BY WEIGHT OF THE TOTAL SAMPLE.
5. THE RATIO OF THE PARTICLE SIZE FOR 70% PASSING (D70) TO THE PARTICLE SIZE FOR 20% PASSING (D20) SHALL BE 3.5 OR LESS (D70/D20 < 3.5). TESTS SHALL BE BY COMBINED HYDROMETER AND WET SIEVING IN COMPLIANCE WITH ASTM D422 AFTER DESTRUCTION OF ORGANIC MATTER BY IRRIGATION.
6. ORGANIC CONTENT SHALL BE BETWEEN 2.0 AND 3.0 PERCENT. PH SHALL BE 6.0 TO 7.0.



1 TREE PLANTING DETIAL
SCALE: 3/8"=1'-0"



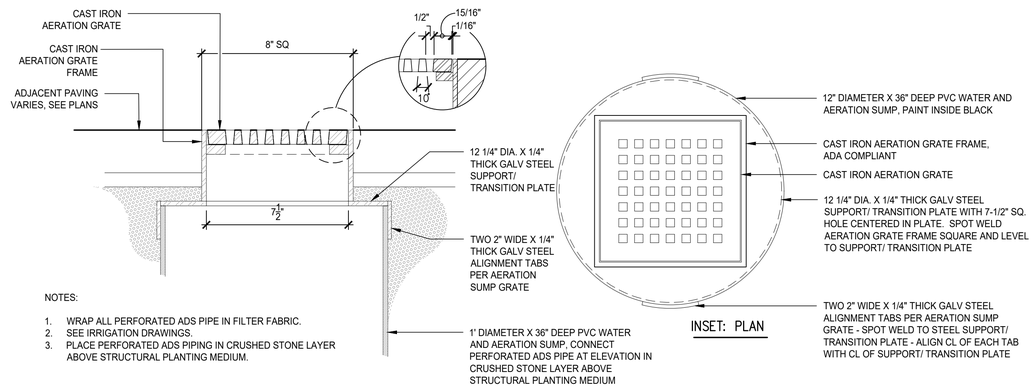
PLAN: WATER AND AERATION SYSTEM IN STREETSCAPE LAYOUT



CROSS SECTION

NOTES:
1. PLANTING DETAILS ARE INTENDED TO INDICATE CONSTRUCTION RELATED TO VARIOUS STREETSCAPE ELEMENTS. ACTUAL LOCATIONS OF STREETSCAPE ELEMENTS MAY VARY FROM THOSE SHOWN. SEE PLANS.
2. FINISHED GRADE OF TREE GRATES AND FRAMES SHALL BE FLUSH WITH SURROUNDING PAVEMENT.
3. PROVIDE AUTOMATIC IRRIGATION SYSTEM TO IRRIGATE EACH TREE EXTENDED FROM CENTRAL CONTROLS SYSTEM. IRRIGATION SLEEVING TO CONNECT ALL TREE LOCATIONS BACK TO POINT OF CONNECTION.
4. LIMB BRANCHES TO PROVIDE CLEAR PEDESTRIAN ZONE TO 7'-0" ABOVE FINISH GRADE.
5. SCARIFY ALL SOIL MARGINS TO DEPTH OF 6".
6. SEE IRRIGATION PLANS AND DETAILS.

2 TREE PLANTING IN TREE GRATE OVER SAND-BASED STRUCTURAL SOIL
SCALE: 1/2"=1'-0"



NOTES:
1. WRAP ALL PERFORATED ADS PIPE IN FILTER FABRIC.
2. SEE IRRIGATION DRAWINGS.
3. PLACE PERFORATED ADS PIPING IN CRUSHED STONE LAYER ABOVE STRUCTURAL PLANTING MEDIUM.

INSET: PLAN

3 WATER AND AERATION SUMP WITH GRATE AND FRAME
SCALE: 3"=1'-0"

Tighe&Bond

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LANDSCAPE DETAILS

SCALE: AS SHOWN

L-102

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GENERAL PROJECT INFORMATION

PROJECT APPLICANT: NORTH MILL POND HOLDINGS, LLC
1359 HOOKSETT ROAD
HOOKSETT, NH 03106
PROJECT NAME: PROPOSED MIXED USE DEVELOPMENT
PROJECT MAP / LOT: MAP 123 / LOTS 10, 12, 13 & 14
PROJECT ADDRESS: 1 RAYNES AVENUE
PORTSMOUTH, NH 03801
PROJECT LATITUDE: 42°-04'-48" N
PROJECT LONGITUDE: 70°-45'-50" W

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES TWO BUILDINGS, A 5 STORY MIXED USE BUILDING AND A 5 STORY 124 ROOM HOTEL. THE PROJECT WILL ALSO CONSIST OF ASSOCIATED SITE IMPROVEMENTS SUCH AS PAVING, STORMWATER MANAGEMENT, UTILITIES AND LIGHTING.

DISTURBED AREA

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 2.40 ACRES.

SOIL CHARACTERISTICS

BASED ON THE USCS SITE SPECIFIC SOIL SURVEY CONDUCTED BY LEONARD LORD, PhD, CSS, CWS OF TIGHE & BOND, INC. THE SOIL SURVEY, IDENTIFIES MOSTLY HYDROLOGIC SOIL GROUP C SOILS AND SOME PORTIONS OF HYDROLOGIC SOIL GROUP A SOILS. MUCH OF THE SITE IS COMPRISED OF UDORTHENTS WITH TWO DRAINAGE CLASSIFICATIONS, MODERATELY POORLY DRAINED SOILS AND PORTIONS OF WELL DRAINED SOILS.

NAME OF RECEIVING WATERS

THE STORMWATER RUNOFF FROM THE SITE WILL BE DISCHARGED VIA A CLOSED DRAINAGE SYSTEM ULTIMATELY FLOWS TO NORTH MILL POND THEN TO THE PISCATAQUA RIVER.

CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES:

1. CUT AND CLEAR TREES.
2. CONSTRUCT TEMPORARY AND PERMANENT SEDIMENT, EROSION AND DETENTION CONTROL FACILITIES. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATIONS THAT WILL INFLUENCE STORMWATER RUNOFF SUCH AS:
   - NEW CONSTRUCTION
   - CONTROL OF DUST
   - NEARNESS OF CONSTRUCTION SITE TO RECEIVING WATERS
   - CONSTRUCTION DURING LATE WINTER AND EARLY SPRING
3. ALL PERMANENT DITCHES, SWALES, DETENTION, RETENTION AND SEDIMENTATION BASINS TO BE STABILIZED USING THE VEGETATIVE AND NON-STRUCTURAL BMPS PRIOR TO DIRECTING RUNOFF TO THEM.
4. CLEAR AND DISPOSE OF DEBRIS.
5. CONSTRUCT TEMPORARY CULVERTS AND DIVERSION CHANNELS AS REQUIRED.
6. GRADE AND GRAVEL ROADWAYS AND PARKING AREAS - ALL ROADS AND PARKING AREA SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
7. BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
8. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, PERIMETER EROSION CONTROL MEASURES, SEDIMENT TRAPS, ETC., MULCH AND SEED AS REQUIRED.
9. SEDIMENT TRAPS AND/OR BASINS SHALL BE USED AS NECESSARY TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.
10. FINISH PAVING ALL ROADWAYS AND PARKING LOTS.
11. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES.
12. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
13. REMOVE TRAPPED SEDIMENTS FROM COLLECTOR DEVICES AS APPROPRIATE AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES.

SPECIAL CONSTRUCTION NOTES:

1. THE CONSTRUCTION SEQUENCE MUST LIMIT THE DURATION AND AREA OF DISTURBANCE.
2. THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

EROSION CONTROL NOTES:

1. ALL EROSION CONTROL MEASURES AND PRACTICES SHALL CONFORM TO THE "NEW HAMPSHIRE STORMWATER MANUAL VOLUME 3: EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION" PREPARED BY THE NHDES.
2. PRIOR TO ANY WORK OR SOIL DISTURBANCE, CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EROSION CONTROL MEASURES AS REQUIRED IN THE PROJECT MANUAL.
3. CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL BARRIERS, INCLUDING HAY BALES, SILT FENCES, MULCH BERMS, SILT SACKS AND SILT SOCKS AS SHOWN IN THESE DRAWINGS AS THE FIRST ORDER OF WORK.
4. SILT SACK INLET PROTECTION SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AND BE MAINTAINED FOR THE DURATION OF THE PROJECT.
5. PERIMETER CONTROLS INCLUDING SILT FENCES, MULCH BERM, SILT SOCK, AND/OR HAY BALE BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL NON-PAVED AREAS HAVE BEEN STABILIZED.
6. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
7. ALL DISTURBED AREAS NOT OTHERWISE BEING TREATED SHALL RECEIVE 6" LOAM, SEED AND FERTILIZER.
8. INSPECT ALL INLET PROTECTION AND PERIMETER CONTROLS WEEKLY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
9. CONSTRUCT EROSION CONTROL BLANKETS ON ALL SLOPES STEEPER THAN 3:1.

STABILIZATION:

1. AN AREA SHALL BE CONSIDERED STABLE WHEN ONE OF THE FOLLOWING HAS OCCURRED:
   A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
   B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
   C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED;
   D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.;
   E. IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2 HAVE BEEN INSTALLED.
2. WINTER STABILIZATION PRACTICES:
   A. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS;
   B. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;
   C. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;
3. STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA. STABILIZATION MEASURES TO BE USED INCLUDE:
   A. TEMPORARY SEEDING;
   B. MULCHING.
4. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
5. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN THESE AREAS, SILT FENCES, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
6. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILT FENCES, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY OCTOBER 15.

DUST CONTROL:

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST THROUGHOUT THE CONSTRUCTION PERIOD.
2. DUST CONTROL METHODS SHALL INCLUDE, BUT BE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
3. DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.

STOCKPILES:

1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

OFF SITE VEHICLE TRACKING:

1. THE CONTRACTOR SHALL CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE(S) PRIOR TO ANY EXCAVATION ACTIVITIES.

VEGETATION:

1. TEMPORARY GRASS COVER:
   A. SEEDBED PREPARATION:
      a. SEE LANDSCAPE PLAN FOR SEEDBED PREPARATION REQUIREMENTS;
   B. SEEDING:
      a. SEE LANDSCAPE PLAN FOR SEEDING REQUIREMENTS;
   C. MAINTENANCE:
      a. TEMPORARY SEEDING SHALL BE PERIODICALLY INSPECTED. AT A MINIMUM, 95% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES USED IN THE INTERIM (MULCH, FILTER BARRIERS, CHECK DAMS, ETC.).
2. VEGETATIVE PRACTICE:
   A. SEE LANDSCAPE PLAN FOR PERMANENT MEASURES AND PLANTINGS:
      a. THE CONTRACTOR SHALL PROTECT AND MAINTAIN THE SEEDED AREAS UNTIL ACCEPTED;
      b. IN NO CASE SHALL THE WEED CONTENT EXCEED ONE (1) PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH STATE AND FEDERAL SEED LAWS. SEEDING SHALL BE DONE NO LATER THAN SEPTEMBER 15. IN NO CASE SHALL SEEDING TAKE PLACE OVER SNOW.
3. DORMANT SEEDING (SEPTEMBER 15 TO FIRST SNOWFALL):
   A. FOLLOW PERMANENT MEASURES REQUIREMENTS. APPLY SEED MIXTURE AT TWICE THE INDICATED RATE. APPLY MULCH AS INDICATED FOR PERMANENT MEASURES.

CONCRETE WASHOUT AREA:

1. THE FOLLOWING ARE THE ONLY NON-STORMWATER DISCHARGES ALLOWED. ALL OTHER NON-STORMWATER DISCHARGES ARE PROHIBITED ON SITE:
   A. THE CONCRETE DELIVERY TRUCKS SHALL, WHENEVER POSSIBLE, USE WASHOUT FACILITIES AT THEIR OWN PLANT OR DISPATCH FACILITY;
   B. IF IT IS NECESSARY, SITE CONTRACTOR SHALL DESIGNATE SPECIFIC WASHOUT AREAS AND DESIGN FACILITIES TO HANDLE ANTICIPATED WASHOUT WATER;
   C. CONTRACTOR SHALL LOCATE WASHOUT AREAS AT LEAST 150 FEET AWAY FROM STORM DRAINS, SWALES AND SURFACE WATERS OR DELINEATED WETLANDS;
   D. INSPECT WASHOUT FACILITIES DAILY TO DETECT LEAKS OR TEARS AND TO IDENTIFY WHEN MATERIALS NEED TO BE REMOVED.

ALLOWABLE NON-STORMWATER DISCHARGES:

1. FIRE-FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
11. UNCONTAMINATED EXCAVATION DEWATERING;
12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL:

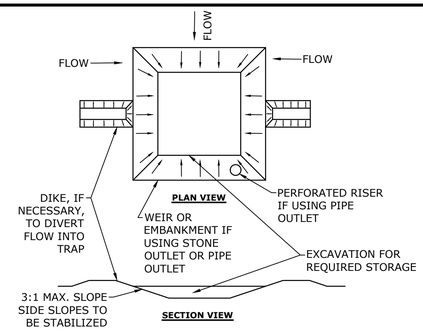
1. WASTE MATERIAL:
   A. ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
   B. NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
   C. ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE:
   A. ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
   B. SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE:
   A. ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

SPILL PREVENTION:

1. CONTRACTOR SHALL BE FAMILIAR WITH SPILL PREVENTION MEASURES REQUIRED BY LOCAL, STATE AND FEDERAL AGENCIES. AT A MINIMUM, CONTRACTOR SHALL FOLLOW THE BEST MANAGEMENT SPILL PREVENTION PRACTICES OUTLINED BELOW.
2. THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES DURING CONSTRUCTION TO STORMWATER RUNOFF:
   A. GOOD HOUSEKEEPING - THE FOLLOWING GOOD HOUSEKEEPING PRACTICE SHALL BE FOLLOWED ON SITE DURING CONSTRUCTION:
      a. ONLY SUFFICIENT AMOUNTS OF PRODUCTS TO DO THE JOB SHALL BE STORED ON SITE;
      b. ALL REGULATED MATERIALS STORED ON SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE, ON AN IMPERVIOUS SURFACE;
      c. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED;
      d. THE SITE SUPERINTENDENT SHALL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS;
      e. SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER;
      f. WHENEVER POSSIBLE ALL OF A PRODUCT SHALL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
      g. THE TRAINING OF ON-SITE EMPLOYEES AND THE ON-SITE POSTING OF RELEASE RESPONSE INFORMATION DESCRIBING WHAT TO DO IN THE EVENT OF A SPILL OF REGULATED SUBSTANCES.
   B. HAZARDOUS PRODUCTS - THE FOLLOWING PRACTICES SHALL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
      a. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE;
      b. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHALL BE RETAINED FOR IMPORTANT PRODUCT INFORMATION;
      c. SURPLUS PRODUCT THAT MUST BE DISPOSED OF SHALL BE DISCARDED ACCORDING TO THE MANUFACTURER'S RECOMMENDED METHODS OF DISPOSAL.
   C. PRODUCT SPECIFIC PRACTICES - THE FOLLOWING PRODUCT SPECIFIC PRACTICES SHALL BE FOLLOWED ON SITE:
      a. PETROLEUM PRODUCTS:
      i. ALL ON SITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE LEAKAGE;
      ii. PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED SUBSTANCES USED ON SITE SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
      iii. SECURE FUEL STORAGE AREAS AGAINST UNAUTHORIZED ENTRY;
      iv. INSPECT FUEL STORAGE AREAS WEEKLY;
      v. WHEREVER POSSIBLE, KEEP REGULATED CONTAINERS THAT ARE STORED OUTSIDE MORE THAN 50 FEET FROM SURFACE WATER AND STORM DRAINS, 75 FEET FROM PRIVATE WELLS, AND 400 FEET FROM PUBLIC WELLS;
      vi. COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS;
      vii. SECONDARY CONTAINMENT IS REQUIRED FOR CONTAINERS CONTAINING REGULATED SUBSTANCES STORED OUTSIDE, EXCEPT FOR ON PREMISE USE HEATING FUEL TANKS, OR ABOVEGROUND OR UNDERGROUND STORAGE TANKS OTHERWISE REGULATED.
      viii. THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:
         (1) EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED;
         (2) PLACE DRIP PANS UNDER SPIGOTS, VALVES, AND PUMPS;
         (3) HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK AREAS;
         (4) USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES;
         (5) PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.
      ix. FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT SHALL COMPLY WITH THE REGULATIONS OF THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES THESE REQUIREMENTS ARE SUMMARIZED IN WD-DWGB-22-6 BEST MANAGEMENT PRACTICES FOR FUELING AND MAINTENANCE OF EXCAVATION AND EARTHMOVING EQUIPMENT, OR ITS SUCCESSOR DOCUMENT. HTTPS://WWW.DES.NH.GOV/ORGANIZATION/COMMISSIONER/PIP/FACTSHEETS/DWGB/DOCUMENTS/DWGB-22-6.PDF
      b. FERTILIZERS:
      i. FERTILIZERS USED SHALL BE APPLIED ONLY IN THE MINIMUM AMOUNTS DIRECTED BY THE SPECIFICATIONS;
      ii. ONCE APPLIED FERTILIZER SHALL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER;
      iii. STORAGE SHALL BE IN A COVERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER SHALL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
      c. PAINTS:
      i. ALL CONTAINERS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE;
      ii. EXCESS PAINT SHALL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM;
      iii. EXCESS PAINT SHALL BE DISPOSED OF PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.
   D. SPILL CONTROL PRACTICES - IN ADDITION TO GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTION, THE FOLLOWING PRACTICES SHALL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
      a. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY POSTED AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES;
      b. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS SHALL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE;
      c. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY;
      d. THE SPILL AREA SHALL BE KEPT WELL VENTILATED AND PERSONNEL SHALL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE;
      e. SPILLS OF TOXIC OR HAZARDOUS MATERIAL SHALL BE REPORTED TO THE APPROPRIATE LOCAL, STATE OR FEDERAL AGENCIES AS REQUIRED;
      f. THE SITE SUPERINTENDENT RESPONSIBLE FOR DAY-TO-DAY SITE OPERATIONS SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.
   E. VEHICLE FUELING AND MAINTENANCE PRACTICE:
      a. CONTRACTOR SHALL MAKE AN EFFORT TO PERFORM EQUIPMENT/VEHICLE FUELING AND MAINTENANCE AT AN OFF-SITE FACILITY;
      b. CONTRACTOR SHALL PROVIDE AN ON-SITE FUELING AND MAINTENANCE AREA THAT IS CLEAN AND DRY;
      c. IF POSSIBLE THE CONTRACTOR SHALL KEEP AREA COVERED;
      d. CONTRACTOR SHALL KEEP A SPILL KIT AT THE FUELING AND MAINTENANCE AREA;
      e. CONTRACTOR SHALL REGULARLY INSPECT VEHICLES FOR LEAKS AND DAMAGE;
      f. CONTRACTOR SHALL USE DRIP PANS, DRIP CLOTHS, OR ABSORBENT PADS WHEN REPLACING SPENT FLUID.

EROSION CONTROL OBSERVATIONS AND MAINTENANCE PRACTICES

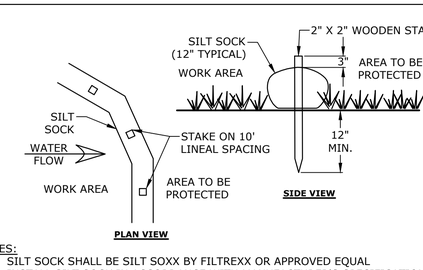
1. THIS PROJECT EXCEEDS ONE (1) ACRE OF DISTURBANCE AND THUS REQUIRES A SWPPP. THE SWPPP SHALL BE PREPARED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE FAMILIAR WITH THE SWPPP AND KEEP AN UPDATED COPY OF THE SWPPP ONSITE AT ALL TIMES.
2. THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT:
   A. OBSERVATIONS OF THE PROJECT FOR COMPLIANCE WITH THE SWPPP SHALL BE MADE BY THE CONTRACTOR AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF A STORM 0.25 INCHES OR GREATER;
   B. AN OBSERVATION REPORT SHALL BE MADE AFTER EACH OBSERVATION AND DISTRIBUTED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR;
   C. A REPRESENTATIVE OF THE SITE CONTRACTOR, SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
   D. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.



NOTES:

1. THE TRAP SHALL BE INSTALLED AS CLOSE TO THE DISTURBED AREA AS POSSIBLE.
2. THE MAXIMUM CONTRIBUTING AREA TO A SINGLE TRAP SHALL BE LESS THAN 5 ACRES.
3. THE MINIMUM VOLUME OF THE TRAP SHALL BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA.
4. TRAP OUTLET SHALL BE MINIMUM OF ONE FOOT BELOW THE CREST OF THE TRAP.
5. TRAP SHALL DISCHARGE TO A STABILIZED AREA.
6. TRAP SHALL BE CLEANED WHEN 50 PERCENT OF THE ORIGINAL VOLUME IS FILLED.
7. MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AND STABILIZED.
8. SEDIMENT TRAPS MUST BE USED AS NEEDED TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.

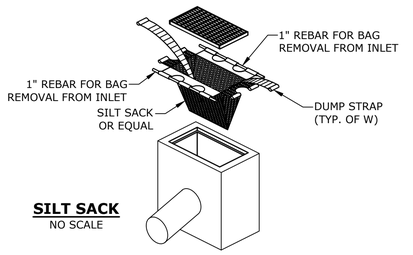
SEDIMENT TRAP
NO SCALE



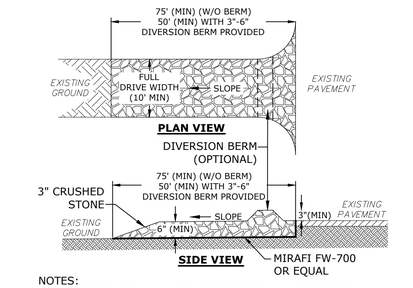
NOTES:

1. SILT SOCK SHALL BE SILT SOXX BY FILTREXX OR APPROVED EQUAL
2. INSTALL SILT SOCK IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS

SILT SOCK
NO SCALE



SILT SACK
NO SCALE



NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT FROM THE SITE. WHEN WASHING IS REQUIRED, IT SHALL BE DONE SO RUNOFF DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS

STABILIZED CONSTRUCTION EXIT
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08630 LICENSED PROFESSIONAL ENGINEER – 11-24-21

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER – 11/24/21

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
K	11/24/2021	PB Submission
J	10/20/2021	TAC Resubmission
I	8/23/2021	TAC Resubmission
H	7/21/2021	TAC Resubmission
G	5/26/2021	CC Resubmission
F	5/19/2021	TAC Resubmission
E	4/28/2021	CC Resubmission
D	4/21/2021	TAC Resubmission
C	3/22/2021	TAC Submission
B	3/10/2021	Design Review Resubmission
A	12/1/2020	TAC Work Session

PROJECT NO:	P-0595-007
DATE:	December 22, 2020
FILE:	P-0595-007-DTLS.DWG
DRAWN BY:	CJK
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

EROSION CONTROL NOTES AND DETAILS SHEET

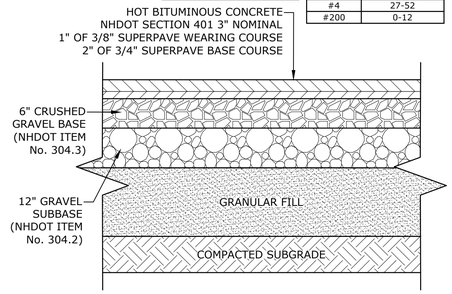
SCALE: AS SHOWN

C-501

Last Saved: 10/19/2021
Plotted: Nov 18, 2021-12:58pm By: CKrzculk
Tighe & Bond: J:\P\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings_Figures\AutoCAD\SheetP-0595-007-DTLS.dwg

NHDOT ITEM No. 304.2 (GRAVEL)	
SIEVE SIZE	% PASSING
6"	100
#4	25-70
#200	0-12

NHDOT ITEM No. 304.3 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING
3"	100
2"	95-100
1"	55-85
#4	27-52
#200	0-12

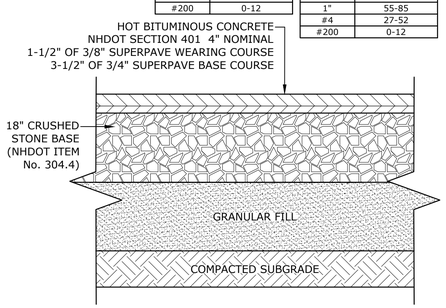


NOTES:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
3. A TACK COAT SHALL BE PLACED ON TOP OF BINDER COURSE PAVEMENT PRIOR TO PLACING WEARING COURSE.
4. REFER TO CITY SPECIFICATIONS FOR ASPHALT MIX DESIGN.
5. FINAL PAVEMENT DESIGN TO BE DETERMINED BY GEOTECHNICAL ENGINEER.

ON-SITE PAVEMENT SECTION
NO SCALE

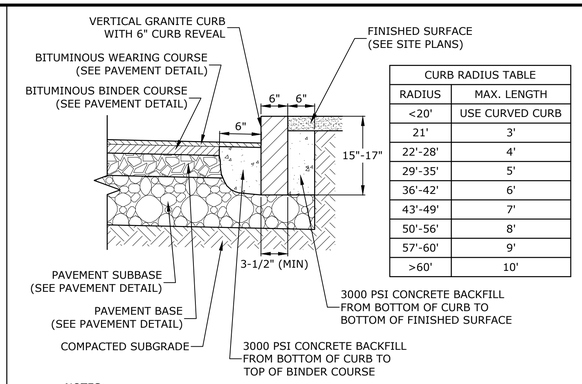
NHDOT ITEM No. 304.2 (GRAVEL)	
SIEVE SIZE	% PASSING
6"	100
#4	25-70
#200	0-12

NHDOT ITEM No. 304.3 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING
3"	100
2"	95-100
1"	55-85
#4	27-52
#200	0-12



NOTES:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
3. A TACK COAT SHALL BE PLACED ON TOP OF BINDER COURSE PAVEMENT PRIOR TO PLACING WEARING COURSE.
4. REFER TO CITY SPECIFICATIONS FOR ASPHALT MIX DESIGN.

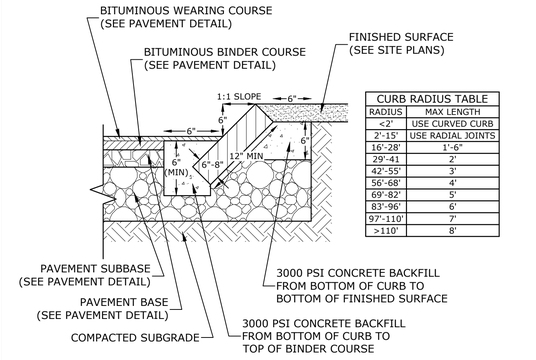
CITY RIGHT-OF-WAY PAVEMENT SECTION
NO SCALE



CURB RADIUS TABLE	
RADIUS	MAX. LENGTH
<20'	USE CURVED CURB
21'	3'
22'-28'	4'
29'-35'	5'
36'-42'	6'
43'-49'	7'
50'-56'	8'
57'-60'	9'
>60'	10'

NOTES:
1. SEE SITE PLAN(S) FOR LIMITS OF VERTICAL GRANITE CURB (VGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 3'
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 10'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
6. ALL RADII 20 FEET AND SMALLER SHALL BE CONSTRUCTED USING CURVED SECTIONS.
7. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

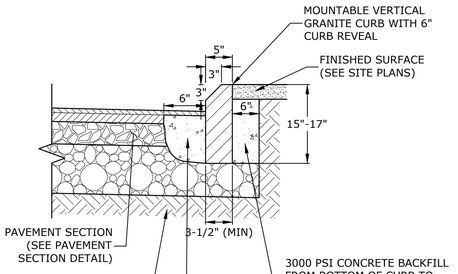
VERTICAL GRANITE CURB
NO SCALE



CURB RADIUS TABLE	
RADIUS	MAX LENGTH
<2'	USE CURVED CURB
2'-15'	USE RADIAL JOINTS
16'-28'	1'-6"
29'-41	2'
42'-55'	3'
56'-68'	4'
69'-82'	5'
83'-96'	6'
97'-110'	7'
>110'	8'

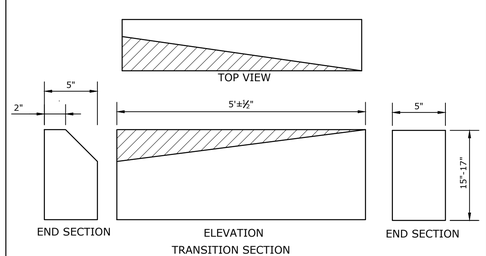
NOTES:
1. SEE SITE PLAN(S) FOR LIMITS OF SLOPED GRANITE CURB (SGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 18"
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 8'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
6. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

SLOPED GRANITE CURB
NO SCALE



NOTES:
1. SEE SITE PLAN(S) FOR LIMITS OF MOUNTABLE VERTICAL GRANITE CURB (MVGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 3'
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 10'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
6. ALL RADII 20 FEET AND SMALLER SHALL BE CONSTRUCTED USING CURVED SECTIONS.
7. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

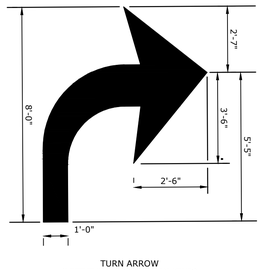
MOUNTABLE VERTICAL GRANITE CURB
NO SCALE



MOUNTABLE VERTICAL GRANITE CURB TO VERTICAL GRANITE CURB

NOTES:
1. THE INTENT OF THIS ITEM IS TO PROVIDE A SMOOTH TRANSITION BETWEEN VERTICAL GRANITE CURB AND MOUNTABLE VERTICAL GRANITE CURB WITHOUT REQUIRING FIELD CHIPPING DURING INSTALLATION. THE MOUNTABLE VERTICAL GRANITE CURB MAY REQUIRE ADJUSTMENTS TO MEET THE TRANSITION PIECE HEIGHT. TRANSITION SLOPE CURB TO STANDARD REVEAL AS QUICKLY AS POSSIBLE TO PROVIDE FOR THIS SMOOTH TRANSITION.

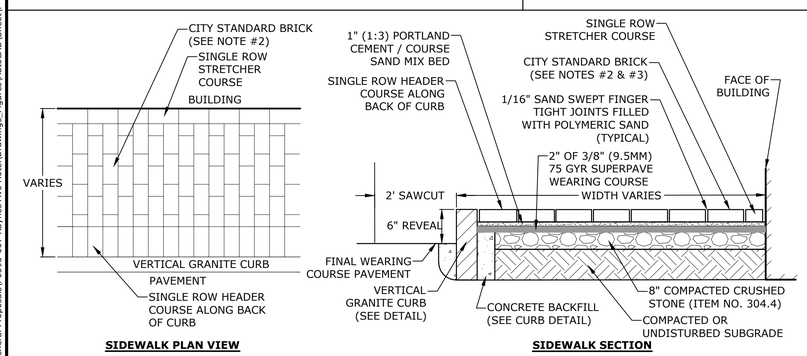
CURB TRANSITION
NO SCALE



TURN ARROW
(LEFT TURN OPPOSITE IN KIND)

NOTES:
1. SYMBOLS SHALL BE RETROREFLECTIVE WHITE AND SHALL CONFORM TO THE LATEST VERSION OF THE MUTCD.
2. PREFORMED WORDS AND SYMBOLS SHALL BE PRE-CUT BY THE MANUFACTURER.
3. ALL STOP BARS, WORDS, SYMBOLS AND ARROW SHALL BE THERMOPLASTIC.

TURN ARROW
NO SCALE

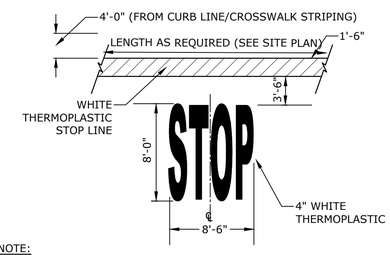


SIDEWALK PLAN VIEW

SIDEWALK SECTION

NOTES:
1. BRICK SIDEWALK SHALL BE INSTALLED AS DETAILED AND PER CITY OF PORTSMOUTH REQUIREMENTS/SPECIFICATIONS AND SHALL INCLUDE A CONTINUOUS APPROVED PAVER EDGE RESTRAINT SYSTEM AT ALL LOCATIONS NOT ADJACENT TO CURB OR BUILDINGS.
2. CITY STANDARD BRICK SHALL BE TRADITIONAL EDGE, PATHWAY, FULL RANGE 2.25"X4"X8" PAVER, BY PINE HALL BRICK, INC. BRICK MATERIAL SAMPLES SHALL BE PROVIDED TO DPW PRIOR TO INSTALLATION FOR REVIEW AND APPROVAL.
3. 80 MILLIMETER PINEHALL BRICK SHALL BE USED FOR THE FIRE ACCESS AREA UNIT PAVERS ALONG MAPLEWOOD AVE.
4. BEDDING MATERIAL SHALL BE A PORTLAND CEMENT / COURSE SAND MIX THAT IS 1 PART PORTLAND CEMENT AND 3 PARTS COURSE SAND. SAND SHALL CONFORM WITH ASTM C-33 AND CEMENT SHALL BE PORTLAND CEMENT TYPE I/TYPE II.

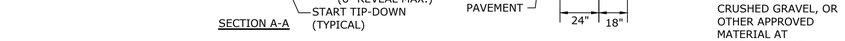
BRICK SIDEWALK
NO SCALE

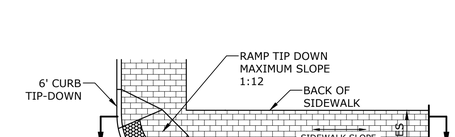


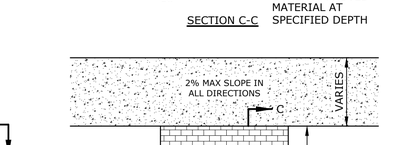
NOTE:
1. PAVEMENT MARKINGS TO BE INSTALLED IN LOCATIONS AS SHOWN ON SITE PLAN.
2. STRIPING SHALL BE CONSTRUCTED USING WHITE THERMO PLASTIC, REFLECTERIZED PAVEMENT MARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505

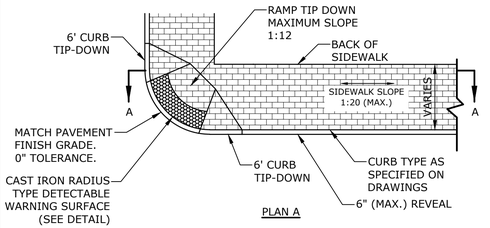
STOP BAR AND LEGEND
NO SCALE

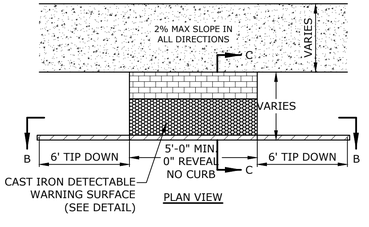
NHDOT ITEM No. 304.3 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING
3"	100
2"	95-100
1"	55-85
#4	27-52
#200	0-12











NOTES:
1. RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
2. A 6" COMPACTED CRUSHED GRAVEL BASE (NHDOT ITEM No. 304.3) SHALL BE PROVIDED BENEATH RAMPS.
3. DETECTABLE WARNING PANEL SHALL BE CAST IRON SET IN CONCRETE (SEE DETAIL.)
4. PROVIDE DETECTABLE WARNING SURFACES ANYTIME THAT A CURB RAMP, BLENDED TRANSITION, OR LANDING CONNECTS TO A STREET.
5. LOCATE THE DETECTABLE WARNING SURFACES AT THE BACK OF THE CURB ALONG THE EDGE OF THE LANDING.
6. THE MAXIMUM RUNNING SLOPE OF ANY SIDEWALK CURB RAMP IS 12:1, THE MAXIMUM CROSS SLOPE IS 2%. THE SLOPE OF THE LANDING SHALL NOT EXCEED 2% IN ANY DIRECTION.
7. TRANSITIONS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES. ROADWAY SHOULDER SLOPES ADJOINING SIDEWALK CURB RAMPS SHALL BE A MAXIMUM OF 5% (FULL WIDTH) FOR A DISTANCE OF 2 FT. FROM THE ROADWAY CURBLINE.
8. THE BOTTOM OF THE SIDEWALK CURB RAMP OR LANDING, EXCLUSIVE OF THE FLARED SIDES, SHALL BE WHOLLY CONTAINED WITHIN THE CROSSWALK MARKINGS.
9. DETECTABLE WARNING PANELS SHALL BE A MINIMUM OF 2 FEET IN DEPTH. THE ROWS OF TRUNCATED DOMES SHALL BE ALIGNED PERPENDICULAR TO THE GRADE BREAK BETWEEN THE RAMP, BLENDED TRANSITION, OR LANDING AND THE STREET.
10. THE TEXTURE OF THE DETECTABLE WARNING FEATURE MUST CONTRAST VISUALLY WITH THE SURROUNDING SURFACES (EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT).

CONCRETE TIP DOWN RAMP
NO SCALE

Tighe&Bond

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
K	11/24/2021	PB Submission
J	10/20/2021	TAC Resubmission
I	8/23/2021	TAC Resubmission
H	7/21/2021	TAC Resubmission
G	5/26/2021	CC Resubmission
F	5/19/2021	TAC Resubmission
E	4/28/2021	CC Resubmission
D	4/21/2021	TAC Resubmission
C	3/22/2021	TAC Submission
B	3/10/2021	Design Review Resubmission
A	12/1/2020	TAC Work Session

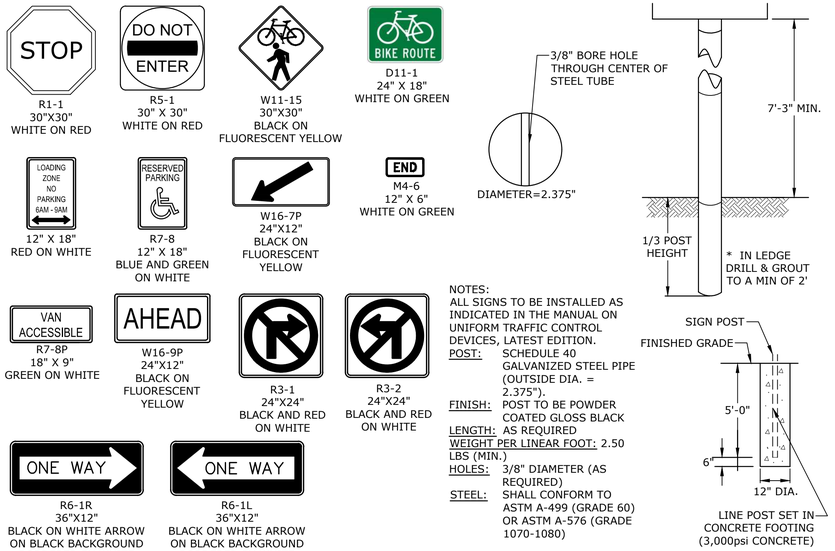
PROJECT NO:	P-0595-007
DATE:	December 22, 2020
FILE:	P-0595-007-DTLS.DWG
DRAWN BY:	CJK
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

DETAILS SHEET

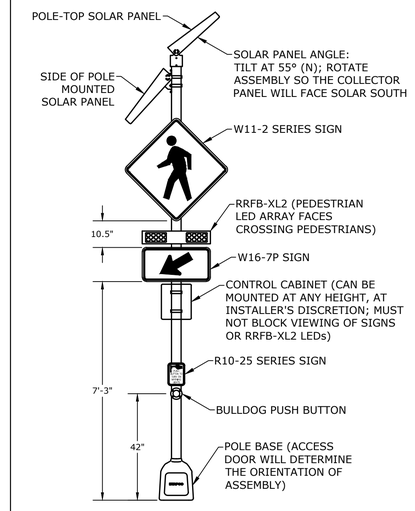
SCALE: AS SHOWN

C-502

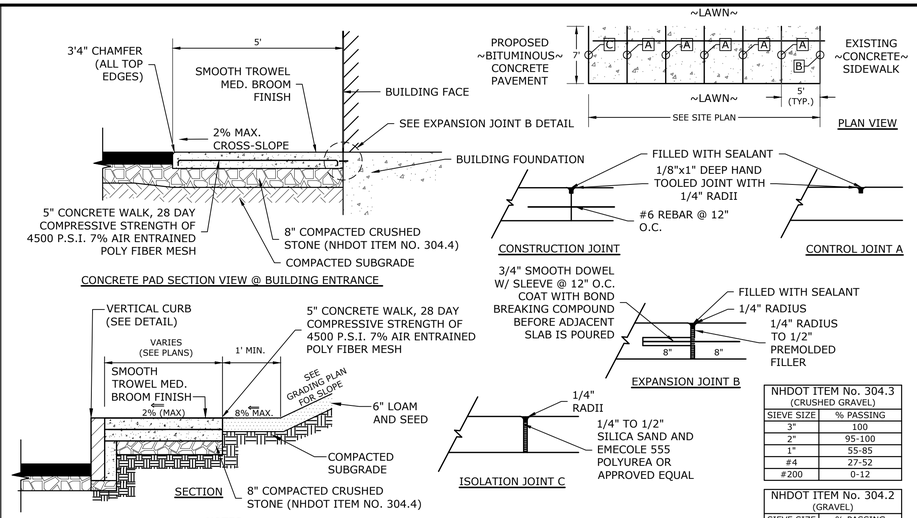
Last Saved:10/19/2021
Plotted On:Nov 18, 2021-12:58pm By: CKrzculk
Tighe & Bond: J:\P\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings, Figures\AutoCAD\Sheet\P-0595-007-DTLS.dwg



SIGN LEGEND & SIGN POST
NO SCALE



RAPID RECTANGULAR FLASHING BEACON (RRFB)
NO SCALE

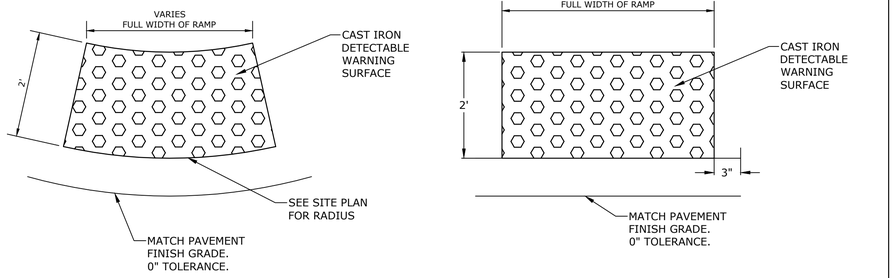


NHDOT ITEM No. 304.3 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING
3"	100
2"	95-100
1"	55-85
#4	27-52
#200	0-12

NHDOT ITEM No. 304.2 (GRAVEL)	
SIEVE SIZE	% PASSING
6"	100
#4	25-70
#200	0-12

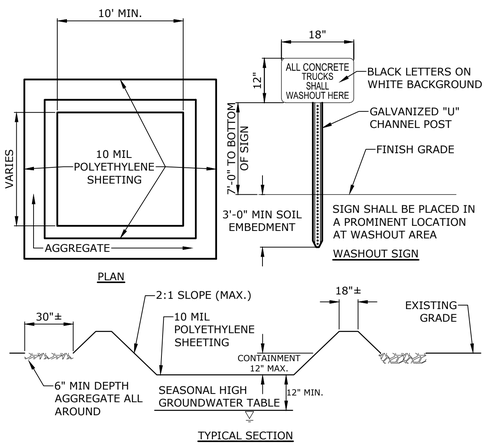
NOTES:
1. SEE SITE PLAN FOR SIDEWALK WIDTH AND LOCATIONS.
2. SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR WALK AND SIDE SLOPE GRADES.

CONCRETE SIDEWALK
NO SCALE



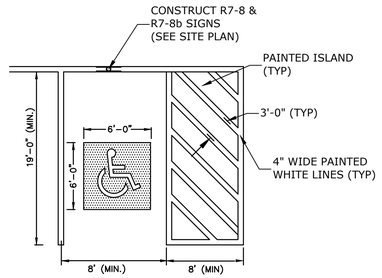
NOTES:
1. DETECTABLE WARNING SURFACE SHALL BE 2' X 3' CAST IRON PANEL SET IN CONCRETE.
2. DETECTABLE WARNING SURFACE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

CAST IRON DETECTABLE WARNING SURFACE
NO SCALE



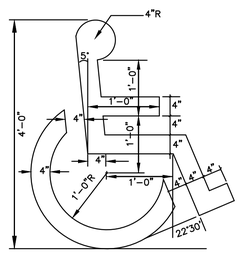
NOTES:
1. CONTAINMENT MUST BE STRUCTURALLY SOUND AND LEAK FREE AND CONTAIN ALL LIQUID WASTES.
2. CONTAINMENT DEVICES MUST BE OF SUFFICIENT QUANTITY OR VOLUME TO COMPLETELY CONTAIN THE LIQUID WASTES GENERATED.
3. WASHOUT MUST BE CLEANED OR NEW FACILITIES CONSTRUCTED AND READY TO USE ONCE WASHOUT IS 75% FULL.
4. WASHOUT AREA(S) SHALL BE INSTALLED IN A LOCATION EASILY ACCESSIBLE BY CONCRETE TRUCKS.
5. ONE OR MORE AREAS MAY BE INSTALLED ON THE CONSTRUCTION SITE AND MAY BE RELOCATED AS CONSTRUCTION PROGRESSES.
6. AT LEAST WEEKLY REMOVE ACCUMULATION OF SAND AND AGGREGATE AND DISPOSE OF PROPERLY.

CONCRETE WASHOUT AREA
NO SCALE



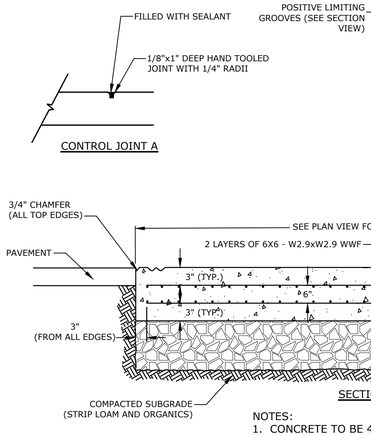
NOTES:
1. ALL PAINT SHALL BE FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
2. SYMBOLS & PARKING STALLS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN W/DISABILITIES ACT.

ACCESSIBLE PARKING STALL
NO SCALE



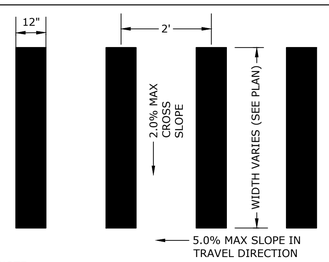
NOTES:
1. SYMBOL SHALL BE CONSTRUCTED IN ALL ACCESSIBLE SPACES USING WHITE THERMOPLASTIC, REFLECTORIZED PAVEMENT PARKING MATERAL MEETING THE REQUIREMENTS OF ASTM D 4505.
2. SYMBOL SHALL BE CONSTRUCTED TO THE LATEST ADA, STATE AND LOCAL REQUIREMENTS.

ACCESSIBLE SYMBOL
NO SCALE



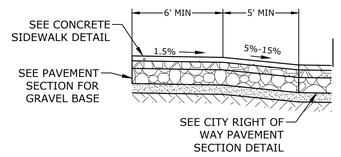
NOTES:
1. CONCRETE TO BE 4500 PSI, 7% AIR ENTRAINED
2. STANDARD BROOM FINISH.

DUMPSTER PAD
NO SCALE



NOTE:
STRIPING SHALL BE CONSTRUCTED USING WHITE THERMO PLASTIC, REFLECTERIZED PAVEMENT MARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505

CROSSWALK STRIPING
NO SCALE



DRIVEWAY ENTRANCE SECTION
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE - BRADLEE MEZQUITA No. 08630 LICENSED PROFESSIONAL ENGINEER
11-24-21

STATE OF NEW HAMPSHIRE - PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER
11/24/21

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

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PROJECT NO:	P-0595-007
DATE:	December 22, 2020
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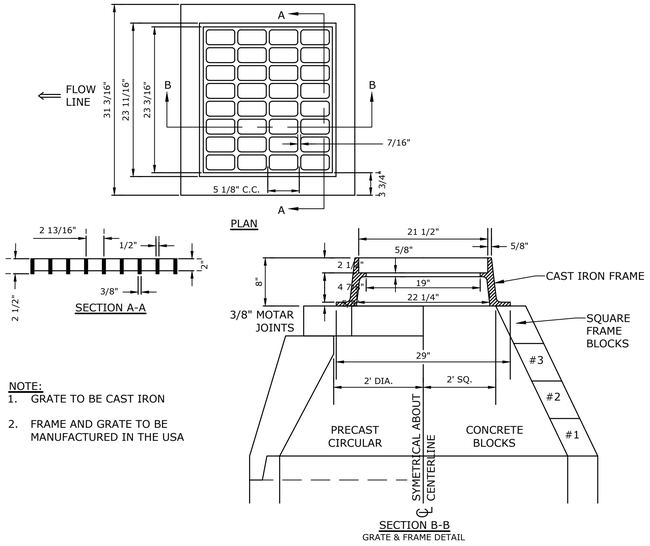
DRAWN BY:	CJK
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

DETAILS SHEET

SCALE: AS SHOWN

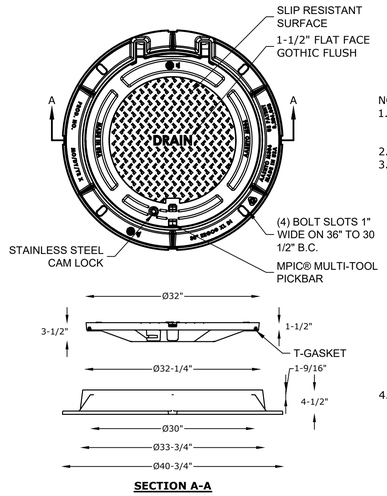
C-503

Last Saved: 10/19/2021
Plotted On: Nov 18, 2021 - 12:58pm By: CKrzcuik
Tighe & Bond: J:\P\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings, Figures\AutoCAD\Sheet\P-0595-007-DTLS.dwg



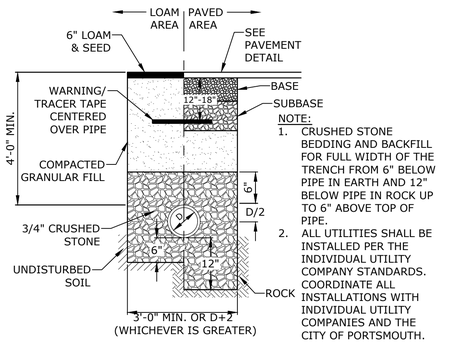
NOTE:
1. GRATE TO BE CAST IRON
2. FRAME AND GRATE TO BE MANUFACTURED IN THE USA

CATCH BASIN FRAME & GRATE
NO SCALE



NOTES:
1. MANHOLE FRAME AND COVER SHALL BE 32" HINGED ERGO XL BY EJ CO.
2. ALL DIMENSIONS ARE NOMINAL.
3. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
   A. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
   B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAMES ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
   C. ALL OTHER PERTINENT REQUIREMENTS OF THE SPECIFICATIONS ARE MET.
4. LABEL TYPE OF MANHOLE WITH 3" HIGH LETTERS IN HE CENTER OF THE COVER.

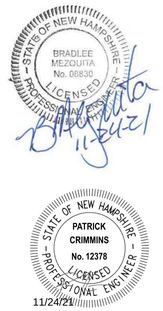
DRAIN MANHOLE FRAME & COVER
NO SCALE

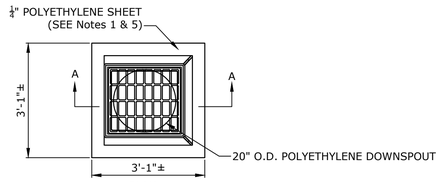


NOTE:
1. CRUSHED STONE BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 6" ABOVE TOP OF PIPE.
2. ALL UTILITIES SHALL BE INSTALLED PER THE INDIVIDUAL UTILITY COMPANY STANDARDS. COORDINATE ALL INSTALLATIONS WITH INDIVIDUAL UTILITY COMPANIES AND THE CITY OF PORTSMOUTH.

STORM DRAIN TRENCH
NO SCALE

Tighe&Bond

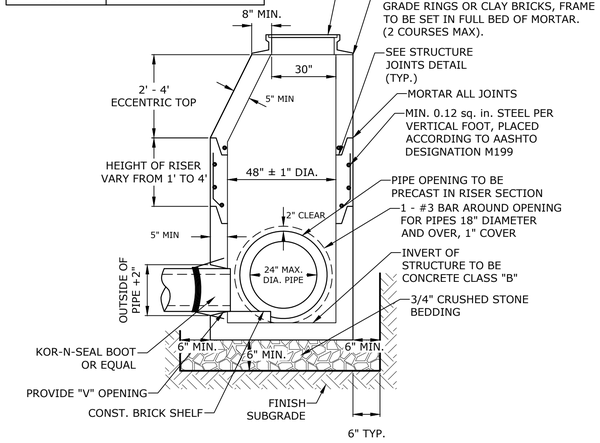




NOTES:
1. POLYETHYLENE LINER (ITEM 604.0007) SHALL BE FABRICATED AT THE SHOP. DOWNSPOUT SHALL BE EXTRUSION FILLET WELDED TO THE POLYETHYLENE SHEET.
2. PLACE A CONTINUOUS BEAD OF AN APPROVED SILICONE SEALANT (SUBSIDIARY TO ITEM 604.0007) BETWEEN FRAME AND POLYETHYLENE SHEET.
3. PLACE CLASS AA CONCRETE TO 2" BELOW THE TOP OF THE GRATE ELEVATION (SUBSIDIARY TO DRAINAGE STRUCTURE).
4. USE ON DRAINAGE STRUCTURES 4' MIN. DIAMETER ONLY.
5. TRIM POLYETHYLENE SHEET A MAXIMUM OF 4" OUTSIDE THE FLANGE ON THE FRAME FOR THE CATCH BASIN BEFORE PLACING CONCRETE (EXCEPT AS SHOWN WHEN USED WITH 3-FLANGE FRAME AND CURB).
6. THE CENTER OF THE GRATE & FRAME MAY BE SHIFTED A MAXIMUM OF 6" FROM THE CENTER OF THE DOWNSPOUT IN ANY DIRECTION.
7. PLACED ONLY IN DRAINAGE STRUCTURES IN PAVEMENT.
8. SEE NHDOT DR-04, "DI-DB, UNDERDRAIN FLUSHING BASIN AND POLYETHYLENE LINER DETAILS", FOR ADDITIONAL INFORMATION.
9. CATCHBASINS WITHIN CITY RIGHT OF WAY SHALL HAVE A POLYETHYLENE LINER

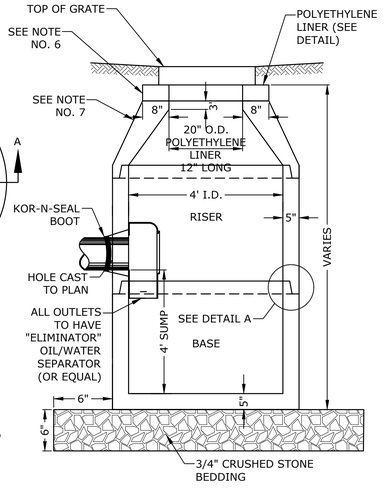
POLYETHYLENE LINER
NO SCALE

NHDOT ITEM No. 304.4 (CRUSHED STONE - FINE)	
SIEVE SIZE	% PASSING
2"	100
1-1/2"	85-100
3/4"	45-75
#4	10-45
#200	0-5



NOTES:
1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
4. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
5. CONSTRUCT CRUSHED STONE BEDDING AND BACKFILL UNDER (6" MINIMUM THICKNESS)
6. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
7. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
8. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
9. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
10. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZNTAL CROSS SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS.

4' DIAMETER DRAIN MANHOLE
NO SCALE



NOTES:
1. ALL SECTIONS SHALL BE CONCRETE CLASS AA(4000 psi).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
6. FITTING FRAME TO GRADE MAY BE DONE WITH PREFABRICATED ADJUSTMENT RINGS OR CLAY BRICKS (2 COURSES MAX.).
7. CONE SECTIONS MAY BE EITHER CONCENTRIC OR ECCENTRIC, OR FLAT SLAB TOPS MAY BE USED WHERE PIPE WOULD OTHERWISE ENTER INTO THE CONE SECTION OF THE STRUCTURE AND WHERE PERMITTED.
8. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
9. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
10. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
11. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
12. "ELIMINATOR" OIL/WATER SEPARATOR SHALL BE INSTALLED TIGHT TO INSIDE OF CATCHBASIN.

4' DIAMETER CATCHBASIN
NO SCALE

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
K	11/24/2021	PB Submission
J	10/20/2021	TAC Resubmission
I	8/23/2021	TAC Resubmission
H	7/21/2021	TAC Resubmission
G	5/26/2021	CC Resubmission
F	5/19/2021	TAC Resubmission
E	4/28/2021	CC Resubmission
D	4/21/2021	TAC Resubmission
C	3/22/2021	TAC Submission
B	3/10/2021	Design Review Resubmission
A	12/1/2020	TAC Work Session

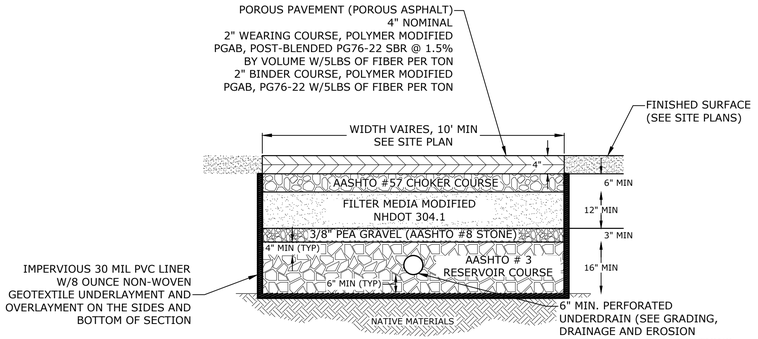
PROJECT NO:	P-0595-007
DATE:	December 22, 2020
FILE:	P-0595-007-DTLS.DWG
DRAWN BY:	CJK
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

DETAILS SHEET

SCALE: AS SHOWN

C-504

Last Saved: 10/19/2021
Printed On: Nov 18, 2021-12:58pm By: CKrzcuik
Tighe & Bond: J:\P\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings_Figures\AutoCAD\Sheet\P-0595-007-DTLS.dwg



AASHTO #57 STONE (CHOKER COURSE)	
	% PASSING
1-½"	100
1"	95-100
½"	25-60
#4	0-10
#8	0-5

MODIFIED NHDOT 304.1	
	% PASSING
6"	100
#4	70-100
#200	0-6*

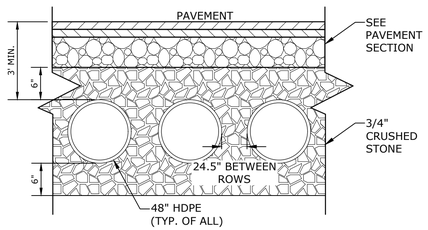
*PREFERABLY <4%

AASHTO #8 STONE (PEA GRAVEL)	
	% PASSING
½"	100
⅜"	85-100
#4	10-30
#8	0-10
#16	0-5

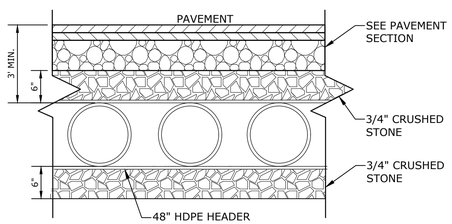
AASHTO #3 STONE (RESERVOIR COURSE)	
	% PASSING
2-½"	100
2"	90-100
1-½"	35-70
1"	0-15
½"	0-5

NOTES:
1. SEE GRADING, DRAINAGE, UTILITIES AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
2. POROUS ASPHALT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST SPECIFICATIONS FROM THE UNH STORMWATER CENTER FOR POROUS ASPHALT.
3. POROUS ASPHALT MIX SPECIFIED IS RECOMMENDED BY THE UNH STORMWATER CENTER FOR SITES ANTICIPATING H-20 LOADING.
4. FILTER COURSE TO BE INCREASED AS NECESSARY TO MEET PROPOSED GRADES.
5. INSTALL FILTER COURSE AGGREGATE IN 8-INCH MAXIMUM LIFTS TO A MAXIMUM OF 95% STANDARD PROCTOR COMPACTION (ASTM D698 / AASHTO T99). INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
6. INSTALL CHOKER, GRAVEL, AND STONE BASE COURSE AGGREGATE TO A MAXIMUM OF 95% COMPACTION STANDARD PROCTOR (ASTM D698 / AASHTO T99). CHOKER SHOULD BE PLACED EVENLY OVER SURFACE OF FILTER COURSE BED, SUFFICIENT TO ALLOW PLACEMENT OF PAVEMENT, AND NOTIFY ENGINEER FOR APPROVAL. CHOKER BASE COURSE THICKNESS SHALL BE SUFFICIENT TO ALLOW FOR EVEN PLACEMENT OF THE POROUS ASPHALT BUT NO LESS THAN 6-INCHES IN DEPTH.
7. THE DENSITY OF SUBBASE COURSES SHALL BE DETERMINED BY AASHTO T 191 (SAND-CONE METHOD), AASHTO T 204 (DRIVE CYLINDER METHOD), OR AASHTO T 238 (NUCLEAR METHODS), OR OTHER APPROVED METHODS AT THE DISCRETION OF THE SUPERVISING ENGINEER.

POROUS ASPHALT SECTION
NO SCALE



UNDERGROUND DETENTION AREA

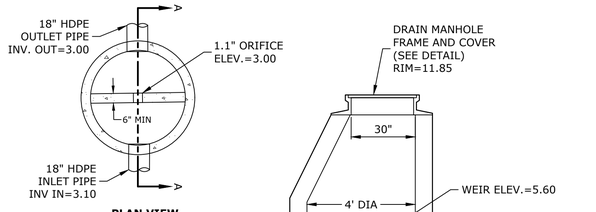


HEADER ROW

FIELD ELEVATIONS				
	TOP OF STONE ELEV	TOP OF PIPE ELEV	BOTTOM OF PIPE ELEV	BOTTOM OF STONE ELEV
UDB 1	8.25'	7.25'	3.50'	2.75'
UDB 2	8.25'	7.25'	3.50'	2.75'

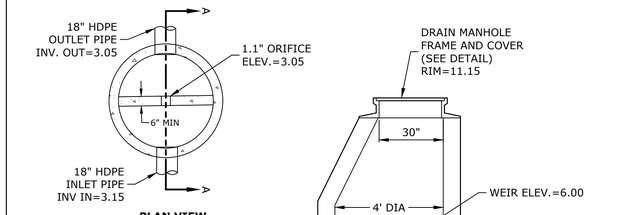
NOTES:
1. UNDERGROUND DETENTION SYSTEM TO BE 48" HDPE PIPE DESIGNED FOR H-20 LOADING. CONTRACTOR TO SUBMIT PIPE SPECIFICATIONS AND FINAL MANUFACTURES DESIGN TO ENGINEER FOR APPROVAL.
2. MANUFACTURER TO SUBMIT PLANS STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE.
3. THE DESIGN ENGINEER SHALL PROVIDE SUFFICIENT INSPECTION TO CERTIFY THAT THE SYSTEM HAS BEEN INSTALLED PER THE APPROVED DESIGN PLAN.
4. REFER TO STANDARD DUTY PAVEMENT SECTION DETAIL FOR PAVEMENT SECTION.

UNDERGROUND DETENTION SYSYTEM DETAIL
NO SCALE



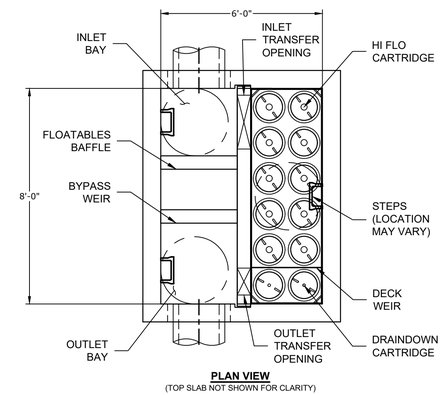
NOTES:
1. SEE DRAIN MANHOLE DETAIL FOR STRUCTURE REQUIREMENTS
2. ALL JOINTS ON THE STRUCTURE AND PIPING SHALL BE WATERTIGHT.

PDMH3
NO SCALE

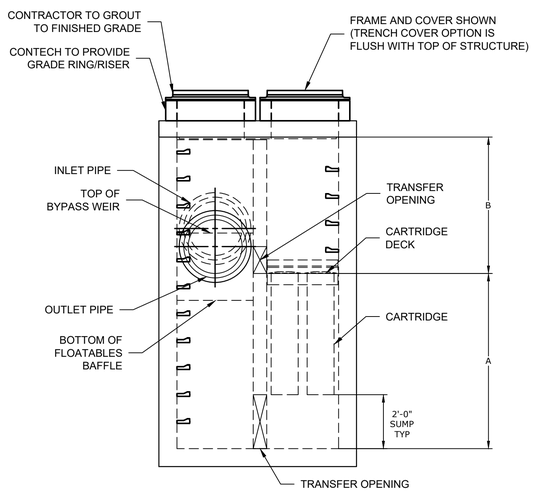


NOTES:
1. SEE DRAIN MANHOLE DETAIL FOR STRUCTURE REQUIREMENTS
2. ALL JOINTS ON THE STRUCTURE AND PIPING SHALL BE WATERTIGHT.

PDMH6
NO SCALE



PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)



ELEVATION VIEW
JELLYFISH JFPD0806

FIELD ELEVATIONS					
	RIM ELEVATION	INLET ELEVATION	INLET PIPE	OUTLET ELEVATION	OULET PIPE
JFF 1	11.85	2.85'	18" HDPE	2.90'	18" HDPE
JFF 2	11.25	2.90'	18" HDPE	2.40'	18" HDPE

JELLYFISH JFPD0806 - DESIGN NOTES				
JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD				
CARTRIDGE SELECTION				
CARTRIDGE LENGTH	54"	40"	27"	15"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"	5'-4"	4'-3"	3'-3"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	1.96	1.47	0.98	0.54
DECK TO INSIDE TOP (MIN) (B)	5.00	4.00	4.00	4.00

SITE SPECIFIC DATA REQUIREMENTS		
STRUCTURE ID	JF-1	JF-2
MODEL SIZE	JFPD0806	JFPD0806
WATER QUALITY FLOW RATE (cfs)	2.85	0.63
PEAK FLOW RATE (cfs)	26.54	5.13
RETURN PERIOD OF PEAK FLOW (yrs)	25	25
# OF CARTRIDGES REQUIRED (HF / DD)	15/3	5/1
CARTRIDGE SIZE	54"	40"

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 3', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION AT (866) 740-3318.

Jellyfish Filter
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING: U.S. PATENT NO. 8,287,726, 8,221,616 & US 8,123,935. OTHER INTERNATIONAL PATENTS PENDING

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH JELLYFISH STORMWATER FILTER
NO SCALE

Tighe&Bond

BRADLEE MEZQUITA No. 08630 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE 11-24-21

PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE 11/24/21

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
K	11/24/2021	PB Submission
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D	4/21/2021	TAC Resubmission
C	3/22/2021	TAC Submission
B	3/10/2021	Design Review Resubmission
A	12/1/2020	TAC Work Session

PROJECT NO:	P-0595-007
DATE:	December 22, 2020
FILE:	P-0595-007-DTLS.DWG
DRAWN BY:	CJK
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

DETAILS SHEET

SCALE: AS SHOWN

C-505

Last Saved: 10/19/2021
Plotted On: Nov 18, 2021 - 12:58pm By: CKrzcuik
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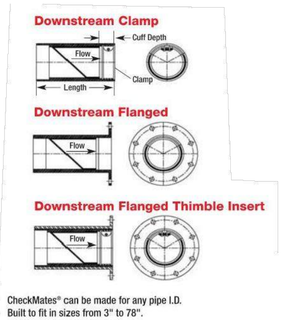
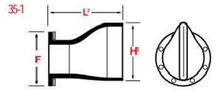


CheckMates® can be made for any pipe I.D.
Built to fit in sizes from 3" to 78".

CHECKMATE® VALVE											
	NOMINAL PIPE SIZE I.D.		OVERALL LENGTH*		NUMBER OF CLAMPS	CUFF DEPTH		BACK PRESSURE RATING**		WEIGHT	
	Inches	Millimeters	Inches	Millimeters		Inches	Millimeters	Feet	Meters	lbs	Kg
Standard Pressure	12	300	19.8	503	1	2.0	51	68	20.1	37	17
	14	350	25.8	655	1	4.0	102	64	20.0	110	50
	16	400	28.6	726	1	4.0	102	60	18.3	133	52
	18	450	31.0	787	1	4.0	102	56	17.1	143	65
	20	500	42.1	1069	2	8.0	203	53	16.2	223	102
	24	600	47.5	1207	2	8.0	203	45	13.7	304	137

NOTES:
1. PIPES WHERE NOTED TO HAVE TIDEFLEX, CHECKMATE INLINE CHECK VALVES MANUFACTURED BY REDVALVE, OR EQUAL
2. CHECK VALVES SHALL BE INSTALLED PER THE MANUFACTURERS INSTALLATION SPECIFICATIONS

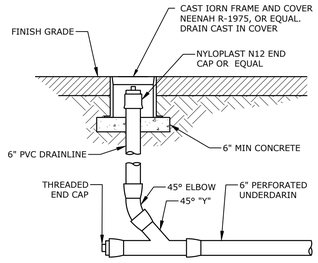
ON-SITE BACK FLOW PREVENTER
NO SCALE



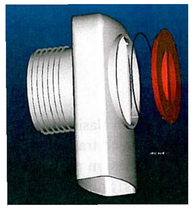
Flange Size (ANSI)	Flange O.D. (F)	SERIES 35-1 Length (L²)	SERIES 35-1 Bill Height (H²)
18	25	40	34
20	27 1/2	48	37
24	32	52	44
30	38 3/4	62	55

NOTES:
1. CONCRETE HEADWALL TO HAVE TIDEFLEX CHECK VALVE MANUFACTURED BY REDVALVE AND SHALL BE APPROVED BY THE CITY OF PORTSMOUTH DPW.
2. CHECK VALVE SHALL BE INSTALLED USING A FLANGED BOLT ON CONNECTION PER THE MANUFACTURERS INSTALLATION SPECIFICATIONS.
3. END OF PIPE SHALL BE FLUSH WITH CONCRETE HEADWALL AND BE GROUTED PRIOR TO THE INSTALLATION OF THE CHECK VALVE.

CITY OUTLET BACK FLOW PREVENTER
NO SCALE

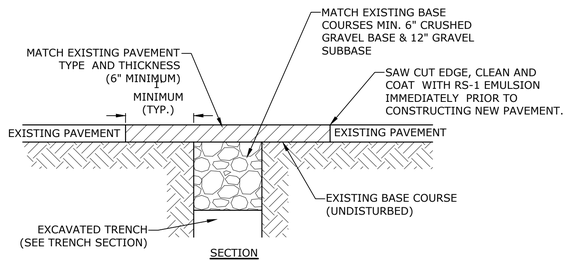


DRAIN CLEAN-OUT
NO SCALE

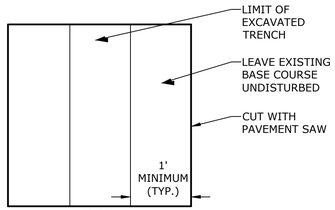


NOTES:
1. ALL CATCH BASIN OUTLETS TO HAVE "ELIMINATOR" OIL AND FLOATING DEBRIS TRAP MANUFACTURED BY KLEANSTREAM (NO EQUAL)
2. INSTALL DEBRIS TRAP TIGHT TO INSIDE OF STRUCTURE.
3. 1/4" HOLE SHALL BE DRILLED IN TOP OF DEBRIS TRAP

"ELIMINATOR" OIL FLOATING DEBRIS TRAP



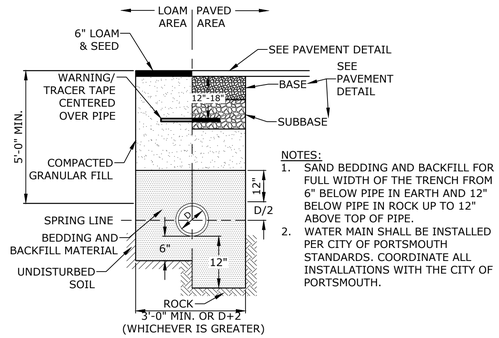
SECTION



PLAN

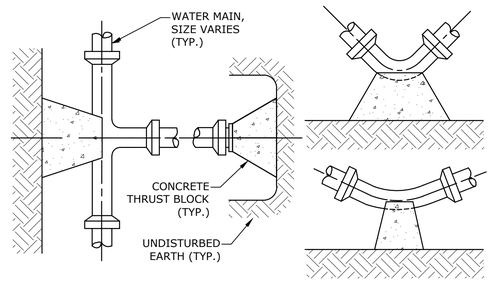
NOTE:
COORDINATE AND OBTAIN APPROVAL FOR ALL TRENCHING AND PATCHING WITHIN CITY RIGHT OF WAY WITH CITY OF PORTSMOUTH DPW PRIOR TO COMMENCING WORK.

ROADWAY TRENCH PATCH
NO SCALE



NOTES:
1. SAND BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 12" ABOVE TOP OF PIPE.
2. WATER MAIN SHALL BE INSTALLED PER CITY OF PORTSMOUTH STANDARDS. COORDINATE ALL INSTALLATIONS WITH THE CITY OF PORTSMOUTH.

WATER TRENCH
NO SCALE



TEST PRESSURE = 200psi	SQUARE FEET OF CONCRETE THRUST BLOCKING BEARING ON UNDISTURBED MATERIAL				
REACTION TYPE	PIPE SIZE				
	4"	6"	8"	10"	12"
A 90°	0.89	2.19	3.82	11.14	17.24
B 180°	0.65	1.55	2.78	8.38	12.00
C 45°	0.48	1.19	2.12	6.02	9.32
D 22-1/2°	0.25	0.60	1.06	3.08	4.74
E 11-1/4°	0.13	0.30	0.54	1.54	2.38

NOTES:
1. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL, WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE.
2. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
3. PLACE BOARD IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCKS.
4. WHERE M.J. PIPE IS USED, M.J. PLUG WITH RETAINER GLAND MAY BE SUBSTITUTED FOR END BLOCKINGS.
5. INSTALLATION AND STANDARD DIMENSIONAL REQUIREMENTS SHALL BE WITH CITY OF PORTSMOUTH WATER DEPARTMENT STANDARDS.

THRUST BLOCKING DETAIL
NO SCALE

Tighe&Bond

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
K	11/24/2021	PB Submission
J	10/20/2021	TAC Resubmission
I	8/23/2021	TAC Resubmission
H	7/21/2021	TAC Resubmission
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F	5/19/2021	TAC Resubmission
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C	3/22/2021	TAC Submission
B	3/10/2021	Design Review Resubmission
A	12/1/2020	TAC Work Session

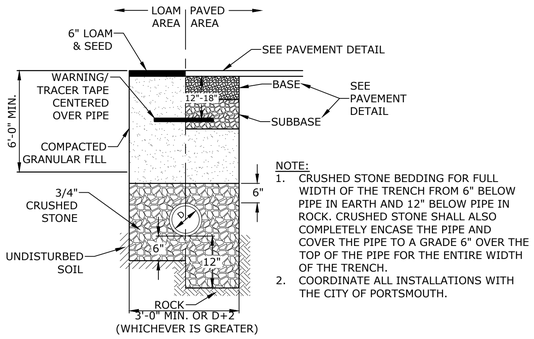
PROJECT NO:	P-0595-007
DATE:	December 22, 2020
FILE:	P-0595-007-DTLS.DWG
DRAWN BY:	CJK
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

DETAILS SHEET

SCALE: AS SHOWN

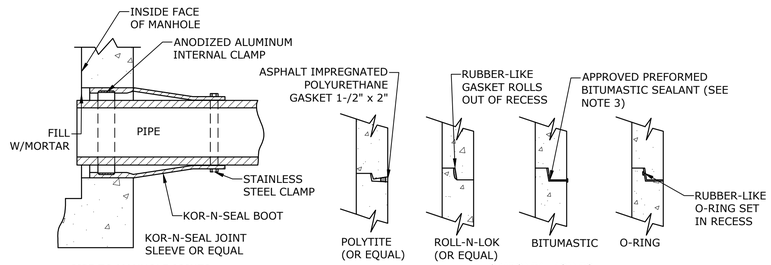
C-506

Last Saved: 10/19/2021
Plotted On: Nov 18, 2021 - 12:58pm By: CKrzculik
Tighe & Bond: J:\P\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings, Figures\AutoCAD\Sheet\P-0595-007-DTLS.dwg



NOTE:
1. CRUSHED STONE BEDDING FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK. CRUSHED STONE SHALL ALSO COMPLETELY ENCASE THE PIPE AND COVER THE PIPE TO A GRADE 6" OVER THE TOP OF THE PIPE FOR THE ENTIRE WIDTH OF THE TRENCH.
2. COORDINATE ALL INSTALLATIONS WITH THE CITY OF PORTSMOUTH.

SEWER SERVICE TRENCH
NO SCALE

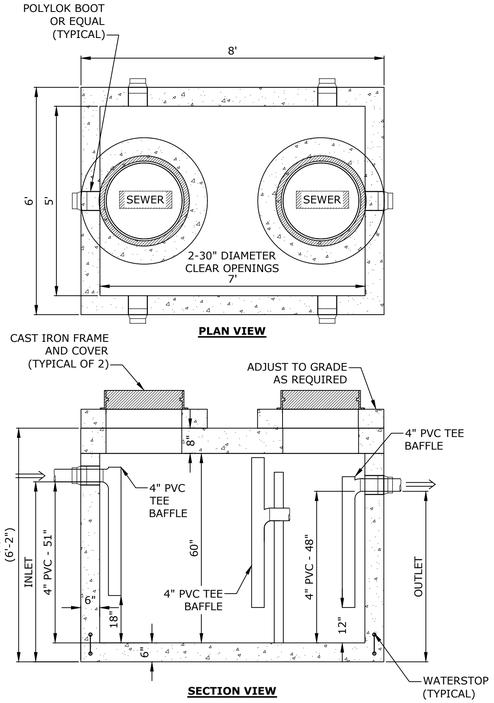


PIPE TO MANHOLE JOINTS

HORIZONTAL JOINTS

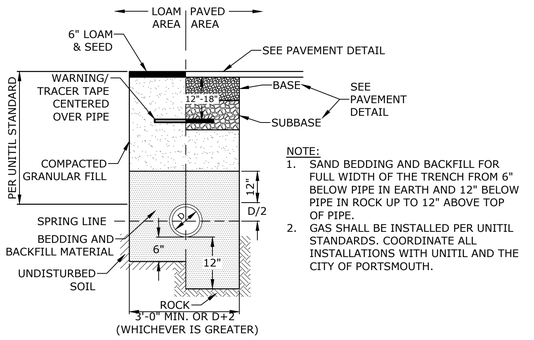
NOTES:
1. HORIZONTAL JOINTS BETWEEN THE SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE PER CITY OF PORTSMOUTH DPW STANDARD AND SHALL BE SEALED FOR WATERTIGHTNESS USING A DOUBLE ROW ELASTOMERIC OR MASTIC-LIKE GASKET.
2. PIPE TO MANHOLE JOINTS SHALL BE PER CITY OF PORTSMOUTH STANDARD.
3. FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT LEAST 75% OF THE JOINT CAVITY.
4. ALL GASKETS, SEALANTS, MORTAR, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS.

MANHOLE JOINTS
NO SCALE



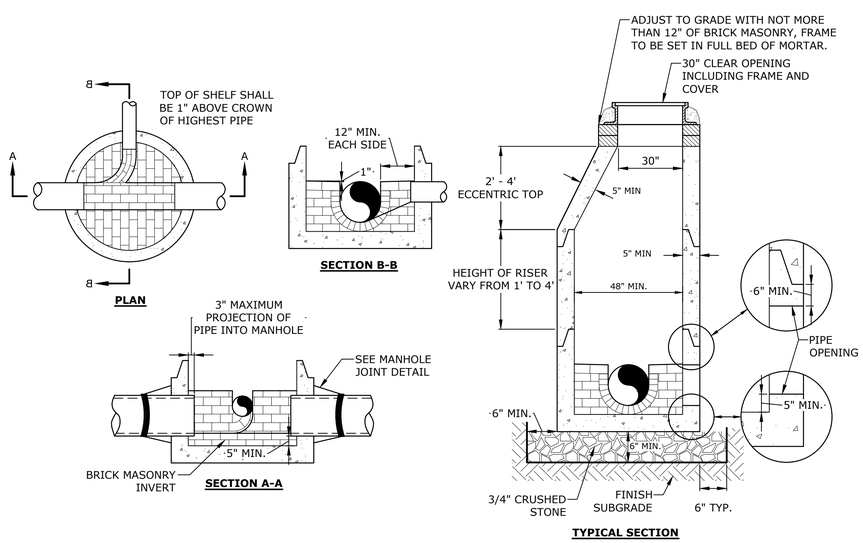
NOTES:
1. STEEL REINFORCEMENT SHALL CONFORM TO LATEST ASTM SPECIFICATIONS: ASTM-A615 GRADE 60 REBAR.
2. CONCRETE SHALL BE F_C=5,000 PSI @ 28 DAYS MINIMUM.
3. FLEXIBLE SLEEVES SHALL BE PROVIDED ON ALL PIPE CONNECTIONS.
4. JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
5. INLET SHALL PENETRATE AT LEAST 9" BELOW THE LIQUID LEVEL, BUT NOT DEEPER THAN THE OUTLET BAFFLE.
6. OUTLET SHALL EXTEND BELOW THE SURFACE OF THE LIQUID EQUAL TO 40% OF THE LIQUID DEPTH (19").
7. DESIGN LOADING SHALL BE: AASHTO-HS20-44, ASTM C-890-06.
8. DESIGN SPECIFIED AS: ASTM C-1227-08, ASTM C-913-08.
9. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS WITHIN CITY RIGHT OF WAY SHALL BE CITY STANDARD HINGE COVERS MANUFACTURED BY EJ. FRAMES AND COVERS WILL BE PURCHASED FROM THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS. ALL OTHER MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. A 3-INCH (MINIMUM HEIGHT) WORD "SEWER" SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
10. GREASE TRAP SHALL BE PHOENIX PRECAST CONCRETE P/N: C-6420 OR EQUAL.
11. TANK SHALL BE PUMPED AS NEEDED.

1,000 GALLON GREASE TRAP
NO SCALE



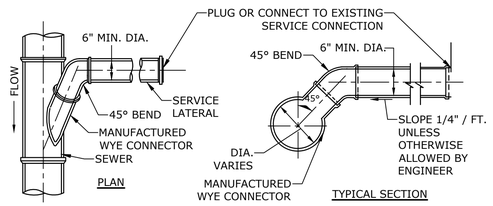
NOTE:
1. SAND BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 12" ABOVE TOP OF PIPE.
2. GAS SHALL BE INSTALLED PER UNITIL STANDARDS. COORDINATE ALL INSTALLATIONS WITH UNITIL AND THE CITY OF PORTSMOUTH.

GAS TRENCH
NO SCALE



NOTES:
1. INVERT AND SHELF TO BE PLACED AFTER EACH LEAKAGE TEST.
2. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT.
3. INVERT BRICKS SHALL BE LAID ON EDGE.
4. TWO (2) COATS OF BITUMINOUS WATERPROOF COATING SHALL BE APPLIED TO ENTIRE EXTERIOR OF MANHOLE.
5. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS WITHIN CITY RIGHT OF WAY SHALL BE CITY STANDARD HINGE COVERS MANUFACTURED BY EJ. FRAMES AND COVERS WILL BE PURCHASED FROM THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS. ALL OTHER MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. A 3-INCH (MINIMUM HEIGHT) WORD "SEWER" SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
6. HORIZONTAL JOINTS SHALL BE SEALED FOR WATER TIGHTNESS USING A DOUBLE ROW OF ELASTOMERIC OR MASTIC-LIKE SEALANT.
7. BARREL AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE DESIGNED FOR H20 LOADING, AND CONFORMING TO ASTM C478-06.

SEWER MANHOLE
NO SCALE



STANDARD SERVICE LATERAL CONNECTION
NO SCALE

Tighe&Bond

BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE
11-24-21

PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE
11/24/21

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

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DRAWN BY:	CJK
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

DETAILS SHEET

SCALE: AS SHOWN

C-507

Last Saved: 10/19/2021
Plotted On: Nov 18, 2021 - 12:58pm By: CKrzcuk
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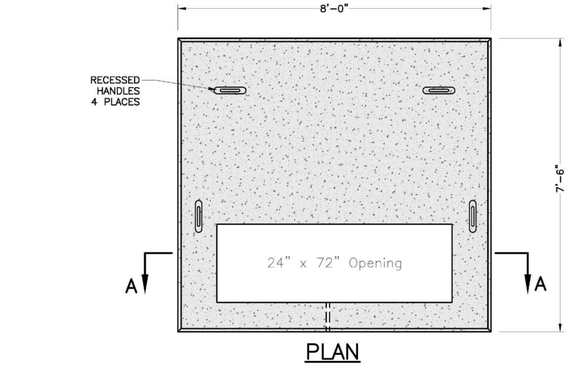
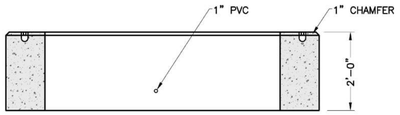


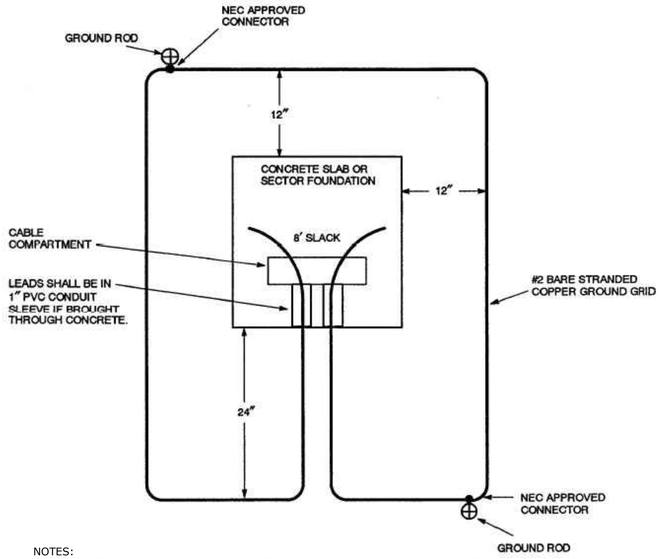
PLAN



SECTION A–A

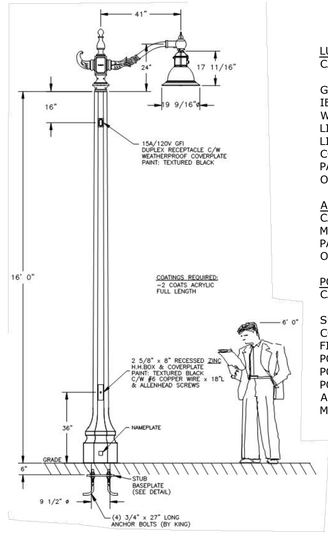
NOTES:
1. DIMENSIONS SHOWN REPRESENT TYPICAL REQUIREMENTS. MANHOLE LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED WITH EVERSOURCE PRIOR TO CONSTRUCTION
2. CONCRETE MINIMUM STRENGTH - 4,000 PSI @ 28 DAYS
3. STEEL REINFORCEMENT - ASTM A615, GRADE 60
4. PAD MEETS OR EXCEEDS EVERSOURCE SPECIFICATIONS

3-PHASE TRANSFORMER PAD
NO SCALE



NOTES:
THE GROUND GRID SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AND IS TO BE BURIED AT LEAST 12 INCHES BELOW GRADE. EIGHT FEET OF EXTRA WIRE FOR EACH GROUND GRID LEG SHALL BE LEFT EXPOSED IN THE CABLE COMPARTMENT TO ALLOW FOR THE CONNECTION TO THE TRANSFORMER. THE TWO 8-FOOT GROUND RODS MAY BE EITHER GALVANIZED STEEL OR COPPERWELD AND THEY SHALL BE CONNECTED TO THE GRID WITH NEC APPROVED CONNECTORS.

PAD-MOUNTED EQUIPMENT GROUNDING GRID DETAIL
NO SCALE



LUMINAIRE SPECIFICATIONS:

CATALOGUE NO.:	K729-P4FL-II-60(SSL) -7030-120:277-3K S/F KPL20
GLOBE MAT'L:	FLAT ARRAY, CLEAR FLAT LENS
IES CLASSIFIC.:	TYPE II
WATTAGE:	60W (7030 SERIES)
LIGHT SOURCE:	SOLID STATE LIGHTING
LINE VOLTAGE:	120:277V
CCT:	3000K
PAINT:	TEXTURED BLACK
OPTIONS:	S/F KPL-20 LEVELING DEVICE

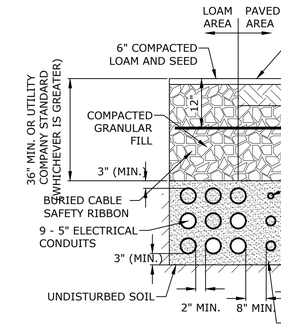
ARM SPECIFICATIONS:

CATALOGUE NO.:	(MOD.) KA72-T-1-3
MATERIAL:	ALUMINUM
PAINT:	TEXTURED BLACK
OPTIONS:	KPL20 LEVELING DEVICE

POLE SPECIFICATIONS:

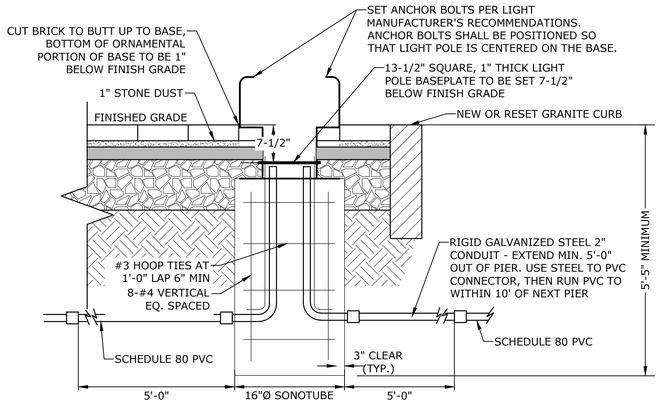
CATALOGUE NO.:	KBH16-G-S11-SBP C/W 140-30/100 & DR
SECTION:	OCTAGONAL
COLOUR:	ECLIPSE
FINISH:	POLISHED
POLE TOP:	6 3/8" FL/FL
POLE BUTT:	9 1/2" Ø
POLE LENGTH:	16' 6"
APPROX. WEIGHT:	1,190 LBS.
MIN. RACEWAY:	1 1/8" Ø

NORTH END LIGHT POLE & FIXTURE
NO SCALE



NOTES:
1. NUMBER, MATERIAL, AND SIZE OF UTILITY CONDUITS TO BE DETERMINED BY LOCAL UTILITY OR AS SHOWN ON ELECTRICAL DRAWINGS. CONTRACTOR TO PROVIDE ONE SPARE CONDUIT FOR EACH UTILITY TO BUILDING.
2. DIMENSIONS SHOWN REPRESENT OWNERS MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS MAY BE GREATER BASED ON UTILITY COMPANY STANDARDS, BUT SHALL NOT BE LESS THAN THOSE SHOWN.
3. NO CONDUIT RUN SHALL EXCEED 360 DEGREES IN TOTAL BENDS.
4. A SUITABLE PULLING STRING, CAPABLE OF 200 POUNDS OF PULL, MUST BE INSTALLED IN THE CONDUIT BEFORE UTILITY COMPANY IS NOTIFIED TO INSTALL CABLE. THE STRING SHOULD BE BLOWN INTO THE CONDUIT AFTER THE RUN IS ASSEMBLED TO AVOID BONDING THE STRING TO THE CONDUIT.
5. UTILITY COMPANY MUST BE GIVEN THE OPPORTUNITY TO INSPECT THE CONDUIT PRIOR TO BACKFILL. THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS SHOULD THE UTILITY COMPANY BE UNABLE TO INSTALL ITS CABLE IN A SUITABLE MANNER.
6. ALL CONDUIT INSTALLATIONS MUST CONFORM TO THE CURRENT EDITION OF THE NATIONAL ELECTRIC SAFETY CODE, STATE AND LOCAL CODES AND ORDINANCES, AND, WHERE APPLICABLE, THE NATIONAL ELECTRIC CODE.
7. ALL 90° SWEEPS WILL BE MADE USING RIGID GALVANIZED STEEL. SWEEPS WITH A 36 TO 48 INCH RADIUS.
8. SAND BEDDING TO BE REPLACED WITH CONCRETE ENCASEMENT WHERE COVER IS LESS THAN 3 FEET, WHEN LOCATED BELOW PAVEMENT, OR WHERE SHOWN ON THE UTILITIES PLAN.

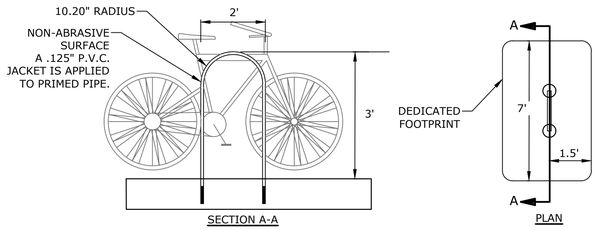
ELECTRICAL AND COMMUNICATION CONDUIT
NO SCALE



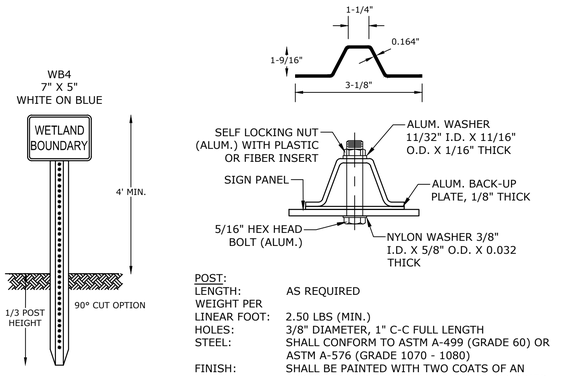
STANDARD BASE

NOTES:
1. REFER TO ELECTRICAL PLANS FOR WIRING DETAILS.
2. CONCRETE: 4000 PSI, AIR ENTRAINED STEEL: 60 KSI
3. LIGHT POLE FOUNDATIONS SHALL BE PLACED PRIOR TO INSTALLATION OF BRICK PAVERS.
4. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL, TO INCLUDE PERFORMANCE SPECIFICATIONS, CALCULATIONS AND NH LICENSED STRUCTURAL ENGINEER'S STAMP FOR LIGHT POLE FOUNDATION.
5. STANDARD BASE SHALL BE CONSTRUCTED UNLESS THERE IS CONFLICT WITH THE EXISTING DUCT BANK. SPREAD FOOTING BASE SHALL BE USED IN LIEU OF STANDARD BASE IN LOCATIONS WHERE TOP OF DUCT BANK ELEVATION WILL CONFLICT WITH STANDARD POLE BASE DEPTH. CONTRACTOR SHALL VERIFY LOCATIONS WHERE SPREAD FOOTINGS ARE REQUIRED PRIOR TO CONSTRUCTION. SEE NOTE#4 FOR SUBMITTAL REQUIREMENTS.
6. DEPTH OF FIXTURE BASE TO BE VERIFIED IN FIELD PRIOR TO INSTALLATION TO ENSURE THAT 1" OF THE ORNAMENTAL BOTTOM PORTION OF BASE TO WILL BE 1" BELOW FINISH GRADE

NORTH END LIGHT FIXTURE BASE
NO SCALE



BIKE RACK
NO SCALE



POST:

LENGTH:	AS REQUIRED
WEIGHT PER LINEAR FOOT:	2.50 LBS (MIN.)
HOLES:	3/8" DIAMETER, 1" C-C FULL LENGTH
STEEL:	SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASTM A-576 (GRADE 1070 - 1080)
FINISH:	SHALL BE PAINTED WITH TWO COATS OF AN APPROVED MEDIUM GREEN BAKED ON OR DRIED, PAINT OF WEATHER RESISTANT QUALITY. ALL FABRICATION SHALL BE COMPLETE BEFORE PAINTING.

WETLAND BOUNDARY SIGN & SIGN POST
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER
11-24-21

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER
11/24/21

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

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APPROVED BY:	BLM

DETAILS SHEET

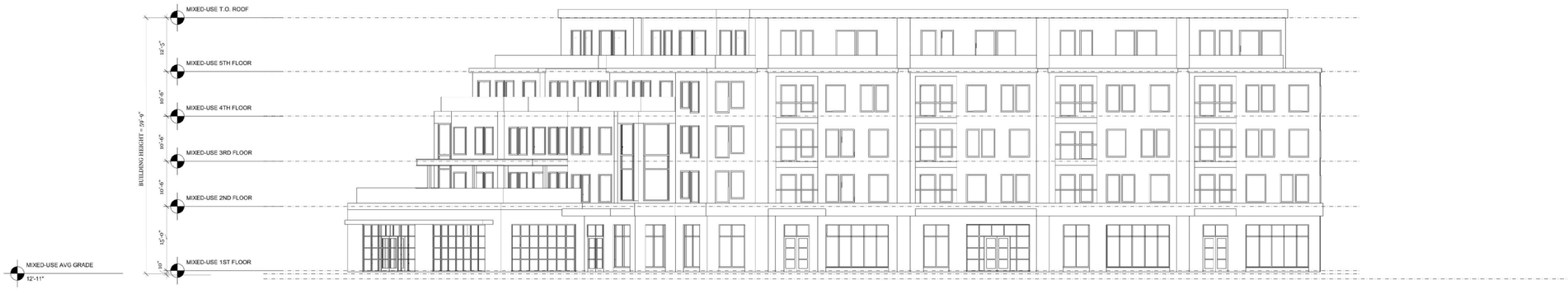
SCALE: AS SHOWN

C-508

Last Saved: 10/19/2021
Plotted On: Nov 18, 2021-12:58pm By: CKrzculik
Tighe & Bond: J:\P\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings_Figures\AutoCAD\SheetVP-0595-007-DTLS.dwg

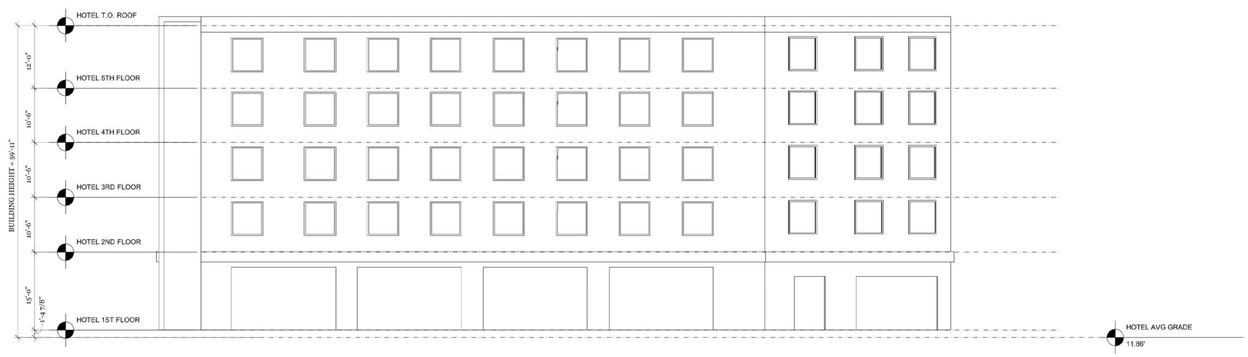
OVERALL ELEVATIONS

1/16"=1'-0"



MIXED USE ELEVATION

3/32"=1'-0"



HOTEL ELEVATION

3/32"=1'-0"

PROCON
CONNECT • CREATE • CONSTRUCT
PO BOX 4430
MANCHESTER NH 03108
603.623.8811
PROCONINC.COM

PROJECT:

PROPOSED MIXED USE DEVELOPMENT
Raynes Avenue
Portsmouth, NH

Date	Issue Description

PROFESSIONAL SEAL

Architect:	JAL
Drawn By:	Author
Project No.:	XXX
Copyright:	2018 Pro Con, Inc.

Drawing Sheet
EXTERIOR ELEVATIONS

Drawing Sheet
A3.00

11/22/2021 11:40:52 AM

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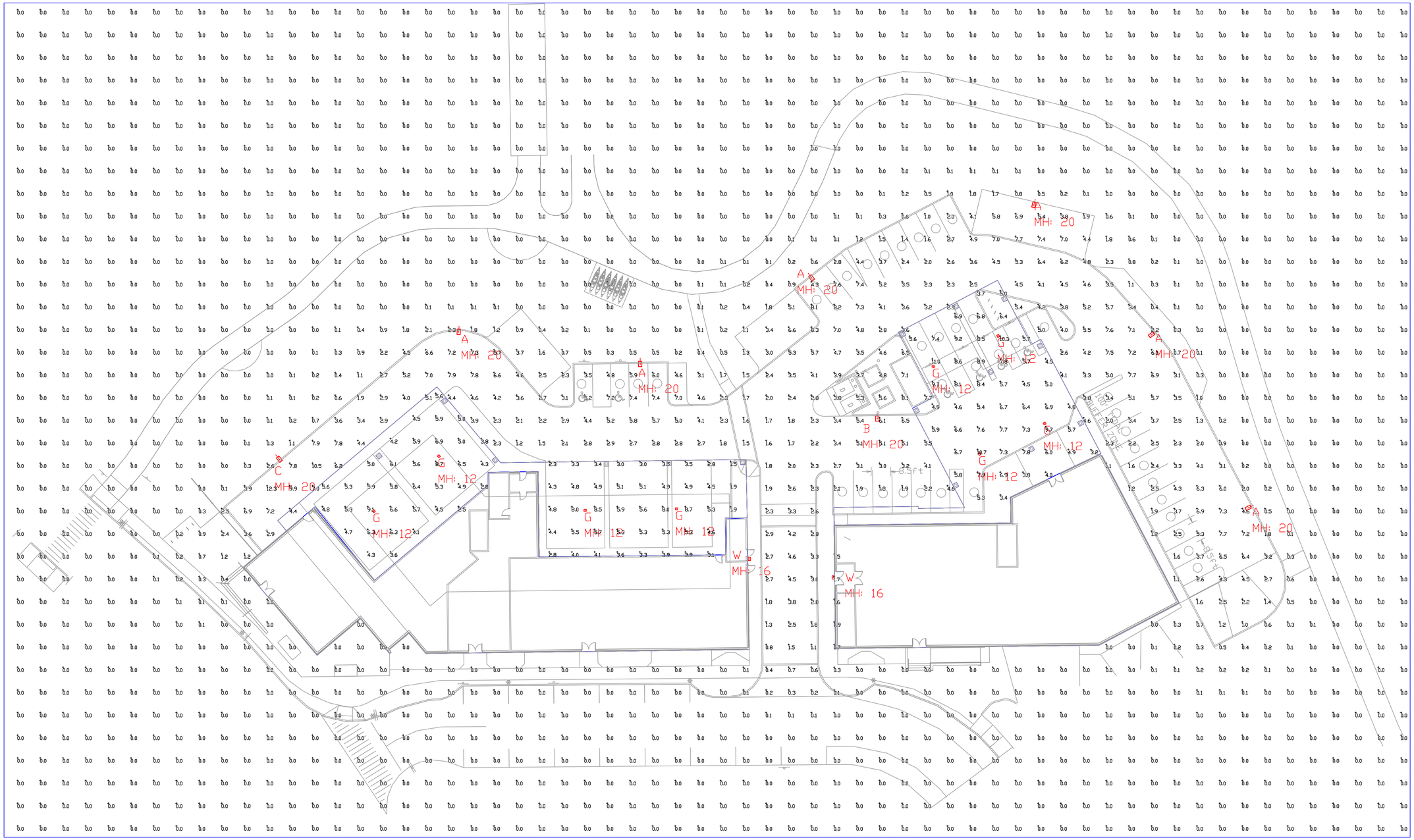


Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
ALL POINTS AT GRADE 10'X10'	Illuminance	Fc	0.66	12.3	0.0	N.A.	N.A.
BLDG A COVERED PARKING	Illuminance	Fc	4.89	9.1	1.5	3.26	6.07
BLDG B COVERED PARKING	Illuminance	Fc	6.61	11.0	3.2	2.07	3.44

Based on the information provided, all dimensions and luminaire locations shown represent recommended positions. The engineer and/or architect must determine the applicability of the layout to existing or future field conditions.

This lighting plan represents illumination levels calculated from laboratory data taken under controlled conditions in accordance with The Illuminating Engineering Society (IES) approved methods. Actual performance of any manufacturer's luminaires may vary due to changes in electrical voltage, tolerance in lamps/LED's and other variable field conditions. Calculations do not include obstructions such as buildings, curbs, landscaping, or any other architectural elements unless noted. Fixture nomenclature noted does not include mounting hardware or poles. This drawing is for photometric evaluation purposes only and should not be used as a construction document or as a final document for ordering product.

Luminaire Schedule									
Symbol	Qty	Label	Arrangement	Description	LLD	UDF	LLF	Arr. Lum. Lumens	Arr. Watts
	6	A	SINGLE	SLM-LED-24L-SIL-FT-40-70CRI-IL-SINGLE - 18'POLE + 2' BASE	0.940	1.000	0.940	15996	176
	1	B	SINGLE	SLM-LED-24L-SIL-5W-40-70CRI-SINGLE - 18'POLE + 2' BASE	0.940	1.000	0.940	23667	188.8
	1	C	SINGLE	SLM-LED-24L-SIL-2-40-70CRI-IL-SINGLE - 18'POLE + 2' BASE	0.940	1.000	0.940	14904	176
	8	G	SINGLE	CPG-LED-10L-CA-W-40 - 12'MH	0.900	1.000	0.900	9830	79.57
	2	W	SINGLE	XWM-3-LED-04L-40-16'MH	0.980	1.000	0.980	4124	29.5

Total Project Watts
Total Watts = 2116.36

LIGHTING PROPOSAL LD-153488A-1

XSS HOTELS
PORTSMOUTH, NH

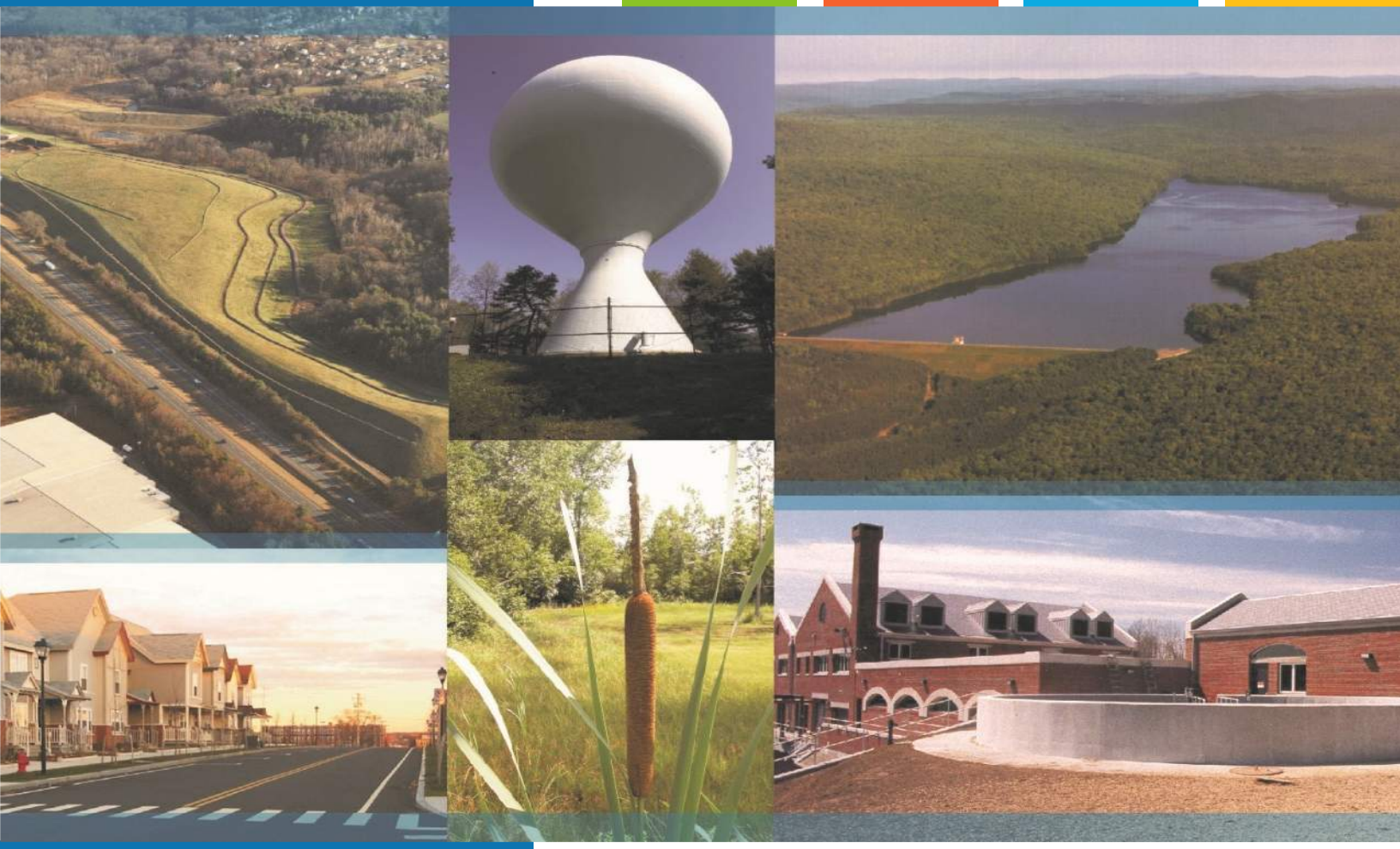
BY:THC	DATE:3/24/21	REV:11/23/2021	SHEET 1 OF 1

SCALE: 1"=20' 0 20

Raynes Ave - City of Portsmouth TAC STIPULATION RESPONSE

Date: November 24, 2021

City of Portsmouth TAC, November 2, 2021:			
	TAC Comment	**Applicant Response**	**Sheet**
TAC Stipulations from 11/8 Correspondence:			
1	The community space plan is to include all the public space types.	The community Space Exhibit has been revised to include all eligible community space areas and types.	Community Space Exhibit
2	Dock, kayak launch, and pier are included as public spaces.	The dock, kayak launch, and pier are included as community spaces.	Community Space Exhibit & C-201
3	Parking spaces are reduced to 138 with specific space reduction on Maplewood Ave.	Parking spaces have been reduced to 138 with the spaces being removed from the parking area adjacent to Maplewood Avenue. The reserve spaces previously shown closer to Maplewood Avenue have been relocated to the area behind the proposed hotel as requested by TAC.	C-102 & C-102.1
4	Lights will include full cut off feature with a shield to prevent light pollution across the water.	The photometric plan has been revised to include lights that will include full cut off feature with a shield to prevent light pollution across the water.	Lighting Plan 1 of 1
5	Mountable curb is included on pedestrian walkway between proposed hotel and 3S Artspace.	Mountable curb is included on pedestrian walkway between proposed hotel and 3S Artspace and has been relocated so the entire pedestrian walkway is at the same level. Additionally, at the request of TAC, the landscaping plan was revised to enhance the pedestrian connection between the walkway area and the City's multiuse path. The paver pattern was extended all the way to the City's path and the planting plan was revised to provide a consistent planting design across all three entrances to the North Mill Pond trail on the site.	C-102.1 & L-101
6	Grease traps will be designed to meet code requirements.	Confirmed, all grease traps will be designed to meet code requirements.	C-104
7	Sewer connection permit will be obtained from DES.	Confirmed.	N/A
8	Applicant and City will enter into a Community Space Agreement.	Confirmed.	N/A
9	Fertilizing within the buffer zone will follow City guidance.	Confirmed.	N/A
10	Third party inspection serves are required during construction.	Confirmed.	N/A
11	Square footage will be added to the public space plan, matrix and exhibits.	Square footages of community space have be added to the community space exhibits.	Community Space Exhibit
12	Wide pedestrian sidewalks and alleyways, including seating, are to be included as Community Space.	Wide pedestrian sidewalks and alleyways, including seating, have been included as Community Space on the Community Space Exhibit.	Community Space Exhibit
13	Exposed parking shall be screened from view.	Screening has been added to the building design to screen the lift systems from Maplewood Avenue. Final screening design to be approved by the HDC.	N/A
14	Proposed greenway trail on abutting property is shown on the site and landscape plan.	Proposed greenway trail on abutting property is shown on the site and landscape plan.	C-102, C-102.1 & L-101



Proposed Mixed Use Development
Raynes Avenue
Portsmouth, NH

Drainage Analysis

North Mill Pond Holdings, LLC

March 22, 2021
Last Revised: November 24 2021

STATE OF NEW HAMPSHIRE
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A Site Specific Soils Report
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Section 1
Project Description

The proposed project is located at 1 Raynes Avenue, 31 Raynes Avenue & 203 Maplewood Avenue and is comprised of four (4) parcels that are bounded by Raynes Avenue to the south, Maplewood Avenue to the west, North Mill Pond to the north, and municipal land to the east, which is the future site of the North Mill Pond community park. The existing parcels are listed below.

Tax Map/Lot No.	Area (ac)
123 / 10	0.170
123 / 12	0.140
123 / 13	1.323
123 / 14	0.906

The proposed project will include the construction of two (2) 5-story buildings. The first is a mixed-use residential building that has a first-floor residential lobby and two (2) commercial spaces, and 32 upper floor residential units. The second is a hotel building with 124 rooms at the corner of Raynes Ave and Vaughan Street. The project will include associated site improvements such as paving, utilities, lighting, landscaping and community space. The community space will be located on the land between North Mill Pond's mean high water (MHW) line to the 50ft buffer and will be deeded to the City of Portsmouth as community space designated for the City's North Mill Pond Trail project.

1.1 On-Site Soil Description

The site is a highly disturbed site along the North Mill Pond. The property shows evidence of what appears to be very old filling and grading associated with the existing development. The site consists of terrain that is generally flat and slopes from the south and west to the north to North Mill Pond. The existing property has an approximate high point of elevation of 14 near the corner of the property at the intersection of Raynes Ave and Maplewood Ave

A site specific soils survey was conducted by Leonard Lord, PhD, CSS, CWS of Tighe & Bond, Inc and can be found in Appendix A of this Report. Based on the soil survey, the runoff analyzed within these studies has been modeled using mostly Hydrologic Soil Group C soils and some portions of Hydrologic Soil Group A soils, as much of the site is comprised of Udorthents with two drainage classifications, moderately poorly drained soils and portions of well drained soils.

1.2 Pre- and Post-Development Comparison

The pre-development and post-development watershed areas have been analyzed at one point of analysis. While the point of analysis has remained unchanged, the contributing sub-catchment areas varied between pre-development and post-development conditions. These adjustments were made to reflect the differences in drainage patterns between the existing and proposed conditions. The overall area analyzed as part of this drainage analysis was held constant. PA-1 assesses flows that discharge directly to North Mill Pond via overland flow or various outlets.

Since North Mill Pond is a tidal water, NHDES does not require peak runoff control requirements to be met (Env-Wq 1507.06(d)). However, detention systems are included on the development site for the purpose of mitigating temperature differences between the stormwater runoff and the North Mill Pond, therefore peak runoff requirements have been met and can be found in section 4 of this report.

1.3 Calculation Methods

The design storms analyzed in this study are the 2-year, 10-year, 25-year and 50-year 24-hour duration storm events. The stormwater modeling system, HydroCAD 10.0 was utilized to predict the peak runoff rates from these storm events. The peak discharge rates were determined by analyzing Type III 24-hour storm events. The rainfall data for these storm events was obtained from the data published by the Northeast Regional Climate Center at Cornell University, with an additional 15% added factor of safety as required by Env-Wq 1503.08(l).

The time of concentration was computed using the TR-55 Method, which provides a means of determining the time for an entire watershed to contribute runoff to a specific location via sheet flows, shallow concentrated flow and channel flow. Runoff curve numbers were calculated by estimating the coverage areas and then summing the curve number for the coverage area as a percent of the entire watershed.

References:

1. HydroCAD Stormwater Modeling System, by HydroCAD Software Solutions LLC, Chocorua, New Hampshire.
2. New Hampshire Stormwater Management Manual, Volume 2, Post-Construction Best Management Practices Selection and Design, December 2008.
3. "Extreme Precipitation in New York & New England." Extreme Precipitation in New York & New England by Northeast Regional Climate Center (NRCC), 26 June 2012.

Section 2
Pre-Development Conditions

To analyze the pre-development condition, the site has been divided into one (1) distinct points of analysis (PA-1). This point of analysis and watershed is depicted on the plan entitled "Pre-Development Watershed Plan", Sheet C-801.

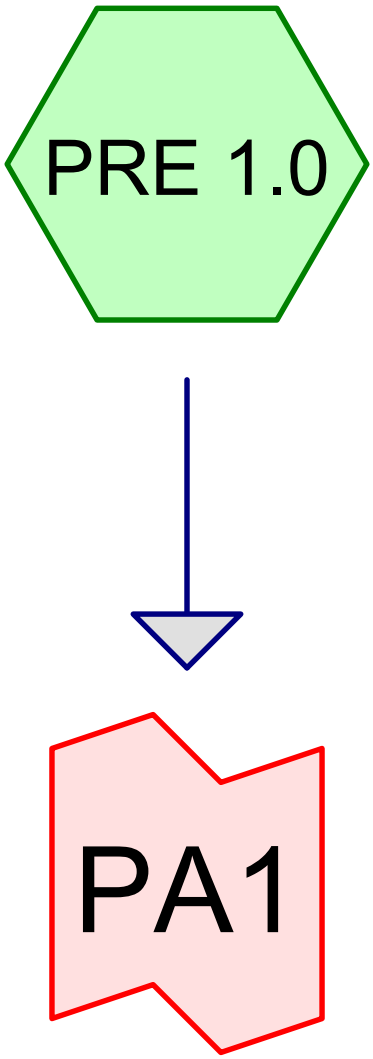
The point of analysis and its contributing watershed areas are described below:

Point of Analysis (PA-1)

Pre-development Watershed 1.0 (PRE 1.0) is comprised of mostly impervious surfaces from paved parking and structures, as well as some disturbed forested areas to the northeast, and a run down pier. Banks along the shoreline of North Mill Pond consist of lawn, various species associated with disturbed sites, and rip rap slope. Runoff from this watershed area travels via overland flow or underground drainage system to discharge into North Mill Pond. The runoff is currently untreated before discharge.

2.1 Pre-Development Calculations

2.2 Pre-Development Watershed Plans



POINT OF ANALYSIS 1

Subcat Reach Pond Link

Routing Diagram for P-0595-007 PRE
Prepared by Tighe & Bond, Printed 3/19/2021
HydroCAD® 10.00-20 s/n 03436 © 2017 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.007	39	>75% Grass cover, Good, HSG A (PRE 1.0)
0.628	74	>75% Grass cover, Good, HSG C (PRE 1.0)
1.117	98	Paved parking, HSG C (PRE 1.0)
0.068	98	Rock embankment, HSG C (PRE 1.0)
0.456	98	Roofs, HSG C (PRE 1.0)
0.056	98	Unconnected pavement, HSG A (PRE 1.0)
0.204	70	Woods, Good, HSG C (PRE 1.0)
2.537	**90**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.063	HSG A	PRE 1.0
0.000	HSG B	
2.474	HSG C	PRE 1.0
0.000	HSG D	
0.000	Other	
2.537		**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=110,529 sf 66.92% Impervious Runoff Depth=2.62"
Flow Length=189' Tc=5.0 min CN=90 Runoff=7.82 cfs 0.553 af

Link PA1: POINT OF ANALYSIS1 Inflow=7.82 cfs 0.553 af
Primary=7.82 cfs 0.553 af

Total Runoff Area = 2.537 ac Runoff Volume = 0.553 af Average Runoff Depth = 2.62"
33.08% Pervious = 0.839 ac 66.92% Impervious = 1.698 ac

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=110,529 sf 66.92% Impervious Runoff Depth=4.45"
Flow Length=189' Tc=5.0 min CN=90 Runoff=12.94 cfs 0.940 af

Link PA1: POINT OF ANALYSIS1 Inflow=12.94 cfs 0.940 af
Primary=12.94 cfs 0.940 af

Total Runoff Area = 2.537 ac Runoff Volume = 0.940 af Average Runoff Depth = 4.45"
33.08% Pervious = 0.839 ac 66.92% Impervious = 1.698 ac

Summary for Subcatchment PRE 1.0:

Runoff = 12.94 cfs @ 12.07 hrs, Volume= 0.940 af, Depth= 4.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 Year Storm Rainfall=5.59"

	Area (sf)	CN	Description
	2,435	98	Unconnected pavement, HSG A
	317	39	>75% Grass cover, Good, HSG A
	19,880	98	Roofs, HSG C
	27,362	74	>75% Grass cover, Good, HSG C
	8,883	70	Woods, Good, HSG C
*	2,980	98	Rock embankment, HSG C
	48,672	98	Paved parking, HSG C
	110,529	90	Weighted Average
	36,562		33.08% Pervious Area
	73,967		66.92% Impervious Area
	2,435		3.29% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	33	0.0280	1.35		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.9	121	0.0250	2.37		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	35	0.1400	5.61		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.4	189	Total, Increased to minimum Tc = 5.0 min			

Summary for Link PA1: POINT OF ANALYSIS 1

Inflow Area = 2.537 ac, 66.92% Impervious, Inflow Depth = 4.45" for 10 Year Storm event
Inflow = 12.94 cfs @ 12.07 hrs, Volume= 0.940 af
Primary = 12.94 cfs @ 12.07 hrs, Volume= 0.940 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=110,529 sf 66.92% Impervious Runoff Depth=5.90"
Flow Length=189' Tc=5.0 min CN=90 Runoff=16.90 cfs 1.248 af

Link PA1: POINT OF ANALYSIS1 Inflow=16.90 cfs 1.248 af
Primary=16.90 cfs 1.248 af

Total Runoff Area = 2.537 ac Runoff Volume = 1.248 af Average Runoff Depth = 5.90"
33.08% Pervious = 0.839 ac 66.92% Impervious = 1.698 ac

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=110,529 sf 66.92% Impervious Runoff Depth=7.28"
Flow Length=189' Tc=5.0 min CN=90 Runoff=20.59 cfs 1.539 af

Link PA1: POINT OF ANALYSIS1 Inflow=20.59 cfs 1.539 af
Primary=20.59 cfs 1.539 af

Total Runoff Area = 2.537 ac Runoff Volume = 1.539 af Average Runoff Depth = 7.28"
33.08% Pervious = 0.839 ac 66.92% Impervious = 1.698 ac

LEGEND

PRE-DEVELOPMENT WATERSHED BOUNDARY

LONGEST FLOW PATH

PRE 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION

PA-1 — POINT OF ANALYSIS

SITE SPECIFIC SOIL SURVEY HYDROLOGIC SOIL GROUP (HSG) LEGEND

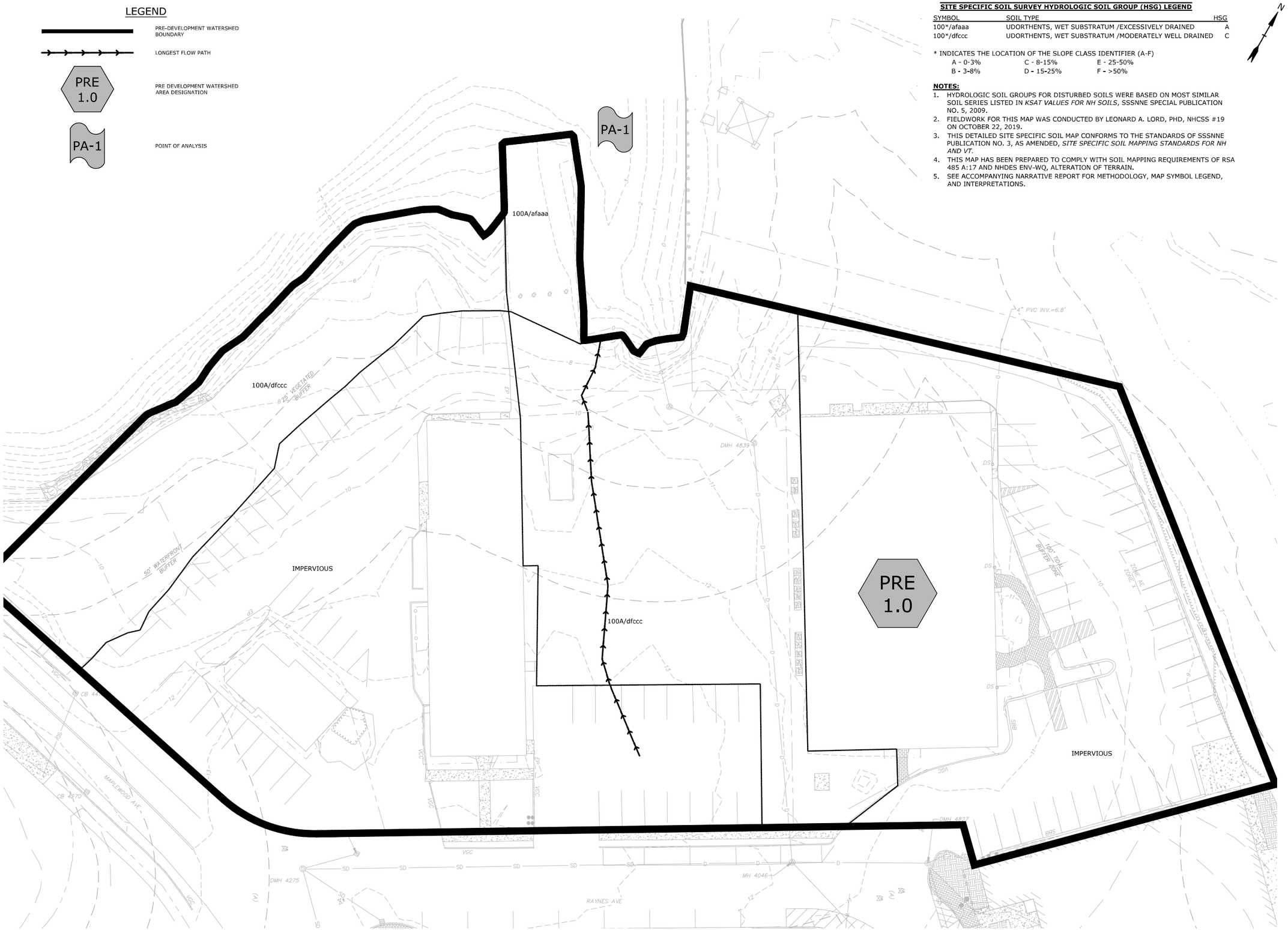
SYMBOL	SOIL TYPE	HSG
100*/afaaa	UDORTHENTS, WET SUBSTRATUM /EXCESSIVELY DRAINED	A
100*/dfccc	UDORTHENTS, WET SUBSTRATUM /MODERATELY WELL DRAINED	C

* INDICATES THE LOCATION OF THE SLOPE CLASS IDENTIFIER (A-F)

A - 0-3%	C - 8-15%	E - 25-50%
B - 3-8%	D - 15-25%	F - >50%

NOTES:

1. HYDROLOGIC SOIL GROUPS FOR DISTURBED SOILS WERE BASED ON MOST SIMILAR SOIL SERIES LISTED IN *KSAT VALUES FOR NH SOILS*, SSSNNE SPECIAL PUBLICATION NO. 5, 2009.
2. FIELDWORK FOR THIS MAP WAS CONDUCTED BY LEONARD A. LORD, PHD, NHCSS #19 ON OCTOBER 22, 2019.
3. THIS DETAILED SITE SPECIFIC SOIL MAP CONFORMS TO THE STANDARDS OF SSSNNE PUBLICATION NO. 3, AS AMENDED, *SITE SPECIFIC SOIL MAPPING STANDARDS FOR NH AND VT.*
4. THIS MAP HAS BEEN PREPARED TO COMPLY WITH SOIL MAPPING REQUIREMENTS OF RSA 485 A:17 AND NHDES ENV-WQ, ALTERATION OF TERRAIN.
5. SEE ACCOMPANYING NARRATIVE REPORT FOR METHODOLOGY, MAP SYMBOL LEGEND, AND INTERPRETATIONS.



Tighe&Bond

0 20' 40'
GRAPHIC SCALE

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
K	11/24/2021	PB Submission
J	10/20/2021	TAC Resubmission
I	8/23/2021	TAC Resubmission
H	7/21/2021	TAC Resubmission
G	5/26/2021	CC Resubmission
F	5/19/2021	TAC Resubmission
E	4/28/2021	CC Resubmission
D	4/21/2021	TAC Resubmission
C	3/22/2021	TAC Submission
B	3/10/2021	Design Review Resubmission
A	12/1/2020	TAC Work Session

PROJECT NO:	P-0595-007
DATE:	December 22, 2020
FILE:	P-0595-007-HYDRO.DWG
DRAWN BY:	CJK
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

PRE-DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-801

Last Saved: 11/18/2021
Plotted On:Nov 18, 2021-10:54am By: CKrzcuik
Tighe & Bond:J:\P\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings_Figures\AutoCAD\Sheet\P-0595-007-HYDRO.dwg

Section 3
Post-Development Conditions

The post-development condition was analyzed by dividing the watersheds into seven (7) watershed areas. Stormwater runoff from these sub-catchment areas flow via subsurface drainage systems prior to discharging to North Mill Pond. Like the pre-development condition, flows from these sub-catchment areas are modeled at one point of analysis at North Mill Pond (PA-1). As per Env-Wq 1507.06(d), since North Mill Pond is tidal water the peak runoff control requirements do not apply. However, the peak runoff requirements have been met due to the onsite underground detention basin and these comparisons can be found in Section 4 of this report.

Two underground detention system are included on the development site for the purpose of mitigating temperature differences between the stormwater runoff and the North Mill Pond. The detention systems and outlet structures have been sized to detain the WQV with a drain down time of 24 hours, prior to discharging to the treatment units. This detention basin is used to mitigate increased temperature of the initial surface runoff. Flows greater than the 2-year storm event are designed to bypass the treatment unit.

The point of analysis (PA-1) and its sub-catchment areas are depicted on the plan entitled "Post-Development Watershed Plan," Sheet C-802. The point of analysis and it's contributing watershed areas are described below:

Point of Analysis (PA-1)

Post-development Watershed 1.1 (POST 1.1) is comprised of mostly the southern building and associated impervious areas on the south end of the site. Runoff from this watershed area travels via overland flow or roof leader to deep sump catch basins and an underground detention system. The detention system and outlet structure have been sized to detain the WQV with a drain down time greater than 24 hours, prior to discharging to the treatment unit, a Contech Jellyfish Stormwater Filter (JFF-1). Flows exiting the Jellyfish Filter discharge to North Mill Pond (PA-1). The pipe network is protected by a backflow preventer within the outlet invert of a manhole structure at the most downstream location.

Post-development Watershed 1.2 (POST 1.2) like POST 1.1, is comprised of mostly the northern building and associated impervious areas on the north side of the site. Runoff from this watershed area travels via overland flow or roof leader to deep sump catch basins and an underground detention system. The detention system and outlet structure have been sized to detain the WQV with a drain down time greater than 24 hours, prior to discharging to the treatment unit, a Contech Jellyfish Stormwater Filter (JFF-2). Flows exiting the Jellyfish Filter discharge to North Mill Pond (PA-1). As previously stated, the pipe network is protected by a backflow preventer within the outlet invert of a manhole structure at the most downstream location.

Post-development Watershed 1.3 (POST 1.3) is comprised mostly of porous pavement multi use path located between the proposed development and the North Mill Pond as well as some grassed landscape areas. Runoff from the watershed infiltrates through the filter media section under the porous pavement and discharges to an underdrain. Due to the poor onsite soils and high groundwater elevation the porous pavement section has been lined with an impermeable liner and an underdrain has been provided. The underdrain connects to the closed drainage system on site, ultimately discharging to the North Mill Pond.

Post-development Watershed 1.4 (POST 1.4) is nearly identical to POST 1.3 and is comprised mostly of porous pavement multi use path located between the proposed development and the North Mill Pond as well as some grassed landscape areas. Runoff from the watershed infiltrates through the filter media section under the porous pavement and discharges to an underdrain. Due to the poor onsite soils and high groundwater elevation the porous pavement section has been lined with an impermeable liner and an underdrain has been provided. The underdrain also connects to the closed drainage system on site, ultimately discharging to the North Mill Pond.

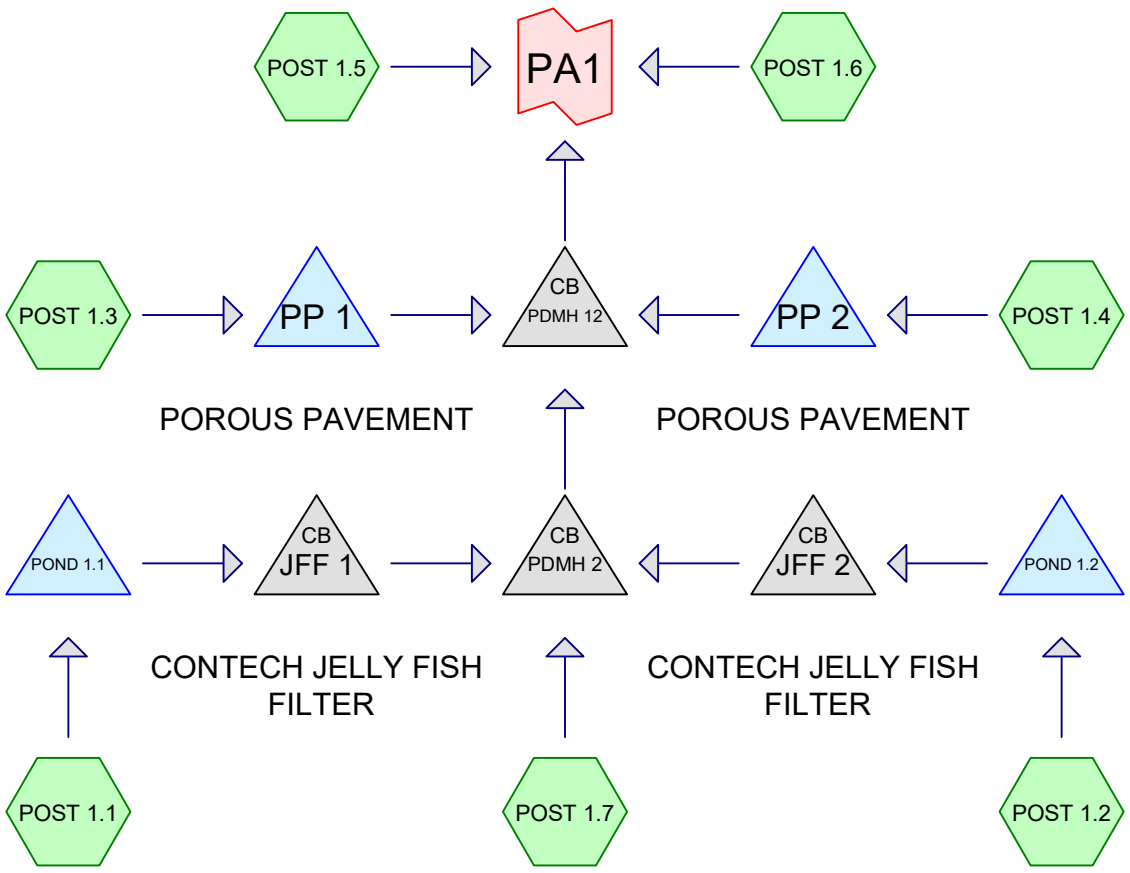
Post-development Watershed 1.5 (POST 1.5) is comprised mostly of grassy areas and a proposed boat/kayak launch and reconstructed timber pier. Runoff from this watershed simply sheets toward and discharges into North Mill Pond, as in the existing condition. There are no proposed impervious surfaces that are within this watershed area that would require treatment.

Post-development Watershed 1.6 (POST 1.6) is also comprised mostly of grassy area along the northern side of the property. Runoff from this watershed simply sheets north and discharges into North Mill Pond, as in the existing condition. There are no proposed impervious surfaces that are within this watershed area that would require treatment.

Post-development Watershed 1.7 (POST 1.7) is comprised of a small strip of sidewalk and landscaping in between the proposed buildings and the city right of way along Raynes Ave. The runoff from this Subcatchment sheets directly onto the street to the existing closed drainage system, ultimately discharging to North Mill Pond via the previously mentioned drainage system.

3.1 Post-Development Calculations

3.2 Post-Development Watershed Plans



Subcat Reach Pond Link

Routing Diagram for P-0595-007 POST
Prepared by Tighe & Bond, Printed 11/18/2021
HydroCAD® 10.00-20 s/n 03436 © 2017 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.007	39	>75% Grass cover, Good, HSG A (POST 1.3, POST 1.5)
0.735	74	>75% Grass cover, Good, HSG C (POST 1.1, POST 1.2, POST 1.3, POST 1.4, POST 1.5, POST 1.6, POST 1.7)
0.056	98	Paved parking, HSG A (POST 1.3, POST 1.5)
0.924	98	Paved parking, HSG C (POST 1.1, POST 1.2, POST 1.3, POST 1.4, POST 1.5, POST 1.7)
0.068	98	Rock embankment, HSG C (POST 1.5)
0.749	98	Roofs, HSG C (POST 1.1, POST 1.2)
2.540	**91**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.063	HSG A	POST 1.3, POST 1.5
0.000	HSG B	
2.476	HSG C	POST 1.1, POST 1.2, POST 1.3, POST 1.4, POST 1.5, POST 1.6, POST 1.7
0.000	HSG D	
0.000	Other	
2.540		**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment POST 1.1: Runoff Area=29,222 sf 90.60% Impervious Runoff Depth=3.22"
Flow Length=74' Tc=5.0 min CN=96 Runoff=2.39 cfs 0.180 af

Subcatchment POST 1.2: Runoff Area=39,564 sf 93.83% Impervious Runoff Depth=3.33"
Flow Length=85' Tc=5.0 min CN=97 Runoff=3.28 cfs 0.252 af

Subcatchment POST 1.3: Runoff Area=14,222 sf 32.32% Impervious Runoff Depth=1.93"
Flow Length=45' Slope=0.1360 '/' Tc=5.0 min CN=82 Runoff=0.76 cfs 0.053 af

Subcatchment POST 1.4: Runoff Area=2,858 sf 27.68% Impervious Runoff Depth=1.86"
Flow Length=30' Slope=0.1330 '/' Tc=5.0 min CN=81 Runoff=0.15 cfs 0.010 af

Subcatchment POST 1.5: Runoff Area=17,643 sf 33.65% Impervious Runoff Depth=1.86"
Flow Length=60' Slope=0.0520 '/' Tc=5.0 min CN=81 Runoff=0.90 cfs 0.063 af

Subcatchment POST 1.6: Runoff Area=2,896 sf 0.00% Impervious Runoff Depth=1.37"
Flow Length=37' Slope=0.0610 '/' Tc=5.0 min CN=74 Runoff=0.11 cfs 0.008 af

Subcatchment POST 1.7: Runoff Area=4,223 sf 79.54% Impervious Runoff Depth=2.91"
Flow Length=92' Slope=0.0350 '/' Tc=5.0 min CN=93 Runoff=0.32 cfs 0.024 af

Pond JFF 1: CONTECH JELLY FISH FILTER Peak Elev=3.17' Inflow=1.75 cfs 0.180 af
18.0" Round Culvert n=0.013 L=7.0' S=0.0214 '/' Outflow=1.75 cfs 0.180 af

Pond JFF 2: CONTECH JELLY FISH FILTER Peak Elev=3.34' Inflow=3.02 cfs 0.252 af
18.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=3.02 cfs 0.252 af

Pond PDMH 12: Peak Elev=2.60' Inflow=5.37 cfs 0.519 af
24.0" Round Culvert n=0.013 L=27.0' S=0.0704 '/' Outflow=5.37 cfs 0.519 af

Pond PDMH 2: Peak Elev=3.00' Inflow=4.96 cfs 0.456 af
24.0" Round Culvert n=0.013 L=34.0' S=0.0029 '/' Outflow=4.96 cfs 0.456 af

Pond POND 1.1: Peak Elev=5.86' Storage=2,801 cf Inflow=2.39 cfs 0.180 af
Outflow=1.75 cfs 0.180 af

Pond POND 1.2: Peak Elev=6.37' Storage=3,450 cf Inflow=3.28 cfs 0.252 af
Outflow=3.02 cfs 0.252 af

Pond PP 1: POROUS PAVEMENT Peak Elev=5.27' Storage=602 cf Inflow=0.76 cfs 0.053 af
Outflow=0.35 cfs 0.052 af

Pond PP 2: POROUS PAVEMENT Peak Elev=5.08' Storage=60 cf Inflow=0.15 cfs 0.010 af
Outflow=0.11 cfs 0.010 af

Link PA1: Inflow=6.23 cfs 0.589 af
Primary=6.23 cfs 0.589 af

Total Runoff Area = 2.540 ac Runoff Volume = 0.589 af Average Runoff Depth = 2.78"
29.24% Pervious = 0.743 ac 70.76% Impervious = 1.797 ac

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment POST 1.1: Runoff Area=29,222 sf 90.60% Impervious Runoff Depth=5.12"
Flow Length=74' Tc=5.0 min CN=96 Runoff=3.70 cfs 0.286 af

Subcatchment POST 1.2: Runoff Area=39,564 sf 93.83% Impervious Runoff Depth=5.24"
Flow Length=85' Tc=5.0 min CN=97 Runoff=5.05 cfs 0.396 af

Subcatchment POST 1.3: Runoff Area=14,222 sf 32.32% Impervious Runoff Depth=3.61"
Flow Length=45' Slope=0.1360 '/' Tc=5.0 min CN=82 Runoff=1.41 cfs 0.098 af

Subcatchment POST 1.4: Runoff Area=2,858 sf 27.68% Impervious Runoff Depth=3.51"
Flow Length=30' Slope=0.1330 '/' Tc=5.0 min CN=81 Runoff=0.28 cfs 0.019 af

Subcatchment POST 1.5: Runoff Area=17,643 sf 33.65% Impervious Runoff Depth=3.51"
Flow Length=60' Slope=0.0520 '/' Tc=5.0 min CN=81 Runoff=1.70 cfs 0.119 af

Subcatchment POST 1.6: Runoff Area=2,896 sf 0.00% Impervious Runoff Depth=2.84"
Flow Length=37' Slope=0.0610 '/' Tc=5.0 min CN=74 Runoff=0.23 cfs 0.016 af

Subcatchment POST 1.7: Runoff Area=4,223 sf 79.54% Impervious Runoff Depth=4.78"
Flow Length=92' Slope=0.0350 '/' Tc=5.0 min CN=93 Runoff=0.52 cfs 0.039 af

Pond JFF 1: CONTECH JELLY FISH FILTER Peak Elev=3.65' Inflow=3.43 cfs 0.286 af
18.0" Round Culvert n=0.013 L=7.0' S=0.0214 '/' Outflow=3.43 cfs 0.286 af

Pond JFF 2: CONTECH JELLY FISH FILTER Peak Elev=3.77' Inflow=4.80 cfs 0.396 af
18.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=4.80 cfs 0.396 af

Pond PDMH 12: Peak Elev=3.00' Inflow=9.44 cfs 0.838 af
24.0" Round Culvert n=0.013 L=27.0' S=0.0704 '/' Outflow=9.44 cfs 0.838 af

Pond PDMH 2: Peak Elev=3.47' Inflow=8.73 cfs 0.721 af
24.0" Round Culvert n=0.013 L=34.0' S=0.0029 '/' Outflow=8.73 cfs 0.721 af

Pond POND 1.1: Peak Elev=6.01' Storage=3,015 cf Inflow=3.70 cfs 0.286 af
Outflow=3.43 cfs 0.286 af

Pond POND 1.2: Peak Elev=6.51' Storage=3,623 cf Inflow=5.05 cfs 0.396 af
Outflow=4.80 cfs 0.396 af

Pond PP 1: POROUS PAVEMENT Peak Elev=5.56' Storage=1,049 cf Inflow=1.41 cfs 0.098 af
Outflow=0.62 cfs 0.098 af

Pond PP 2: POROUS PAVEMENT Peak Elev=5.22' Storage=103 cf Inflow=0.28 cfs 0.019 af
Outflow=0.17 cfs 0.019 af

Link PA1: Inflow=11.31 cfs 0.973 af
Primary=11.31 cfs 0.973 af

Total Runoff Area = 2.540 ac Runoff Volume = 0.973 af Average Runoff Depth = 4.60"
29.24% Pervious = 0.743 ac 70.76% Impervious = 1.797 ac

Summary for Subcatchment POST 1.1:

Runoff = 3.70 cfs @ 12.07 hrs, Volume= 0.286 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 Year Storm Rainfall=5.59"

Area (sf)	CN	Description
17,976	98	Roofs, HSG C
2,746	74	>75% Grass cover, Good, HSG C
8,500	98	Paved parking, HSG C
29,222	96	Weighted Average
2,746		9.40% Pervious Area
26,476		90.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.69		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.1	24	0.0360	3.85		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.6	74	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment POST 1.2:

Runoff = 5.05 cfs @ 12.07 hrs, Volume= 0.396 af, Depth= 5.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 Year Storm Rainfall=5.59"

Area (sf)	CN	Description
14,635	98	Roofs, HSG C
2,441	74	>75% Grass cover, Good, HSG C
22,488	98	Paved parking, HSG C
39,564	97	Weighted Average
2,441		6.17% Pervious Area
37,123		93.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	50	0.0300	1.51		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.2	35	0.0270	3.34		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.8	85	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment POST 1.3:

Runoff = 1.41 cfs @ 12.08 hrs, Volume= 0.098 af, Depth= 3.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 Year Storm Rainfall=5.59"

Area (sf)	CN	Description
200	98	Paved parking, HSG A
6	39	>75% Grass cover, Good, HSG A
9,619	74	>75% Grass cover, Good, HSG C
4,397	98	Paved parking, HSG C
14,222	82	Weighted Average
9,625		67.68% Pervious Area
4,597		32.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	45	0.1360	0.33		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
2.2	45	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment POST 1.4:

Runoff = 0.28 cfs @ 12.08 hrs, Volume= 0.019 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 Year Storm Rainfall=5.59"

Area (sf)	CN	Description
2,067	74	>75% Grass cover, Good, HSG C
791	98	Paved parking, HSG C
2,858	81	Weighted Average
2,067		72.32% Pervious Area
791		27.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	30	0.1330	0.31		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
1.6	30	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment POST 1.5:

Runoff = 1.70 cfs @ 12.08 hrs, Volume= 0.119 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 Year Storm Rainfall=5.59"

	Area (sf)	CN	Description
	2,235	98	Paved parking, HSG A
	311	39	>75% Grass cover, Good, HSG A
*	2,980	98	Rock embankment, HSG C
	11,396	74	>75% Grass cover, Good, HSG C
	721	98	Paved parking, HSG C
	17,643	81	Weighted Average
	11,707		66.35% Pervious Area
	5,936		33.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	60	0.0520	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
4.1	60	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment POST 1.6:

Runoff = 0.23 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 2.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 Year Storm Rainfall=5.59"

Area (sf)	CN	Description
2,896	74	>75% Grass cover, Good, HSG C
0	98	Paved parking, HSG C
2,896	74	Weighted Average
2,896		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	37	0.0610	0.23		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.68"
2.6	37	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment POST 1.7:

Runoff = 0.52 cfs @ 12.07 hrs, Volume= 0.039 af, Depth= 4.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 Year Storm Rainfall=5.59"

Area (sf)	CN	Description
864	74	>75% Grass cover, Good, HSG C
3,359	98	Paved parking, HSG C
4,223	93	Weighted Average
864		20.46% Pervious Area
3,359		79.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0350	1.61		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.68"
0.2	42	0.0350	3.80		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.7	92	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond JFF 1: CONTECH JELLY FISH FILTER

Inflow Area = 0.671 ac, 90.60% Impervious, Inflow Depth = 5.12" for 10 Year Storm event
Inflow = 3.43 cfs @ 12.10 hrs, Volume= 0.286 af
Outflow = 3.43 cfs @ 12.10 hrs, Volume= 0.286 af, Atten= 0%, Lag= 0.0 min
Primary = 3.43 cfs @ 12.10 hrs, Volume= 0.286 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 3.65' @ 12.13 hrs
Flood Elev= 11.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	2.35'	**18.0" Round Culvert** L= 7.0' Ke= 0.500 Inlet / Outlet Invert= 2.35' / 2.20' S= 0.0214 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=2.60 cfs @ 12.10 hrs HW=3.59' TW=3.46' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 2.60 cfs @ 2.27 fps)

Summary for Pond JFF 2: CONTECH JELLY FISH FILTER

Inflow Area = 0.908 ac, 93.83% Impervious, Inflow Depth = 5.24" for 10 Year Storm event
Inflow = 4.80 cfs @ 12.10 hrs, Volume= 0.396 af
Outflow = 4.80 cfs @ 12.10 hrs, Volume= 0.396 af, Atten= 0%, Lag= 0.0 min
Primary = 4.80 cfs @ 12.10 hrs, Volume= 0.396 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 3.77' @ 12.13 hrs
Flood Elev= 11.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	2.40'	**18.0" Round Culvert** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 2.40' / 2.30' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=3.91 cfs @ 12.10 hrs HW=3.71' TW=3.46' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 3.91 cfs @ 3.20 fps)

Summary for Pond PDMH 12:

Inflow Area = 2.068 ac, 80.31% Impervious, Inflow Depth = 4.86" for 10 Year Storm event
Inflow = 9.44 cfs @ 12.10 hrs, Volume= 0.838 af
Outflow = 9.44 cfs @ 12.10 hrs, Volume= 0.838 af, Atten= 0%, Lag= 0.0 min
Primary = 9.44 cfs @ 12.10 hrs, Volume= 0.838 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 3.00' @ 12.10 hrs
Flood Elev= 9.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	1.60'	**24.0" Round Culvert** L= 27.0' Ke= 0.500 Inlet / Outlet Invert= 1.60' / -0.30' S= 0.0704 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=9.23 cfs @ 12.10 hrs HW=2.98' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 9.23 cfs @ 4.00 fps)

Summary for Pond PDMH 2:

Inflow Area = 1.676 ac, 91.71% Impervious, Inflow Depth = 5.16" for 10 Year Storm event
Inflow = 8.73 cfs @ 12.10 hrs, Volume= 0.721 af
Outflow = 8.73 cfs @ 12.10 hrs, Volume= 0.721 af, Atten= 0%, Lag= 0.0 min
Primary = 8.73 cfs @ 12.10 hrs, Volume= 0.721 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 3.47' @ 12.11 hrs
Flood Elev= 10.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	1.80'	**24.0" Round Culvert** L= 34.0' Ke= 0.500 Inlet / Outlet Invert= 1.80' / 1.70' S= 0.0029 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=8.32 cfs @ 12.10 hrs HW=3.46' TW=2.98' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 8.32 cfs @ 4.06 fps)

Summary for Pond POND 1.1:

Inflow Area = 0.671 ac, 90.60% Impervious, Inflow Depth = 5.12" for 10 Year Storm event
Inflow = 3.70 cfs @ 12.07 hrs, Volume= 0.286 af
Outflow = 3.43 cfs @ 12.10 hrs, Volume= 0.286 af, Atten= 7%, Lag= 1.8 min
Primary = 3.43 cfs @ 12.10 hrs, Volume= 0.286 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 6.01' @ 12.10 hrs Surf.Area= 2,496 sf Storage= 3,015 cf
Flood Elev= 7.25' Surf.Area= 2,496 sf Storage= 4,456 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 246.8 min (1,005.7 - 758.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	2.75'	0 cf	**27.13'W x 92.00'L x 5.50'H Field A** 13,726 cf Overall - 5,470 cf Embedded = 8,255 cf x 0.0% Voids
#2A	3.25'	4,566 cf	**ADS N-12 48"** x 16 Inside #1 Inside= 47.7"W x 47.7"H => 12.40 sf x 20.00'L = 248.0 cf Outside= 54.0"W x 54.0"H => 14.86 sf x 20.00'L = 297.1 cf 4 Rows of 4 Chambers 24.13' Header x 12.40 sf x 2 = 598.3 cf Inside
		4,566 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	3.00'	**18.0" Round Culvert** L= 7.0' Ke= 0.500 Inlet / Outlet Invert= 3.00' / 2.85' S= 0.0214 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	3.00'	**1.1" Vert. Orifice/Grate** C= 0.600
#3	Device 1	5.60'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 4.00 4.00

Primary OutFlow Max=3.36 cfs @ 12.10 hrs HW=6.00' TW=3.59' (Dynamic Tailwater)
↑**1=Culvert** (Passes 3.36 cfs of 12.76 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.05 cfs @ 7.48 fps)
3=Custom Weir/Orifice (Weir Controls 3.31 cfs @ 2.07 fps)

Summary for Pond POND 1.2:

Inflow Area = 0.908 ac, 93.83% Impervious, Inflow Depth = 5.24" for 10 Year Storm event
Inflow = 5.05 cfs @ 12.07 hrs, Volume= 0.396 af
Outflow = 4.80 cfs @ 12.10 hrs, Volume= 0.396 af, Atten= 5%, Lag= 1.5 min
Primary = 4.80 cfs @ 12.10 hrs, Volume= 0.396 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 6.51' @ 12.10 hrs Surf.Area= 2,424 sf Storage= 3,623 cf
Flood Elev= 7.25' Surf.Area= 2,424 sf Storage= 4,372 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 244.1 min (996.7 - 752.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	2.75'	0 cf	**33.67'W x 72.00'L x 5.50'H Field A** 13,332 cf Overall - 5,368 cf Embedded = 7,965 cf x 0.0% Voids
#2A	3.25'	4,481 cf	**ADS N-12 48"** x 15 Inside #1 Inside= 47.7"W x 47.7"H => 12.40 sf x 20.00'L = 248.0 cf Outside= 54.0"W x 54.0"H => 14.86 sf x 20.00'L = 297.1 cf 5 Rows of 3 Chambers 30.67' Header x 12.40 sf x 2 = 760.5 cf Inside
		4,481 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	3.05'	**18.0" Round Culvert** L= 6.0' Ke= 0.500 Inlet / Outlet Invert= 3.05' / 2.90' S= 0.0250 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	3.05'	**1.1" Vert. Orifice/Grate** C= 0.600
#3	Device 1	6.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.00 Width (feet) 4.00 4.00

Primary OutFlow Max=4.68 cfs @ 12.10 hrs HW=6.50' TW=3.71' (Dynamic Tailwater)
└─**1=Culvert** (Passes 4.68 cfs of 13.98 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.05 cfs @ 8.05 fps)
  └─**3=Custom Weir/Orifice** (Weir Controls 4.63 cfs @ 2.32 fps)

Summary for Pond PP 1: POROUS PAVEMENT

Inflow Area = 0.326 ac, 32.32% Impervious, Inflow Depth = 3.61" for 10 Year Storm event
Inflow = 1.41 cfs @ 12.08 hrs, Volume= 0.098 af
Outflow = 0.62 cfs @ 12.26 hrs, Volume= 0.098 af, Atten= 56%, Lag= 10.9 min
Primary = 0.62 cfs @ 12.26 hrs, Volume= 0.098 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 5.56' @ 12.26 hrs Surf.Area= 3,857 sf Storage= 1,049 cf
Flood Elev= 8.80' Surf.Area= 3,857 sf Storage= 2,615 cf

Plug-Flow detention time= 52.9 min calculated for 0.098 af (100% of inflow)
Center-of-Mass det. time= 51.7 min (862.5 - 810.8)

Volume	Invert	Avail.Storage	Storage Description
#1	4.88'	2,615 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
4.88	3,857	0.0	0	0
5.95	3,857	40.0	1,651	1,651
6.95	3,857	10.0	386	2,036
7.45	3,857	30.0	579	2,615
7.80	3,857	0.0	0	2,615

Device	Routing	Invert	Outlet Devices
#1	Primary	4.88'	**6.0" Vert. Underdrain** C= 0.600
#2	Device 1	4.88'	**10.000 in/hr Filter Media Infiltration over Surface area**

Primary OutFlow Max=0.62 cfs @ 12.26 hrs HW=5.56' TW=2.58' (Dynamic Tailwater)
└─**1=Underdrain** (Orifice Controls 0.62 cfs @ 3.15 fps)
  └─**2=Filter Media Infiltration** (Passes 0.62 cfs of 0.89 cfs potential flow)

Summary for Pond PP 2: POROUS PAVEMENT

Inflow Area = 0.066 ac, 27.68% Impervious, Inflow Depth = 3.51" for 10 Year Storm event
Inflow = 0.28 cfs @ 12.08 hrs, Volume= 0.019 af
Outflow = 0.17 cfs @ 12.08 hrs, Volume= 0.019 af, Atten= 37%, Lag= 0.2 min
Primary = 0.17 cfs @ 12.08 hrs, Volume= 0.019 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs
Peak Elev= 5.22' @ 12.17 hrs Surf.Area= 755 sf Storage= 103 cf
Flood Elev= 8.80' Surf.Area= 755 sf Storage= 512 cf

Plug-Flow detention time= 21.5 min calculated for 0.019 af (100% of inflow)
Center-of-Mass det. time= 21.1 min (834.6 - 813.5)

Volume	Invert	Avail.Storage	Storage Description
#1	4.88'	512 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
4.88	755	0.0	0	0
5.95	755	40.0	323	323
6.95	755	10.0	76	399
7.45	755	30.0	113	512
7.80	755	0.0	0	512

Device	Routing	Invert	Outlet Devices
#1	Primary	4.88'	**6.0" Vert. Underdrain** C= 0.600
#2	Device 1	4.88'	**10.000 in/hr Filter Media Infiltration over Surface area**

Primary OutFlow Max=0.17 cfs @ 12.08 hrs HW=5.17' TW=2.98' (Dynamic Tailwater)
└─**1=Underdrain** (Passes 0.17 cfs of 0.21 cfs potential flow)
└─**2=Filter Media Infiltration** (Exfiltration Controls 0.17 cfs)

Summary for Link PA1:

Inflow Area = 2.540 ac, 70.76% Impervious, Inflow Depth = 4.60" for 10 Year Storm event
Inflow = 11.31 cfs @ 12.09 hrs, Volume= 0.973 af
Primary = 11.31 cfs @ 12.09 hrs, Volume= 0.973 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.04 hrs

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment POST 1.1: Runoff Area=29,222 sf 90.60% Impervious Runoff Depth=6.60"
Flow Length=74' Tc=5.0 min CN=96 Runoff=4.71 cfs 0.369 af

Subcatchment POST 1.2: Runoff Area=39,564 sf 93.83% Impervious Runoff Depth=6.72"
Flow Length=85' Tc=5.0 min CN=97 Runoff=6.42 cfs 0.509 af

Subcatchment POST 1.3: Runoff Area=14,222 sf 32.32% Impervious Runoff Depth=4.99"
Flow Length=45' Slope=0.1360 '/' Tc=5.0 min CN=82 Runoff=1.92 cfs 0.136 af

Subcatchment POST 1.4: Runoff Area=2,858 sf 27.68% Impervious Runoff Depth=4.88"
Flow Length=30' Slope=0.1330 '/' Tc=5.0 min CN=81 Runoff=0.38 cfs 0.027 af

Subcatchment POST 1.5: Runoff Area=17,643 sf 33.65% Impervious Runoff Depth=4.88"
Flow Length=60' Slope=0.0520 '/' Tc=5.0 min CN=81 Runoff=2.34 cfs 0.165 af

Subcatchment POST 1.6: Runoff Area=2,896 sf 0.00% Impervious Runoff Depth=4.11"
Flow Length=37' Slope=0.0610 '/' Tc=5.0 min CN=74 Runoff=0.33 cfs 0.023 af

Subcatchment POST 1.7: Runoff Area=4,223 sf 79.54% Impervious Runoff Depth=6.25"
Flow Length=92' Slope=0.0350 '/' Tc=5.0 min CN=93 Runoff=0.67 cfs 0.050 af

Pond JFF 1: CONTECH JELLY FISH FILTER Peak Elev=4.01' Inflow=4.41 cfs 0.369 af
18.0" Round Culvert n=0.013 L=7.0' S=0.0214 '/' Outflow=4.41 cfs 0.369 af

Pond JFF 2: CONTECH JELLY FISH FILTER Peak Elev=4.22' Inflow=6.16 cfs 0.509 af
18.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=6.16 cfs 0.509 af

Pond PDMH 12: Peak Elev=3.24' Inflow=12.07 cfs 1.091 af
24.0" Round Culvert n=0.013 L=27.0' S=0.0704 '/' Outflow=12.07 cfs 1.091 af

Pond PDMH 2: Peak Elev=3.77' Inflow=11.22 cfs 0.928 af
24.0" Round Culvert n=0.013 L=34.0' S=0.0029 '/' Outflow=11.22 cfs 0.928 af

Pond POND 1.1: Peak Elev=6.08' Storage=3,120 cf Inflow=4.71 cfs 0.369 af
Outflow=4.41 cfs 0.369 af

Pond POND 1.2: Peak Elev=6.60' Storage=3,737 cf Inflow=6.42 cfs 0.509 af
Outflow=6.16 cfs 0.509 af

Pond PP 1: POROUS PAVEMENT Peak Elev=5.82' Storage=1,444 cf Inflow=1.92 cfs 0.136 af
Outflow=0.78 cfs 0.136 af

Pond PP 2: POROUS PAVEMENT Peak Elev=5.44' Storage=170 cf Inflow=0.38 cfs 0.027 af
Outflow=0.17 cfs 0.027 af

Link PA1: Inflow=14.67 cfs 1.278 af
Primary=14.67 cfs 1.278 af

Total Runoff Area = 2.540 ac Runoff Volume = 1.278 af Average Runoff Depth = 6.04"
29.24% Pervious = 0.743 ac 70.76% Impervious = 1.797 ac

Time span=0.00-48.00 hrs, dt=0.04 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment POST 1.1: Runoff Area=29,222 sf 90.60% Impervious Runoff Depth=8.00"
Flow Length=74' Tc=5.0 min CN=96 Runoff=5.67 cfs 0.447 af

Subcatchment POST 1.2: Runoff Area=39,564 sf 93.83% Impervious Runoff Depth=8.12"
Flow Length=85' Tc=5.0 min CN=97 Runoff=7.70 cfs 0.615 af

Subcatchment POST 1.3: Runoff Area=14,222 sf 32.32% Impervious Runoff Depth=6.32"
Flow Length=45' Slope=0.1360 '/' Tc=5.0 min CN=82 Runoff=2.41 cfs 0.172 af

Subcatchment POST 1.4: Runoff Area=2,858 sf 27.68% Impervious Runoff Depth=6.20"
Flow Length=30' Slope=0.1330 '/' Tc=5.0 min CN=81 Runoff=0.48 cfs 0.034 af

Subcatchment POST 1.5: Runoff Area=17,643 sf 33.65% Impervious Runoff Depth=6.20"
Flow Length=60' Slope=0.0520 '/' Tc=5.0 min CN=81 Runoff=2.94 cfs 0.209 af

Subcatchment POST 1.6: Runoff Area=2,896 sf 0.00% Impervious Runoff Depth=5.36"
Flow Length=37' Slope=0.0610 '/' Tc=5.0 min CN=74 Runoff=0.43 cfs 0.030 af

Subcatchment POST 1.7: Runoff Area=4,223 sf 79.54% Impervious Runoff Depth=7.64"
Flow Length=92' Slope=0.0350 '/' Tc=5.0 min CN=93 Runoff=0.81 cfs 0.062 af

Pond JFF 1: CONTECH JELLY FISH FILTER Peak Elev=4.50' Inflow=5.36 cfs 0.447 af
18.0" Round Culvert n=0.013 L=7.0' S=0.0214 '/' Outflow=5.36 cfs 0.447 af

Pond JFF 2: CONTECH JELLY FISH FILTER Peak Elev=4.72' Inflow=7.44 cfs 0.615 af
18.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=7.44 cfs 0.615 af

Pond PDMH 12: Peak Elev=3.50' Inflow=14.54 cfs 1.329 af
24.0" Round Culvert n=0.013 L=27.0' S=0.0704 '/' Outflow=14.54 cfs 1.329 af

Pond PDMH 2: Peak Elev=4.22' Inflow=13.58 cfs 1.124 af
24.0" Round Culvert n=0.013 L=34.0' S=0.0029 '/' Outflow=13.58 cfs 1.124 af

Pond POND 1.1: Peak Elev=6.15' Storage=3,214 cf Inflow=5.67 cfs 0.447 af
Outflow=5.36 cfs 0.447 af

Pond POND 1.2: Peak Elev=6.68' Storage=3,832 cf Inflow=7.70 cfs 0.615 af
Outflow=7.44 cfs 0.615 af

Pond PP 1: POROUS PAVEMENT Peak Elev=6.47' Storage=1,851 cf Inflow=2.41 cfs 0.172 af
Outflow=0.89 cfs 0.172 af

Pond PP 2: POROUS PAVEMENT Peak Elev=5.72' Storage=254 cf Inflow=0.48 cfs 0.034 af
Outflow=0.17 cfs 0.034 af

Link PA1: Inflow=17.83 cfs 1.568 af
Primary=17.83 cfs 1.568 af

Total Runoff Area = 2.540 ac Runoff Volume = 1.568 af Average Runoff Depth = 7.41"
29.24% Pervious = 0.743 ac 70.76% Impervious = 1.797 ac

LEGEND

- POST-DEVELOPMENT WATERSHED BOUNDARY
- LONGEST FLOW PATH
- POST 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION
- POST POND 1 — POST-DEVELOPMENT POND DESIGNATION
- PA-1 — POINT OF ANALYSIS

SITE SPECIFIC SOIL SURVEY HYDROLOGIC SOIL GROUP (HSG) LEGEND

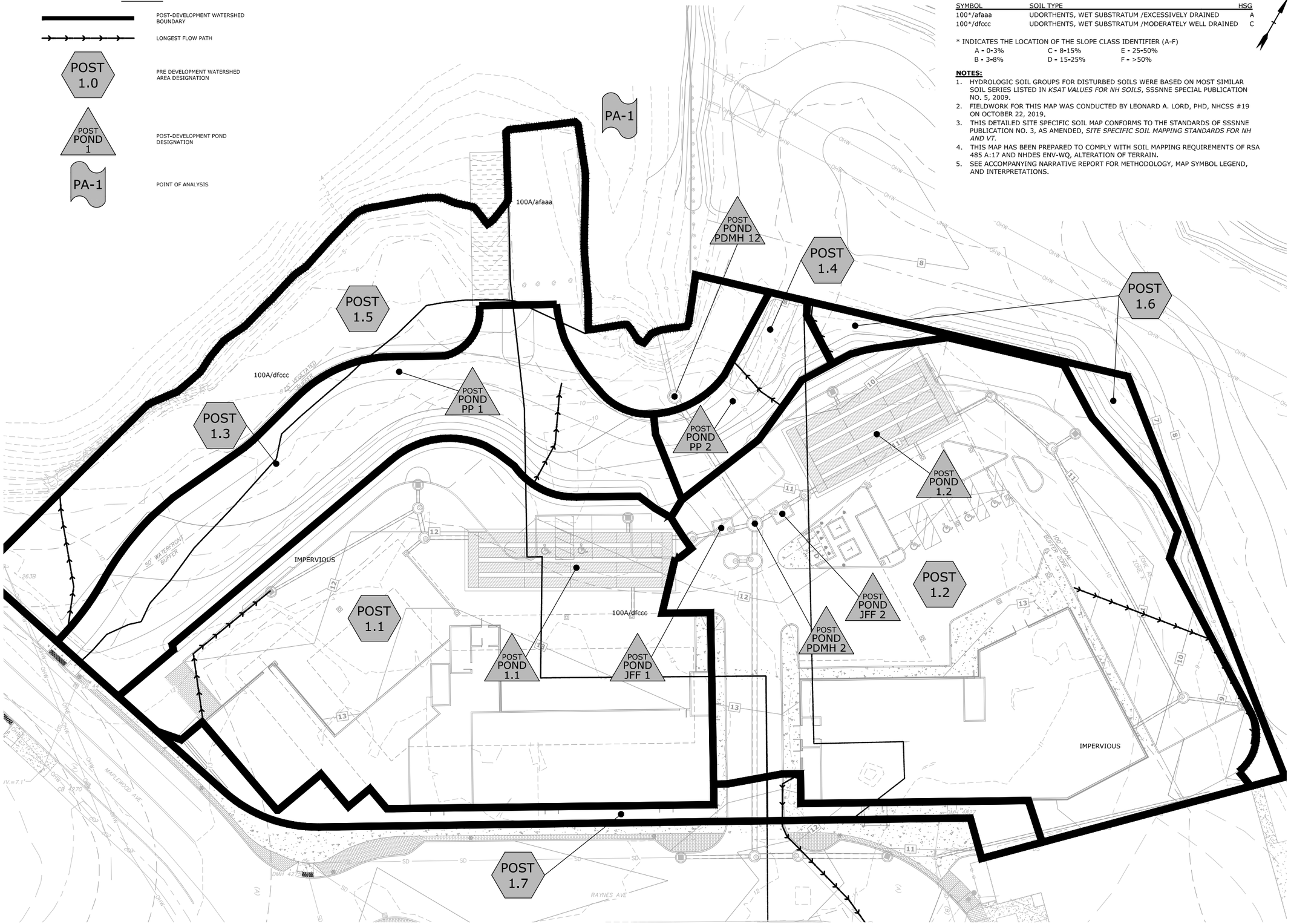
SYMBOL	SOIL TYPE	HSG
100*/afaaa	UDORTHENTS, WET SUBSTRATUM /EXCESSIVELY DRAINED	A
100*/dfccc	UDORTHENTS, WET SUBSTRATUM /MODERATELY WELL DRAINED	C

* INDICATES THE LOCATION OF THE SLOPE CLASS IDENTIFIER (A-F)

A - 0-3% B - 3-8% C - 8-15% D - 15-25% E - 25-50% F - >50%

NOTES:

1. HYDROLOGIC SOIL GROUPS FOR DISTURBED SOILS WERE BASED ON MOST SIMILAR SOIL SERIES LISTED IN *KSAT VALUES FOR NH SOILS*, SSSNNE SPECIAL PUBLICATION NO. 5, 2009.
2. FIELDWORK FOR THIS MAP WAS CONDUCTED BY LEONARD A. LORD, PHD, NHCSS #19 ON OCTOBER 22, 2019.
3. THIS DETAILED SITE SPECIFIC SOIL MAP CONFORMS TO THE STANDARDS OF SSSNNE PUBLICATION NO. 3, AS AMENDED, *SITE SPECIFIC SOIL MAPPING STANDARDS FOR NH AND VT*.
4. THIS MAP HAS BEEN PREPARED TO COMPLY WITH SOIL MAPPING REQUIREMENTS OF RSA 485 A:17 AND NHDES ENV-WQ, ALTERATION OF TERRAIN.
5. SEE ACCOMPANYING NARRATIVE REPORT FOR METHODOLOGY, MAP SYMBOL LEGEND, AND INTERPRETATIONS.



Tighe&Bond

0 20' 40'

GRAPHIC SCALE

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
K	11/24/2021	PB Submission
J	10/20/2021	TAC Resubmission
I	8/23/2021	TAC Resubmission
H	7/21/2021	TAC Resubmission
G	5/26/2021	CC Resubmission
F	5/19/2021	TAC Resubmission
E	4/28/2021	CC Resubmission
D	4/21/2021	TAC Resubmission
C	3/22/2021	TAC Submission
B	3/10/2021	Design Review Resubmission
A	12/1/2020	TAC Work Session

PROJECT NO:	P-0595-007
DATE:	December 22, 2020
FILE:	P-0595-007-HYDRO.DWG
DRAWN BY:	CJK
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

POST-DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-802

Last Saved:11/19/2021
Plotted On:Nov 23, 2021-10:29am By: CKrzcuik
Tighe & Bond:J:\P\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings_Figures\AutoCAD\Sheet\P-0595-007-HYDRO.dwg

Section 4
Peak Rate Comparison

The following table summarizes and compares the pre- and post-development peak runoff rates from the 2-year, 10-year, 25-year and 50-year storm events at the point of analysis.

Table 4.1
Comparison of Pre- and Post-Development Flows (CFS)

	2-Year Storm	10-Year Storm	25-Year Storm	50-Year Storm
Pre-Development Watershed				
PA-1	7.82	12.94	16.90	20.59
Post-Development Watershed				
PA-1	6.23	11.31	14.67	17.83

Section 5
Mitigation Description

The stormwater management system has been designed to provide stormwater treatment as required by the City of Portsmouth Site Review Regulations and NHDES AoT Regulations (Env-Wq 1500).

5.1 Pre-Treatment Methods for Protecting Water Quality

Pre-treatment for the stormwater filtration systems consist of deep sump catch basins.

5.2 Treatment Methods for Protecting Water Quality.

The runoff from proposed impervious areas will be treated by various Contech Jellyfish stormwater filtration systems. These Jellyfish systems are sized to treat the Water Quality Flows of their respective subcatchment areas. Each system is outfitted with an internal bypass that diverts peak flows away from treatment. The BMP worksheet for these treatment practices have been included in Section 5 of this report.

The multiuse path along the North Mill Pond will be constructed as lined porous pavement with and underdrain. The underdrain will discharge to the closed drainage system prior to discharging to the Pond.

Table 5.1 – Pollutant Removal Efficiencies

BMP	Total Suspended Solids	Total Nitrogen	Total Phosphorus
Jellyfish Filter w/Pretreatment[1]	91%	53%	61%
Porous Pavement w/Underdrain[2]	90%	10%	45%

1. Pollutant removal calculations for Jellyfish Filter with deep sump catchbasin pretreatment shown in Table 4.2.
2. Pollutant removal efficiencies from NH Stormwater Manual Volume 2, Appendix B.

Table 5.2 – Pollutant Removal Calculations				
Contech Jellyfish Filter				
BMP	TSS Removal Rate	Starting TSS Load	TSS Removed	Remaining TSS Load
Deep Sump Catchbasin w/Hood[1]	0.15	1.00	0.15	0.85
Jellyfish Filter[2]	0.89	0.85	0.76	0.09
	Total Suspended Solids Removed:			**91%**
	TN Removal Rate	Starting TN Load	TN Removed	Remaining TN Load
Deep Sump Catchbasin w/Hood[1]	0.05	1.00	0.05	0.95
Jellyfish Filter[2]	0.51	0.95	0.48	0.47
	Total Nitrogen Removed:			**53%**
	TP Removal Rate	Starting TP Load	TP Removed	Remaining TP Load
Deep Sump Catchbasin w/Hood[1]	0.05	1.00	0.05	0.95
Jellyfish Filter[2]	0.59	0.95	0.56	0.39
	Total Phosphorus Removed:			**61%**

1. Pollutant removal efficiencies from NH Stormwater Manual Volume 2, Appendix E.
2. Pollutant removal efficiencies from Contech Engineered Solutions, Jellyfish Filter Stormwater Treatment performance testing results.

Section 6
BMP Worksheets and Sizing Memos

GENERAL CALCULATIONS - WQV and WQF
(optional worksheet)

This worksheet may be useful when designing a BMP **that does not fit into one of the specific worksheets already provided** (i.e. for a technology which is not a stormwater wetland, infiltration practice, etc.)

Water Quality Volume (WQV)

0.67	ac	A = Area draining to the practice
0.60	ac	A_I = Impervious area draining to the practice
0.90	decimal	I = Percent impervious area draining to the practice, in decimal form
0.86	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)
0.57	ac-in	WQV= 1" x Rv x A
2,082	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")

Water Quality Flow (WQF)

1	inches	P = Amount of rainfall. For WQF in NH, P = 1".
0.86	inches	Q = Water quality depth. Q = WQV/A
99	unitless	CN = Unit peak discharge curve number. CN =1000/(10+5P+10Q–10*[Q^2 + 1.25*Q*P] $^{0.5}$)
0.1	inches	S = Potential maximum retention. S = (1000/CN) - 10
0.027	inches	Ia = Initial abstraction. Ia = 0.2S
5.0	minutes	T_c = Time of Concentration
640.0	cfs/mi^2/in	q_u is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III.
0.574	cfs	WQF = q_u x WQV. Conversion: to convert "cfs/mi^2/in * ac-in" to "cfs" multiply by 1mi^2/640ac.

Designer's Notes: POST 1.1

JFF-1

Peak Flow = 5.36 cfs

CONTECH Stormwater Solutions Inc. Engineer: DRA
Date Prepared: **3/16/2021**

Site Information

Project Name	**Proposed Mixed Use Dev - JFF1**	
Project State	**NH**	
Project City	**Portsmouth**	
Total Drainage Area, Ad	**0.87**	ac
Post Development Impervious Area, Ai	**0.68**	ac
Pervious Area, Ap	**0.19**	ac
% Impervious	**78%**	
Runoff Coefficient, Rc	**0.75**	

Mass Loading Calculations

Mean Annual Rainfall, P	**50**	in
Agency Required % Removal	**80%**	
Percent Runoff Capture	**90%**	
Mean Annual Runoff, Vt	**107076**	ft^3
Event Mean Concentration of Pollutant, EMC	**75**	mg/l
Annual Mass Load, M total	**501.04**	lbs

Filter System

Filtration Brand	**Jelly Fish**	
Cartridge Length	**54**	in

Jelly Fish Sizing

Mass to be Captured by System	**400.83**	lbs
Water Quality Flow	**0.66**	cfs

Method to Use **FLOW BASED**

Summary			
Flow	Treatment Flow Rate	0.80	cfs
	Required Size	**JFPD0806-4-1**	

GENERAL CALCULATIONS - WQV and WQF
(optional worksheet)

This worksheet may be useful when designing a BMP **that does not fit into one of the specific worksheets already provided** (i.e. for a technology which is not a stormwater wetland, infiltration practice, etc.)

Water Quality Volume (WQV)

0.91	ac	A = Area draining to the practice
0.85	ac	A_I = Impervious area draining to the practice
0.94	decimal	I = Percent impervious area draining to the practice, in decimal form
0.89	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)
0.81	ac-in	WQV= 1" x Rv x A
2,955	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")

Water Quality Flow (WQF)

1	inches	P = Amount of rainfall. For WQF in NH, P = 1".
0.89	inches	Q = Water quality depth. Q = WQV/A
99	unitless	CN = Unit peak discharge curve number. CN =1000/(10+5P+10Q–10*[Q^2 + 1.25*Q*P] $^{0.5}$)
0.1	inches	S = Potential maximum retention. S = (1000/CN) - 10
0.019	inches	Ia = Initial abstraction. Ia = 0.2S
5.0	minutes	T_c = Time of Concentration
640.0	cfs/mi^2/in	q_u is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III.
0.814	cfs	WQF = q_u x WQV. Conversion: to convert "cfs/mi^2/in * ac-in" to "cfs" multiply by 1mi^2/640ac.

Designer's Notes: POST 1.2

JFF 2

Peak Flow = 7.44 cfs

CONTECH Stormwater Solutions Inc. Engineer: DRA
Date Prepared: **3/16/2021**

Site Information

Project Name	**Proposed Mixed Use Dev- JFF2**	
Project State	**NH**	
Project City	**Portsmouth**	
Total Drainage Area, Ad	**0.86**	ac
Post Development Impervious Area, Ai	**0.83**	ac
Pervious Area, Ap	**0.03**	ac
% Impervious	**97%**	
Runoff Coefficient, Rc	**0.92**	

Mass Loading Calculations

Mean Annual Rainfall, P	**50**	in
Agency Required % Removal	**80%**	
Percent Runoff Capture	**90%**	
Mean Annual Runoff, Vt	**129047**	ft^3
Event Mean Concentration of Pollutant, EMC	**75**	mg/l
Annual Mass Load, M total	**603.85**	lbs

Filter System

Filtration Brand	**Jelly Fish**	
Cartridge Length	**54**	in

Jelly Fish Sizing

Mass to be Captured by System	**483.08**	lbs
Water Quality Flow	**0.79**	cfs

Method to Use **FLOW BASED**

Summary			
Flow	Treatment Flow Rate	0.80	cfs
	Required Size	**JFPD0806-4-1**	

FILTRATION PRACTICE DESIGN CRITERIA
(Env-Wq 1508.07)

Type/Node Name: **PP-1**

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.32	ac	A = Area draining to the practice	
0.11	ac	A_I = Impervious area draining to the practice	
0.34	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.36	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.12	ac-in	WQV= 1" x Rv x A	
417	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
104	cf	25% x WQV (check calc for sediment forebay volume)	
313	cf	75% x WQV (check calc for surface sand filter volume)	
		Method of Pretreatment? (not required for clean or roof runoff)	
	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
Calculate time to drain if system IS NOT underdrained:			
3,857	sf	A_{SA} = Surface area of the practice	
	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
		If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
YES	Yes/No	(Use the calculations below)	
-	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
Calculate time to drain if system IS underdrained:			
5.18	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
0.23	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
1.01	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	**≤ 72-hrs**
5.95	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
4.88	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.07	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	**≥ 1'**
5.95	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	**≥ 1'**
5.95	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	**≥ 1'**
6.47	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
7.80	ft	Elevation of the top of the practice	
YES		50 peak elevation ≤ Elevation of the top of the practice	**← yes**
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	**< 10 ac**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 75%WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	**← yes**

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification	
	:1	Pond side slopes	**≥ 3:1**
Sheet		Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
Asphalt		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
0.1	acres	A_{SA} = Surface area of the pervious pavement	
3.6	:1	Ratio of the contributing area to the pervious surface area	**≤ 5:1**
12.0	inches	D_{FC} = Filter course thickness	**12", or 18" if within GPA mod. 304.1 (see spec)**
Sheet	C-505	Note what sheet in the plan set contains the filter course spec.	

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

Stage-Area-Storage for Pond PP 1: POROUS PAVEMENT

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
4.88	**3,857**	0
4.93	3,857	77
4.98	3,857	154
5.03	3,857	231
5.08	3,857	309
5.13	3,857	386
5.18	3,857	463
5.23	3,857	540
5.28	3,857	617
5.33	3,857	694
5.38	3,857	771
5.43	3,857	849
5.48	3,857	926
5.53	3,857	1,003
5.58	3,857	1,080
5.63	3,857	1,157
5.68	3,857	1,234
5.73	3,857	1,311
5.78	3,857	1,389
5.83	3,857	1,466
5.88	3,857	1,543
5.93	3,857	1,620
5.98	3,857	1,662
6.03	3,857	1,682
6.08	3,857	1,701
6.13	3,857	1,720
6.18	3,857	1,740
6.23	3,857	1,759
6.28	3,857	1,778
6.33	3,857	1,797
6.38	3,857	1,817
6.43	3,857	1,836
6.48	3,857	1,855
6.53	3,857	1,875
6.58	3,857	1,894
6.63	3,857	1,913
6.68	3,857	1,932
6.73	3,857	1,952
6.78	3,857	1,971
6.83	3,857	1,990
6.88	3,857	2,009
6.93	3,857	2,029
6.98	3,857	2,071
7.03	3,857	2,129
7.08	3,857	2,187
7.13	3,857	2,245
7.18	3,857	2,303
7.23	3,857	2,360
7.28	3,857	2,418
7.33	3,857	2,476
7.38	3,857	2,534
7.43	3,857	**2,592**
7.48	3,857	**2,615**
7.53	3,857	2,615
7.58	3,857	2,615
7.63	3,857	2,615
7.68	3,857	2,615
7.73	3,857	2,615
7.78	3,857	2,615
7.83	3,857	2,615
7.88	3,857	2,615
7.93	3,857	2,615
7.98	3,857	2,615
8.03	3,857	2,615
8.08	3,857	2,615
8.13	3,857	2,615
8.18	3,857	2,615
8.23	3,857	2,615
8.28	3,857	2,615
8.33	3,857	2,615
8.38	3,857	2,615
8.43	3,857	2,615
8.48	3,857	2,615
8.53	3,857	2,615
8.58	3,857	2,615
8.63	3,857	2,615
8.68	3,857	2,615
8.73	3,857	2,615
8.78	3,857	2,615

Stage-Discharge for Pond PP 1: POROUS PAVEMENT

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
4.88	0.00	5.92	0.84	6.96	0.89	8.00	0.89
4.90	0.00	5.94	0.85	6.98	0.89	8.02	0.89
4.92	0.01	5.96	0.86	7.00	0.89	8.04	0.89
4.94	0.01	5.98	0.87	7.02	0.89	8.06	0.89
4.96	0.02	6.00	0.88	7.04	0.89	8.08	0.89
4.98	0.03	6.02	**0.89**	7.06	0.89	8.10	0.89
5.00	0.04	6.04	**0.89**	7.08	0.89	8.12	0.89
5.02	0.06	6.06	0.89	7.10	0.89	8.14	0.89
5.04	0.07	6.08	0.89	7.12	0.89	8.16	0.89
5.06	0.09	6.10	0.89	7.14	0.89	8.18	0.89
5.08	0.11	6.12	0.89	7.16	0.89	8.20	0.89
5.10	0.13	6.14	0.89	7.18	0.89	8.22	0.89
5.12	0.16	6.16	0.89	7.20	0.89	8.24	0.89
5.14	0.18	6.18	0.89	7.22	0.89	8.26	0.89
5.16	0.20	6.20	0.89	7.24	0.89	8.28	0.89
5.18	0.23	6.22	0.89	7.26	0.89	8.30	0.89
5.20	0.26	6.24	0.89	7.28	0.89	8.32	0.89
5.22	0.28	6.26	0.89	7.30	0.89	8.34	0.89
5.24	0.31	6.28	0.89	7.32	0.89	8.36	0.89
5.26	0.34	6.30	0.89	7.34	0.89	8.38	0.89
5.28	0.36	6.32	0.89	7.36	0.89	8.40	0.89
5.30	0.39	6.34	0.89	7.38	0.89	8.42	0.89
5.32	0.41	6.36	0.89	7.40	0.89	8.44	0.89
5.34	0.44	6.38	0.89	7.42	0.89	8.46	0.89
5.36	0.46	6.40	0.89	7.44	0.89	8.48	0.89
5.38	0.47	6.42	0.89	7.46	0.89	8.50	0.89
5.40	0.49	6.44	0.89	7.48	0.89	8.52	0.89
5.42	0.51	6.46	0.89	7.50	0.89	8.54	0.89
5.44	0.53	6.48	0.89	7.52	0.89	8.56	0.89
5.46	0.54	6.50	0.89	7.54	0.89	8.58	0.89
5.48	0.56	6.52	0.89	7.56	0.89	8.60	0.89
5.50	0.58	6.54	0.89	7.58	0.89	8.62	0.89
5.52	0.59	6.56	0.89	7.60	0.89	8.64	0.89
5.54	0.61	6.58	0.89	7.62	0.89	8.66	0.89
5.56	0.62	6.60	0.89	7.64	0.89	8.68	0.89
5.58	0.63	6.62	0.89	7.66	0.89	8.70	0.89
5.60	0.65	6.64	0.89	7.68	0.89	8.72	0.89
5.62	0.66	6.66	0.89	7.70	0.89	8.74	0.89
5.64	0.68	6.68	0.89	7.72	0.89	8.76	0.89
5.66	0.69	6.70	0.89	7.74	0.89	8.78	0.89
5.68	0.70	6.72	0.89	7.76	0.89	8.80	0.89
5.70	0.71	6.74	0.89	7.78	0.89		
5.72	0.73	6.76	0.89	7.80	0.89		
5.74	0.74	6.78	0.89	7.82	0.89		
5.76	0.75	6.80	0.89	7.84	0.89		
5.78	0.76	6.82	0.89	7.86	0.89		
5.80	0.77	6.84	0.89	7.88	0.89		
5.82	0.79	6.86	0.89	7.90	0.89		
5.84	0.80	6.88	0.89	7.92	0.89		
5.86	0.81	6.90	0.89	7.94	0.89		
5.88	0.82	6.92	0.89	7.96	0.89		
5.90	0.83	6.94	0.89	7.98	0.89		

FILTRATION PRACTICE DESIGN CRITERIA
(Env-Wq 1508.07)

Type/Node Name: _____

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.06	ac	A = Area draining to the practice	
0.02	ac	A_I = Impervious area draining to the practice	
0.33	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.35	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.02	ac-in	WQV= 1" x Rv x A	
76	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
19	cf	25% x WQV (check calc for sediment forebay volume)	
57	cf	75% x WQV (check calc for surface sand filter volume)	
		Method of Pretreatment? (not required for clean or roof runoff)	
	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
Calculate time to drain if system IS NOT underdrained:			
755	sf	A_{SA} = Surface area of the practice	
	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
		If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
YES	Yes/No	(Use the calculations below)	
-	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ 72-hrs
Calculate time to drain if system IS underdrained:			
5.13	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
0.17	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
0.25	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	≤ 72-hrs
5.95	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
4.88	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.07	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	≥ 1'
5.95	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	≥ 1'
5.95	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	≥ 1'
5.72	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
7.40	ft	Elevation of the top of the practice	
YES		50 peak elevation ≤ Elevation of the top of the practice	← yes
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	< 10 ac
	cf	V = Volume of storage[3] (attach a stage-storage table)	≥ 75%WQV
	inches	D_{FC} = Filter course thickness	18", or 24" if within GPA
Sheet		Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	← yes

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification	
	:1	Pond side slopes	**≥ 3:1**
Sheet		Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)	
0.0	acres	A_{SA} = Surface area of the pervious pavement	
3.5	:1	Ratio of the contributing area to the pervious surface area	**≤ 5:1**
12.0	inches	D_{FC} = Filter course thickness	**12", or 18" if within GPA mod. 304.1 (see spec)**
Sheet	C-505	Note what sheet in the plan set contains the filter course spec.	

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. See Env-Wq 1504.14 for guidance on determining the infiltration rate.

2. See lines 34, 40 and 48 for required depths of filter media.

3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet stucture, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

Stage-Area-Storage for Pond PP 2: POROUS PAVEMENT

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
4.88	**755**	0
4.93	755	15
4.98	755	30
5.03	755	45
5.08	755	60
5.13	755	76
5.18	755	91
5.23	755	106
5.28	755	121
5.33	755	136
5.38	755	151
5.43	755	166
5.48	755	181
5.53	755	196
5.58	755	211
5.63	755	227
5.68	755	242
5.73	755	257
5.78	755	272
5.83	755	287
5.88	755	302
5.93	755	317
5.98	755	325
6.03	755	329
6.08	755	333
6.13	755	337
6.18	755	341
6.23	755	344
6.28	755	348
6.33	755	352
6.38	755	356
6.43	755	359
6.48	755	363
6.53	755	367
6.58	755	371
6.63	755	374
6.68	755	378
6.73	755	382
6.78	755	386
6.83	755	390
6.88	755	393
6.93	755	397
6.98	755	405
7.03	755	417
7.08	755	428
7.13	755	439
7.18	755	451
7.23	755	462
7.28	755	473
7.33	755	485
7.38	755	496
7.43	755	**507**
7.48	755	**512**
7.53	755	512
7.58	755	512
7.63	755	512
7.68	755	512
7.73	755	512
7.78	755	512
7.83	755	512
7.88	755	512
7.93	755	512
7.98	755	512
8.03	755	512
8.08	755	512
8.13	755	512
8.18	755	512
8.23	755	512
8.28	755	512
8.33	755	512
8.38	755	512
8.43	755	512
8.48	755	512
8.53	755	512
8.58	755	512
8.63	755	512
8.68	755	512
8.73	755	512
8.78	755	512

Stage-Discharge for Pond PP 2: POROUS PAVEMENT

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
4.88	0.00	5.92	0.17	6.96	0.17	8.00	0.17
4.90	0.00	5.94	0.17	6.98	0.17	8.02	0.17
4.92	0.01	5.96	0.17	7.00	0.17	8.04	0.17
4.94	0.01	5.98	0.17	7.02	0.17	8.06	0.17
4.96	0.02	6.00	0.17	7.04	0.17	8.08	0.17
4.98	0.03	6.02	0.17	7.06	0.17	8.10	0.17
5.00	0.04	6.04	0.17	7.08	0.17	8.12	0.17
5.02	0.06	6.06	0.17	7.10	0.17	8.14	0.17
5.04	0.07	6.08	0.17	7.12	0.17	8.16	0.17
5.06	0.09	6.10	0.17	7.14	0.17	8.18	0.17
5.08	0.11	6.12	0.17	7.16	0.17	8.20	0.17
5.10	0.13	6.14	0.17	7.18	0.17	8.22	0.17
5.12	0.16	6.16	0.17	7.20	0.17	8.24	0.17
5.14	**0.17**	6.18	0.17	7.22	0.17	8.26	0.17
5.16	0.17	6.20	0.17	7.24	0.17	8.28	0.17
5.18	0.17	6.22	0.17	7.26	0.17	8.30	0.17
5.20	0.17	6.24	0.17	7.28	0.17	8.32	0.17
5.22	0.17	6.26	0.17	7.30	0.17	8.34	0.17
5.24	0.17	6.28	0.17	7.32	0.17	8.36	0.17
5.26	0.17	6.30	0.17	7.34	0.17	8.38	0.17
5.28	0.17	6.32	0.17	7.36	0.17	8.40	0.17
5.30	0.17	6.34	0.17	7.38	0.17	8.42	0.17
5.32	0.17	6.36	0.17	7.40	0.17	8.44	0.17
5.34	0.17	6.38	0.17	7.42	0.17	8.46	0.17
5.36	0.17	6.40	0.17	7.44	0.17	8.48	0.17
5.38	0.17	6.42	0.17	7.46	0.17	8.50	0.17
5.40	0.17	6.44	0.17	7.48	0.17	8.52	0.17
5.42	0.17	6.46	0.17	7.50	0.17	8.54	0.17
5.44	0.17	6.48	0.17	7.52	0.17	8.56	0.17
5.46	0.17	6.50	0.17	7.54	0.17	8.58	0.17
5.48	0.17	6.52	0.17	7.56	0.17	8.60	0.17
5.50	0.17	6.54	0.17	7.58	0.17	8.62	0.17
5.52	0.17	6.56	0.17	7.60	0.17	8.64	0.17
5.54	0.17	6.58	0.17	7.62	0.17	8.66	0.17
5.56	0.17	6.60	0.17	7.64	0.17	8.68	0.17
5.58	0.17	6.62	0.17	7.66	0.17	8.70	0.17
5.60	0.17	6.64	0.17	7.68	0.17	8.72	0.17
5.62	0.17	6.66	0.17	7.70	0.17	8.74	0.17
5.64	0.17	6.68	0.17	7.72	0.17	8.76	0.17
5.66	0.17	6.70	0.17	7.74	0.17	8.78	0.17
5.68	0.17	6.72	0.17	7.76	0.17	8.80	0.17
5.70	0.17	6.74	0.17	7.78	0.17		
5.72	0.17	6.76	0.17	7.80	0.17		
5.74	0.17	6.78	0.17	7.82	0.17		
5.76	0.17	6.80	0.17	7.84	0.17		
5.78	0.17	6.82	0.17	7.86	0.17		
5.80	0.17	6.84	0.17	7.88	0.17		
5.82	0.17	6.86	0.17	7.90	0.17		
5.84	0.17	6.88	0.17	7.92	0.17		
5.86	0.17	6.90	0.17	7.94	0.17		
5.88	0.17	6.92	0.17	7.96	0.17		
5.90	0.17	6.94	0.17	7.98	0.17		

ProCon, LLC
31 Raynes Avenue Project
Portsmouth, NH

SITE SPECIFIC SOIL MAP

June 2020

Tighe&Bond
Engineers | Environmental Specialists

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1.0 Introduction

This report is provided in conjunction with a 1.35 +/- acre Site Specific Soil Map (SSSM) prepared by Tighe & Bond for a parcel at 31 Raynes Avenue in Portsmouth, NH. The purpose of the mapping was to assist in the evaluation of drainage and other soil-related uses associated with site improvements, and may be used as part of an Alteration of Terrain (AoT) permit application.

2.0 Methods

Fieldwork for the soil mapping was completed October 22, 2019 based on *Site-Specific Soil Mapping Standards for New Hampshire and Vermont*, *Version 5.0,* (Society of Soil Scientists of Northern New England [SSSNNE] Special Publication No. 3, December 2017). The poorly and very poorly drained soil types under this system are based on the most recent version of *Field Indicators for Identifying Hydric Soils in New England*, *Version 4* (New England Interstate Water Pollution Control Commission, 2018).

The soil legend for this map is based on the soil series currently mapped in the State of New Hampshire as published in the *New Hampshire State-Wide Numerical Soils Legend* (USDA Natural Resources Conservation Service, Issue #10, 2011). Since this soil map includes disturbed soils and may be used for an AoT application, the map symbols are composed of two major parts separated by a forward slash (/). The first part of the soil symbol includes a numerical identifier from the state-wide soil legend, followed by a letter indicating the slope class (*e.g.*, 299A). Slope class identifiers are as follows:

A	0-3%	D	15-25%
B	3-8%	E	25-50%
C	8-15%	F	>50%

The second part of the symbol is based on the SSSNNE Disturbed Soil Supplemental Symbols, which are included within the Site Specific Soil Map (SSSM) standards. This portion of the symbol translates as follows:

Character 1: Drainage Class

a-Excessively Drained

b-Somewhat Excessively Drained

c-Well Drained

d-Moderately Well Drained

e-Somewhat Poorly Drained

f-Poorly Drained

g-Very Poorly Drained

h-Not Determined

Character 2: Parent Material (of naturally formed soil only, if present)

a-No natural soil within 60 inches

b-Glaciofluvial deposits (outwash/terraces of sand or sand and gravel)

c-Glacial till material (active ice)

d-Glaciolacustrine very fine sand and silt deposits (glacial lakes)

e-Loamy/sandy over silt/clay deposits

f-Marine silt and clay deposits (ocean waters)

g-Alluvial deposits (floodplains)

h-Organic materials-fresh water wetlands

i-Organic materials-tidal wetlands

Character 3: Restrictive Properties

a-None

b-Bouldery surface with more than 15% of the surface covered with boulders

c-Mineral restrictive layer(s) are present in the soil profile less than 40 inches below the soil surface such as hard pan, platy structure or clayey texture with consistence of at least firm (i.e. more than 20 newtons).

d-Bedrock in the soil profile; 0-20 inches

e-Bedrock in the soil profile; 20-60 inches

f-Areas where depth to bedrock is so variable that a single soil type cannot be applied, will be mapped as a complex of soil types

g-Subject to flooding

h–Manufactured impervious surface including pavement, concrete, or built-up surfaces (e.g. buildings) with no morphological restrictive layer within control section

Character 4: Estimated Ksat (most limiting layer excluding symbol 3h above)

a-High

b-Moderate

c-Low

d-Not determined *See "Guidelines for Ksat Class Placement" in Chapter 3 of the Soil Survey Manual, USDA

Character 5: Hydrologic Soil Group

a-Group A

b-Group B

c-Group C

d-Group D

e-Not determined

SSSM report standards require estimates of the maximum size of *limiting* inclusions for the entire soil map and an estimate of the percentage of *dissimilar* inclusions within each map unit. *Limiting* inclusions are soils "…that differ appreciably in one or more soil properties from the named soil in a map unit. The difference in soil properties is more restrictive and may affect use and management." *Dissimilar* inclusions are "…soils that either do not share limits of some important diagnostic properties of the named taxon, or, in the professional judgment of the soil scientist, have different use or management requirements." The maximum size of any limiting inclusions in this soil map is estimated to be less than 2,000 square feet. Any dissimilar inclusions noted during the mapping are listed below within the map unit descriptions.

3.0 Site Features

The parcel is a highly disturbed site along the North Mill Pond. The property shows evidence of what appears to be very old filling and grading associated with the existing development.

4.0 Soil Map Unit Descriptions

Below are descriptions for each of the map units found on the accompanying SSSM. The "*" after the numerical map unit symbol represents a placeholder for the slope class indicators described above.

100*/afaaa—Udorthents, wet substratum

Landscape Setting: Soils that have been filled and leveled over what was originally hydric soils. On this site this map unit represents fill that was used to construct a pier.

Drainage Class: Excessively drained

Parent Material of Natural Soil: Fill over marine silts and clays at <60 inches (presumed).

Typical Textures: Very gravelly sand (mixed sand and crushed stone)

Hydrologic Soil Group: A

Dissimilar Inclusions: None noted

Limiting Inclusions: None noted

Additional Notes: Soils in these areas have properties that are similar to the Hinckley soil series for Hydologic Soil Group determination

100*/dfccc—Udorthents, wet substratum

Landscape Setting: Soils that have been filled and leveled over what was originally hydric soils

Drainage Class: Moderately well drained.

Parent Material: Fill over marine silts and clays at <60 inches (presumed).

Typical Textures: Very gravelly sandy loam and gravelly silty clay loam fill

Hydrologic Soil Group: C

Dissimilar Inclusions: None noted

Limiting Inclusions: Slopes along the shore are steeper than the mapped unit and are affected by tidal inundation. These areas comprise less than 10% of the unit

Additional Notes: Soils in these areas have properties that are similar to the Elmridge soil series for Hydrologic Soil Group determination

Site Specific Soil Map Legend

31 Raynes Avenue, Portsmouth, NH

Slope Class Identifiers

A	0-3%	D	15-25%
B	3-8%	E	25-50%
C	8-15%	F	>50%

Map Unit Symbols

Map Number* /Disturbed Soil Numerator**	Soil Map Unit Name	Hydrologic Soil Group
100*/afaaa	Udorthents, wet substratum / excessively drained, over marine silts and clays, no restrictive layer within 40 inches, high Ksat, Hydrologic Soil Group A	A
100*/dfccc	Udorthents, wet substratum / moderately well drained, over marine silts and clays, with a restrictive layer within 40 inches, low Ksat, Hydrologic Soil Group C	C

*Indicates the location of the slope class identifier (A-F)
**Supplemental symbols are used to further characterize disturbed soils for Alteration of Terrain permits

Soil Mapping Notes:

1. Hydrologic soil groups for disturbed soils were based on most similar soil series listed in *Ksat Values for NH Soils*, SSSNNE Special Publication No. 5, 2009.
2. Fieldwork for this map was conducted by Leonard A. Lord, PhD, NHCSS #19 on October 22, 2019.
3. This detailed Site Specific Soil Map conforms to the standards of SSSNNE Publication No. 3, as amended, *Site Specific Soil Mapping Standards for NH and VT.*
4. This map has been prepared to comply with soil mapping requirements of RSA 485 A:17 and NHDES Env-Wq, Alteration of Terrain.
5. See accompanying narrative report for methodology, map symbol legend, and interpretations.

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Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.764 degrees West
Latitude	43.080 degrees North
Elevation	0 feet
Date/Time	Fri, 24 Jul 2020 12:23:19 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.04	**1yr**	0.70	0.98	1.21	1.56	2.03	2.65	2.92	**1yr**	2.35	2.81	3.22	3.94	4.54	**1yr**
2yr	0.32	0.50	0.62	0.81	1.02	1.30	**2yr**	0.88	1.18	1.52	1.94	2.48	3.20	3.57	**2yr**	2.84	3.43	3.93	4.67	5.32	**2yr**
5yr	0.37	0.58	0.73	0.97	1.25	1.61	**5yr**	1.08	1.47	1.89	2.43	3.14	4.06	4.57	**5yr**	3.59	4.40	5.03	5.93	6.69	**5yr**
10yr	0.41	0.65	0.82	1.11	1.45	1.89	**10yr**	1.25	1.72	2.23	2.89	3.74	4.86	5.52	**10yr**	4.30	5.31	6.07	7.09	7.96	**10yr**
25yr	0.48	0.76	0.97	1.33	1.77	2.33	**25yr**	1.53	2.14	2.77	3.62	4.73	6.16	7.09	**25yr**	5.45	6.81	7.78	9.00	10.03	**25yr**
50yr	0.53	0.86	1.10	1.53	2.07	2.75	**50yr**	1.78	2.52	3.28	4.31	5.65	7.37	8.57	**50yr**	6.53	8.24	9.40	10.79	11.95	**50yr**
100yr	0.59	0.96	1.24	1.76	2.41	3.25	**100yr**	2.08	2.97	3.90	5.15	6.75	8.83	10.36	**100yr**	7.82	9.96	11.35	12.93	14.24	**100yr**
200yr	0.67	1.10	1.42	2.04	2.82	3.82	**200yr**	2.43	3.51	4.60	6.11	8.06	10.58	12.52	**200yr**	9.37	12.04	13.71	15.50	16.98	**200yr**
500yr	0.80	1.31	1.71	2.48	3.47	4.75	**500yr**	2.99	4.37	5.75	7.68	10.19	13.45	16.11	**500yr**	11.90	15.49	17.61	19.72	21.44	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.73	0.88	**1yr**	0.63	0.86	0.92	1.33	1.68	2.23	2.48	**1yr**	1.97	2.39	2.86	3.18	3.88	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.37	1.82	2.34	3.05	3.45	**2yr**	2.70	3.31	3.82	4.54	5.07	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.40	**5yr**	1.01	1.37	1.61	2.12	2.73	3.78	4.18	**5yr**	3.34	4.02	4.71	5.52	6.23	**5yr**
10yr	0.38	0.59	0.73	1.02	1.32	1.60	**10yr**	1.14	1.56	1.80	2.39	3.06	4.36	4.85	**10yr**	3.86	4.66	5.42	6.39	7.17	**10yr**
25yr	0.44	0.67	0.83	1.18	1.56	1.90	**25yr**	1.34	1.86	2.10	2.76	3.54	4.70	5.87	**25yr**	4.16	5.64	6.62	7.76	8.65	**25yr**
50yr	0.48	0.73	0.91	1.31	1.76	2.17	**50yr**	1.52	2.12	2.34	3.07	3.93	5.31	6.77	**50yr**	4.70	6.51	7.68	9.00	9.98	**50yr**
100yr	0.53	0.81	1.01	1.46	2.00	2.47	**100yr**	1.73	2.41	2.62	3.42	4.35	5.96	7.81	**100yr**	5.28	7.51	8.92	10.45	11.52	**100yr**
200yr	0.59	0.89	1.12	1.63	2.27	2.81	**200yr**	1.96	2.75	2.93	3.79	4.79	6.68	9.01	**200yr**	5.91	8.66	10.34	12.15	13.31	**200yr**
500yr	0.68	1.02	1.31	1.90	2.70	3.36	**500yr**	2.33	3.28	3.41	4.32	5.46	7.76	10.87	**500yr**	6.87	10.45	12.58	14.86	16.11	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	**1yr**	0.77	1.06	1.26	1.74	2.21	2.98	3.16	**1yr**	2.64	3.04	3.58	4.37	5.04	**1yr**
2yr	0.34	0.52	0.64	0.86	1.07	1.27	**2yr**	0.92	1.24	1.48	1.96	2.52	3.42	3.70	**2yr**	3.03	3.56	4.08	4.83	5.62	**2yr**
5yr	0.40	0.62	0.76	1.05	1.34	1.62	**5yr**	1.15	1.58	1.88	2.53	3.25	4.33	4.96	**5yr**	3.84	4.77	5.37	6.37	7.15	**5yr**
10yr	0.47	0.72	0.89	1.24	1.61	1.97	**10yr**	1.39	1.93	2.28	3.11	3.95	5.33	6.20	**10yr**	4.72	5.96	6.82	7.83	8.74	**10yr**
25yr	0.57	0.87	1.09	1.55	2.04	2.57	**25yr**	1.76	2.51	2.95	4.07	5.15	7.77	8.34	**25yr**	6.88	8.02	9.15	10.33	11.40	**25yr**
50yr	0.67	1.02	1.27	1.82	2.46	3.12	**50yr**	2.12	3.05	3.59	5.00	6.32	9.73	10.46	**50yr**	8.62	10.06	11.45	12.71	13.95	**50yr**
100yr	0.79	1.19	1.49	2.15	2.95	3.80	**100yr**	2.55	3.72	4.37	6.15	7.76	12.18	13.11	**100yr**	10.78	12.61	14.32	15.68	17.08	**100yr**
200yr	0.92	1.39	1.76	2.54	3.55	4.64	**200yr**	3.06	4.54	5.33	7.58	9.53	15.29	16.45	**200yr**	13.53	15.82	17.94	19.34	20.91	**200yr**
500yr	1.14	1.70	2.19	3.18	4.52	6.02	**500yr**	3.90	5.89	6.92	10.01	12.54	20.67	22.22	**500yr**	18.29	21.37	24.18	25.50	27.33	**500yr**

Powered by ACIS Northeast Regional Climate Center

Coastal and Great Bay Region Precipitation Increase		
	24-hr Storm Event (in.)	24-hr Storm Event + 15% (in.)
1 Year	2.65	3.05
2 Year	3.20	3.68
10 Year	4.86	5.59
25 Year	6.16	7.08
50 Year	7.37	8.48
100 Year	8.83	10.15

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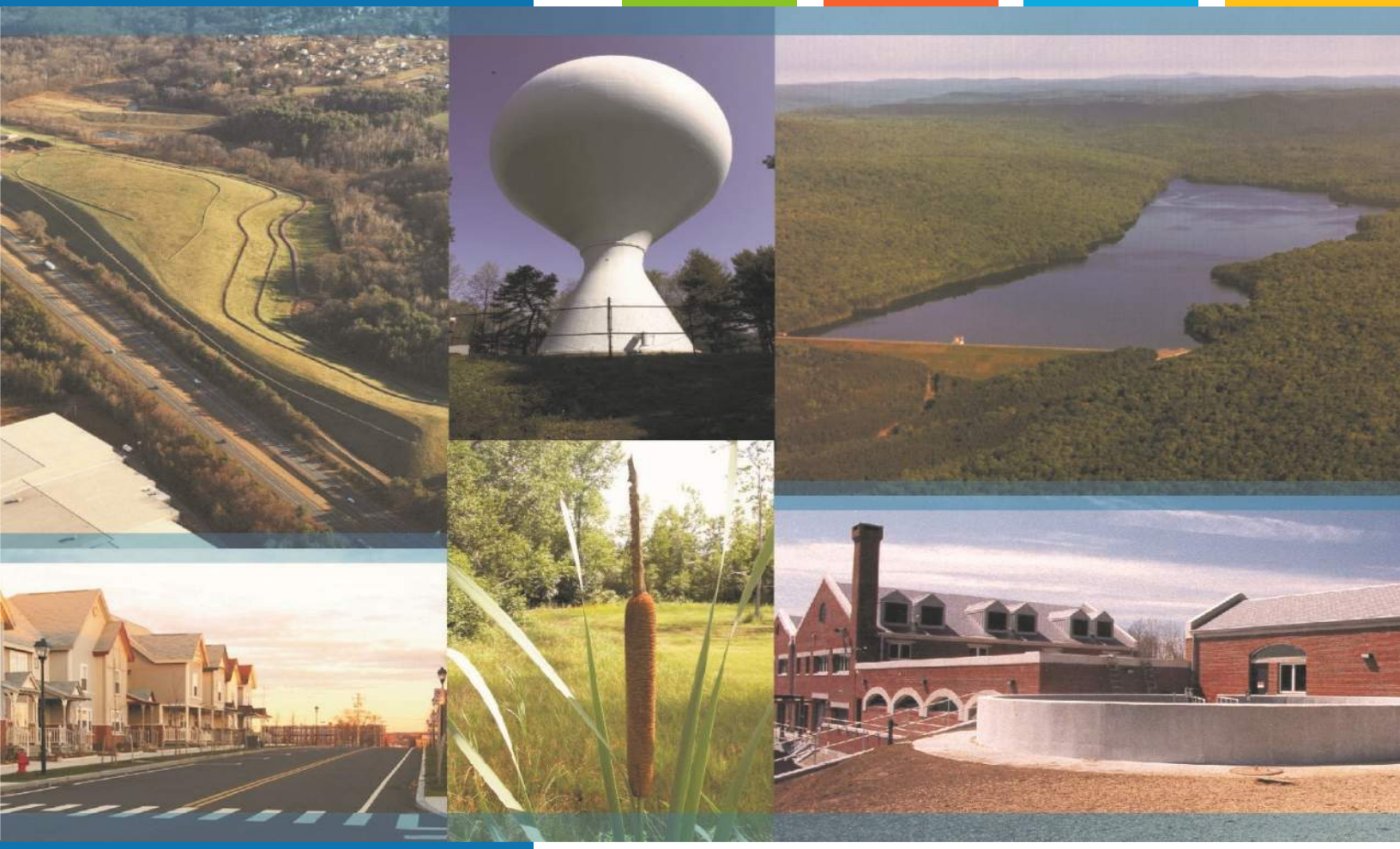

Proposed Mixed Use Development
Raynes Avenue
Portsmouth, NH

Long-Term Operation & Maintenance Plan

North Mill Pond Holdings, LLC

May 19, 2021

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Section 1
Long-Term Operation & Maintenance Plan

It is the intent of this Operation and Maintenance Plan to identify the areas of this site that need special attention and consideration, as well as implementing a plan to assure routine maintenance. By identifying the areas of concern as well as implementing a frequent and routine maintenance schedule the site will maintain a high-quality stormwater runoff.

1.1 Contact/Responsible Party

Maintenance Area	Contact/Responsible Party
Development Site	North Mill Pond Holdings, LLC 1359 Hooksett Road Hooksett NH, 03106
North Mill Pond Trail (City Easement)	City of Portsmouth DPW 680 Peverly Hill Road Portsmouth, NH 03801

(Note: The contact information for the Contact/Responsible Party shall be kept current. If ownership changes, the Operation and Maintenance Plan must be transferred to the new party.)

1.2 Maintenance Items

Maintenance of the following items shall be recorded:

- Litter/Debris Removal
- Landscaping
- Catchbasin Cleaning
- Pavement Sweeping
- Underground Detention System
- Contech Jellyfish Filtration System
- Porous Pavement

The following maintenance items and schedule represent the minimum action required. Periodic site inspections shall be conducted, and all measures must be maintained in effective operating condition. The following items shall be observed during site inspection and maintenance:

- Inspect vegetated areas, particularly slopes and embankments for areas of erosion. Replant and restore as necessary
- Inspect catch basins for sediment buildup
- Inspect site for trash and debris

1.3 Overall Site Operation & Maintenance Schedule

Maintenance Item	Frequency of Maintenance	Responsible Party
Litter/Debris Removal	Weekly	North Mill Pond Holdings, LLC
Pavement Sweeping - Sweep impervious areas to remove sand and litter.	Bi-Annually	North Mill Pond Holdings, LLC
Landscaping - Landscaped islands to be maintained and mulched.	Maintained as required and mulched each Spring	North Mill Pond Holdings, LLC
Catch Basin (CB) Cleaning - CB to be cleaned of solids and oils.	Annually	North Mill Pond Holdings, LLC
Jelly Fish Units	In accordance with Manufacturer's Recommendations	North Mill Pond Holdings, LLC
Underground Detention Basin - Visual observation of sediment levels within system	Annually	North Mill Pond Holdings, LLC
Porous Pavement - Clean using a vacuum sweeper	Bi-Annually	City of Portsmouth DPW

1.3.1 Disposal Requirements

Disposal of debris, trash, sediment and other waste material should be done at suitable disposal/recycling sites and in compliance with all applicable local, state and federal waste regulations.

1.4 Underground Detention System Maintenance Requirements

Underground Detention System Inspection/Maintenance Requirements		
Inspection/ Maintenance	**Frequency**	**Action**
Monitor inlet and outlet structures for sediment accumulation	Two (2) times annually	- Trash, debris and sediment to be removed - Any required maintenance shall be addressed
Deep Sump Catchbasins	Two (2) times annually	- Removal of sediment as warranted by inspection - No less than once annually
Monitor detention system for sediment accumulation	Two (2) times annually	- Trash, debris and sediment to be removed - Any required maintenance shall be addressed

1.5 Contech Jellyfish Filter System Maintenance Requirements

Contech Jellyfish Filter System Inspection/Maintenance Requirements		
Inspection/ Maintenance	**Frequency**	**Action**
Inspect vault for sediment build up, static water, plugged media and bypass condition	One (1) time annually and after any rainfall event exceeding 2.5" in a 24-hr period	Maintenance required for any of the following: - >4" of sediment on the vault floor - >1/4" of sediment on top of the cartridge - .4" of static water above the cartridge bottom more than 24 hours after a rain event - If pore space between media is absent. - If vault is in bypass condition during an average rainfall event.
Replace Cartridges	As required by inspection, 1–5 years.	- Remove filter cartridges per manufacturer methods. - Vacuum sediment from vault. - Install new cartridges per manufacturer methods

CONTECH®
ENGINEERED SOLUTIONS

Jellyfish® Filter
Owner's Manual

Jellyfish® Filter

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THANK YOU FOR PURCHASING THE JELLYFISH® FILTER!

Contech Engineered Solutions would like to thank you for selecting the Jellyfish Filter to meet your project's stormwater treatment needs. With proper inspection and maintenance, the Jellyfish Filter is designed to deliver ongoing, high levels of stormwater pollutant removal.

If you have any questions, please feel free to call us or e-mail us:

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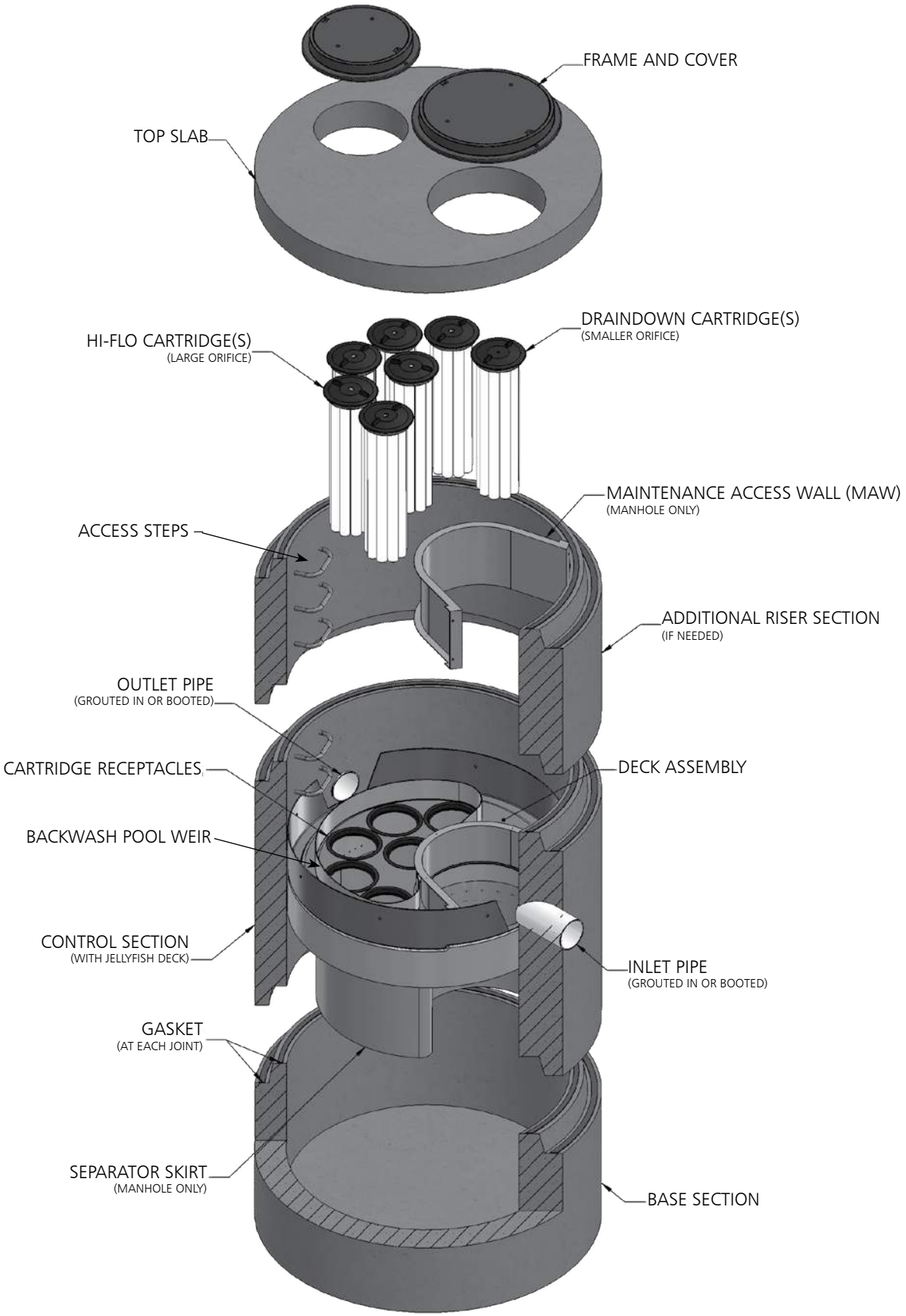
info@conteches.com


FRAME AND COVER
TOP SLAB
DRAINDOWN CARTRIDGE(S)
(SMALLER ORIFICE)
HI-FLO CARTRIDGE(S)
(LARGE ORIFICE)
MAINTENANCE ACCESS WALL (MAW)
(MANHOLE ONLY)
ACCESS STEPS
ADDITIONAL RISER SECTION
(IF NEEDED)
OUTLET PIPE
(GROUTED IN OR BOOTED)
CARTRIDGE RECEPTACLES
DECK ASSEMBLY
BACKWASH POOL WEIR
CONTROL SECTION
(WITH JELLYFISH DECK)
INLET PIPE
(GROUTED IN OR BOOTED)
GASKET
(AT EACH JOINT)
SEPARATOR SKIRT
(MANHOLE ONLY)
BASE SECTION

WARNINGS / CAUTION

1. FALL PROTECTION may be required.
2. WATCH YOUR STEP if standing on the Jellyfish Filter Deck at any time; Great care and safety must be taken while walking or maneuvering on the Jellyfish Filter Deck. Attentive care must be taken while standing on the Jellyfish Filter Deck at all times to prevent stepping onto a lid, into or through a cartridge hole or slipping on the deck.
3. The Jellyfish Filter Deck can be SLIPPERY WHEN WET.
4. If the Top Slab, Covers or Hatches have not yet been installed, or are removed for any reason, great care must be taken to NOT DROP ANYTHING ONTO THE JELLYFISH FILTER DECK. The Jellyfish Filter Deck and Cartridge Receptacle Rings can be damaged under high impact loads. This type of activity voids all warranties. All damaged items to be replaced at owner's expense.
5. Maximum deck load 2 persons, total weight 450 lbs.

Safety Notice

Jobsite safety is a topic and practice addressed comprehensively by others. The inclusions here are intended to be reminders to whole areas of Safety Practice that are the responsibility of the Owner(s), Manager(s) and Contractor(s). OSHA and Canadian OSH, and Federal, State/Provincial, and Local Jurisdiction Safety Standards apply on any given site or project. The knowledge and applicability of those responsibilities is the Contractor's responsibility and outside the scope of Contech Engineered Solutions.

Confined Space Entry

Secure all equipment and perform all training to meet applicable local and OSHA regulations regarding confined space entry. It is the Contractor's or entry personnel's responsibility to proceed safely at all times.

Personal Safety Equipment

Contractor is responsible to provide and wear appropriate personal protection equipment as needed including, but not limited to safety boots, hard hat, reflective vest, protective eyewear, gloves and fall protection equipment as necessary. Make sure all equipment is staffed with trained and/or certified personnel, and all equipment is checked for proper operation and safety features prior to use.

- Fall protection equipment
- Eye protection
- Safety boots
- Ear protection
- Gloves
- Ventilation and respiratory protection
- Hard hat
- Maintenance and protection of traffic plan

Chapter 1

1.0 – Owner Specific Jellyfish Filter Product Information

Below you will find a reference page that can be filled out according to your Jellyfish Filter specification to help you easily inspect, maintain and order parts for your system.

Owner Name:	
Phone Number:	
Site Address:	
Site GPS Coordinates/unit location:	
Unit Location Description:	
Jellyfish Filter Model No.:	
Contech Project & Sequence Number	
No. of Hi-Flo Cartridges	
No. of Cartridges:	
Length of Draindown Cartridges:	
No. of Blank Cartridge Lids:	
Bypass Configuration (Online/Offline):	

Notes:

_____

_____

_____

_____

Chapter 2

2.0 – Jellyfish Filter System Operations and Functions

The Jellyfish Filter is an engineered stormwater quality treatment technology that removes a high level and wide variety of stormwater pollutants. Each Jellyfish Filter cartridge consists of eleven membrane - encased filter elements ("filtration tentacles") attached to a cartridge head plate. The filtration tentacles provide a large filtration surface area, resulting in high flow and high pollutant removal capacity.

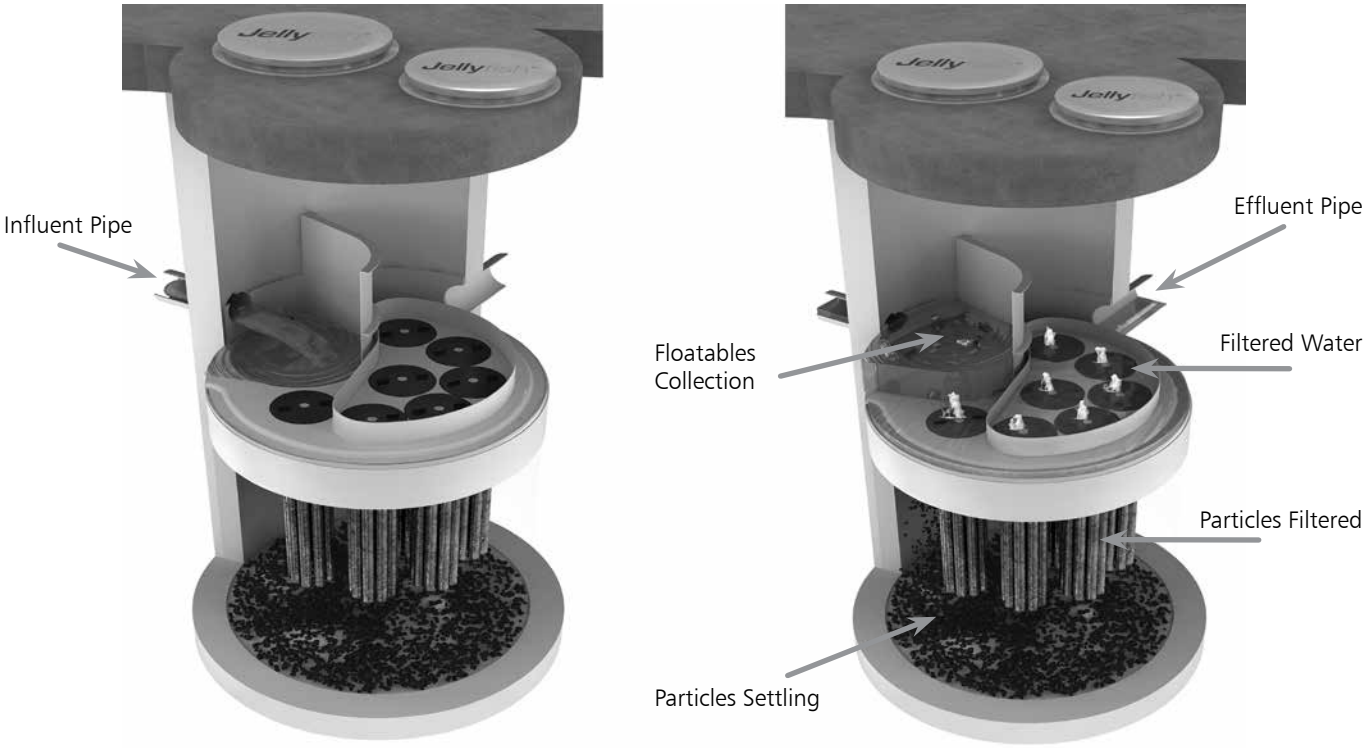
The Jellyfish Filter functions are depicted in Figure 1 below.

FIGURE 1

Jellyfish Filter Treatment Functions

Membrane Filtration

Section View with Maintenance Access Wall (MAW) Cutaway



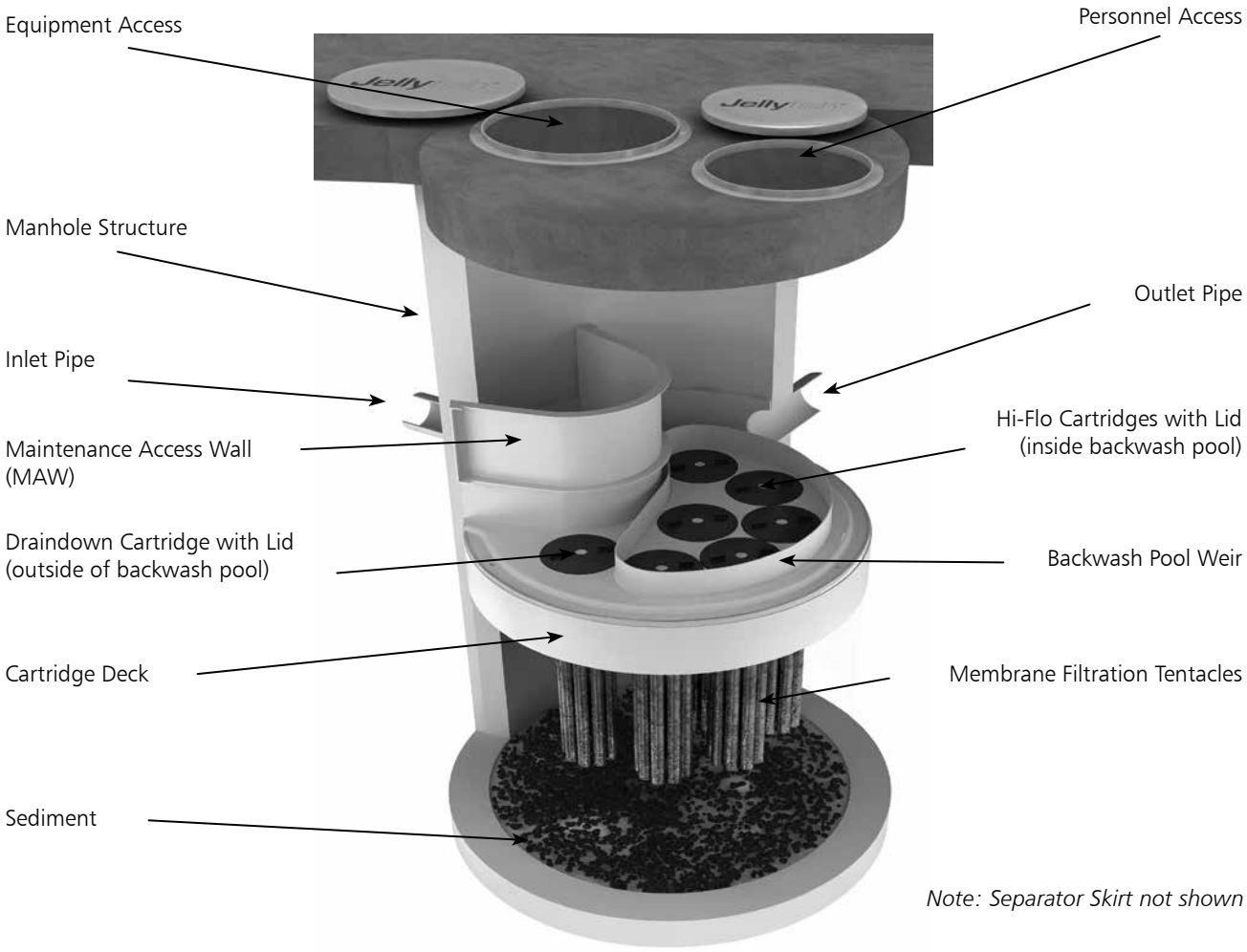
Jellyfish Filter cartridges are backwashed after each peak storm event, which removes accumulated sediment from the membranes. This backwash process extends the service life of the cartridges and increases the time between maintenance events.

For additional details on the operation and pollutant capabilities of the Jellyfish Filter please refer to additional details on our website at www.ContechES.com.

2.1 – Components and Cartridges

The Jellyfish Filter and components are depicted in Figure 2 below.

FIGURE 2 **Jellyfish Filter Components**



Tentacles are available in various lengths as depicted in Table 1 below.

Table 1 – Cartridge Lengths / Weights and Cartridge Lid Orifice Diameters

Cartridge Lengths	Dry Weight	Hi-Flo Orifice Diameter	Draindown Orifice Diameter
15 inches (381 mm)	10 lbs (4.5 kg)	35 mm	20 mm
27 inches (686 mm)	14.5 lbs (6.6 kg)	45 mm	25 mm
40 inches (1,016 mm)	19.5 lbs (8.9 kg)	55 mm	30 mm
54 inches (1,372 mm)	25 lbs (11.4 kg)	70 mm	35 mm

2.2 – Jellyfish Membrane Filtration Cartridge Assembly

The Jellyfish Filter utilizes multiple membrane filtration cartridges. Each cartridge consists of removable cylindrical filtration "tentacles" attached to a cartridge head plate. Each filtration tentacle has a threaded pipe nipple and o-ring. To attach, insert the top pipe nipples with the o-ring through the head plate holes and secure with locking nuts. Hex nuts to be hand tightened and checked with a wrench as shown below.

2.3 – Jellyfish Membrane Filtration Cartridge Installation

- Cartridge installation will be performed by trained individuals and coordinated with the installing site Contractor. Flow diversion devices are required to be in place until the site is stabilized (final paving and landscaping in place). Failure to address this step completely will reduce the time between required maintenance.
- Descend to the cartridge deck (see Safety Notice and page 3).
- Refer to Contech's submittal drawings to determine proper quantity and placement of Hi-Flo, Draindown and Blank cartridges with appropriate lids. Lower the Jellyfish membrane filtration cartridges into the cartridge receptacles within the cartridge deck. It is possible that not all cartridge receptacles will be filled with a filter cartridge. In that case, a blank headplate and blank cartridge lid (no orifice) would be installed.

Cartridge Assembly

Do not force the tentacles down into the cartridge receptacle, as this may damage the membranes. Apply downward pressure on the cartridge head plate to seat the lubricated rim gasket (thick circular gasket surrounding the circumference of the head plate) into the cartridge receptacle. (See Figure 3 for details on approved lubricants for use with rim gasket.)

- Examine the cartridge lids to differentiate lids with a small orifice, a large orifice, and no orifice.
  - Lids with a small orifice are to be inserted into the Draindown cartridge receptacles, outside of the backwash pool weir.
  - Lids with a large orifice are to be inserted into the Hi-Flo cartridge receptacles within the backwash pool weir.
  - Lids with no orifice (blank cartridge lids) and a blank headplate are to be inserted into unoccupied cartridge receptacles.
- To install a cartridge lid, align both cartridge lid male threads with the cartridge receptacle female threads before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation.

3.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.
Inspection activities are typically conducted from surface observations and include:

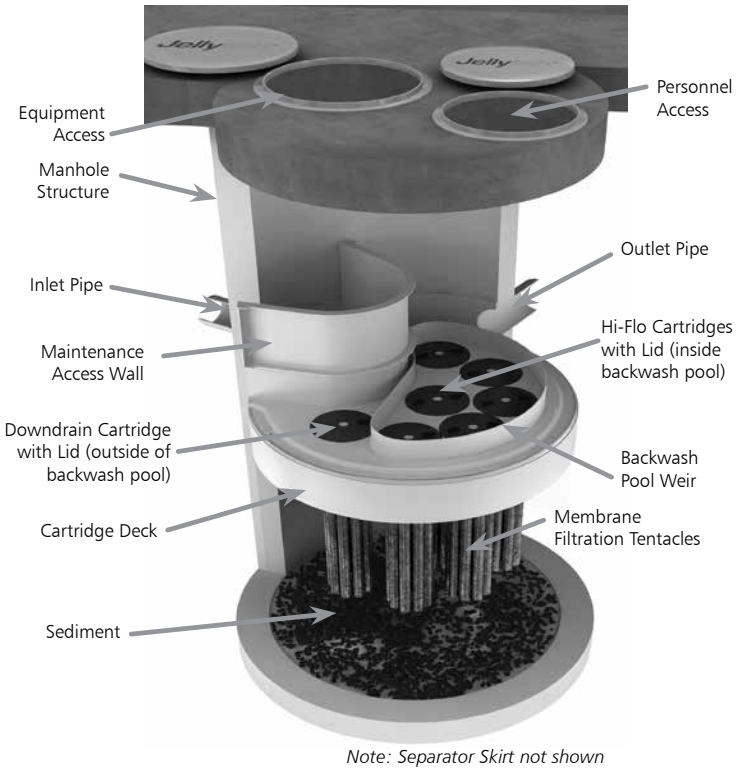
- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed

4.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent*.



Note: Separator Skirt not shown

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

5.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

5.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.

Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment (≥1/16") accumulated on the deck surface should be removed.

5.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

6.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

7.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

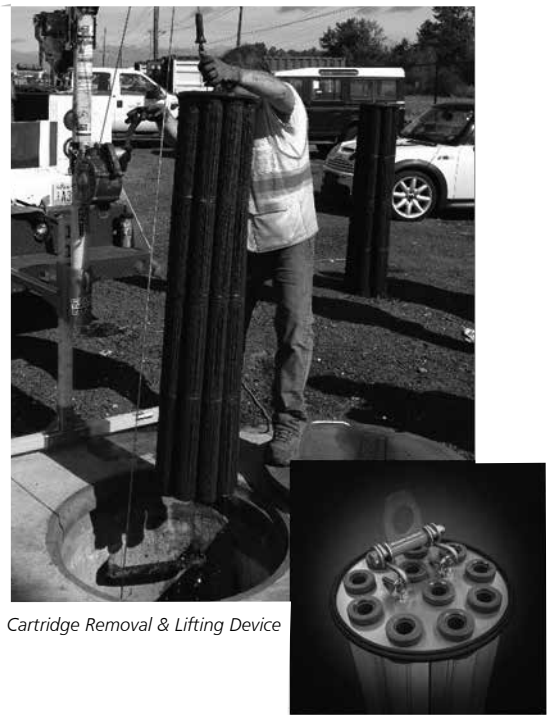
1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. *Caution: Dropping objects onto the cartridge deck may cause damage*.
3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

7.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. *Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs*.
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

7.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.
2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.



Cartridge Removal & Lifting Device

3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. *Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane*.
4. Collected rinse water is typically removed by vacuum hose.

5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

7.3 Sediment and Flotables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.
3. Pressure wash cartridge deck and receptacles to remove all

Rinsing Cartridge with Contech Rinse Tool

sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.

4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.
6. For larger diameter Jellyfish Filter manholes (≥8-ft) and some

Vacuuming Sump Through MAW

vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

7.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. *Caution: Do not force the cartridge downward; damage may occur.*
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

7.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

7.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

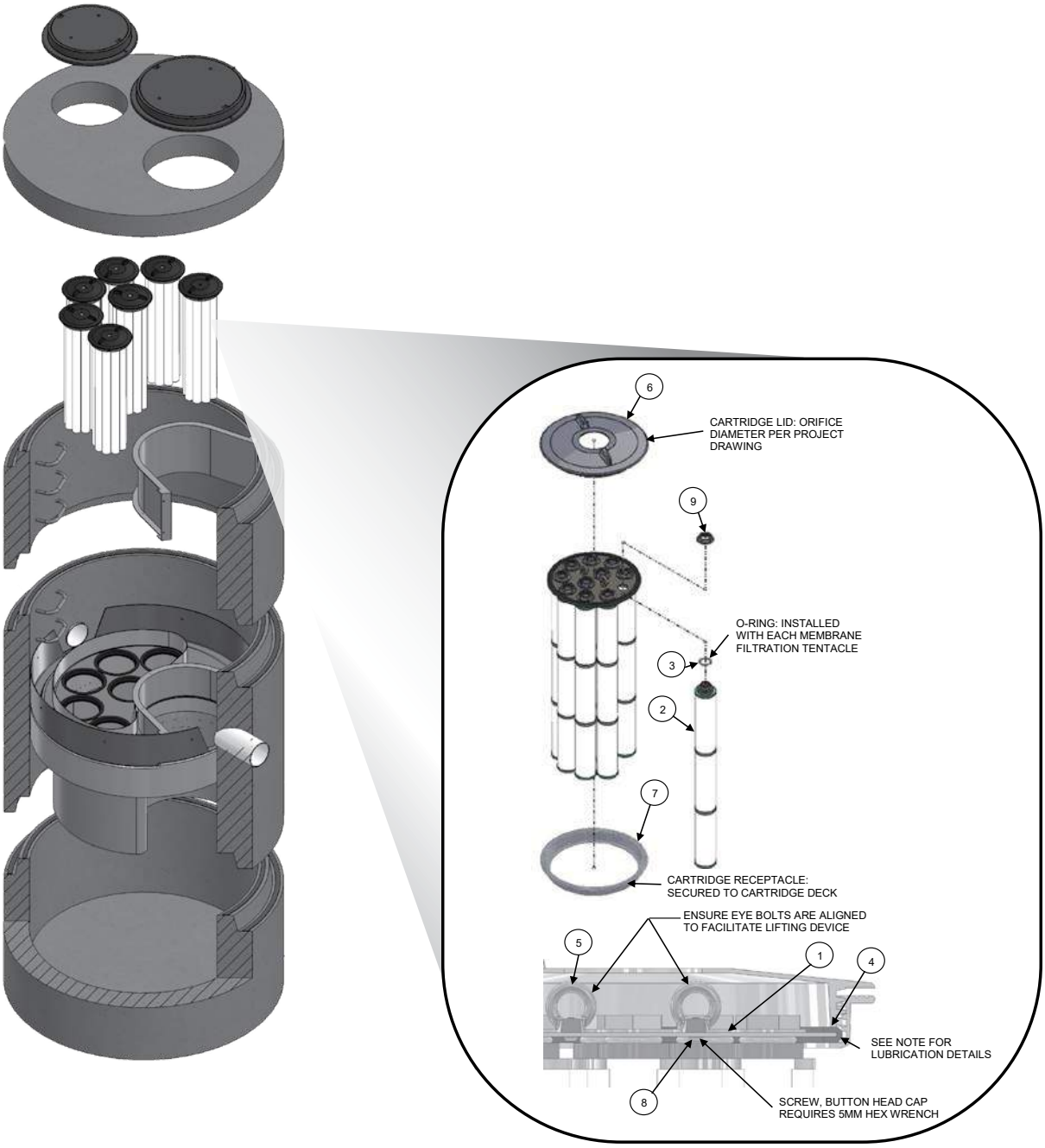


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M6X14MM SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	LA-CO	LUBRI-JOINT
40501	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSLUBXL1Q	PROSELECT	PIPE JOINT LUBRICANT

NOTES:

Head Plate Gasket Installation:
Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lid (Item 6). Follow Lubricant manufacturer's instructions.

Lid Assembly:
Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clock-wise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

Jellyfish Filter Inspection and Maintenance Log

Owner: _____ Jellyfish Model No.:_____

Location: _____ GPS Coordinates: _____

Land Use: Commercial:_____ Industrial: _____ Service Station:_____

Road/Highway:____ Airport: _____ Residential: _____ Parking Lot:_____

Date/Time:					
Inspector:					
Maintenance Contractor:					
Visible Oil Present: (Y/N)					
Oil Quantity Removed					
Floatable Debris Present: (Y/N)					
Floatable Debris removed: (Y/N)					
Water Depth in Backwash Pool					
Cartridges externally rinsed/re-commissioned: (Y/N)					
New tentacles put on Cartridges: (Y/N)					
Sediment Depth Measured: (Y/N)					
Sediment Depth (inches or mm):					
Sediment Removed: (Y/N)					
Cartridge Lids intact: (Y/N)					
Observed Damage:					
Comments:					

1.6 Porous Asphalt Maintenance Requirements

Porous Asphalt Inspection/Maintenance Requirements		
Inspection/ Maintenance	**Frequency**	**Action**
Monitor for sediment build up, particularly in the winter.	Two (2) – Four (4) Times Annually.	- Clean with vacuum sweeper, bi-annually - Loose debris such as leaves or can be removed using a power/leaf blower or gutter broom. Fall and spring cleanup should be accompanied by pavement vacuuming.
Inspect Adjacent Vegetation	Two (2) – Four (4) Times Annually.	- Repair or replace any eroded areas.
Inspect for standing water -Within 30 minutes following a rain event.	One (1) – Two (2) Times Annually	- Use of a power washer or compressed air blower at an angle of 30 degrees or less can be effective, vacuum or vacuum sweeper if necessary.
Damage to pavement	As needed	- Repairs should be made as identified.

Porous Asphalt Winter Maintenance Guidelines:

- ***No winter sanding or salting of porous pavements is permitted***
- Porous surfaces are commonly not treated and plowed until 2 or more inches of snow accumulation.
- Plow after every storm. If possible, plow with a slightly raised blade, this will help prevent pavement scarring.

Additional Porous Asphalt Operation and Maintenance Requirements:

- Never reseal or repave with impermeable materials.
- Inspect annually for pavement deterioration or spalling.
- Monitor periodically to ensure the pavement surface drains effectively after storms.

1.7 Snow & Ice Management for Standard Asphalt and Walkways

There are no snow storage areas on site. The property manager will be responsible for timely snow removal from all private sidewalks, driveways, and parking areas. All snow removal will be hauled off-site and legally disposed of. Salt storage areas shall be covered or located such that no direct untreated discharges are possible to receiving waters from the storage site. Salt storage is not permitted withing the 100' wetland buffer. Salt and sand shall be used to the minimum extent practical (refer to the attached for de-icing application rate guideline from the New Hampshire Stormwater Management Manual, Volume 2,).

Section 2
Chloride Management Plan

Winter Operational Guidelines

The following Chloride Management Plan is for the Raynes Avenue, Mixed Use Development in Portsmouth, New Hampshire. The Plan includes operational guidelines including winter operator certification requirements, weather monitoring, equipment calibration requirements, mechanical removal, and salt usage evaluation and monitoring. Due to the evolving nature of chloride management efforts, the Chlorides Management Plan will be reviewed annually, in advance of the winter season, to reflect the current management standards.

2.1 Background Information

The Raynes Avenue, Mixed Use Development is located along the North Mill Pond in Portsmouth, New Hampshire.

2.2 Operational Guidelines – Chloride Management

All private contractors engaged at the development site for the purposes of winter operational snow removal and surface maintenance, are responsible for assisting in meeting compliance for the following protocols. Private contractors are expected to minimize the effects of the use of de-icing, anti-icing and pretreatment materials by adhering to the strict guidelines outlined below.

The winter operational de-icing, anti-icing and pretreatment materials will adhere to the following protocols:

2.2.1 Winter Operator Certification Requirements

All private contractors engaged at the premises for the purpose of winter operational snow removal and surface maintenance must be current UNHT2 Green SnowPro Certified operators or equivalent and will use only pre-approved methods for spreading abrasives on private roadways and parking lots. All private contractors engaged at the premises for the purpose of winter operational snow removal and surface maintenance shall provide to the property management two copies of the annual UNHT2 Green SnowPro certificate or equivalent for each operator utilized on the premises. The annual UNHT2 Green SnowPro certificate or equivalent for each operator will be available on file in the Facilities Management office and be present in the vehicle/carrier at all times.

2.2.2 Improved Weather Monitoring

The property manager will coordinate weather information for use by winter

maintenance contractors. This information in conjunction with site specific air/ground surface temperature monitoring will ensure that private contractors engaged at the premises for the purpose of winter operational snow removal and surface maintenance will make more informed decisions as to when and to what extent de-icing, anti-icing and pretreatment materials are applied to private roadways, sidewalks, and parking lots.

2.2.3 Equipment Calibration Requirements

All equipment utilized on the premises for the purpose of winter operational snow removal and surface maintenance will conform to the following calibration requirements.

2.2.3.1 Annual Calibration Requirements

All private contractors engaged at the premises for the purpose of winter operational snow removal and surface maintenance shall provide two copies of the annual calibration report for each piece of equipment utilized on the premises. Each calibration report shall include the vehicle/carrier VIN number and the serial numbers for each component including, but not limited to, spreader control units, salt aggregate spreader equipment, brining/pre-wetting equipment, ground speed orientation unit, and air/ground surface temperature monitor. Annual calibration reports will be available on file in the Facilities Management office and be present in the vehicle/carrier at all times.

Prior to each use, each vehicle/carrier operator will perform a systems check to verify that unit settings remain within the guidelines established by the Management Team in order to accurately dispense material. All private contractors engaged at the premises for the purpose of winter operational snow removal and surface maintenance will be subject to spot inspections by members of the Property Management Team to ensure that each vehicle/carrier is operating in a manner consistent with the guidelines set herein or State and Municipal regulations. All units will be recalibrated, and the updated calibration reports will be provided each time repairs or maintenance procedures affect the hydraulic system of the vehicle/carrier.

2.2.4 Increased Mechanical Removal Capabilities

All private contractors engaged at the premises will endeavor to use mechanical removal means on a more frequent basis for roadways, parking lots and sidewalks. Dedicating more manpower and equipment to increase snow removal frequencies prevents the buildup of snow and the corresponding need for de-icing, anti-icing and pretreatment materials. Shortened maintenance routes, with shorter service intervals, will be used to stay ahead of snowfall. Minimized snow and ice packing will reduce the need for abrasives, salt aggregates, and/or brining solution to restore surfaces back to bare surface states after winter precipitation events.

After storm events the management team will be responsible for having the streets swept to recapture un-melted de-icing materials, when practical.

2.3 Salt Usage Evaluation and Monitoring

All private contractors engaged at the premises for the purpose of winter operational snow removal and surface maintenance shall provide two copies of a storm report, which includes detailed information regarding treatment areas and the use of de-icing, anti-icing and pretreatment materials applied for the removal of snow and surface maintenance on the premises. The property manager will maintain copies of Summary Documents, including copies of the Storm Reports, operator certifications, equipment used for roadway and sidewalk winter maintenance, calibration reports and amount of de-icing materials used.

2.4 Summary

The above-described methodologies are incorporated into the Operational Manual and are to be used to qualify and retain all private contractors engaged at the Raynes Avenue premises for the purpose of winter operational snow removal and surface maintenance. This section of the Manual is intended to be an adaptive management document that is modified as required based on experience gained from past practices and technological advancements that reflect chloride BMP standards. All employees directly involved with winter operational activities are required to review this document and the current standard Best Management Practices published by the UNH Technology Transfer (T2) program annually. All employees directly involved with winter operational activities, and all private contractors engaged at the premises for the purposes of winter operational snow removal and surface maintenance, must be current UNHT2 Green SnowPro Certified operators or equivalent and undergo the necessary requirements to maintain this certification annually.

Deicing Application Rate Guidelines

24' of pavement (typcial two-lane road)

These rates are not fixed values, but rather the middle of a range to be selected and adjusted by an agency according to its local conditions and experience.

			Pounds per two-lane mile			
Pavement Temp. (°F) and Trend (↑↓)	Weather Condition	Maintenance Actions	Salt Prewetted / Pretreated with Salt Brine	Salt Prewetted / Pretreated with Other Blends	Dry Salt*	Winter Sand (abrasives)
> 30° ↑	Snow	Plow, treat intersections only	80	70	100*	Not recommended
	Freezing Rain	Apply Chemical	80 - 160	70 - 140	100 - 200*	Not recommended
30° ↓	Snow	Plow and apply chemical	80 - 160	70 - 140	100 - 200*	Not recommended
	Freezing Rain	Apply Chemical	150 - 200	130 - 180	180 - 240*	Not recommended
25° - 30° ↑	Snow	Plow and apply chemical	120 - 160	100 - 140	150 - 200*	Not recommended
	Freezing Rain	Apply Chemical	150 - 200	130 - 180	180 - 240*	Not recommended
25° - 30° ↓	Snow	Plow and apply chemical	120 - 160	100 - 140	150 - 200*	Not recommended
	Freezing Rain	Apply Chemical	160 - 240	140 - 210	200 - 300*	400
20° - 25° ↑	Snow or Freezing Rain	Plow and apply chemical	160 - 240	140 - 210	200 - 300*	400
20° - 25° ↓	Snow	Plow and apply chemical	200 - 280	175 - 250	250 - 350*	Not recommended
	Freezing Rain	Apply Chemical	240 - 320	210 - 280	300 - 400*	400
15° - 20° ↑	Snow	Plow and apply chemical	200 - 280	175 - 250	250 - 350*	Not recommended
	Freezing Rain	Apply Chemical	240 - 320	210 - 280	300 - 400*	400
15° - 20° ↓	Snow or Freezing Rain	Plow and apply chemical	240 - 320	210 - 280	300 - 400*	500 for freezing rain
0° - 15° ↑↓	Snow	Plow, treat with blends, sand hazardous areas	Not recommended	300 - 400	Not recommended	500 - 750 spot treatment as needed
< 0°	Snow	Plow, treat with blends, sand hazardous areas	Not recommended	400 - 600**	Not recommended	500 - 750 spot treatment as needed

* Dry salt is not recommended. It is likely to blow off the road before it melts ice.

** A blend of 6 - 8 gal/ton $MgCl_2$ or $CaCl_2$ added to NaCl can melt ice as low as -10°.

Anti-icing Route Data Form				
Truck Station:				
Date:				
Air Temperature	Pavement Temperature	Relative Humidity	Dew Point	Sky
Reason for applying:				
Route:				
Chemical:				
Application Time:				
Application Amount:				
Observation (first day):				
Observation (after event):				
Observation (before next application):				
Name:				

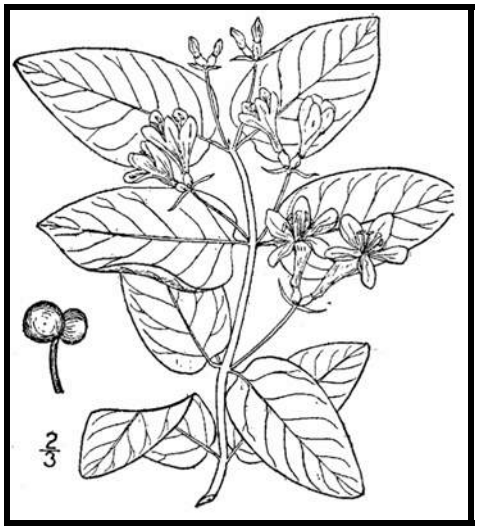
Section 3
Invasive Species

With respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem is classified as an invasive species. Refer to the following fact sheet prepared by the University of New Hampshire Cooperative Extension entitled Methods for Disposing Non-Native Invasive Plants for recommended methods to dispose of invasive plant species.

UNIVERSITY of NEW HAMPSHIRE COOPERATIVE EXTENSION

Methods for Disposing Non-Native Invasive Plants

Prepared by the Invasives Species Outreach Group, volunteers interested in helping people control invasive plants. Assistance provided by the Piscataquog Land Conservancy and the NH Invasives Species Committee. Edited by Karen Bennett, Extension Forestry Professor and Specialist.



Tatarian honeysuckle
Lonicera tatarica
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 3: 282.

Non-native invasive plants crowd out natives in natural and managed landscapes. They cost taxpayers billions of dollars each year from lost agricultural and forest crops, decreased biodiversity, impacts to natural resources and the environment, and the cost to control and eradicate them.

Invasive plants grow well even in less than desirable conditions such as sandy soils along roadsides, shaded wooded areas, and in wetlands. In ideal conditions, they grow and spread even faster. There are many ways to remove these non-native invasives, but once removed, care is needed to dispose the removed plant material so the plants don't grow where disposed.

Knowing how a particular plant reproduces indicates its method of spread and helps determine the appropriate disposal method. Most are spread by seed and are dispersed by wind, water, animals, or people. Some reproduce by vegetative means from pieces of stems or roots forming new plants. Others spread through both seed and vegetative means.

Because movement and disposal of viable plant parts is restricted (see NH Regulations), viable invasive parts can't be brought to most transfer stations in the state. Check with your transfer station to see if there is an approved, designated area for invasives disposal. This fact sheet gives recommendations for rendering plant parts non-viable.

Control of invasives is beyond the scope of this fact sheet. For information about control visit www.nhinvasives.org or contact your UNH Cooperative Extension office.

New Hampshire Regulations

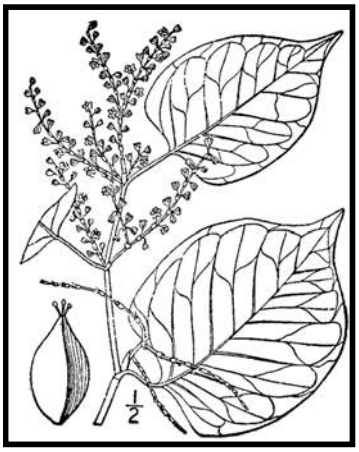
Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

No person shall collect, transport, import, export, move, buy, sell, distribute, propagate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1 of the New Hampshire prohibited invasive species list. (Agr 3802.01)

How and When to Dispose of Invasives?

To prevent seed from spreading remove invasive plants before seeds are set (produced). Some plants continue to grow, flower and set seed even after pulling or cutting. Seeds can remain viable in the ground for many years. If the plant has flowers or seeds, place the flowers and seeds in a heavy plastic bag "head first" at the weeding site and transport to the disposal site. The following are general descriptions of disposal methods. See the chart for recommendations by species.

Burning: Large woody branches and trunks can be used as firewood or burned in piles. For outside burning, a written fire permit from the local forest fire warden is required unless the ground is covered in snow. Brush larger than 5 inches in diameter can't be burned. Invasive plants with easily airborne seeds like black swallow-wort with mature seed pods (indicated by their brown color) shouldn't be burned as the seeds may disperse by the hot air created by the fire.



Japanese knotweed
Polygonum cuspidatum
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 1: 676.

Bagging (solarization): Use this technique with softer-tissue plants. Use heavy black or clear plastic bags (contractor grade), making sure that no parts of the plants poke through. Allow the bags to sit in the sun for several weeks and on dark pavement for the best effect.

Tarping and Drying: Pile material on a sheet of plastic and cover with a tarp, fastening the tarp to the ground and monitoring it for escapes. Let the material dry for several weeks, or until it is clearly nonviable.

Chipping: Use this method for woody plants that don't reproduce vegetatively.

Burying: This is risky, but can be done with watchful diligence. Lay thick plastic in a deep pit before placing the cut up plant material in the hole. Place the material away from the edge of the plastic before covering it with more heavy plastic. Eliminate as much air as possible and toss in soil to weight down the material in the pit. Note that the top of the buried material should be at least three feet underground. Japanese knotweed should be at least 5 feet underground!

Drowning: Fill a large barrel with water and place soft-tissue plants in the water. Check after a few weeks and look for rotted plant material (roots, stems, leaves, flowers). Well-rotted plant material may be composted. A word of caution- seeds may still be viable after using this method. Do this before seeds are set. This method isn't used often. Be prepared for an awful stink!

Composting: Invasive plants can take root in compost. Don't compost any invasives unless you know there is no viable (living) plant material left. Use one of the above techniques (bagging, tarping, drying, chipping, or drowning) to render the plants nonviable before composting. Closely examine the plant before composting and avoid composting seeds.

Be diligent looking for seedlings for *years* in areas where removal and disposal took place.

Suggested Disposal Methods for Non-Native Invasive Plants

This table provides information concerning the disposal of removed invasive plant material. If the infestation is treated with herbicide and left in place, these guidelines don't apply. Don't bring invasives to a local transfer station, unless there is a designated area for their disposal, or they have been rendered non-viable. This listing includes wetland and upland plants from the New Hampshire Prohibited Invasive Species List. The disposal of aquatic plants isn't addressed.

<table>
<tr><th>Woody Plants</th><th>Method of Reproducing</th><th>Methods of Disposal</th></tr>
<tr><td rowspan="2">Norway maple
(Acer platanoides)
European barberry
(Berberis vulgaris)
Japanese barberry
(Berberis thunbergii)
autumn olive
(Elaeagnus umbellata)
burning bush
(Euonymus alatus)
Morrow's honeysuckle
(Lonicera morrowii)
Tatarian honeysuckle
(Lonicera tatarica)
showy bush honeysuckle
(Lonicera x bella)
common buckthorn
(Rhamnus cathartica)
glossy buckthorn
(Frangula alnus)</td><td rowspan="2">Fruit and Seeds
 </td><td>Prior to fruit/seed ripening
Seedlings and small plants
▪ Pull or cut and leave on site with roots exposed. No special care needed.
Larger plants
▪ Use as firewood.
▪ Make a brush pile.
▪ Chip.
▪ Burn.</td></tr>
<tr><td>After fruit/seed is ripe
Don't remove from site.
▪ Burn.
▪ Make a covered brush pile.
▪ Chip once all fruit has dropped from branches.
▪ Leave resulting chips on site and monitor.</td></tr>
<tr><td rowspan="2">oriental bittersweet
(Celastrus orbiculatus)
multiflora rose
(Rosa multiflora)</td><td rowspan="2">Fruits, Seeds, Plant Fragments
 </td><td>Prior to fruit/seed ripening
Seedlings and small plants
▪ Pull or cut and leave on site with roots exposed. No special care needed.
Larger plants
▪ Make a brush pile.
▪ Burn.</td></tr>
<tr><td>After fruit/seed is ripe
Don't remove from site.
▪ Burn.
▪ Make a covered brush pile.
▪ Chip – only after material has fully dried (1 year) and all fruit has dropped from branches. Leave resulting chips on site and monitor.</td></tr>
</table>

Non-Woody Plants	Method of Reproducing	Methods of Disposal
garlic mustard *(Alliaria petiolata)* spotted knapweed *(Centaurea maculosa)* ▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling. black swallow-wort *(Cynanchum nigrum)* ▪ May cause skin rash. Wear gloves and long sleeves when handling. pale swallow-wort *(Cynanchum rossicum)* giant hogweed *(Heracleum mantegazzianum)* ▪ Can cause major skin rash. Wear gloves and long sleeves when handling. dame's rocket *(Hesperis matronalis)* perennial pepperweed *(Lepidium latifolium)* purple loosestrife *(Lythrum salicaria)* Japanese stilt grass *(Microstegium vimineum)* mile-a-minute weed *(Polygonum perfoliatum)*	**Fruits and Seeds** 	**Prior to flowering** Depends on scale of infestation Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material. **During and following flowering** Do nothing until the following year or remove flowering heads and bag and let rot. Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material.
common reed (*Phragmites australis*) Japanese knotweed *(Polygonum cuspidatum)* Bohemian knotweed *(Polygonum x bohemicum)*	**Fruits, Seeds, Plant Fragments** Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn't materially influence disposal activities.	**Small infestation** ▪ Bag all plant material and let rot. ▪ Never pile and use resulting material as compost. ▪ Burn. **Large infestation** ▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile. ▪ Monitor and remove any sprouting material. ▪ Pile, let dry, and burn.

January 2010

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Managing Invasive Plants
Methods of Control

by Christopher Mattrick

They're out there. The problem of invasive plants is as close as your own backyard.

Maybe a favorite dogwood tree is struggling in the clutches of an Oriental bittersweet vine. Clawlike canes of multiflora rose are scratching at the side of your house. That handsome burning bush you planted few years ago has become a whole clump in practically no time … but what happened to the azalea that used to grow right next to it?

If you think controlling or managing invasive plants on your property is a daunting task, you're not alone. Though this topic is getting lots of attention from federal, state, and local government agencies, as well as the media, the basic question for most homeowners is simply, "How do I get rid of the invasive plants in my own landscape?" Fortunately, the best place to begin to tackle this complex issue is in our own backyards and on local conservation lands. We hope the information provided here will help you take back your yard. We won't kid you—there's some work involved, but the payoff in beauty, wildlife habitat, and peace of mind makes it all worthwhile.

PLAN OF ATTACK

Three broad categories cover most invasive plant control: mechanical, chemical, and biological. Mechanical control means physically removing plants from the environment through cutting or pulling. Chemical control uses herbicides to kill plants and inhibit regrowth. Techniques and chemicals used will vary depending on the species. Biological controls use plant diseases or insect predators, typically from the targeted species' home range. Several techniques may be effective in controlling a single species, but there is usually one preferred method—the one that is most resource efficient with minimal impact on non-target species and the environment.

Spraying chemicals to control invasive plants.

MECHANICAL CONTROL METHODS

Mechanical treatments are usually the first ones to look at when evaluating an invasive plant removal project. These procedures do not require special licensing or introduce chemicals into the environment. They do require permits in some situations, such as wetland zones. [See sidebar on page 23.] Mechanical removal is highly labor intensive and creates a significant amount of site disturbance, which can lead to rapid reinvasion if not handled properly.

Pulling and digging

Many herbaceous plants and some woody species (up to about one inch in diameter), if present in limited quantities, can be pulled out or dug up. It's important to remove as much of the root system as possible; even a small portion can restart the infestation. Pull plants by hand or use a digging fork, as shovels can shear off portions of the root system, allowing for regrowth. To remove larger woody stems (up to about three inches in diameter), use a Weed Wrench™, Root Jack, or Root Talon. These tools, available from several manufacturers, are designed to remove the aboveground portion of the plant as well as the entire root system. It's easiest to undertake this type of control in the spring or early summer when soils are moist and plants come out more easily.

Using tools to remove woody stems.

Volunteers hand pulling invasive plants.

Suffocation

Try suffocating small seedlings and herbaceous plants. Place double or triple layers of thick UV-stabilized plastic sheeting, either clear or black (personally I like clear), over the infestation and secure the plastic with stakes or weights. Make sure the plastic extends at least five feet past the edge of infestation on all sides. Leave the plastic in place for at least two years. This technique will kill everything beneath the plastic—invasive and non-invasive plants alike. Once the plastic is removed, sow a cover crop such as annual rye to prevent new invasions.

Cutting or mowing

This technique is best suited for locations you can visit and treat often. To be effective, you will need to mow or cut infested areas three or four times a year for up to five years. The goal is to interrupt the plant's ability to photosynthesize by removing as much leafy material as possible. Cut the plants at ground level and remove all resulting debris from the site. With this treatment, the infestation may actually appear to get worse at first, so you will need to be as persistent as the invasive plants themselves. Each time you cut the plants back, the root system gets slightly larger, but must also rely on its energy reserves to push up new growth. Eventually, you will exhaust these reserves and the plants will die. This may take many years, so you have to remain committed to this process once you start; otherwise the treatment can backfire, making the problem worse.

CHEMICAL CONTROL METHODS

Herbicides are among the most effective and resource-efficient tools to treat invasive species. Most of the commonly known invasive plants can be treated using only two herbicides—glyphosate (the active ingredient in Roundup™ and Rodeo™) and triclopyr (the active ingredient in Brush-B-Gone™ and Garlon™). Glyphosate is non-selective, meaning it kills everything it contacts. Triclopyr is selective and does not injure monocots (grasses, orchids, lilies, etc.). Please read labels and follow directions precisely for both environmental and personal safety. These are relatively benign herbicides, but improperly used they can still cause both short- and long-term health and environmental problems. Special aquatic formulations are required when working in wetland zones. You are required to have a state-issued pesticide applicator license when applying these chemicals on land you do not own. To learn more about the pesticide regulations in your state, visit or call your state's pesticide control division, usually part of the state's Department of Agriculture. In wetland areas, additional permits are usually required by the Wetlands Protection Act. [See sidebar on page 23.]

Foliar applications

When problems are on a small scale, this type of treatment is usually applied with a backpack sprayer or even a small handheld spray bottle. It is an excellent way to treat large monocultures of herbaceous plants, or to spot-treat individual plants that are difficult to remove mechanically, such as goutweed, swallowwort, or purple loosestrife. It is also an effective treatment for some woody species, such as Japanese barberry, multiflora rose, Japanese honeysuckle, and Oriental bittersweet that grow in dense masses or large numbers over many acres. The herbicide mixture should contain no more than five percent of the active ingredient, but it is important to follow the instructions on the product label. This treatment is most effective when the plants are actively growing, ideally when they are flowering or beginning to form fruit. It has been shown that plants are often more susceptible to this type of treatment if the existing stems are cut off and the regrowth is treated. This is especially true for Japanese knotweed. The target plants should be thoroughly wetted with the herbicide on a day when there is no rain in the forecast for the next 24 to 48 hours.

Cut stem treatments

There are several different types of cut stem treatments, but here we will review only the one most commonly used. All treatments of this type require a higher concentration of the active ingredient than is used in foliar applications. A 25 to 35 percent solution of the active ingredient should be used for cut stem treatments, but read and follow all label instructions. In most cases, the appropriate herbicide is glyphosate, except for Oriental bittersweet, on which triclopyr should be used. This treatment can be used on all woody stems, as well as phragmites and Japanese knotweed.

For woody stems, treatments are most effective when applied in the late summer and autumn—between late August and November. Stems should be cut close to the ground, but not so close that you will lose track of them. Apply herbicide directly to the cut surface as soon as possible after cutting. Delaying the application will reduce the effectiveness of the treatment. The herbicide can be applied with a sponge, paintbrush, or spray bottle.

Cut stem treatment tools.

For phragmites and Japanese knotweed, treatment is the same, but the timing and equipment are different. Plants should be treated anytime from mid-July through September, but the hottest, most humid days of the summer are best for this method. Cut the stems halfway between two leaf nodes at a comfortable height. Inject (or squirt) herbicide into the exposed hollow stem. All stems in an infestation should be treated. A wash bottle is the most effective application tool, but you can also use an eyedropper, spray bottle, or one of the recently developed high-tech injection systems.

It is helpful to mix a dye in with the herbicide solution. The dye will stain the treated surface and mark the areas that have been treated, preventing unnecessary reapplication. You can buy a specially formulated herbicide dye, or use food coloring or laundry dye.

There is not enough space in this article to describe all the possible ways to control invasive plants. You can find other treatments, along with more details on the above-described methods, and species-specific recommendations on The Nature Conservancy Web site (tncweeds.ucdavis.edu). An upcoming posting on the Invasive Plant Atlas of New England (www.ipane.org) and the New England Wild Flower Society (www.newfs.org) Web sites will also provide further details.

Hollow stem injection tools.

Biological controls—still on the horizon

Biological controls are moving into the forefront of control methodology, but currently the only widely available and applied biocontrol relates to purple loosestrife. More information on purple loosestrife and other biological control projects can be found at www.invasiveplants.net.

DISPOSAL OF INVASIVE PLANTS

Proper disposal of removed invasive plant material is critical to the control process. Leftover plant material can cause new infestations or reinfest the existing project area. There are many appropriate ways to dispose of invasive plant debris. I've listed them here in order of preference.

1. **Burn it**—Make a brush pile and burn the material following local safety regulations and restrictions, or haul it to your town's landfill and place it in their burn pile.

2. **Pile it**—Make a pile of the woody debris. This technique will provide shelter for wildlife as well.

3. **Compost it**—Place all your herbaceous invasive plant debris in a pile and process as compost. Watch the pile closely for resprouts and remove as necessary. Do not use the resulting compost in your garden. The pile is for invasive plants only.

Injecting herbicide into the hollow stem of phragmites.

4. **Dry it/cook it**—Place woody debris out on your driveway or any asphalt surface and let it dry out for a month. Place herbaceous material in a doubled-up black trash bag and let it cook in the sun for one month. At the end of the month, the material should be non-viable and you can dump it or dispose of it with the trash. The method assumes there is no viable seed mixed in with the removed material.

Care should be taken in the disposal of all invasive plants, but several species need extra attention. These are the ones that have the ability to sprout vigorously from plant fragments and should ideally be burned or dried prior to disposal: Oriental bittersweet, multiflora rose, Japanese honeysuckle, phragmites, and Japanese knotweed.

Christopher Mattrick is the former Senior Conservation Programs Manager for New England Wild Flower Society, where he managed conservation volunteer and invasive and rare plant management programs. Today, Chris and his family work and play in the White Mountains of New Hampshire, where he is the Forest Botanist and Invasive Species Coordinator for the White Mountain National Forest.

Controlling Invasive Plants in Wetlands

Special concerns; special precautions

Control of invasive plants in or around wetlands or bodies of water requires a unique set of considerations. Removal projects in wetland zones can be legal and effective if handled appropriately. In many cases, herbicides may be the least disruptive tools with which to remove invasive plants. You will need a state-issued pesticide license to apply herbicide on someone else's property, but all projects in wetland or aquatic systems fall under the jurisdiction of the Wetlands Protection Act and therefore require a permit. ***Yes, even hand-pulling that colony of glossy buckthorn plants from your own swampland requires a permit.*** Getting a permit for legal removal is fairly painless if you plan your project carefully.

1. Investigate and understand the required permits and learn how to obtain them. The entity charged with the enforcement of the Wetlands Protection Act varies from state to state. For more information in your state, contact:

   ME: Department of Environmental Protection
   www.state.me.us/dep/blwq/docstand/nrpapage.htm

   NH: Department of Environmental Services
   www.des.state.nh.us/wetlands/

   VT: Department of Environmental Conservation
   www.anr.state.vt.us/dec/waterq/permits/htm/pm_cud.htm

   MA: Consult your local town conservation commission

   RI: Department of Environmental Management
   www.dem.ri.gov/programs/benviron/water/permits/fresh/index.htm

   CT: Consult your local town Inland Wetland and Conservation Commission

2. Consult an individual or organization with experience in this area. Firsthand experience in conducting projects in wetland zones and navigating the permitting process is priceless. Most states have wetland scientist societies whose members are experienced in working in wetlands and navigating the regulations affecting them. A simple Web search will reveal the contact point for these societies. Additionally, most environmental consulting firms and some nonprofit organizations have skills in this area.

3. Develop a well-written and thorough project plan. You are more likely to be successful in obtaining a permit for your project if you submit a project plan along with your permit application. The plan should include the reasons for the project, your objectives in completing the project, how you plan to reach those objectives, and how you will monitor the outcome.

4. Ensure that the herbicides you plan to use are approved for aquatic use. Experts consider most herbicides harmful to water quality or aquatic organisms, but rate some formulations as safe for aquatic use. Do the research and select an approved herbicide, and then closely follow the instructions on the label.

5. If you are unsure—research, study, and most of all, ask for help. Follow the rules. The damage caused to aquatic systems by the use of an inappropriate herbicide or the misapplication of an appropriate herbicide not only damages the environment, but also may reduce public support for safe, well-planned projects.

Section 4
Annual Updates and Log Requirements

The Owner and/or Contact/Responsible Party shall review this Operation and Maintenance Plan once per year for its effectiveness and adjust the plan and deed as necessary.

A log of all preventative and corrective measures for the stormwater system shall be kept on-site and be made available upon request by any public entity with administrative, health environmental or safety authority over the site including NHDES.

Copies of the Stormwater Maintenance report shall be submitted to the City of Portsmouth on an annual basis.

Stormwater Management Report						
Mixed Use Development		**Raynes Avenue – Map 123 Lots 10, 12, 13 & 14**				
BMP Description	**Date of Inspection**	**Inspector**	**BMP Installed and Operating Properly?**	**Cleaning / Corrective Action Needed**	**Date of Cleaning / Repair**	**Performed By**
Deep Sump CB's			❑Yes ❑No			
Underground Detention			❑Yes ❑No			
Jellyfish Filter 1			❑Yes ❑No			
Jellyfish Filter 2			❑Yes ❑No			
Porous Pavement			❑Yes ❑No			

Stormwater Management Report						
City of Portsmouth		**North Mill Pond Trail**				
BMP Description	**Date of Inspection**	**Inspector**	**BMP Installed and Operating Properly?**	**Cleaning / Corrective Action Needed**	**Date of Cleaning / Repair**	**Performed By**
Porous Pavement			❑Yes ❑No			

MIXED USE BUILDING GRADE PLANE ELEVATIONS

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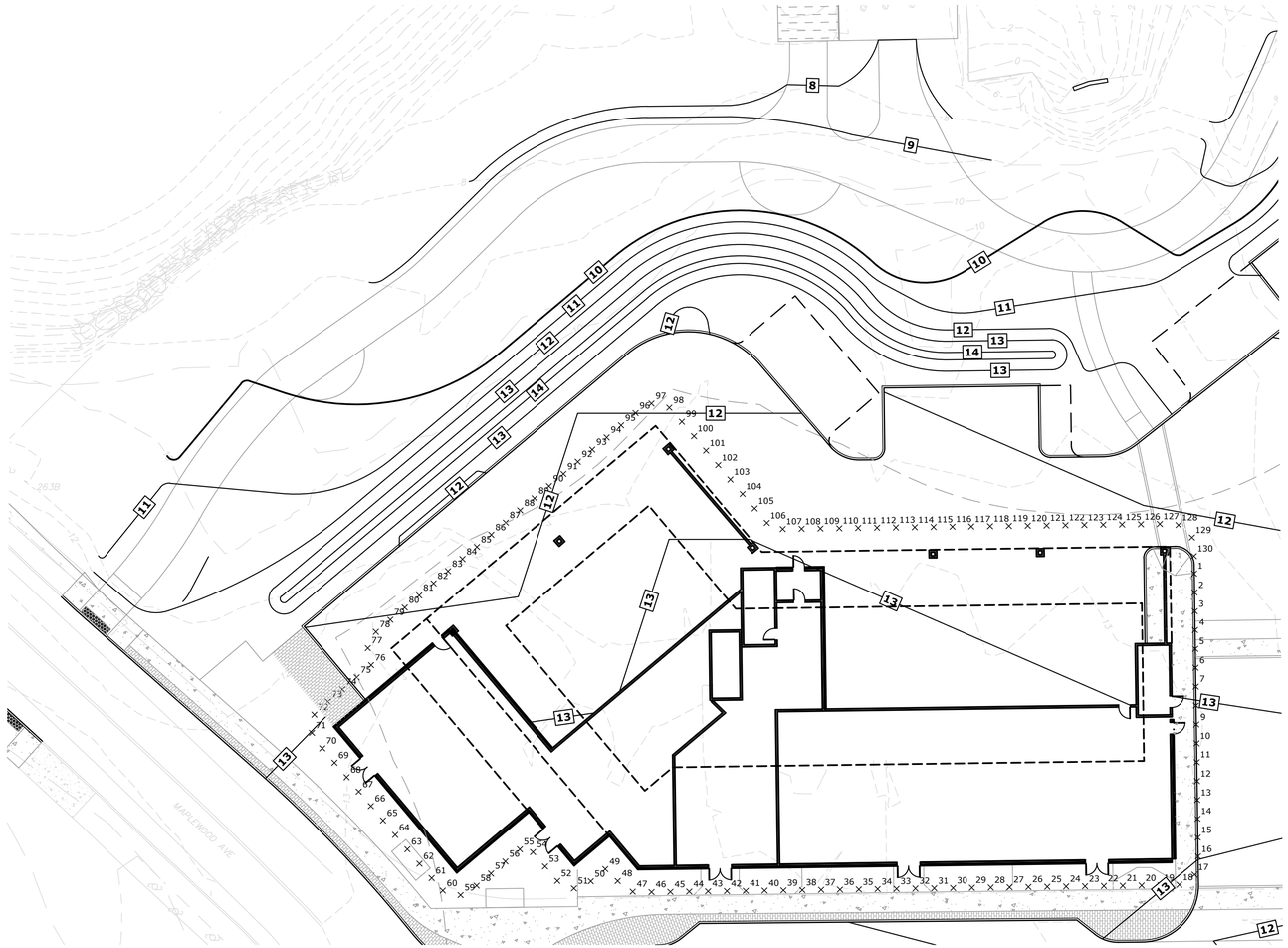
1	12.15	60.25	47.33	25	13.23	60.25	47.33	49	13.90	49.75	36.83	73	12.45	28.75	15.83	96	12.00	60.25	47.33	120	12.40	60.25	47.33
2	12.20	60.25	47.33	26	13.27	60.25	47.33	50	13.85	49.75	36.83	74	12.35	28.75	15.83	97	11.95	60.25	47.33	121	12.35	60.25	47.33
3	12.25	60.25	47.33	27	13.30	60.25	47.33	51	13.85	49.75	36.83	75	12.30	28.75	15.83	98	11.95	60.25	47.33	122	12.30	60.25	47.33
4	12.55	60.25	47.33	28	13.33	60.25	47.33	52	13.85	49.75	36.83	76	12.25	28.75	15.83	99	12.05	60.25	47.33	123	12.25	60.25	47.33
5	12.85	60.25	47.33	29	13.36	60.25	47.33	53	13.90	49.75	36.83	77	12.15	49.75	36.83	100	12.15	60.25	47.33	124	12.20	60.25	47.33
6	12.90	60.25	47.33	30	13.40	60.25	47.33	54	13.95	49.75	36.83	78	12.10	49.75	36.83	101	12.25	60.25	47.33	125	12.15	60.25	47.33
7	12.95	60.25	47.33	31	13.45	60.25	47.33	55	13.95	28.75	15.83	79	12.05	49.75	36.83	102	12.35	60.25	47.33	126	12.10	60.25	47.33
8	13.00	60.25	47.33	32	13.50	60.25	47.33	56	13.90	28.75	15.83	80	11.95	49.75	36.83	103	12.45	60.25	47.33	127	12.05	60.25	47.33
9	13.05	60.25	47.33	33	13.53	60.25	47.33	57	13.90	28.75	15.83	81	11.90	60.25	47.33	104	12.55	60.25	47.33	128	12.05	60.25	47.33
10	13.10	60.25	47.33	34	13.56	60.25	47.33	58	13.85	28.75	15.83	82	11.85	60.25	47.33	105	12.65	60.25	47.33	129	12.05	60.25	47.33
11	13.15	60.25	47.33	35	13.59	60.25	47.33	59	13.85	28.75	15.83	83	11.75	60.25	47.33	106	12.75	60.25	47.33	130	12.10	60.25	47.33
12	13.20	60.25	47.33	36	13.62	60.25	47.33	60	13.82	28.75	15.83	84	11.70	60.25	47.33	107	12.80	60.25	47.33	AVERAGE GRADE PLANE ELEVATION			12.93
13	13.25	60.25	47.33	37	13.65	60.25	47.33	61	13.82	28.75	15.83	85	11.65	60.25	47.33	108	12.75	60.25	47.33				
14	13.30	60.25	47.33	38	13.68	60.25	47.33	62	13.82	28.75	15.83	86	11.70	60.25	47.33	109	12.70	60.25	47.33				
15	13.20	60.25	47.33	39	13.72	60.25	47.33	63	13.82	28.75	15.83	87	11.75	60.25	47.33	110	12.70	60.25	47.33				
16	13.05	60.25	47.33	40	13.74	60.25	47.33	64	13.82	28.75	15.83	88	11.80	60.25	47.33	111	12.65	60.25	47.33				
17	12.90	60.25	47.33	41	13.77	60.25	47.33	65	13.82	28.75	15.83	89	11.90	60.25	47.33	112	12.65	60.25	47.33				
18	12.85	60.25	47.33	42	13.80	60.25	47.33	66	13.82	28.75	15.83	90	12.00	60.25	47.33	113	12.60	60.25	47.33				
19	12.95	60.25	47.33	43	13.82	60.25	47.33	67	13.82	28.75	15.83	91	12.00	60.25	47.33	114	12.60	60.25	47.33				
20	13.00	60.25	47.33	44	13.82	60.25	47.33	68	13.82	28.75	15.83	92	12.10	60.25	47.33	115	12.55	60.25	47.33				
21	13.05	60.25	47.33	45	13.82	60.25	47.33	69	13.82	28.75	15.83	93	12.20	60.25	47.33	116	12.55	60.25	47.33				
22	13.10	60.25	47.33	46	13.82	60.25	47.33	70	13.82	28.75	15.83	94	12.20	60.25	47.33	117	12.50	60.25	47.33				
23	13.15	60.25	47.33	47	13.85	60.25	47.33	71	13.00	28.75	15.83	95	12.10	60.25	47.33	118	12.45	60.25	47.33				
24	13.20	60.25	47.33	48	13.85	60.25	47.33	72	12.95	28.75	15.83	96	12.00	60.25	47.33	119	12.45	60.25	47.33				



BUILDING ELEVATIONS AND HEIGHTS

	GRADE PLANE ELEVATION	BUILDING ELEVATION		BUILDING HEIGHT	
		ALLOWED	PROPOSED	ALLOWED	PROPOSED
MIXED USE	12.90'	72.90'	72.67'	60.00'	59.77'
HOTEL	11.85'	71.85'	71.75'	60.00'	59.90'

Tighe&Bond

0 50' 100'
GRAPHIC SCALE

Proposed Mixed Use Development

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
K	11/24/2021	PB Submission
J	10/20/2021	TAC Resubmission
I	8/23/2021	TAC Resubmission
H	7/21/2021	TAC Resubmission
G	5/26/2021	CC Resubmission
F	5/19/2021	TAC Resubmission
E	4/28/2021	CC Resubmission
D	4/21/2021	TAC Resubmission
C	3/22/2021	TAC Submission
B	3/10/2021	Design Review Resubmission
A	12/1/2020	TAC Work Session

PROJECT NO:	P-0595-007
DATE:	December 22, 2020
FILE:	P-0595-007-EXHIBITS.DWG
DRAWN BY:	CJK
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

MIXED USE GRADE PLANE EXHIBIT

SCALE: AS SHOWN

1 OF 2

Last Saved: 11/19/2021
Plotted On: Nov 19, 2021 - 1:30pm By: CKrzcuik
Tighe & Bond: J:\P\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings_Figures\AutoCAD\Sheet\P-0595-007-EXHIBITS.dwg

HOTEL BUILDING GRADE PLANE ELEVATIONS

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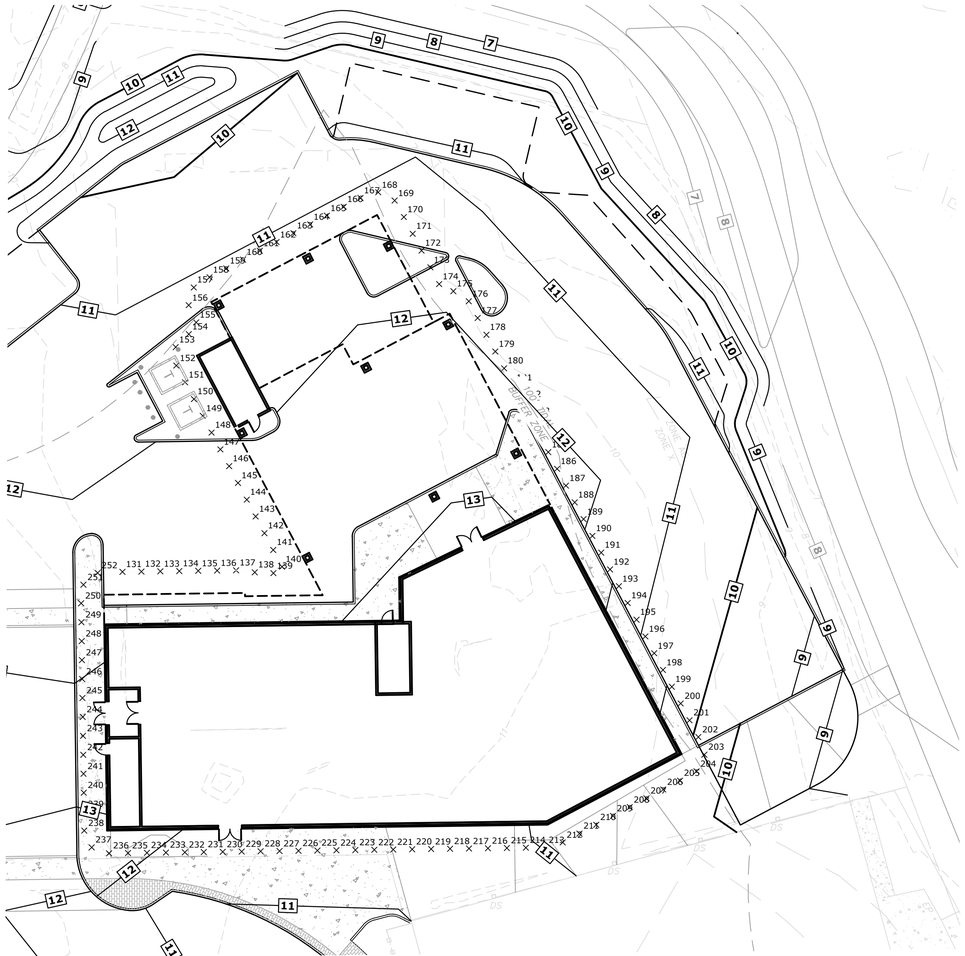
131	12.45	71.75	59.90	155	11.85	59.75	47.90	179	11.96	71.75	59.90	203	10.40	71.75	59.90	227	12.70	71.75	59.90	251	12.90	71.75	59.90
132	12.50	71.75	59.90	156	11.20	59.75	47.90	180	11.98	71.75	59.90	204	10.45	71.75	59.90	228	13.10	71.75	59.90	252	12.70	71.75	59.90
133	12.60	71.75	59.90	157	11.10	59.75	47.90	181	12.00	71.75	59.90	205	10.50	71.75	59.90	229	13.15	71.75	59.90	AVERAGE GRADE PLANE ELEVATION			11.85
134	12.65	71.75	59.90	158	11.10	59.75	47.90	182	12.05	71.75	59.90	206	10.55	71.75	59.90	230	11.85	71.75	59.90				
135	12.70	71.75	59.90	159	11.10	59.75	47.90	183	12.10	71.75	59.90	207	10.65	71.75	59.90	231	11.85	71.75	59.90				
136	12.75	71.75	59.90	160	11.10	59.75	47.90	184	12.15	71.75	59.90	208	10.70	71.75	59.90	232	11.90	71.75	59.90				
137	12.80	71.75	59.90	161	11.10	59.75	47.90	185	12.25	71.75	59.90	209	10.75	71.75	59.90	233	11.95	71.75	59.90				
138	12.85	71.75	59.90	162	11.10	59.75	47.90	186	12.30	71.75	59.90	210	10.80	71.75	59.90	234	13.05	71.75	59.90				
139	12.90	71.75	59.90	163	11.10	59.75	47.90	187	12.35	71.75	59.90	211	10.85	71.75	59.90	235	12.30	71.75	59.90				
140	12.90	71.75	59.90	164	11.10	59.75	47.90	188	12.35	71.75	59.90	212	10.90	71.75	59.90	236	12.50	71.75	59.90				
141	12.80	71.75	59.90	165	11.10	59.75	47.90	189	12.05	71.75	59.90	213	11.00	71.75	59.90	237	12.50	71.75	59.90				
142	12.75	71.75	59.90	166	11.10	59.75	47.90	190	11.90	71.75	59.90	214	11.02	71.75	59.90	238	12.85	71.75	59.90				
143	12.65	71.75	59.90	167	11.10	59.75	47.90	191	11.70	71.75	59.90	215	11.05	71.75	59.90	239	13.00	71.75	59.90				
144	12.55	71.75	59.90	168	11.10	59.75	47.90	192	11.50	71.75	59.90	216	11.10	71.75	59.90	240	13.25	71.75	59.90				
145	12.45	71.75	59.90	169	11.15	59.75	47.90	193	11.35	71.75	59.90	217	11.15	71.75	59.90	241	13.30	71.75	59.90				
146	12.35	71.75	59.90	170	11.25	59.75	47.90	194	11.20	71.75	59.90	218	11.20	71.75	59.90	242	13.25	71.75	59.90				
147	12.25	71.75	59.90	171	11.35	59.75	47.90	195	11.05	71.75	59.90	219	11.25	71.75	59.90	243	13.15	71.75	59.90				
148	12.65	71.75	59.90	172	11.90	59.75	47.90	196	10.80	71.75	59.90	220	11.30	71.75	59.90	244	13.10	71.75	59.90				
149	12.50	71.75	59.90	173	11.80	59.75	47.90	197	10.65	71.75	59.90	221	11.20	71.75	59.90	245	13.00	71.75	59.90				
150	12.40	71.75	59.90	174	11.90	59.75	47.90	198	10.50	71.75	59.90	222	11.15	71.75	59.90	246	12.95	71.75	59.90				
151	12.25	71.75	59.90	175	11.90	71.75	59.90	199	10.30	71.75	59.90	223	11.30	71.75	59.90	247	12.90	71.75	59.90				
152	12.10	71.75	59.90	176	11.90	71.75	59.90	200	10.20	71.75	59.90	224	11.50	71.75	59.90	248	12.85	71.75	59.90				
153	11.95	71.75	59.90	177	11.92	71.75	59.90	201	10.05	71.75	59.90	225	11.90	71.75	59.90	249	12.80	71.75	59.90				
154	11.90	71.75	59.90	178	11.94	71.75	59.90	202	9.95	71.75	59.90	226	12.30	71.75	59.90	250	12.75	71.75	59.90				



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2 OF 2

Last Saved: 11/19/2021
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PROPOSED MIXED USE DEVELOPMENT
PORTSMOUTH, NEW HAMPSHIRE

FRONT LOT LINE BUILDOUT EXHIBIT

CITY OF PORTSMOUTH ZONING 10.5A60:

Front lot line buildout

The portion of the width of the required **front yard** or front building setback that is occupied by a **building**.

FRONT LOT LINE BUILDOUT:

	REQUIRED	PROPOSED
FRONT LOT LINE BUILDOUT	50%	78.42%(1)

(1) - TOTAL FRONT LOT LINE LENGTH SUBTRACTS FRONTAGE FOR REQUIRED GREENWAY COMMUNITY SPACE AREA

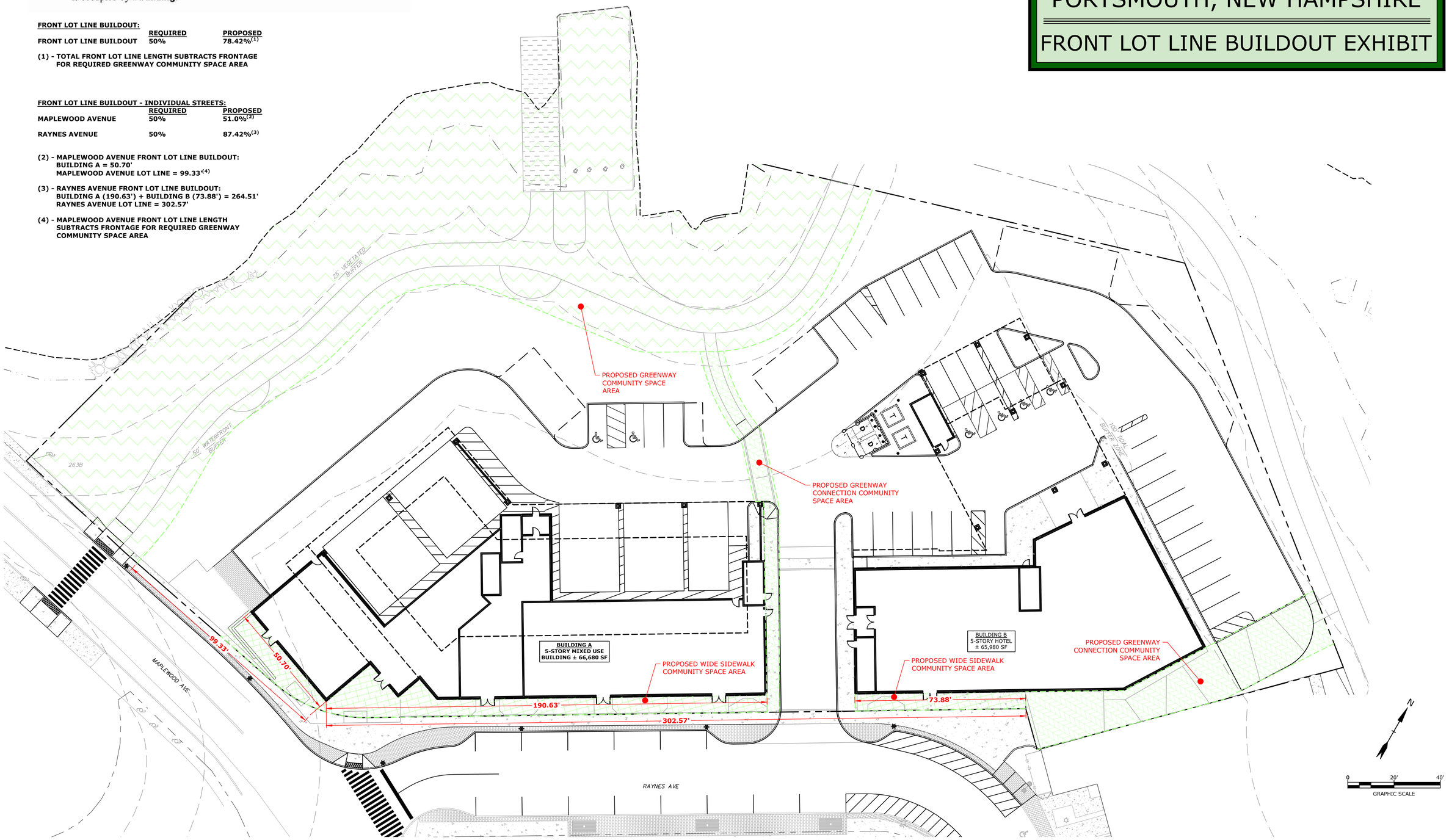
FRONT LOT LINE BUILDOUT - INDIVIDUAL STREETS:

	REQUIRED	PROPOSED
MAPLEWOOD AVENUE	50%	51.0%(2)
RAYNES AVENUE	50%	87.42%(3)

(2) - MAPLEWOOD AVENUE FRONT LOT LINE BUILDOUT:
BUILDING A = 50.70'
MAPLEWOOD AVENUE LOT LINE = 99.33'(4)

(3) - RAYNES AVENUE FRONT LOT LINE BUILDOUT:
BUILDING A (190.63') + BUILDING B (73.88') = 264.51'
RAYNES AVENUE LOT LINE = 302.57'

(4) - MAPLEWOOD AVENUE FRONT LOT LINE LENGTH SUBTRACTS FRONTAGE FOR REQUIRED GREENWAY COMMUNITY SPACE AREA



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0 20 40 80 SCALE: 1" = 20'-0"

SITE LANDSCAPE PLAN

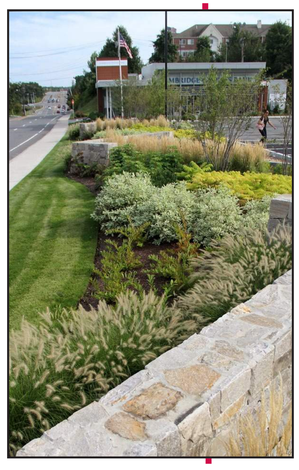
RAYNES AVE - PORTSMOUTH, NH

11/15/2021

Tighe&Bond

1 QU BI
BUFFER SEED MIX
PLANTING BED AT SEATING NICHE
1 CH VI
1 CE OC
BUFFER SEED MIX
1 CH VI
OVERLOOK SEATING NICHE WITH UNIT PAVERS AND CHAIR BENCHES
1 CH TH
1 HA VE
3 HA VE
1 CH TH
1 AC RU
1 AC RU
1 CH VI
1 JU VI
1 AC RU
BUFFER SEED MIX
5 HA VE
2 BE AL
1 JU VI
1 CE OC
1 BE AL
1 CH TH
1 TH OC
BIKE PARKING
5 TH OC
PERENNIALS AND ORNAMENTAL GRASS
1 JU VI
1 JU VI
1 BE AL
1 AC RU
1 CH VI
PERENNIALS AND ORNAMENTAL GRASS
GRANITE POST INDICATING PATH
VEHICULAR UNIT PAVERS WITH FLUSH GRANITE BAND ON EITHER SIDE
DECORATIVE DUMPSTER ENCLOSURE FENCE AND GATE
EVERGREEN SCREENING
ENTRANCE WITH UNIT PAVING, BOLLARDS; FLAGGED WITH BENCHES & RAISED SEASONAL/ANNUAL PLANTERS
1 CE OC
1 CE OC
3 HA VE
3 AC RU
3 JU VI
1 CH VI
PLANTING BED AT TRAIL ENTRANCE
PERENNIALS AND ORNAMENTAL GRASS
BIKE PARKING
1 CH TH
1 CE OC
PROPERTY LINE
GRANITE POST INDICATING PATH
PROPOSED CONNECTION TO TRAIL NETWORK
WAYFINDING SIGNAGE; TO BE COORDINATED WITH THE CITY
ARRIVAL & DEPARTURE ZONE
CAST IN PLACE CONCRETE SIDEWALK
PLANTING BED AT TRAIL ENTRANCE
SHADE TREE & METAL TREE GRATE WITH SAND BASED STRUCTURAL SOIL
BOLLARDS
RAISED VEHICULAR TABLE
CAST IN PLACE CONCRETE SIDEWALK
VEHICULAR UNIT PAVER FOR FIRE EMERGENCY ACCESS
PROPOSED MIXED USE BUILDING
PROPOSED HOTEL
VEHICULAR UNIT PAVER ALLEY FOR FLEXIBLE PROGRAM USE; FIRE EMERGENCY ACCESS
PLANTING BED
BRICK PAVING BAND
PLANTING BED
SEATING NICHE
RETAIL SPILL OUT ZONE
SEATING NICHE
ARRIVAL & DEPARTURE ZONE
RETAIL SPILL OUT ZONE
3 AC KA
RETAIL SPILL OUT ZONE
PERENNIALS AND ORNAMENTAL GRASS
MAPLEWOOD
PROPERTY LINE
TENANT
RESIDENTIAL
CIRC
OTHER
LOBBY

PORTSMOUTH KIOSK 1



TRAIL ENTRANCE PLANTINGS

SCALE: N.T.S

SITE LANDSCAPE PRECEDENT IMAGERY

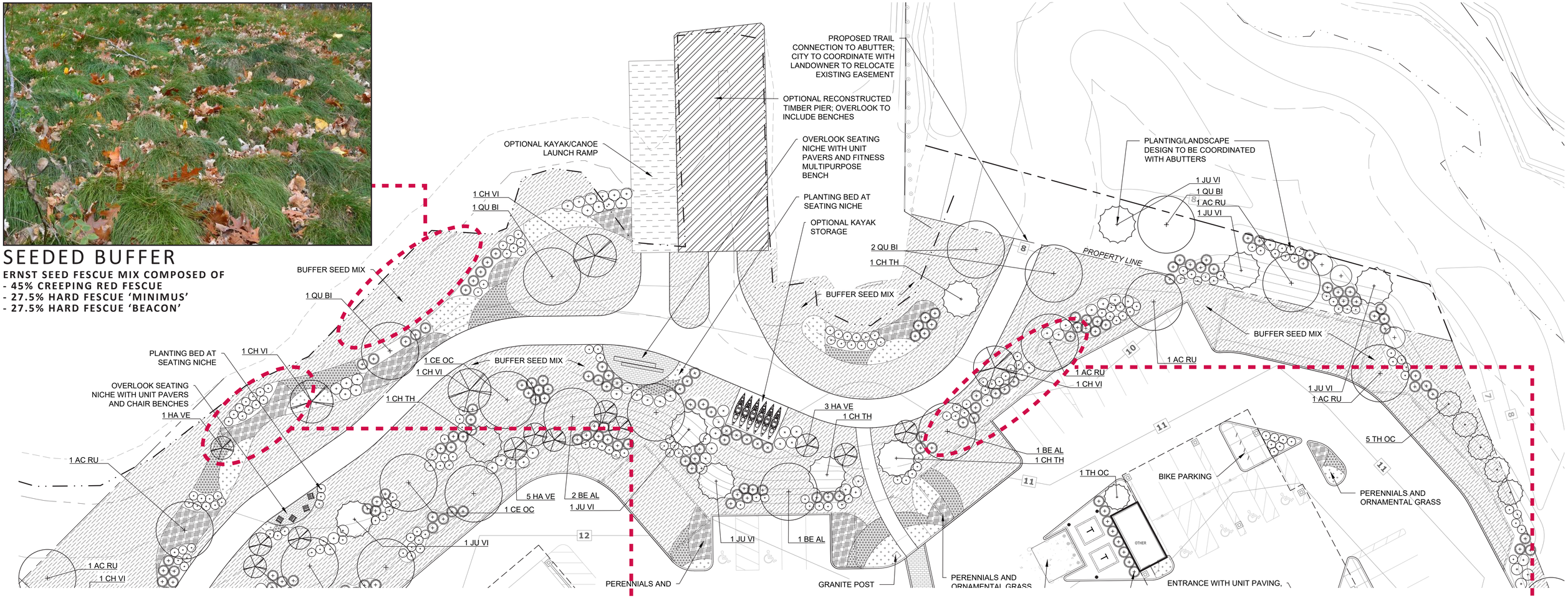
RAYNES AVE - PORTSMOUTH, NH

11/15/2021

Tighe&Bond

SEEDED BUFFER

ERNST SEED FESCUE MIX COMPOSED OF
- 45% CREEPING RED FESCUE
- 27.5% HARD FESCUE 'MINIMUS'
- 27.5% HARD FESCUE 'BEACON'



RESTORATION PLANTING NOTES

1. INVASIVE PLANT MATERIAL WILL BE REMOVED USING MECHANICAL, WHOLE PLANT REMOVAL STRATEGIES AND CHIPPED AND COMPOSTED AT AN APPROPRIATE FACILITY OR BURNED ON SITE ACCORDING TO LOCAL FIRE DEPARTMENT RULES AND REGULATIONS.

2. DISTURBED SOILS WILL BE AUGMENTED AS NEED WITH A CUSTOM BLENDED SOIL OF ONE PART LOAM, ONE PART COMPOST AND ONE PART CLEAN SAND.

3. SEEDED AREAS ARE TO BE COVERED WITH SALT MARSH HAY TO RETAIN SOIL MOISTURE AND PROTECT AGAINST SEED PREDATION BY BIRDS AND SMALL MAMMALS.

4. NATIVE PLANT MATERIAL WILL BE LAID OUT AND INSTALLED BY AN ECOLOGICAL RESTORATION SPECIALIST OR PERSONS TRAINED IN HORTICULTURAL PRACTICES. EXACT PLANT LOCATIONS WILL BE DETERMINED IN THE FIELD BASED ON SITE-SPECIFIC PLANTING CONDITIONS AND MICRO-TOPOGRAPHY.

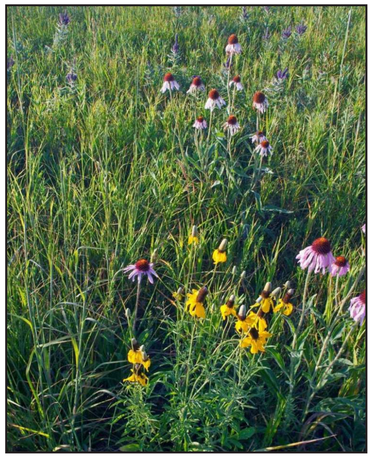
5. THE NEW PLANTINGS WILL BE IRRIGATED FOR ONE FULL GROWING SEASON OR UNTIL THE SEED AND PLANT MATERIAL IS ESTABLISHED.

6. MONTHLY INSPECTIONS WILL BE CONDUCTED FOR THE FIRST GROWING SEASON AND TREATMENT/ REMOVAL OF INVASIVE SPECIES WILL BE IMPLEMENTED AS NEEDED DURING THE ESTABLISHED PERIOD.

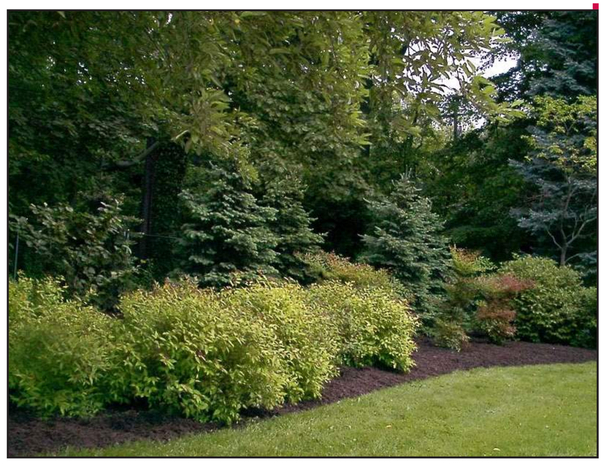
7. CARE IS TO BE TAKEN IN REMOVING ANY NEW COLONIZING INVASIVE PLANT MATERIAL TO MINIMIZE DISTURBANCE TO ESTABLISHING NATIVE PLANT SPECIES.

8. PRACTICES IN ASSOCIATION WITH FERTILIZERS AND PESTICIDES WILL COMPLY WITH ORDINANCES 10.1018.24 AND 10.1018.25.

SHRUB, PERENNIAL AND GRASS COMBO



MIXED HEIGHT PARKING BUFFER



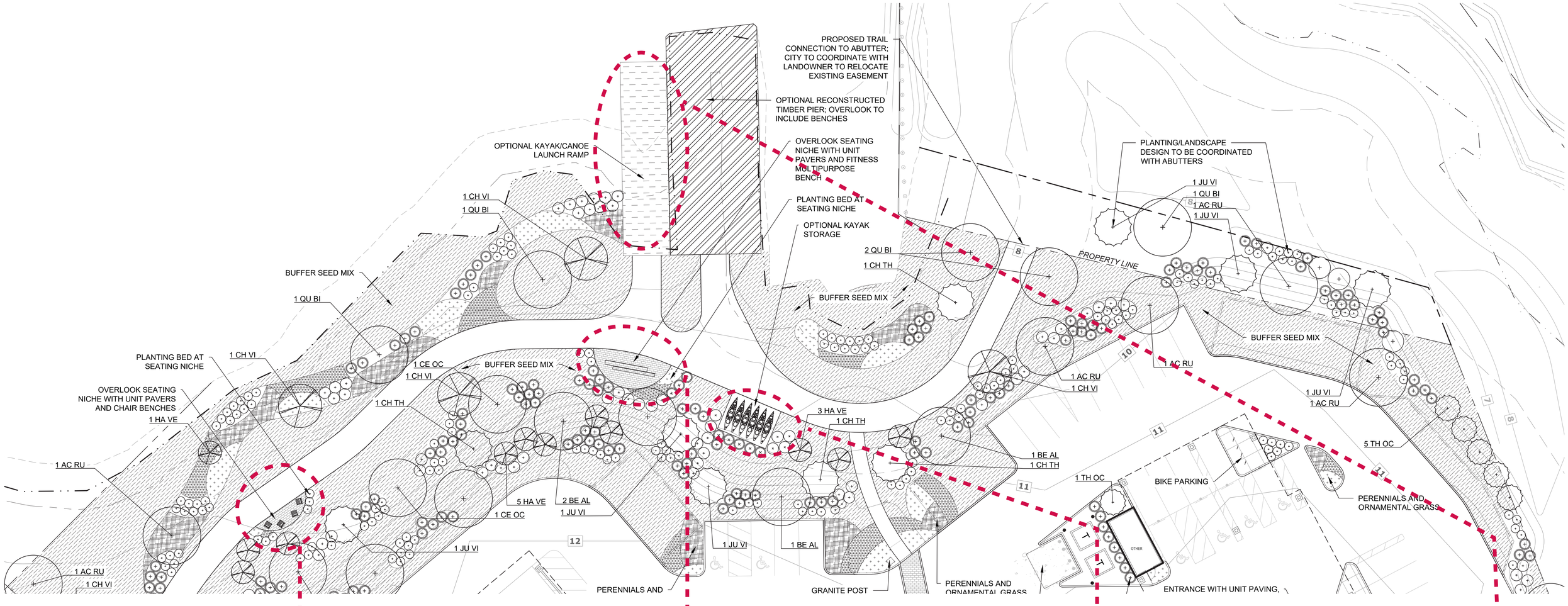
SCALE: N.T.S

SITE LANDSCAPE PRECEDENT IMAGERY

RAYNES AVE - PORTSMOUTH, NH

11/15/2021

Tighe&Bond



SEATING NICHE ONE

SEATING NICHE TWO

OPTIONAL KAYAK STORAGE

OPTIONAL KAYAK LAUNCH

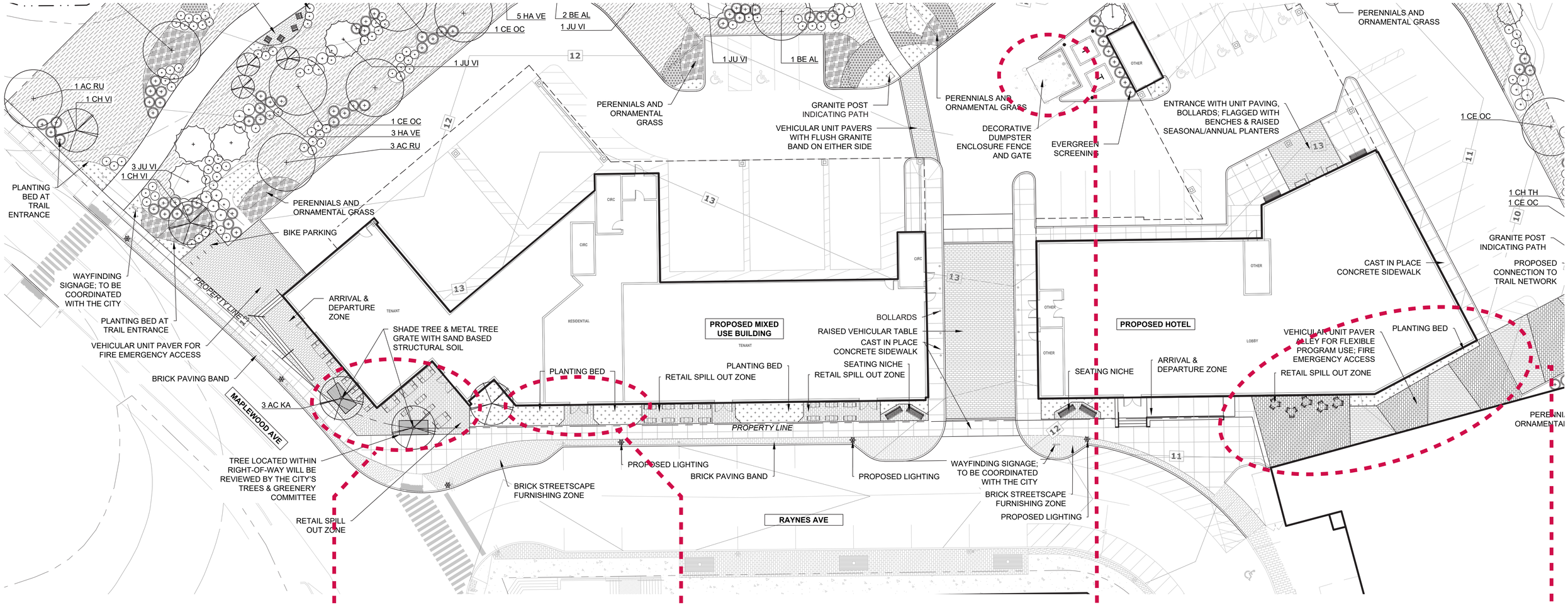
SCALE: N.T.S

SITE LANDSCAPE PRECEDENT IMAGERY

RAYNES AVE - PORTSMOUTH, NH

11/15/2021

Tighe&Bond

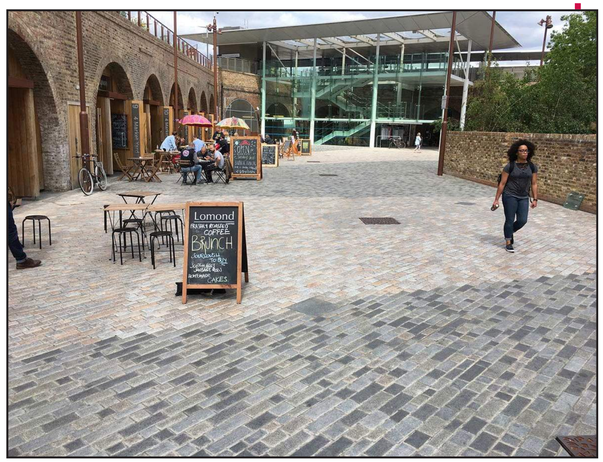


RETAIL SPILL OUT AT CORNER

PLANTING BED AT LOBBY

DUMPSTER ENCLOSURE

ALTERNATING PAVING PATTERN



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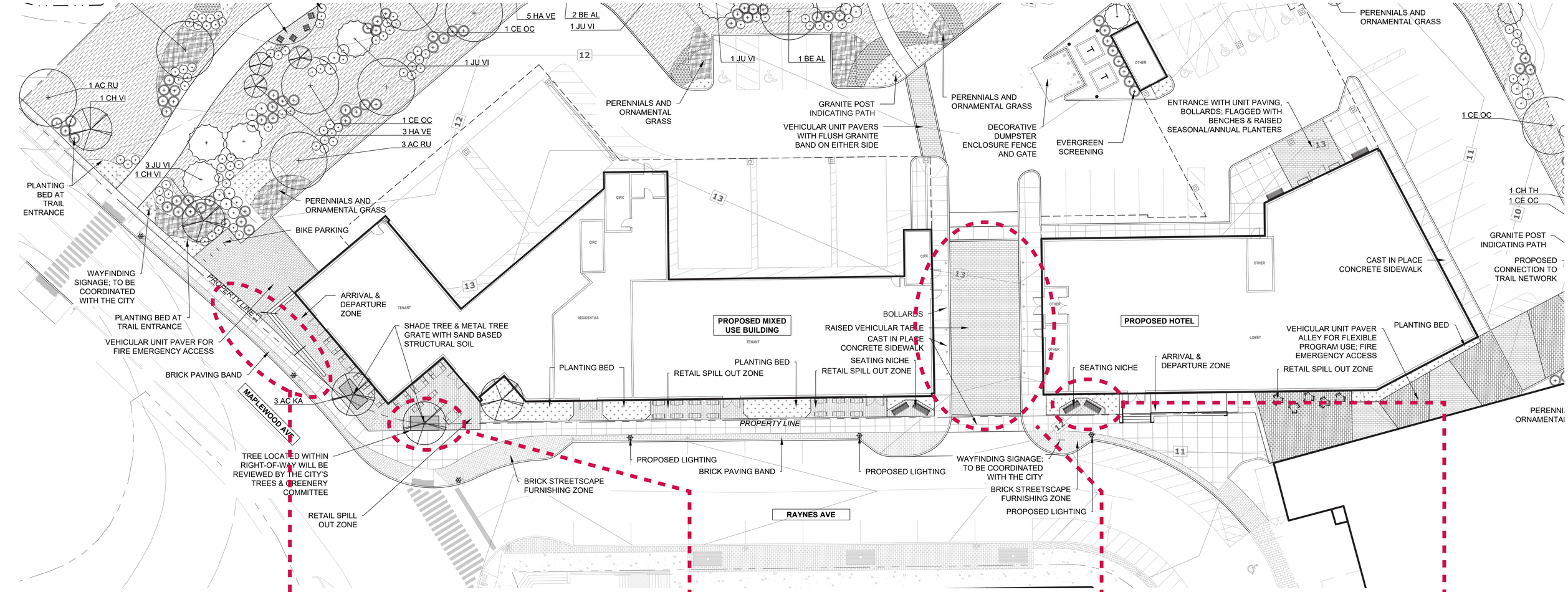
SITE LANDSCAPE PRECEDENT IMAGERY

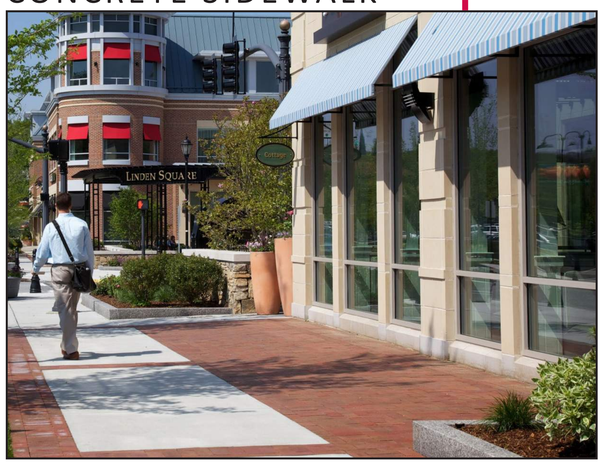
RAYNES AVE - PORTSMOUTH, NH

11/15/2021

Tighe&Bond



BRICK PAVING FIELD / CONCRETE SIDEWALK



TREE GRATE

RAISED UNIT PAVER TABLE

SEATING NICHE

SCALE: N.T.S

SITE LANDSCAPE PRECEDENT IMAGERY

RAYNES AVE - PORTSMOUTH, NH

11/15/2021

Tighe&Bond

Maplewood and Raynes Avenues, Portsmouth, NH Wetland & Buffer Report

TO: Patrick Crimmins, PE

FROM: Leonard A. Lord, PhD, CSS, CWS

DATE: January 7, 2021

PROJECT: P-0595-007

On October 29, 2019, Tighe & Bond delineated and assessed tidal wetlands and their 100-foot buffers at abutting parcels located at 203 Maplewood and 31 Raynes Avenues in Portsmouth, NH. An adjacent, third parcel at 1 Raynes Avenue was reviewed January 6, 2021. The 203 Maplewood and 31 Raynes Avenue parcels include frontage along the northwestern end of North Mill Pond, while the 1 Raynes Avenue parcel is set back from it.

Methods

The 2019 wetland delineation was based on criteria specified in the *Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1* (January 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (January 2012). The Highest Observable Tide Line (HOTL) was delineated based on the definition found in the NH Department of Environmental Services (NHDES) Wetland Rules Env-Wt 101.49/Env-Wt 602.23. Wetlands were classified based on the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979).

The 2021 wetland boundary had been previously delineated and survey located by others in 2015. The review of that boundary was completed using the same criteria described above. Measurements were used from known points that were easily located in the field to verify the previously delineation. This wetland boundary was accepted as being accurate by Tighe & Bond with no adjustments needed.

The only wetlands found on the parcels are tidal wetlands. The wetlands delineated in 2019 were marked with sequentially numbered flagging labelled 1B-1 to 1B-27. This area was reviewed again in 2021 and confirmed that no changes had taken place that would affect the delineation.

Important wetland functions and values were also assessed and summarized in the vicinity of the parcel. The assessment was based on the *Maine Citizens Guide to Evaluating, Restoring, and Managing Tidal Marshes* (Bryan et al., 1997) and *The Highway Methodology Workbook Supplement—Wetland Functions and Values: A Descriptive Approach*, NAEEP-360-1-30a, US Army Corps of Engineers, New England Division, (September 1999).

Wetlands

Wetlands along all three parcels were found to have been highly disturbed and filled in the distant past. Wetlands along the 203 Maplewood and 31 Raynes Avenue parcels in the western portion of site were generally classified as estuarine intertidal rocky shore, rubble, and regularly flooded (E2RS2N), though some areas exhibited more of a cobble-gravel substrate. The wetland edge in this area slopes sharply and is armored in some areas with rip rap. The northern portion of the wetland edge includes an old boat ramp, an old pier filled with sand

and crushed stone, and a culvert outlet and headwall. Sparse halophytic vegetation along the upper portion of the tidal wetland edge includes sea lavender (*Limonium carolinianum*), salt meadow grass (*Spartina patens*), and seaside goldenrod (*Solidago sempervirens*).

Most of the wetlands within 100 feet of 1 Raynes Avenue lie to the east and north of that parcel. Wetlands closest to Raynes Avenue were classified as estuarine emergent, persistent, regularly flooded high saltmarsh (EEM1N) with smaller areas of intertidal rocky shore. Much of this area was filled for a railroad as evidenced by remaining tracks and disturbed soils evidentially containing a high proportion of coal waste. There is also a utility line and steel structure in the wetland just to the northeast. This saltmarsh is dominated by salt meadow grass with lesser amounts of sea-blite (*Sueda linearis*), sea lavender, and seaside goldenrod. This area also includes patches of common reed (*Phragmites australis*) along the upper edge of the marsh.

Important wetland functions in this portion of North Mill Pond include recreation potential and aesthetic quality, though both functions are impacted by the density and character of the surrounding urban development.

Tidal Buffer

Much of the 100-foot upland tidal buffer along the two western parcels at 203 Maplewood and 31 Raynes Avenues consists of maintained lawn, commercial buildings, and parking lots. There are small patches of shrubby vegetation and small trees at the tops of the slopes between the lawn and tidal wetlands. Species in these patches include autumn olive (*Elaeagnus umbellata*), staghorn sumac (*Rhus typhina*), Japanese knotweed (*Polygonum cuspidatum*), Norway maple (*Acer platanoides*), and Asiatic bittersweet (*Celastrus orbiculatus*).

The 1 Raynes Avenue Parcel to the east consists of nearly 100% impermeable surfaces associated with the existing building and paved parking lot. The vegetated portion of the 100-foot upland tidal buffer off the parcel to the north and east is 40-100 feet wide and is dominated by shrubs and small trees. Common species include common buckthorn (*Rhamnus cathartica*) eastern red cedar (*Juniperis virginiana*) and gray birch (*Betula populifolia*) in addition to the species listed above for the buffer to the west.

The on-site vegetated portions of this highly developed tidal buffer provide some vegetated permeable surfaces to help reduce and filter runoff, but otherwise do little to enhance and protect the downgradient tidal wetland. The off-site buffer along 1 Raynes Avenue is likely to provide some screening and habitat for small birds and mammals foraging along North Mill Pond in addition to treating runoff.

Photographic Log

Client: ProCon

Site: Maplewood & Raynes Avenue, Portsmouth, NH

Job Number: P-0595-007

Photograph No.: 1	**Date:** 1/9/2021	**Direction Taken:** Northeast
Description: Steep wetland bank armored with riprap along the southern wetland edge just off Maplewood Avenue.		

Photograph No.: 2	**Date:** 1/9/2021	**Direction Taken:** Southwest
Description: Culvert outlet, steep bank, and filled pier along the northeast edge of 31 Raynes Avenue.		

Photographic Log

Client: ProCon

Site: Maplewood & Raynes Avenue, Portsmouth, NH

Job Number: P-0595-007

Photograph No.: 3	**Date:** 1/9/2021	**Direction Taken:** North
Description: Grassed portion of the tidal buffer. Tidal wetland extends over the top of the slope into the lawn at the red arrows.		

Photograph No.: 4	**Date:** 1/9/2021	**Direction Taken:** Southeast
Description: Commercial buildings and parking lot in the tidal buffer viewed from near the wetland edge, with the 31 Raynes Avenue building to the left and 203 Maplewood building to the right.		

Photographic Log

Client: ProCon

Site: Maplewood & Raynes Avenue, Portsmouth, NH

Job Number: P-0595-007

Photograph No.: 5	**Date:** 1/9/2021	**Direction Taken:** North
Description: View of an old boat launch to the left and an old pier framed with wood and filled with sand and crushed stone to the right at the northern portion of 31 Raynes Avenue.		

Photograph No.: 6	**Date:** 1/9/2021	**Direction Taken:** Northwest
Description: Shrubby vegetation in the tidal buffer at the northeast corner of 31 Raynes Avenue.		

Photographic Log

Client: ProCon

Site: Maplewood & Raynes Avenue, Portsmouth, NH

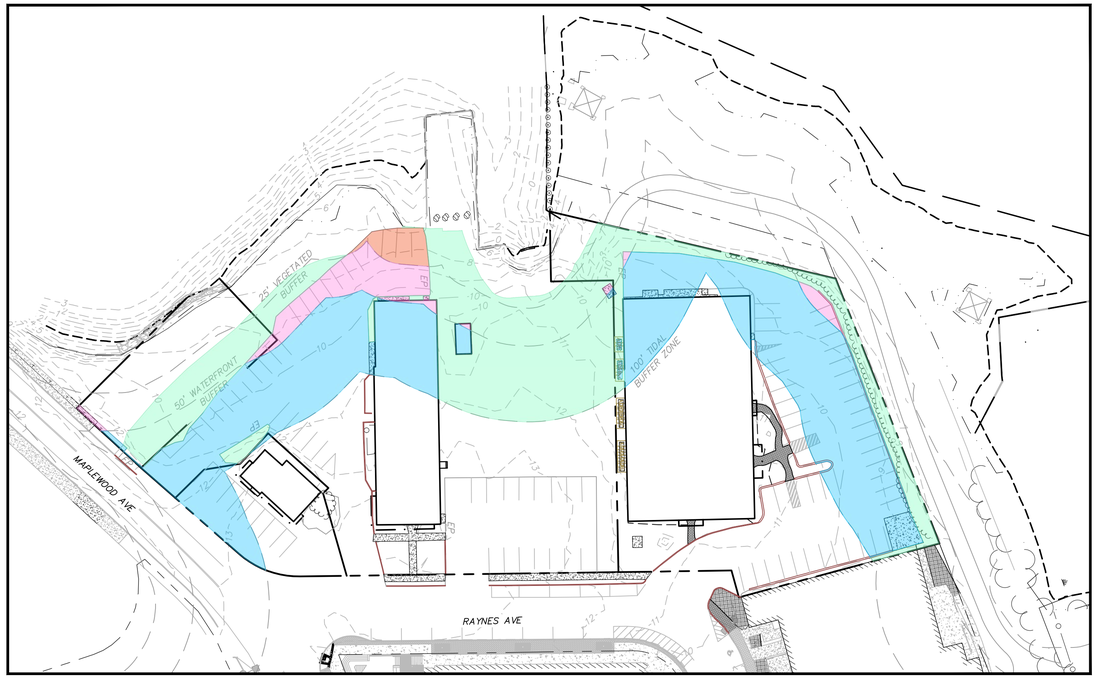
Job Number: P-0595-007

Photograph No.: 7	**Date:** 1/6/2021	**Direction Taken:** Northwest
Description: Narrow band of saltmarsh on the adjacent parcel east of 1 Raynes Avenue.		

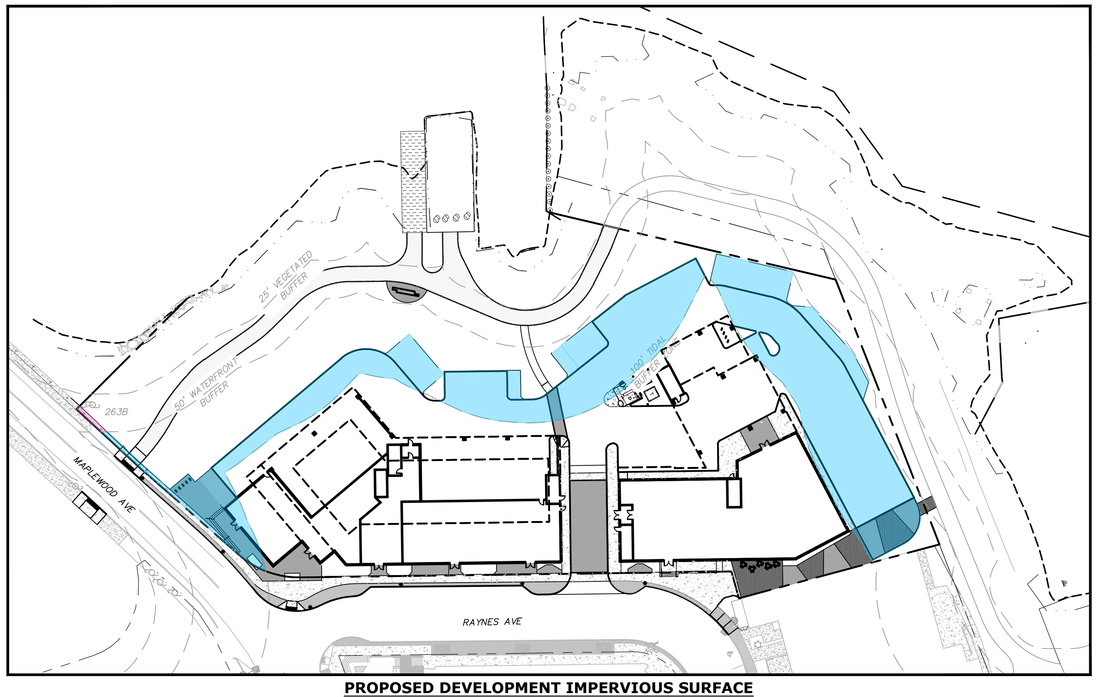
Photograph No.: 8	**Date:** 1/6/2021	**Direction Taken:** Northwest
Description: Pavement along the eastern edge of 1 Raynes Avenue, with shrubby vegetation in the tidal buffer off the parcel.		

PROPOSED MIXED USE DEVELOPMENT PORTSMOUTH, NEW HAMPSHIRE

WETLAND BUFFER IMPERVIOUS SURFACE EXHIBIT



EXISTING CONDITIONS IMPERVIOUS SURFACE



PROPOSED DEVELOPMENT IMPERVIOUS SURFACE

Impervious Surface Within Buffer Area		
Wetland Buffer Setback	**Existing Impervious Surface**	**Current Proposed Site Plan**
0 - 25 FT	848 SF	0 SF
25 - 50 FT	3,006 SF	67 SF (1)
50 - 100 FT	24,473 SF	21,190 SF
Total Impervious Surface	**28,327 SF**	**21,257 SF**
IMPERVIOUS SURFACE NET REDUCTION		**7,070 SF (2)**

(1) Reconstructed City Sidewalk Area

(2) Total net reduction includes impervious surface for reserve parking spaces if constructed in the future. If reserve spaces are not constructed, total impervious surface reduction will be 10,107 SF for the project.

AREA OF TEMPORARY WETLAND BUFFER IMPACTS FOR CONSTRUCTION

N

0 50' 100'
GRAPHIC SCALE

Tighe&Bond

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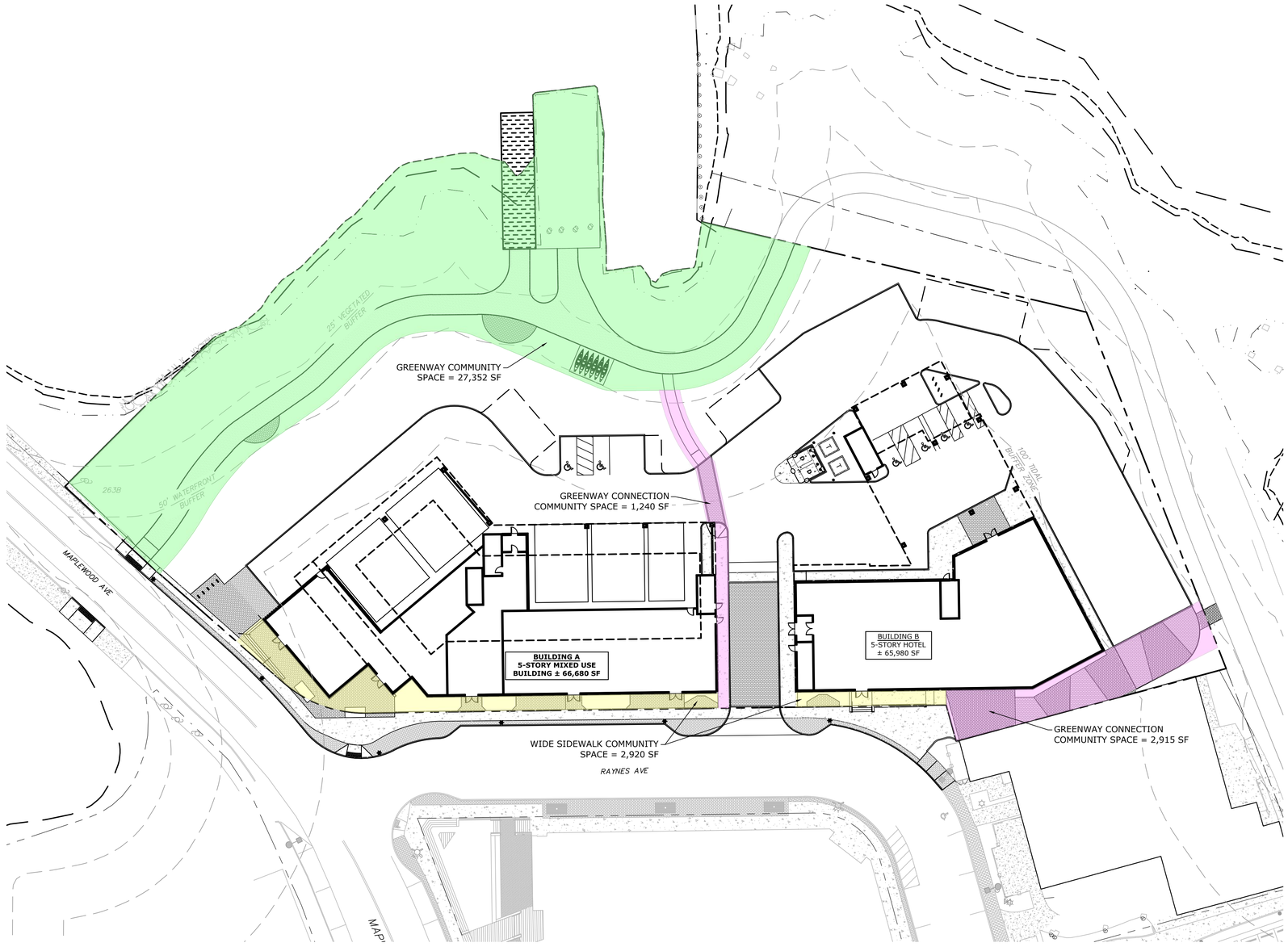
PROPOSED MIXED USE DEVELOPMENT
PORTSMOUTH, NEW HAMPSHIRE

COMMUNITY SPACE EXHIBIT

COMMUNITY OPEN SPACE:

	REQUIRED	PROVIDED
GREENWAY COMMUNITY SPACE		27,352 SF
GREENWAY CONNECTION COMMUNITY SPACE		4,155 SF
WIDE SIDEWALK COMMUNITY SPACE		2,920 SF
TOTAL LOT AREA: 110,415 SF COMMUNITY OPEN SPACE (20% OF TOTAL)	21,274 SF 20%	34,427 SF 31.2%



N

0 30' 60'

GRAPHIC SCALE

Tighe&Bond

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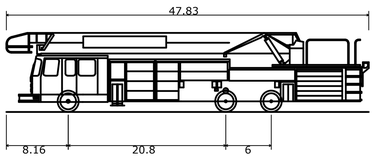
PROPOSED MIXED USE DEVELOPMENT
PORTSMOUTH, NEW HAMPSHIRE

FIRE TRUCK TURNING EXHIBIT



Portsmouth Fire Truck	
Overall Length	47.830ft
Overall Width	8.500ft
Overall Body Height	10.432ft
Min Body Ground Clearance	0.862ft
Track Width	8.000ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	38.00°

LEGEND

VEHICLE OVERHANG

VEHICLE WHEEL BASE

25' VEGETATED BUFFER

50' WATERFRONT BUFFER

100' TIDAL BUFFER ZONE

263B

VEHICLE BODY OVERHANG (TYP)

VEHICLE WHEEL BASE (TYP)

MAPLEWOOD AVE

RAYNES AVE

N

0 20' 40'

GRAPHIC SCALE

Tighe&Bond

November 24, 2021
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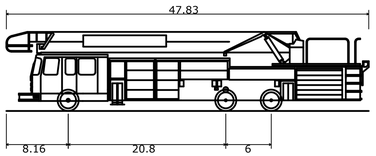
PROPOSED MIXED USE DEVELOPMENT
PORTSMOUTH, NEW HAMPSHIRE

FIRE TRUCK TURNING EXHIBIT



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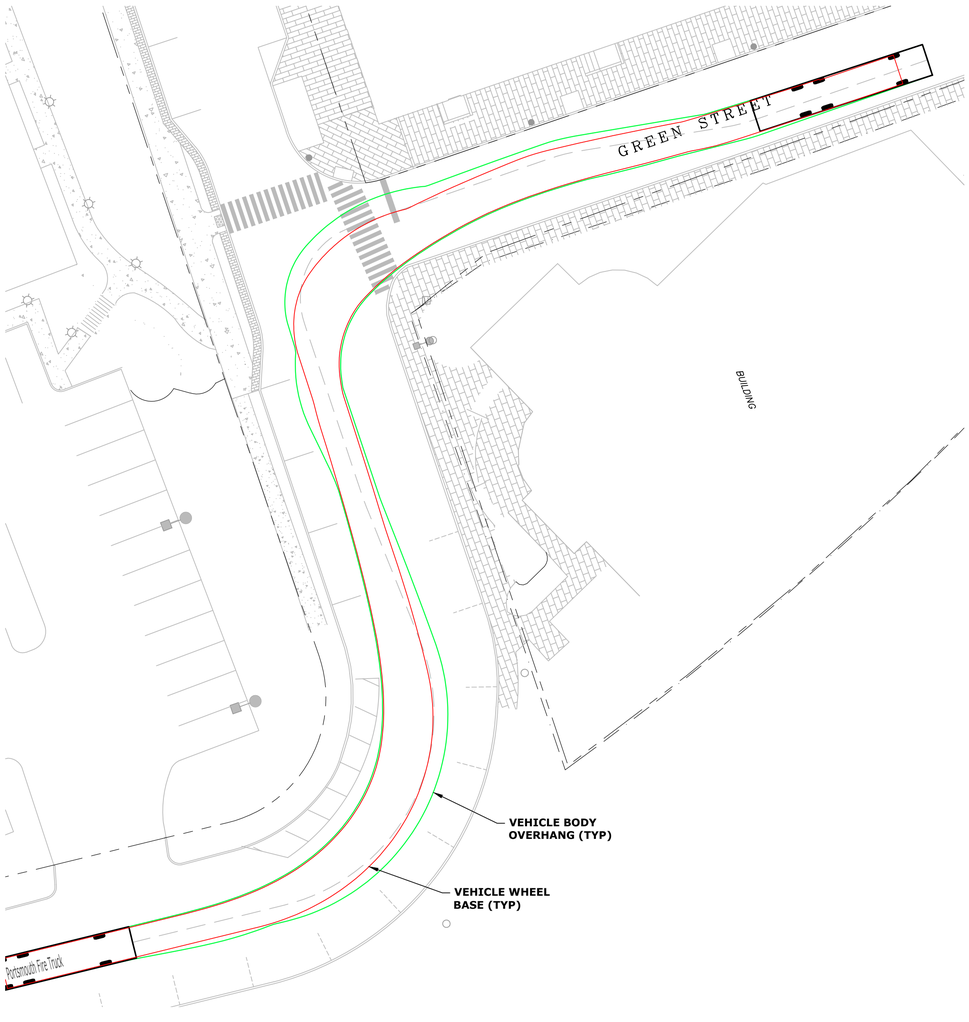
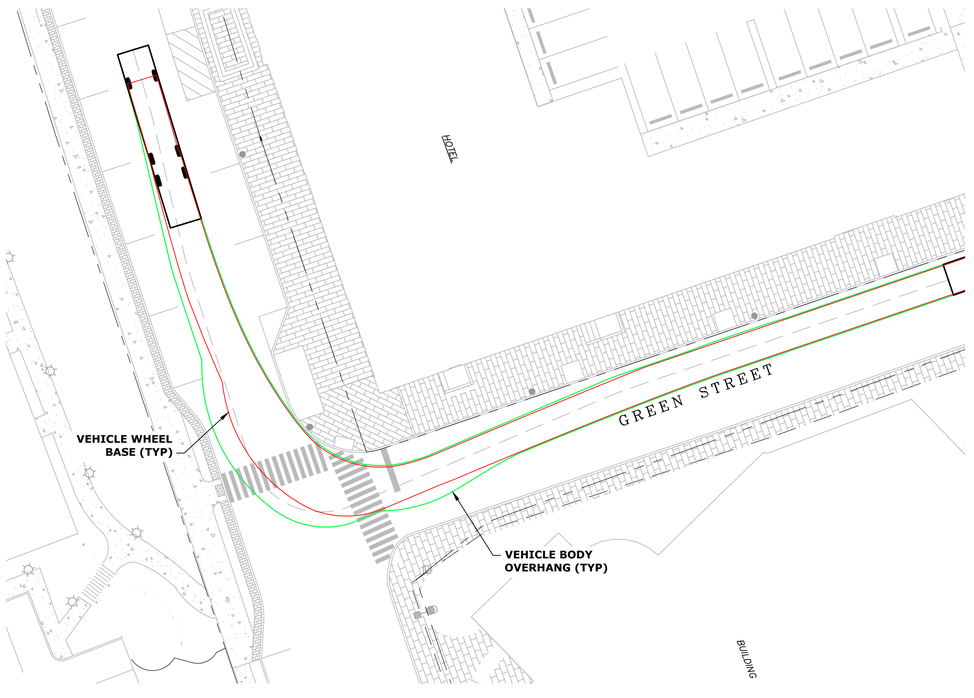
LEGEND

VEHICLE OVERHANG

VEHICLE WHEEL BASE





0 20' 40'

GRAPHIC SCALE

Tighe&Bond

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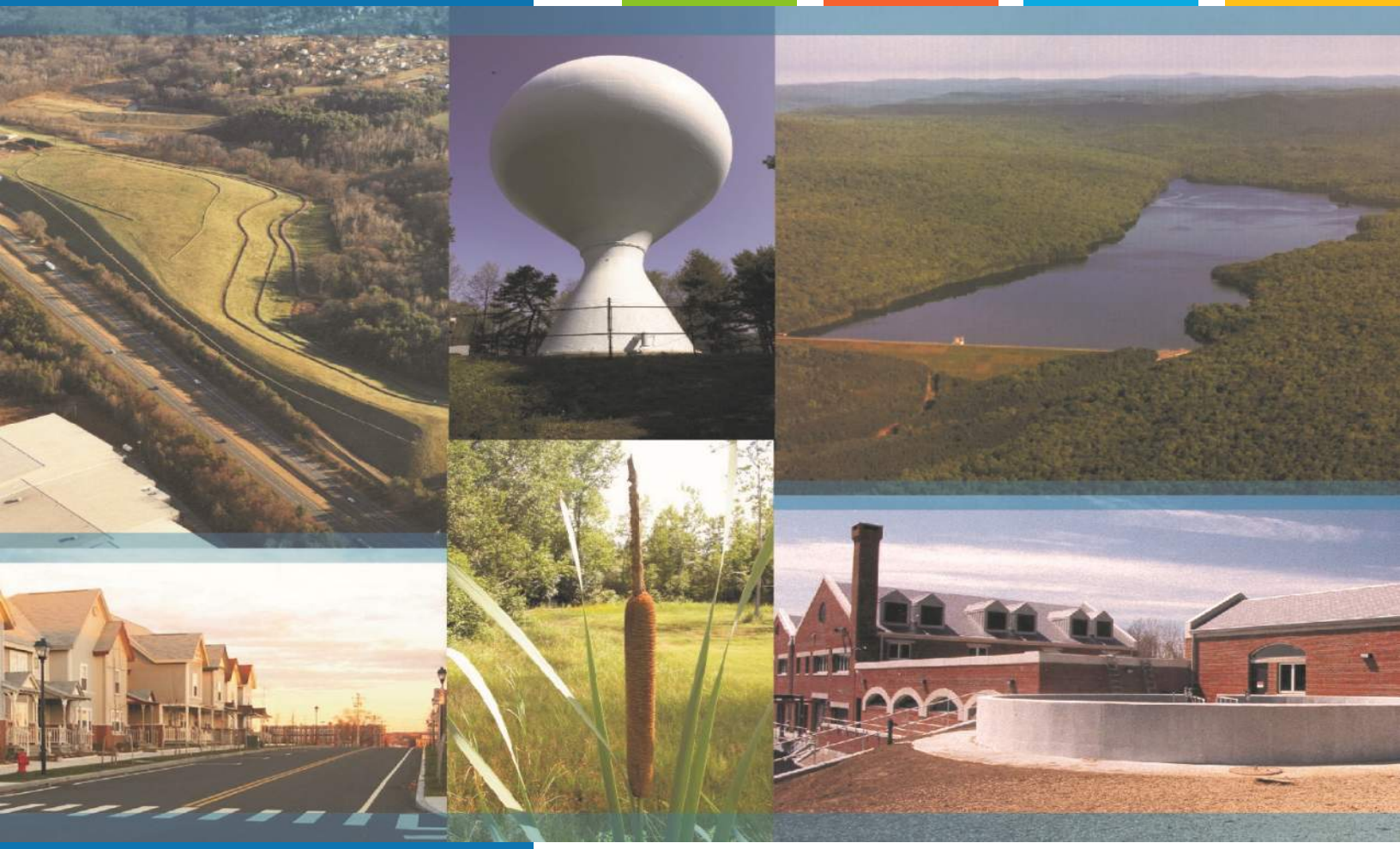

Raynes Avenue Development
Portsmouth, NH

Traffic Impact Study

NORTH MILL POND HOLDINGS, LLC

Revised August 2, 2021

Tighe&Bond

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Section 1
Introduction

Tighe & Bond has prepared this *Traffic Evaluation* to summarize the potential changes in the traffic operations resulting from the construction of a 128-room hotel, 60-unit residential building, 5,200 square feet (sf) of retail space, and 4,400 sf of restaurant space (the Project) located on the north side of Raynes Avenue in Portsmouth, New Hampshire (the Site).

The Site is bounded by Raynes Avenue to the south, Maplewood Avenue to the west, and Mill Pond to the north and east. The Site is currently developed with three buildings consisting of the Vanguard Key Club (1 Raynes Avenue), a vacant office building (31 Raynes Avenue), and a vacant laundromat (203 Maplewood Avenue). Paved/ unpaved parking areas and lawn/landscaping are provided for the existing uses. A portion of the parking area is currently used for paid parking.

Vehicular access to the Site will be provided via a new driveway located just west of the existing Vanguard Key Club curb cut, along the north side of Raynes Avenue. The project includes approximately 112 parking spaces on site with additional parking provided off-site. The Project will close the two existing curb cuts on the north side of Raynes Avenue, as well as the nondelineated curb cut on Maplewood Avenue.

The trip generation analysis indicates that the Project can be expected to generate approximately 122 new vehicular trips during the weekday afternoon peak hour (71 entering trips, 51 exiting trips), and 195 new vehicular trips during the Saturday midday peak hour (108 entering trips, 87 exiting trips).

A traffic operations analysis was conducted for the study intersections during the weekday afternoon peak hour and Saturday midday peak hour. The analysis was conducted for the following four scenarios:

- 2022 No-Build Scenario – Future Projected Traffic Volumes without Site Generated Traffic and Existing Roadway Geometry
- 2022 Build Scenario – Future Projected Traffic Volumes with Site Generated Traffic and Proposed Roadway Geometry
- 2032 No-Build Scenario – Future Projected Traffic Volumes without Site Generated Traffic (10-year Horizon) and Existing Roadway Geometry
- 2032 Build Scenario – Future Projected Traffic Volumes with Site Generated Traffic (10-year Horizon) and Proposed Roadway Geometry

The Study builds off the approved 111 Maplewood Avenue Traffic Evaluation, conducted for a proposed office and retail development on the same block in 2019. Due to the expected reduction in traffic volumes as a result of the COVID-19 pandemic, traffic counts were not collected to support this traffic evaluation for the afternoon peak hour. Saturday midday peak hour traffic volumes were collected in June 2021. The June 2021 counts were validated by comparing 2021 traffic volumes to historical traffic volumes as further detailed in Section 2.3. The traffic counts were projected to and analyzed for the expected 2022 opening year and 10-year Horizon year of 2032 per NHDOT guidelines.

The remainder of the report summarizes the evaluation which includes a description of the study area, traffic volumes during the weekday afternoon and Saturday midday peak periods, trip generation estimates for the Project, estimated trip distribution patterns for the new site generated trips, traffic volume projections for the analysis scenarios, traffic operations analysis for the study area intersections, and a summary of the study findings.

Section 2
Existing Conditions

This section includes a description of existing study area roadway geometry, intersection geometry, intersection traffic control, and data collection efforts within the study area. Figure 1 shows the location of the Site in relation to the surrounding roadway network and study area.

2.1 Roadway Descriptions

Raynes Avenue is a two-lane roadway (one lane in each direction) that runs east-west between Maplewood Avenue and Vaughan Street. On-street parallel parking and sidewalks are provided on both sides of Raynes Avenue in the vicinity of the Project. The roadway has a posted speed limit of 25 miles per hour (mph) near the site.

The other study area roadways (Maplewood Avenue, Vaughan Street, Deer Street, Russell Street, and Market Street) within the study area have similar urban characteristics: two-lane roadways, on-street parallel parking, sidewalks, and low speed limits (25 mph or less). Land uses near the Site are a mix of commercial businesses, restaurants, hotels and residential.

2.2 Study Area Intersection Descriptions

Seven existing intersections were included for analysis in the study area. The study area is consistent with the study area used in the previously approved 111 Maplewood Avenue Traffic Evaluation.

Maplewood Avenue at Raynes Avenue

Raynes Avenue intersects Maplewood Avenue from the east to form a three-way unsignalized intersection. All approaches at this intersection provide a single lane. Sidewalks are provided on both sides of Maplewood Avenue. On-street parallel parking is provided on both sides of Maplewood Avenue and Raynes Avenue. Maplewood Avenue operates with the right of way while the minor street approach of Raynes Avenue operates under stop control. A bike lane is striped along both sides of Maplewood Avenue.

Maplewood Avenue at Vaughan Street

Vaughan Street and a private driveway intersect Maplewood Avenue from the east and the west, respectively, to form a four-way unsignalized intersection. All approaches at this intersection provide a single lane. Sidewalks are provided on both sides of Maplewood Avenue, but no crosswalks are provided at the intersection. On-street parallel parking is provided on both sides of Maplewood Avenue west of Vaughan Street and on both sides of Vaughan Street. A bike lane is striped along both sides of Maplewood Avenue north of the intersection and along Maplewood Avenue northbound approach south of the intersection. Maplewood Avenue operates with the right of way while the minor street approaches of Vaughan Street and the private driveway operate as the stop-controlled approaches.

Maplewood Avenue at Deer Street

Deer Street intersects Maplewood Avenue from the east and west to form a four-way signalized intersection. Maplewood Avenue southbound approach consists of left turn only lane and a right/through shared lane. Maplewood Avenue northbound approach consists of an exclusive left turn lane, exclusive through lane and an exclusive right turn lane. Deer Street eastbound approach consists of a single lane. Deer Street westbound approach consists of an exclusive left turn lane and a right and through shared lane. The intersection is equipped with an exclusive actuated pedestrian phase. Each leg of the intersection has painted crosswalks.

Vaughan Street at Green Street

Green Street intersects Vaughan Street from the east, forming a three-way unsignalized intersection. Both roadways provide a single lane of travel in each direction. Vehicles exiting from Green Street operate under stop control. The width of Green Street ranges between 17 and 24 feet of pavement with no delineation of travel lanes or shoulders. A brick paver sidewalk exists on the east side of Green Street, south of the railroad tracks. On-street parking is allowed on the south side of Vaughan Street at the intersection.

Deer Street at Russell Street

Russell Street intersects Deer Street from the north to form a three-way unsignalized intersection. The southbound approach on Russell Street provides a single lane that operates under a stop control. The westbound and eastbound approaches on Deer Street both provide a single lane. The intersection provides sidewalks on all sides of the intersection approaches. A crosswalk is available for pedestrians crossing Deer Street east of Russell Street. On Street parking is available on all approaches.

Russell Street at Green Street

Green Street intersects Russell Street from the west to form a three-way unsignalized intersection. The eastbound approach of Green Street provides a single lane that operates under stop control. The northbound and southbound approaches on Russell Street also both provide a single multi-use lane. Sidewalk is provided on both sides of Russell Street, but no crosswalks are provided at the intersection. On-street metered parking is provided on Russell Street south of Green Street.

Market Street at Russell Street

Russell Street intersects Market Street from the south, forming a three-way unsignalized intersection. Market Street eastbound consists of a through lane and a channelized right turn lane that operates as free flow movements. The westbound approach consists of a single through lane. The intersection geometry is designed to prohibit westbound left turns from Market Street to Russell Street. The Russell Street approach is a single lane that is wide enough for right turning vehicles to bypass waiting left turning vehicles. The Russell Street approach operates under stop control. Pedestrian crosswalks are provided along Russell Street and the westbound Market Street approach with sidewalks provided on all approaches. It is noted that the intersection is fully signalized with mast arms, vehicular and pedestrian signal heads, etc. However, the signal indications are in flashing mode, with yellow indications facing Market Street and red indication facing Russell Street.

2.3 Existing Traffic Data

Evaluation of the traffic impacts related to the Project requires the quantification of existing roadway and traffic conditions throughout the study area. As previously stated, turning movement counts were not conducted at this time for the weekday afternoon peak hour due to expected lower than normal traffic volumes in the study area due to the effects of the COVID-19 pandemic. Existing traffic volumes from the previously approved 111 Maplewood Avenue traffic study were used to develop the existing traffic volumes for the Study. For the Saturday midday, turning movement counts were collected in June 2021.

Manual turning movement counts at the study area intersections for the previous study were collected in January 2019 during the weekday afternoon peak period (4:00 PM to 6:00 PM). The raw traffic count data is provided in the 111 Maplewood Traffic Evaluation, enclosed in Appendix G. Traffic counts for the Saturday midday peak period (11:00 AM to 1:00 PM) were collected in June 2021 prior to the end of the school year. The raw traffic counts for the Saturday midday peak hour are included in Appendix I.

The June 2021 Saturday midday turning movement counts collected were confirmed by comparing the automatic traffic recorder (ATR) volumes collected during the same week to historical NHDOT volumes at the same location, on Maplewood Avenue approximately 100 feet southeast of Raynes Avenue. As shown in Table 1 below, traffic volumes were observed to have been higher in 2021 than those collected prior to the pandemic, and the turning movement counts were assumed to be sufficient as a basis for this study as collected.

TABLE 1

Maplewood Avenue Historical Average Daily Traffic (ADT)

Year	ADT (vehicles per day)	Source
2017	7,300	NHDOT August 2020 ATR (ID 82379035)
2018	6,603	NHDOT Growth Estimate
2019	6,682	NHDOT Growth Estimate
2020	5,727	NHDOT August 2020 ATR (ID 82379035)
2021	10,607	Tighe & Bond June 2021 ATR

Evidence of traffic volumes returning to typical levels is also represented in daily traffic volume data collected by the City at Market Street at Nobles Island since February 2020. Saturday traffic volumes in June 2020 were approximately 9,000 vpd but have since approached 13,000 vpd one year later. The 7-day rolling average traffic volume at this location is provided in Appendix J.

2.3.1 Seasonal Variation

The raw traffic counts were seasonally adjusted to peak month conditions based on nearby traffic volume count stations proximate to Portsmouth. Seasonal adjustment factors based on data available from the Urban Highway (Group 4) continuous count stations were applied to the traffic count data. A seasonal adjustment factor of 19 percent was used for the weekday afternoon peak hour volumes based on 2014 to 2016 monthly traffic volume data, while an adjustment factor of 2 percent was applied to the Saturday midday peak hour volumes based on the 2019 monthly traffic volume data.

Section 3
No-Build Conditions

The following section describes the estimation of traffic volumes in the study area for the No-Build Conditions. The 2022 and 2032 No-Build Conditions will serve as the baseline for comparison purposes to measure the impacts of the Project.

3.1 Planned Roadway and Intersection Projects

Information obtained from the City traffic department staff was used to identify planned roadway improvement and new development projects in the area that could affect future traffic conditions. The following improvements, described in record studies prepared for other projects in the area, were considered when developing the No-Build conditions analysis.

- *Market Street/Russell Street reconstruction:* The City is in the early planning stages for the construction of a roundabout at the intersection of Market Street/Russell Street. At this time, no detailed plans have been developed. Therefore, this improvement is not included in the future conditions presented in this study. It is anticipated that a roundabout configuration would have a beneficial effect on the traffic operations and safety at the intersection.
- *North End Portsmouth Development (also referred to as the "Harbor Corp Project") Off-Site Improvements:* The timetable for this project is currently unknown. However, since the development related traffic volumes are included in the No-Build analysis, traffic improvements proposed for this development were also take into consideration, where applicable.
- *Maplewood Avenue Corridor Project:* The Maplewood Avenue corridor improvement project includes full depth pavement construction/reclamation, sidewalk construction, drainage/water/sewer improvements, traffic calming measures, pavement striping, and improvements to bicycle accommodations. The Project extends between Woodbury Avenue to the west and Dennett Street to the east. Construction will be completed in late 2020/ early 2021.
- *Maplewood Avenue Road Diet:* The City has conducted preliminary planning for a possible Maplewood Avenue Road Diet Project. The concept of the road diet would consider one through travel lane along Maplewood Avenue with auxiliary turn lanes provided, where necessary, at the intersections with Deer Street, Hanover Street, and Islington Street. This would present an opportunity for landscaped islands and/or improved bicycle accommodations. These improvements were not included in the future-year conditions as the construction timetable is unknown.
- *Maplewood Avenue Railroad Crossing:* NHDOT is currently designing improvements for several rail crossings in the State. As part of the project, the DOT is seeking to reconstruct the at-grade crossing along Maplewood Avenue immediately north of Deer Street, as well as the railroad crossing on Green Street immediately west of Russell Street. The improvements are set to include new signage, railroad gates and signals where appropriate. This project has been delayed and implementation dates are currently unknown.

- As part of the Deer Street Garage and Mixed-Use Development, the eastbound shared left-through-right lane is proposed to be restriped as a dedicated left-turn lane and shared through-right lane. This is reflected in the analyses in 2032 under No Build and Build conditions.

3.2 Traffic Growth

The 2022 No-Build Condition traffic volumes were developed by growing the existing traffic volumes for the weekday afternoon and Saturday midday peak hours to the projected build year. Two components of traffic growth were incorporated. The first component was to estimate an annual average traffic growth rate. Based on a review of recent studies in the vicinity of the Project, a one percent per year background traffic growth rate was assumed in the analysis.

The second component to determining traffic growth was identifying any proposed development projects that are near or within the study area. Based on discussions with the City of Portsmouth staff during the previous study, it was determined that the following projects are either planned, under construction, or partially occupied. Traffic volumes related to these projects were obtained from record studies and distributed through the study area to develop the 2022 and 2032 No Build Condition traffic volumes. Because the opening year is three years after the previously approved 111 Maplewood Avenue study that this study is based on, the no-build development traffic volumes were added to the 2022 No Build volumes. This approach is considered conservative as the developments described below may not actually be fully constructed and/or occupied by 2022. The following developments were incorporated into the no-build traffic volumes:

- *Deer Street Garage and Mixed-Use Development:* This project will be located in the northwest corner of the Maplewood Avenue/Deer Street intersection. The traffic study for the project indicates that the full build-out of the project consists of a 600-stall municipal public parking garage with 4,700 sf of integral retail; and four mixed-use buildings. The four mixed-use buildings include a combination of 80 residential apartments, 108 hotel rooms, 41,300 sf of office, 20,000 sf of retail, 9,900 sf of restaurants, a 4,700 sf bar, and a 2,700 sf bank.
- *299 Vaughan Street:* This project is located at the corner of the intersection Vaughan Street and Green Street. It involves the demolition of an auto parts store and construction of a 143-room hotel with approximately 2,900 square feet of leasable commercial/retail space. This project has been constructed and is occupied.
- *40 Bridge Street:* This project consists of constructing a 4,025 sf restaurant and six residential condos. The project has been constructed.
- *75 Congress Street:* This project consists of constructing 10 residential condos. Due to the low traffic-generating nature of this land use and the limited number of units, traffic generated by the development was assumed to be included as part of the 1.0 percent annual background growth rate.
- *Harbor Corp Redevelopment:* This project consists of constructing a 98-room hotel and conference center, 14 condominium units, a 40,000 sf grocery store, and a 540-space parking garage.
- *172 Hanover Street:* The project consists of renovating a 7,000 sf restaurant that has been vacant for several years.

- *30 Maplewood Avenue:* The vacancy assumptions for this development that were included in the Deer Street garage traffic study were used in the current study as well.
- *46-64 Maplewood Avenue:* This project consists of constructing 22 residential apartments and 13,475 sf of retail space. The project has been constructed.
- *173-175 Market Street:* This project consists of constructing 3,331 sf of commercial space, 1,759 sf of office space, and six residential condos. The project has been constructed.
- *111 Maplewood Avenue:* This project includes 74,000 sf of office space with ancillary commercial space. The project is currently under construction and is expected to be completed in 2021.

It is assumed that other smaller developments or small vacancies in existing developments are captured by the background traffic growth rate assumptions used in the previous study analysis.

It is also important to note that the Saturday midday traffic volumes collected in June 2021 may include background development volumes of projects that are already partially or fully occupied that were also added to the no-build development volumes previously discussed. This measure was taken due to the uncertainty of building occupancy levels of new developments in the area due to potential effects on the pandemic.

The 2022 and 2032 No Build conditions volumes for the weekday afternoon and Saturday midday peak hours are shown in Figures 2 to 5.

3.3 Traffic Operations Analysis – No-Build Conditions

Capacity and queue analyses were conducted for the 2020 and 2032 No Build Conditions during the afternoon peak hour using Trafficware Synchro Studio 10 – Traffic Analysis Software. The software conducts the analysis based up on the methodology provided in the Highway Capacity Manual, 6th Edition, 2016. The analysis results are categorized in terms of Level of Service (LOS), which describes the qualitative intersection operation conditions based on the calculated average delay per vehicle. A summary of the HCM capacity analysis methodology and a detailed definition of LOS is provided in Appendix D. The queue analysis results are summarized in terms of the 50th percentile queue length, and the 95th percentile queue length. The 50th percentile queue length represents the approximate average queue length, and the 95th percentile queue length represents the design queue length under peak traffic conditions. Tables 2 and 3 summarize the capacity and queue analyses results, respectively, Capacity analyses worksheets with full inputs, settings, and results are provided in Appendix E.

The analysis for the Maplewood Avenue at Deer Street signalized intersection indicates that failing operations are experienced at the intersection under 2022 No Build conditions. The intersection operations improve slightly under 2032 No Build conditions with signal optimization and the addition of an eastbound dedicated left-turn on Deer Street that will be implemented with the Deer Street development. Vehicular queues exceed available storage on the westbound left-turn lanes during both 2022 and 2032 No Build conditions during both time periods.

The unsignalized intersections experience failing operations at multiple approaches under 2022 and 2032 No Build conditions during both time periods. When the ambient

background growth rate is applied to develop 2032 No Build traffic volumes, vehicular delays at several side street approaches increase further. The failing operations experienced on several side street approaches are consistent with the operations shown on previous traffic studies in the area. Significant queuing is experienced on the eastbound left approach at the intersection of Market Street at Russell Street and the westbound approach at the intersection of Raynes Avenue at Maplewood Avenue under 2022 and 2032 No Build conditions during both time periods.

Section 4
Build Conditions

The Project includes a new 128-room hotel, 60-unit residential building, 5,200 square feet (sf) of retail space, and 4,400 sf of restaurant space. Approximately 162 parking spaces will be provided, 25 of which will be provided at 145 Maplewood Avenue across the street from the development. The following sections describe the methodology to estimate the total number of site generated trips and their distribution within the study area roadway network.

4.1 Site Access

Site access will be provided via one unsignalized full access driveway on Raynes Avenue, just west of the existing Vanguard Key Club driveway. The existing driveways at the Vanguard Key Club, vacant laundry business, and vacant office building will be closed as part of the project.

Adequate sight distance will be provided at the proposed site driveway.

Vaughan Street and Raynes Avenue will be converted to one-way in coordination with the City as part of the project. The one-way conversion and proposed pavement markings and signage are shown on the Site Plan (C-102.1) and Neighborhood Signage Plan (C-102.2) found in Appendix C. As shown on the plans, Vaughn Street and Raynes Avenue will provide a single lane northwest-bound with adjacent parallel parking, shoulders, and/or bump-outs for pedestrian access. At the intersection with Maplewood Avenue, Raynes Avenue is proposed to be widened to provide a two-lane approach with an exclusive left turn and an exclusive right turn lane. The two-lane exiting Raynes Avenue is recommended based on the consolidation of the existing two exiting access points to Maplewood Avenue and the results of the No-Build Capacity Analyses detailed in Section 2.3.

4.2 Trip Generation

Site generated traffic volumes for the Project were estimated using rates published in the Institute of Transportation Engineers (ITE) Trip Generation, 10th edition, 2017. ITE provides data to estimate the total number of vehicular trips associated with a site based on the specific land uses. To estimate the trip generation for the Project, ITE Land Use Code (LUC) 310 – Hotel, LUC 220 – Multifamily Housing (Mid-Rise), LUC 820 – Retail/Shopping Center, and LUC 931 – Quality Restaurant were used. The proposed trip generation for the weekday afternoon and Saturday midday peak hours is presented in Table 4.

Mixed-use developments typically generate shared trips, also known as internal capture. The internal capture rate for the proposed development was determined using the *National Cooperative Highway Research Program (NCHRP) Report 684: Enhancing Internal Trip Capture Estimation for Mixed-Use Developments* by the Transportation Research Board, 2011. The total internal capture rate is estimated to be 22 percent for entering vehicles, and 29 percent for exiting vehicles during the afternoon peak hour. While shared trips may occur during the Saturday peak hour, there is no internal capture rate available from the NCHRP reference. Because there was no deduction for shared trips, the estimated

Saturday midday trips generated by the development is considered conservative. The detailed calculation spreadsheet is included in Appendix F.

Pass-by trips, or vehicles that are already on the roadway adjacent to the site (Raynes Avenue) were deducted from the trip generation estimate according to rates suggested by ITE. A pass-by trip rate of 34% was used for the retail component and a pass-by rate of 43% be used for the restaurant portion of the project during the weekday afternoon peak hour. A pass-by rate of 26% was used for the retail use during the Saturday midday peak hour. ITE does not outline a pass-by rate for the restaurant land use code utilize in the trip generation. Similar pass-by rates were utilized for previously approved developments in the area.

Because there were no existing counts available for the three existing driveways on the site frontage on Raynes Avenue, existing site traffic volumes were not deducted from the trip generation estimate. This results in a conservative existing traffic volume estimate as it was observed that a portion of the parking areas are currently used as paid parking areas. Additional parking on the east side of the site is currently utilized by the Vanguard Key Club.

As a result of the proposed conversion to one-way traffic on Raynes Avenue and Vaughan Street as previously mentioned, future no-build traffic volumes and site generated traffic volumes were redistributed through the roadway network based on traffic patterns utilized under the Build condition. The redistributed traffic volumes are shown on Figures 6 to 9.

4.3 Arrival and Departure Distribution

The trip distribution identifies the various travel paths for vehicles arriving and leaving the Project site. Trip distribution patterns for the Project were based on a review of previous traffic studies conducted for nearby projects and observed travel patterns.

The following arrival/ departure distributions are anticipated for the hotel and restaurant trips based on the previously approved 299 Vaughan Street Development TIS:

- 30% to/from the west via Maplewood Avenue
- 30% to/from the east via Maplewood Avenue
- 40% to/from the northwest via Market Street

The following arrival/ departure distributions are anticipated for the retail trips based on the previously approved 111 Maplewood Avenue Development TIS:

- 30% to/from the west via Maplewood Avenue
- 55% to/from the east via Maplewood Avenue
- 15% to/from the northwest via Market Street

The following arrival/ departure distributions are anticipated for the residential trips based on the Deer Street Parking Garage Development TIAS:

- 55% to/from the west via Maplewood Avenue
- 35% to/from the west via Maplewood Avenue
- 10% to/from the northwest via Market Street

The trip distribution patterns for the hotel, restaurant, residential, and retails use are shown in Figures 10 to 12. The vehicular trips associated with the Project were assigned to the study area and are shown in Figures 13 and 14 for the weekday afternoon and Saturday midday peak hours, respectively.

4.4 Traffic Operations Analysis – Build Condition

The Build condition traffic operations analyses are based on the 2022 and 2032 Build traffic volumes. These volumes were developed by adding the site generated trips to the 2022 and 2032 No-Build traffic volumes. The Build condition traffic volumes are shown in Figures 15 to 18. The Build Condition analyses are summarized in Tables 2 and 3 for LOS and queues, respectively, with capacity analysis worksheets included in Appendix E.

The analyses show that the signalized intersection of Maplewood Avenue at Deer Street experiences improved operations under the 2022 Build condition over the 2022 No-Build Condition as a result of minor timing and phasing modifications to the signal. Under 2032 Build conditions, the intersection continues to experience failing operations with timing and phasing modifications. It is important to note that the additional traffic volume generated by the development does not have a detrimental effect on the intersection operations. The failing operations shown are consistent with other previously approved developments in the area.

At the unsignalized locations within the study area, failing operations continue to be experienced on the side street approaches under 2022 and 2032 Build conditions. The westbound approaches at the intersection of Maplewood Avenue at Raynes Avenue experience degradation in level of service and increased vehicular queues due to the conversion of Vaughan Street and Raynes Avenue to one-way. However, the poor operations at Maplewood Avenue and Raynes Avenue are offset by the improved operations at the intersection of Maplewood Avenue at Vaughan Street. The one-way conversion of Vaughan Street and Raynes Avenue shifts the capacity issues further north on Maplewood Avenue away from the railroad crossing and signalized intersection. Minor increases in delays and queuing are experienced at the other side street approaches in the study area under Build conditions. The failing operations on side streets are typical in congested urban areas.

The proposed development is not expected to significantly degrade intersection operations beyond what is already expected to be experienced under 2022 and 2032 No Build conditions.

Section 5
Conclusions and Recommendations

The Raynes Avenue redevelopment proposes to demolish the three existing buildings on the Site and construct a mixed-use development which will include a 128-room hotel, 60 residential units, 5,200 square feet (sf) of retail space, and 4,400 sf of restaurant space. The Site will provide approximately 112 parking spaces. Site access will be provided via a single full-access driveway on the north side of Raynes Avenue. The proposed redevelopment is expected to be constructed by the end of 2022.

The proposed redevelopment is expected to generate 122 new vehicular trips (71 entering, 51 exiting) during the afternoon peak hour and 195 new vehicular trips (108 entering, 87 exiting) during the Saturday midday peak hour. The site trip generation includes an internal capture credit of 22% and 29% for entering and exiting vehicles, respectively during the weekday afternoon peak hour. Pass-by trip rates of 34% and 26% were used for the retail use during the weekday afternoon and Saturday midday peak hours, respectively. A 43% pass-by rate was used for the restaurant use during the weekday afternoon peak hour. This methodology is in line with the industry standard and consistent with methodology utilized in similar traffic studies conducted by others within Portsmouth.

Capacity analysis indicates that when potential future projects in the area are all constructed, substantial traffic volumes will be added to the study area network which will cause increases congestion at a number of intersections within the study area, especially for the side street movements. Site generated traffic represents a relatively small percentage of the cumulative traffic volume expected to be generated by the potential future projects.

As the planned projects get implemented, and the traffic improvements associated with the projects are designed, additional consideration should be given to accommodate side street movements. System-wide traffic improvement measures, such as promotion of reduced automobile usage, enhanced transit services to the area and promotion of remote/underutilized parking areas can also be considered by the City to reduce the volume of vehicular traffic generated within the downtown street network during peak times.

Based on the results of the foregoing analysis, it is the professional opinion of Tighe & Bond that the additional traffic expected to be generated from the Raynes Avenue development is not expected to significantly impact traffic operations within the study area.

APPENDIX A
Tables

TABLE 2
Intersection Operation Summary - Vehicular Levels of Service / Average Delay (sec/veh)

	Lane Use	Weekday Afternoon Peak Hour 2022 No Build	2022 Build	2032 No Build	2032 Build	Saturday Midday Peak Hour 2022 No Build	2022 Build	2032 No Build	2032 Build
Traffic Signal - Maplewood Avenue at Deer Street									
Overall		**F / 603.4**	**F / 596.8**	**F / 128.9**	**F / 130.5**	**D / 50.9**	**E / 78.6**	**C / 25.5**	**C / 28.6**
	EB	F / 1902.1	F / 1902.1	-- / --	-- / --	F / 111.1	F / 220.8	-- / --	-- / --
	EBL	-- / --	-- / --	F / 263.1	F / 257.6	-- / --	-- / --	C / 27.4	C / 29.3
Deer Street	EBTR	-- / --	-- / --	F / 96.7	F / 95.1	-- / --	-- / --	C / 24.3	C / 24.3
	WBL	F / 399.9	F / 399.9	F / 253.6	F / 249.7	F / 117.0	F / 179.1	C / 34.7	D / 36.7
	WBTR	D / 41.7	D / 41.7	E / 56.0	E / 55.6	C / 28.5	C / 30.7	A / 0.5	C / 28.1
	NBL	B / 16.7	B / 16.9	C / 31.6	C / 30.8	C / 31.9	C / 34.0	B / 15.8	B / 16.2
	NBT	C / 20.8	C / 21.4	E / 62.5	E / 72.7	D / 38.5	D / 42.2	C / 30.8	C / 32.8
Maplewood Avenue	NBR	A / 3.7	A / 4.0	A / 5.9	A / 6.5	A / 5.5	A / 5.5	A / 3.7	A / 3.7
	SBL	A / 8.5	A / 8.6	D / 42.2	D / 41.8	C / 20.6	C / 22.3	B / 18.4	B / 19.5
	SBTR	B / 14.5	B / 14.9	F / 126.1	F / 134.7	C / 24.5	C / 28.1	C / 32.4	C / 34.6
Unsignalized TWSC - Raynes Avenue at Site Driveway									
Overall		**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**
Site Driveway	SBR	-- / --	B / 11.1	-- / --	B / 11.4	-- / --	A / 9.8	-- / --	A / 9.8
Unsignalized TWSC - Maplewood Avenue at Raynes Avenue									
Overall		**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**
	WB	F / 231.7	-- / --	F / 431.1	-- / --	C / 19.1	-- / --	C / 21.8	-- / --
Raynes Avenue	WBL	-- / --	F / 870.6	-- / --	F / 1241.7	-- / --	F / 66.8	-- / --	F / 96.3
	WBR	-- / --	E / 42.9	-- / --	F / 65.2	-- / --	B / 13.1	-- / --	B / 13.8
Maplewood Avenue	SB	B / 11.3	-- / --	B / 11.9	-- / --	A / 8.7	-- / --	A / 8.8	-- / --
Unsignalized TWSC - Maplewood Avenue at Vaughan Street									
Overall		**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**
Vaughan Street	WB	F / 375.7	-- / --	F / 610.7	-- / --	D / 25.5	-- / --	D / 26.8	-- / --
Maplewood Avenue	SB	B / 10.8	C / 16.1	B / 11.3	E / 37.8	A / 8.8	A / 3.8	A / 8.9	A / 4.2
Unsignalized TWSC - Vaughan Street at Green Street									
Overall		**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**
Green Street	WB	A / 9.6	-- / --	A / 9.8	-- / --	A / 9.2	-- / --	A / 9.2	-- / --
	WBR	-- / --	B / 11.4	-- / --	B / 11.7	-- / --	B / 10.5	-- / --	B / 10.6
Vaughan Street	SB	A / 7.7	-- / --	A / 7.7	-- / --	A / 7.5	-- / --	A / 7.4	-- / --
Unsignalized TWSC - Deer Street at Russell Street									
Overall		**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**
Deer Street	EB	A / 8.5	A / 8.5	A / 8.7	A / 8.7	A / 8.2	A / 8.2	A / 8.3	A / 8.3
Russell Street	SB	E / 49.0	E / 49.0	F / 83.9	F / 83.9	C / 16.7	C / 16.7	C / 18.5	C / 18.5
Unsignalized TWSC - Russell Street at Green Street									
Overall		**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**
Russell Street	NB	A / 9.3	A / 9.4	A / 9.5	A / 9.6	A / 8.1	A / 8.2	A / 8.2	A / 8.3
Green Street	EB	F / 64.7	F / 96.5	F / 103.7	F / 159.2	C / 15.2	C / 17.1	C / 15.9	C / 18.1
Unsignalized TWSC - Market Street at Russell Street									
Overall		**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**	**-- / --**
Russell Street	EBL	F / 685.7	F / 719.6	F / 966.1	F / 1005.9	F / 73.0	F / 96.2	F / 128.3	F / 163.8
	EBR	B / 10.5	B / 10.5	B / 10.9	B / 10.9	B / 11.4	B / 11.4	B / 11.9	B / 11.9

TABLE 3

Intersection Operation Summary - Vehicular 50th / 95th Percentile Queue (In Feet)

			Weekday Afternoon Peak Hour				Saturday Midday Peak Hour			
	Lane Use	**Available Storage**	**2022 No Build**	**2022 Build**	**2032 No Build**	**2032 Build**	**2022 No Build**	**2022 Build**	**2032 No Build**	**2032 Build**
Traffic Signal - Maplewood Avenue at Deer Street										
	EB	590	465 / 430	1186 / 982	-- / --	-- / --	240 / 331	343 / 332	**-- / --**	**-- / --**
	EBL	590	-- / --	-- / --	247 / 236	475 / 415	-- / --	-- / --	78 / 110	78 / 110
Deer Street	EBTR	590	-- / --	-- / --	199 / 200	348 / 300	**-- / --**	**-- / --**	61 / 97	61 / 97
	WBL	100	306 / 381	466 / 530	356 / 426	411 / 474	203 / 341	260 / 337	131 / 191	142 / 204
	WBTR	350	113 / 149	183 / 224	160 / 202	212 / 255	86 / 145	103 / 140	0 / 0	89 / 149
	NBL	100	7 / 19	26 / 57	19 / 39	29 / 55	29 / 65	31 / 67	18 / 39	18 / 39
	NBT	350	220 / 309	281 / 396	327 / 496	450 / 655	295 / 484	372 / 544	260 / 374	291 / 416
Maplewood Avenue	NBR	350	2 / 35	14 / 52	0 / 45	17 / 67	0 / 56	0 / 50	0 / 46	0 / 46
	SBL	150	15 / 28	21 / 36	29 / 51	37 / 71	45 / 82	51 / 81	40 / 71	40 / 71
	SBTR	>500	183 / 226	277 / 334	451 / 573	691 / 804	277 / 405	358 / 441	311 / 451	340 / 494
Unsignalized TWSC - Raynes Avenue at Site Driveway										
Site Driveway	SBR	90	-- / --	8	-- / --	8	-- / --	10	-- / --	10
Unsignalized TWSC - Maplewood Avenue at Raynes Avenue										
Raynes Avenue	WB	175	325	-- / --	443	-- / --	25	-- / --	33	-- / --
	WBL	175	-- / --	603	-- / --	695	-- / --	133	-- / --	168
	WBR	50	-- / --	140	-- / --	193	-- / --	18	-- / --	20
Maplewood Avenue	SB	>500	15	-- / --	18	-- / --	3	-- / --	5	-- / --
Unsignalized TWSC - Maplewood Avenue at Vaughan Street										
Vaughan Street	WB	325	293	--	370	--	15	--	15	--
Maplewood Avenue	SB	>500	3	16	3	1	0	14	0	15
Unsignalized TWSC - Vaughan Street at Green Street										
Green Street	WB	420	8	-- / --	10	-- / --	5	-- / --	5	-- / --
	WBR	420	-- / --	15	-- / --	15	-- / --	13	-- / --	15
Vaughan Street	SB	400	5	--	8	--	3	--	3	--
Unsignalized TWSC - Deer Street at Russell Street										
Deer Street	EB	390	33	33	35	35	18	18	20	20
Russell Street	SB	650	368	368	525	525	100	100	118	118
Unsignalized TWSC - Russell Street at Green Street										
Russell Street	NB	410	0	0	0	0	0	0	0	0
Green Street	EB	420	123	175	168	235	10	20	10	23
Unsignalized TWSC - Market Street at Russell Street										
Russell Street	EBL	580	1275	1335	1525	1585	265	328	370	447
	EBR	150	0	0	0	0	3	3	3	3

TABLE 4
Site Generated Traffic Summary

Proposed - 128 Room Hotel **Peak Hour Period**	**Enter**	**Exit**	**Total**
Weekday Afternoon	36	34	70
Saturday Midday	52	41	93

Proposed - 60 Residential Units **Peak Hour Period**	**Enter**	**Exit**	**Total**
Weekday Afternoon	16	10	26
Saturday Midday	13	13	26

Proposed - 5,200 SF Retail Space **Peak Hour Period**	**Enter**	**Exit**	**Total**
Weekday Afternoon	10	10	20
Saturday Midday	12	11	23

Proposed - 4,400 SF Restaurant Space **Peak Hour Period**	**Enter**	**Exit**	**Total**
Weekday Afternoon	23	11	34
Saturday Midday	28	19	47

Total Trips **Peak Hour Period**	**Enter**	**Exit**	**Total**
Weekday Afternoon	85	65	150
Saturday Midday	105	84	189

Internal Capture[1] **Peak Hour Period**	**22%** **Enter**	**29%** **Exit**	**25%** **Total**
Weekday Afternoon	19	19	38
Saturday Midday		NO DATA AVAILABLE	

Pass-By Trips (Retail)[2] **Peak Hour Period**	**Enter**	**Exit**	**34%** **Total**
Weekday Afternoon	1	1	2
Saturday Midday	3	3	6

Pass-By Trips (Restaurant)[3] **Peak Hour Period**	**Enter**	**Exit**	**43%** **Total**
Weekday Afternoon	4	4	8
Saturday Midday		NO DATA AVAILABLE	

Net Vehicular Trips (Total minus Internal Capture) **Peak Hour Period**	**Enter**	**Exit**	**Total**
Weekday Afternoon	**71**	**51**	**122**
Saturday Midday	**108**	**87**	**195**

Source: Institute of Transportation Engineering, Trip Generation, 10th Edition, 2017.
Land Use - 221 Multifamily Housing (Mid-Rise)
310 Hotel
820 Retail
931 Quality Restaurant

[1]NCHRP Report 684-Enhancing Internal Trip Capture Estimation for Mixed-Use Developments, Transportation Research Board, Washington, DC, 2011

[2]Average Pass-By Trip Percentage based on Pass-By and Non-Pass-By Trips Weekday, PM and Saturday Midday Peak Period, Land Use Code 820-Shopping Center, Trip Generation, 10th Edition, 2017

[3]Average Pass-By Trip Percentage based on Pass-By and Non-Pass-By Trips Weekday, PM Peak Period, Land Use Code 932-High-Turnover (Sit-Down) Restaurant, Trip Generation, 10th Edition, 2017

APPENDIX B
Figures

LEGEND

ST□D□AREA INTERSECTION

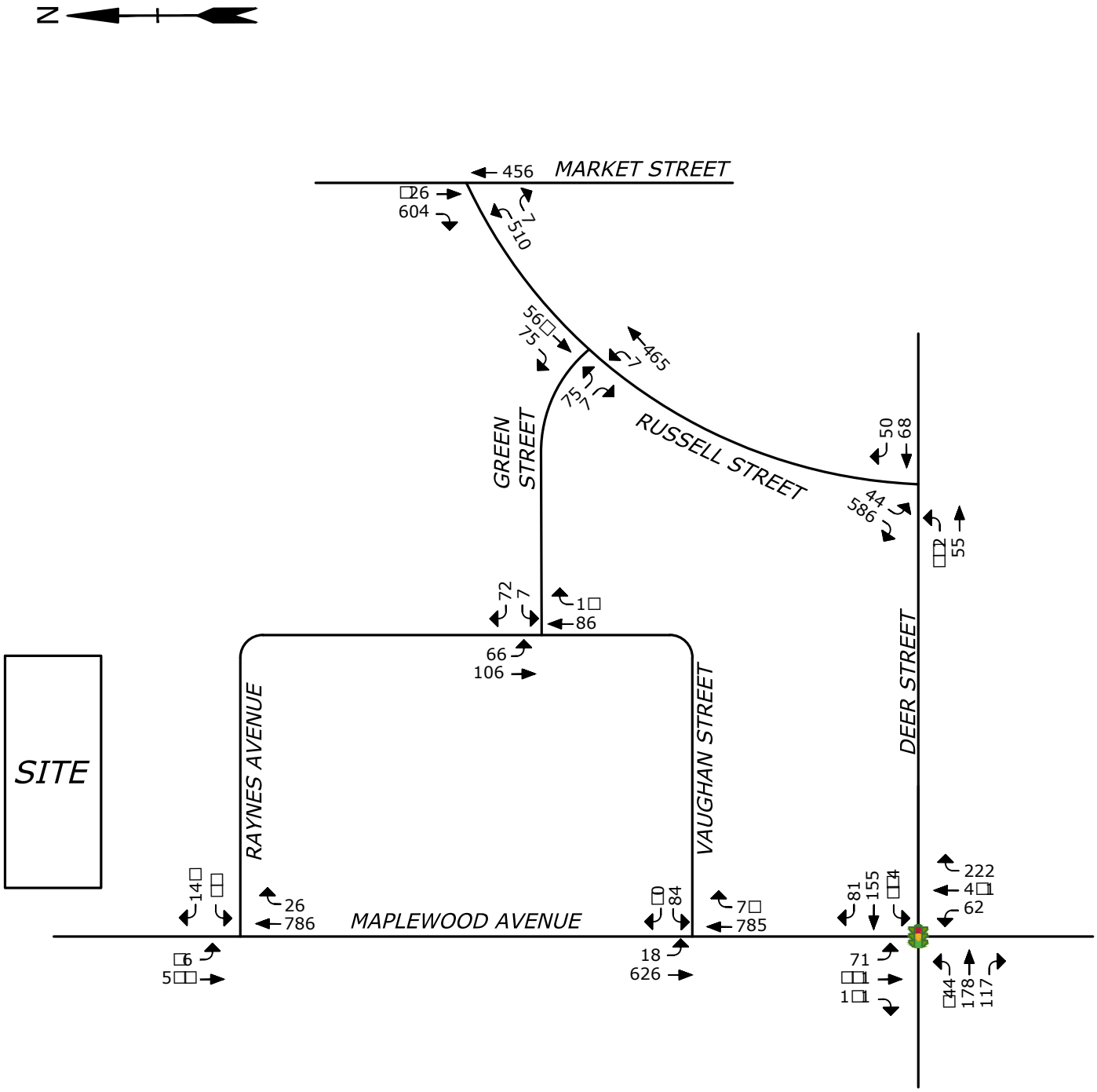
PROPOSED MI□ED-□SE DE□ELOPMENT
RA□NES A□EN□E, PORTSMO□TH, NH

ST□D□AREA

DATE: 7□14□2021
SCALE: 1" □ 200□
FIG□RE 1

Tighe&Bond
www.tighebond.com

Jul 16, 2021-8:00am Plotted By: MStout□
Tighe & Bond, Inc. C:\□sers\MStout□appdata\local\temp\AcPublish_□1176\Trai□□t □olume Figures.dwg



LE□END

TRAFFIC SIGNAL

PROPOSED MI□ED-□SE DE□ELOPMENT
RA□NES A□EN□E, PORTSMO□TH, NH

2022 NO B□ILD WEEKDA□ AFTERNOON
PEAK HO□R TRAFFIC □OL□MES

DATE: 7□14□2021	Tighe&Bond
SCALE: NO SCALE	www.tighebond.com
FIG□RE 2	

Jul 16, 2021-8:00am Plotted By: MStout□
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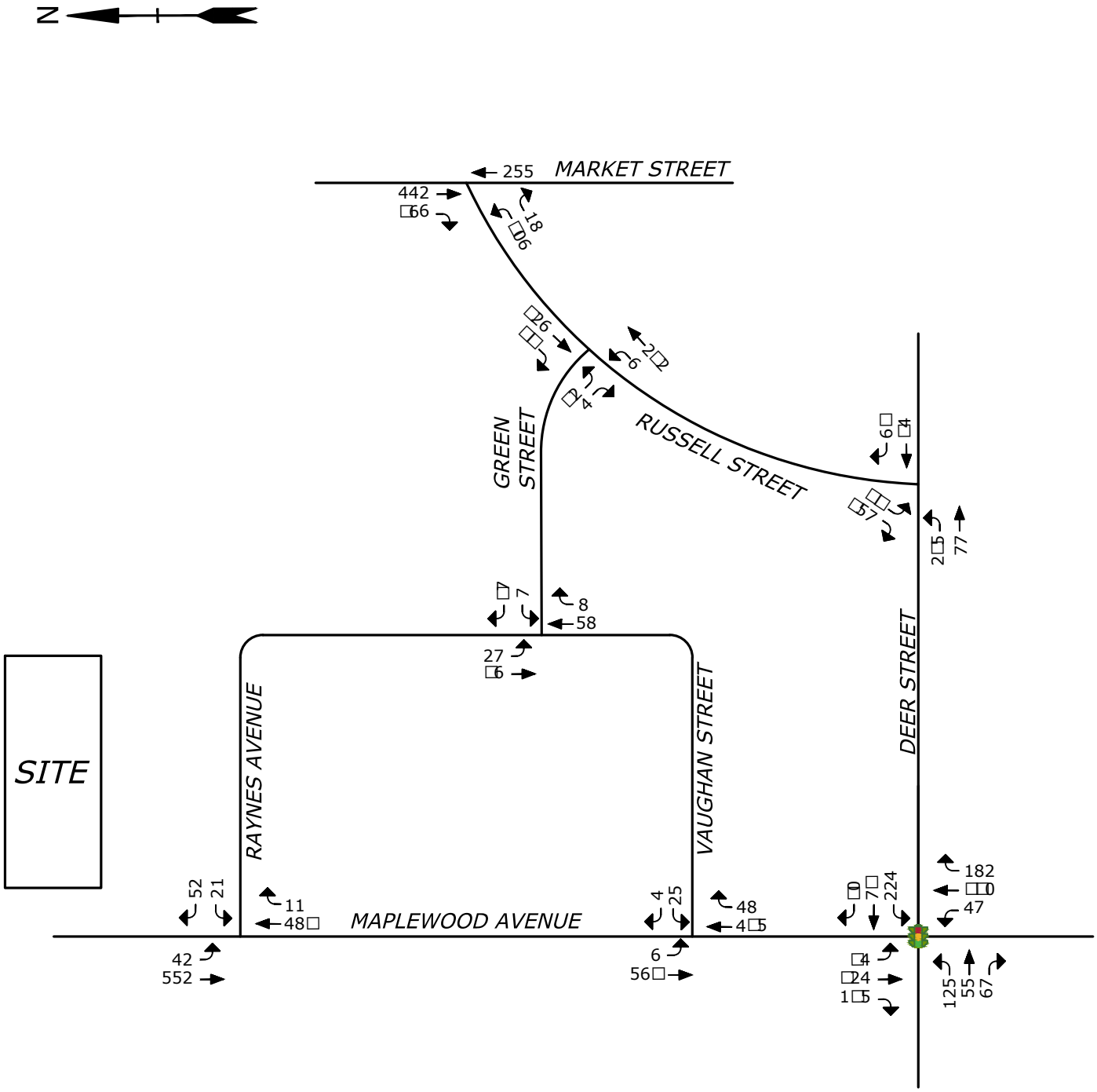

LEGEND

TRAFFIC SIGNAL

PROPOSED MIXED-USE DEVELOPMENT
RAYNES AVENUE, PORTSMOUTH, NH

2022 NO BUILD SATURDAY MIDDAY PEAK HOUR TRAFFIC VOLUMES

DATE: 7/14/2021	
SCALE: NO SCALE	
FIGURE 1	

Tighe&Bond
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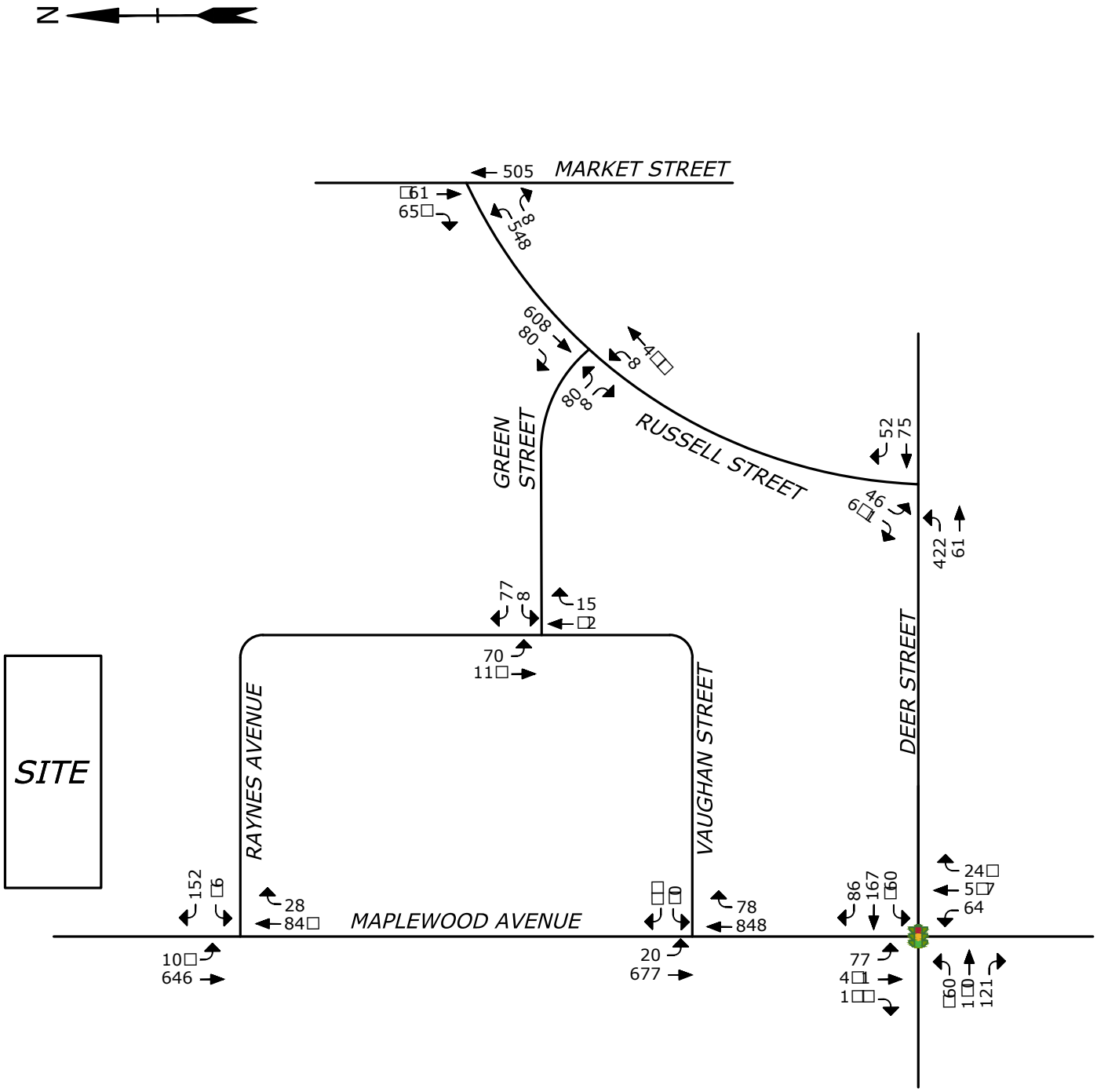
Tighe & Bond, Inc. C:\Users\MStout\appdata\local\temp\AcPublish_1176\Traffic Volume Figures.dwg



LEGEND

TRAFFIC SIGNAL

PROPOSED MIXED-USE DEVELOPMENT
RAYNES AVENUE, PORTSMOUTH, NH

2022 NO BUILD WEEKDAY AFTERNOON PEAK HOUR TRAFFIC VOLUMES

DATE: 7/14/2021
SCALE: NO SCALE
FIGURE 4

Tighe&Bond
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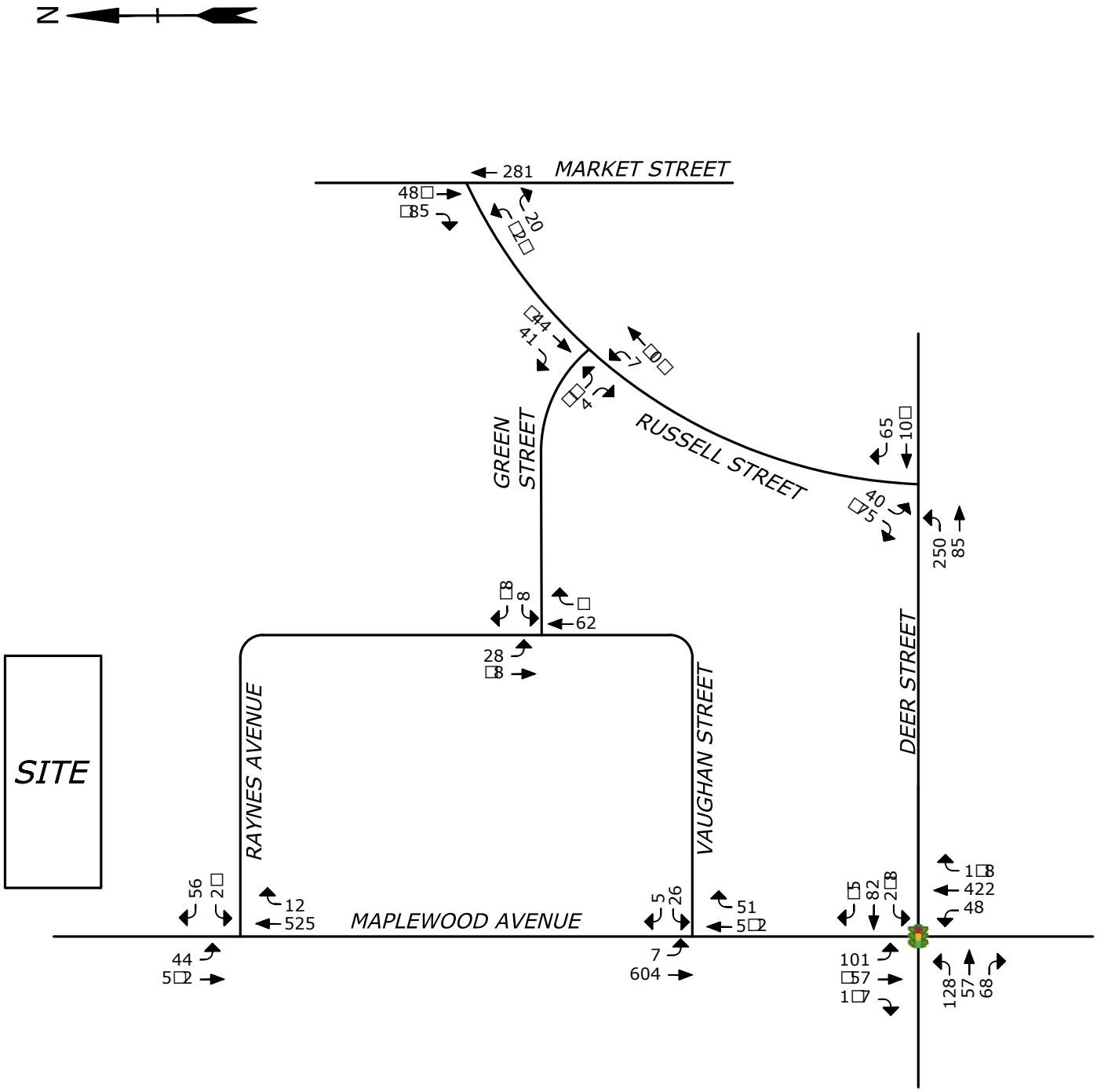

LEGEND

TRAFFIC SIGNAL

PROPOSED MIXED-USE DEVELOPMENT
RAYNES AVENUE, PORTSMOUTH, NH

2022 NO BUILD SATURDAY MIDDAY PEAK HOUR TRAFFIC VOLUMES

DATE: 7/14/2021	Tighe&Bond
SCALE: NO SCALE	www.tighebond.com
FIGURE 5	

Jul 16, 2021-8:00am Plotted By: MStout
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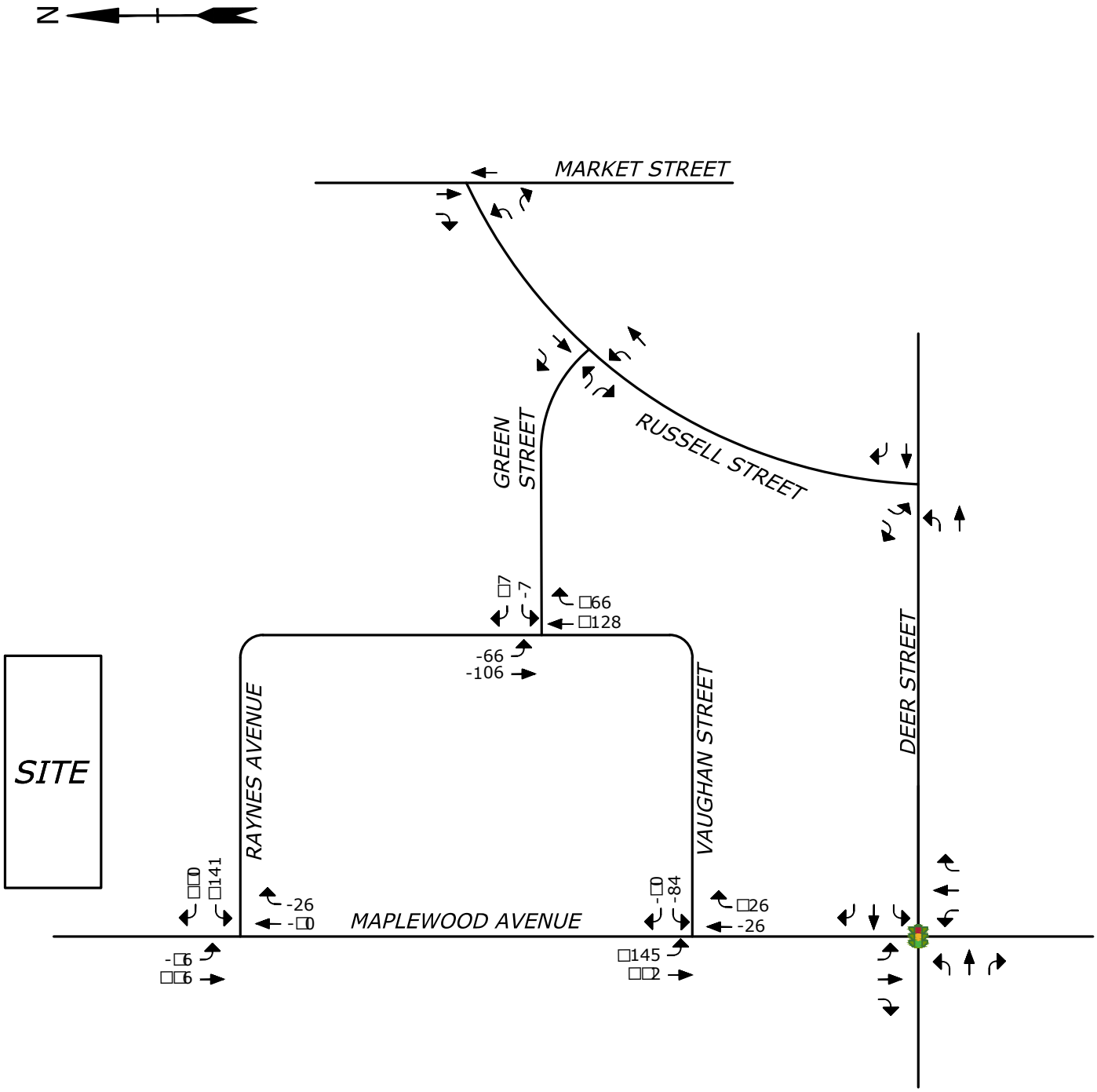

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TRAFFIC SIGNAL

PROPOSED MI□ED-□SE DE□ELOPMENT
RA□NES A□EN□E, PORTSMO□TH, NH

2022 NO B□ILD WEEKDA□AFTERNOON PEAK HO□R REDISTRIB□TED TRAFFIC □OL□MES

DATE: 7□14□2021
SCALE: NO SCALE
FIG□RE 6

Tighe&Bond
www.tighebond.com

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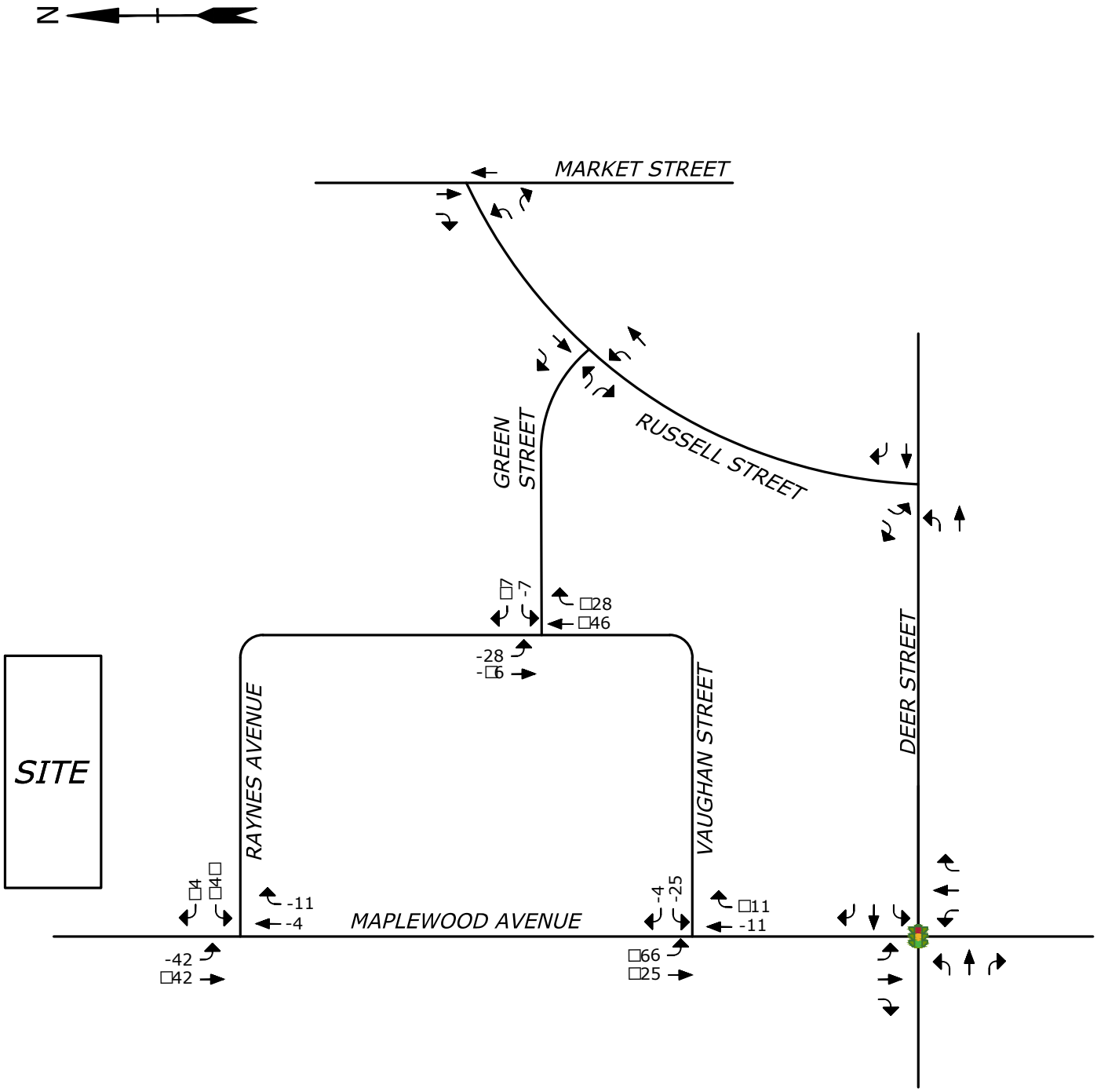

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TRAFFIC SIGNAL

PROPOSED MI□ED-□SE DE□ELOPMENT
RA□NES A□EN□E, PORTSMO□TH, NH

2022 NO B□ILD SAT□RDA□MIDDA□PEAK HO□R REDISTRIB□TED TRAFFIC □OL□MES

DATE: 7□14□2021
SCALE: NO SCALE
FIG□RE 7

Tighe&Bond
www.tighebond.com

Jul 16, 2021-8:00am Plotted By: MStout□
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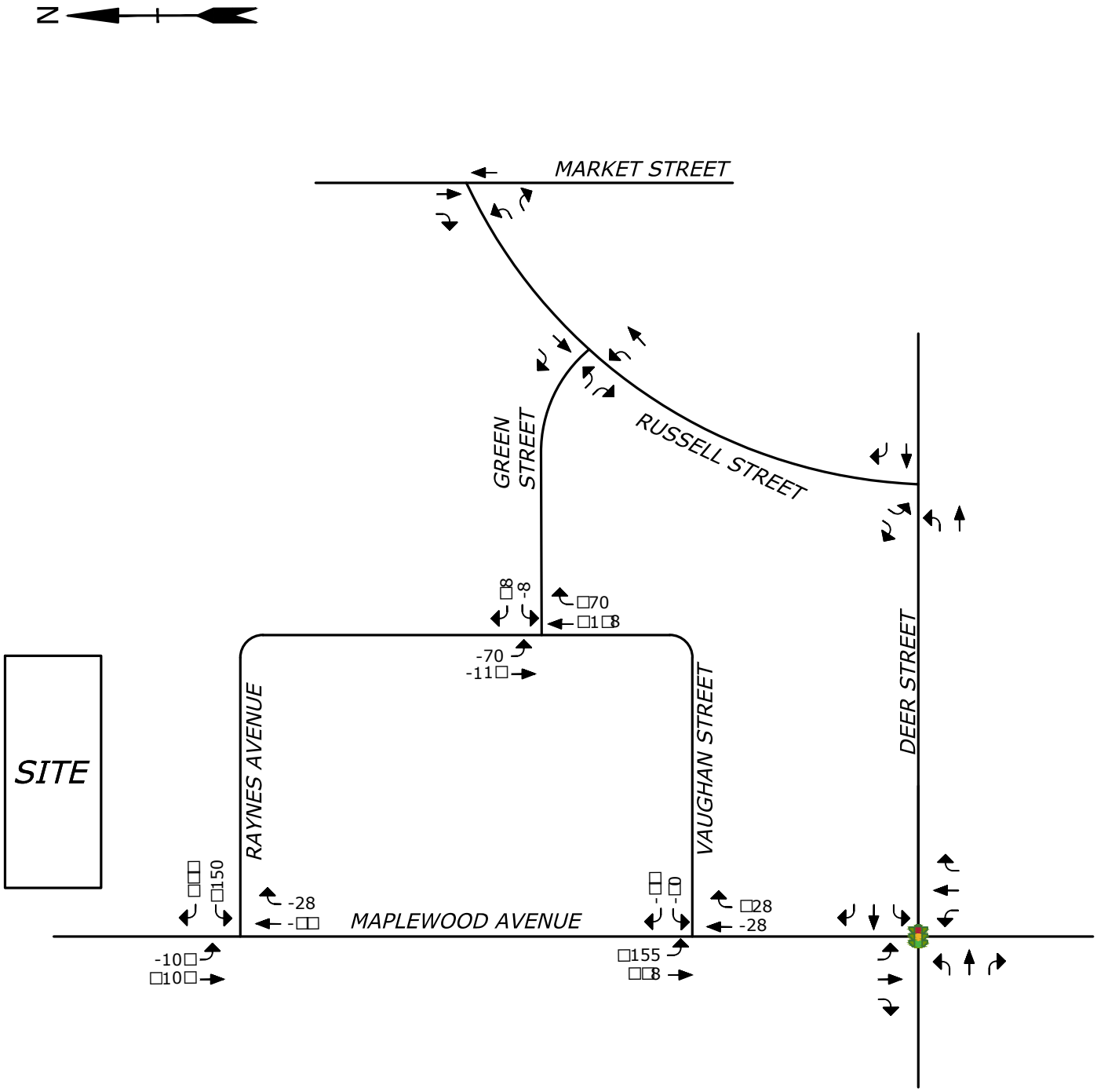

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TRAFFIC SIGNAL

PROPOSED MI□ED-□SE DE□ELOPMENT
RA□NES A□EN□E, PORTSMO□TH, NH

20□2 NO B□ILD WEEKDA□AFTERNOON PEAK HO□R REDISTRIB□TED TRAFFIC □OL□MES

DATE: 7□14□2021
SCALE: NO SCALE
FIG□RE 8

Tighe&Bond
www.tighebond.com

Jul 16, 2021-8:00am Plotted By: MStout□
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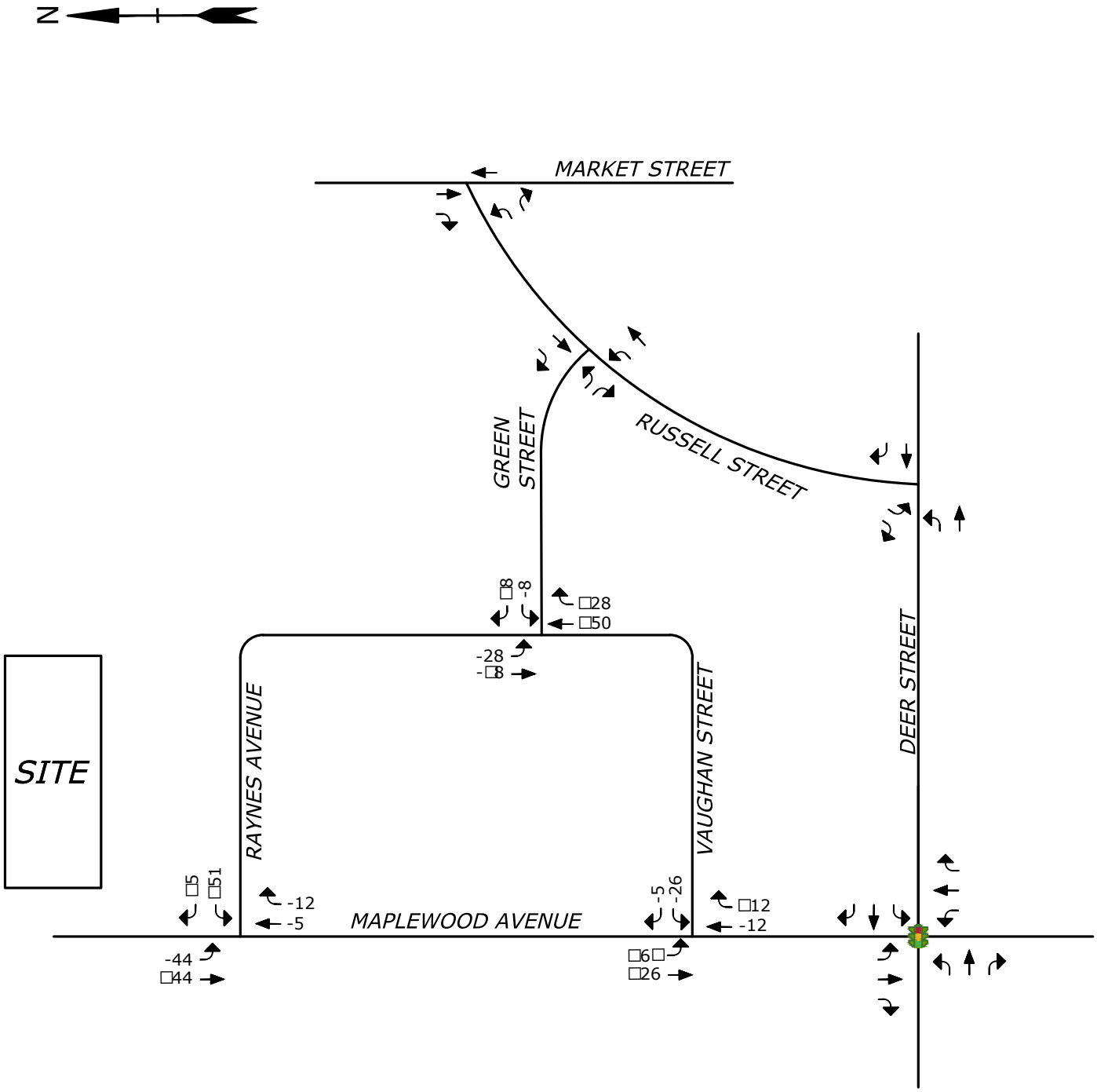

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TRAFFIC SIGNAL

PROPOSED MI□ED-□SE DE□ELOPMENT
RA□NES A□EN□E, PORTSMO□TH, NH

20□2 NO B□ILD SAT□RDA□MIDDA□PEAK
HO□R REDISTRIB□TED TRAFFIC □OL□MES

DATE: 7□14□2021
SCALE: NO SCALE
FIG□RE □

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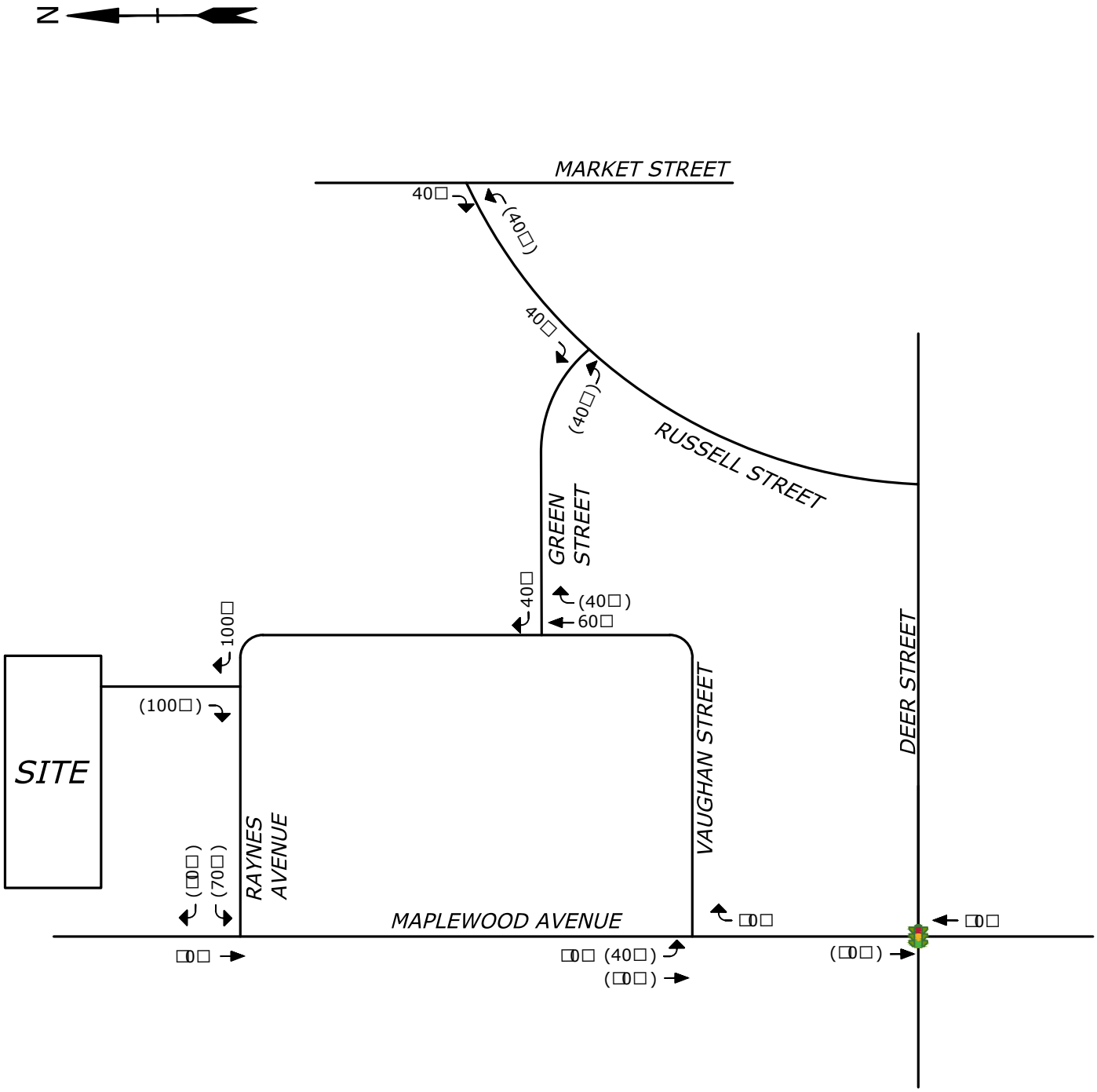

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- TRAFFIC SIGNAL
- □□ ENTERING
- (□□) E□ITING

PROPOSED MI□ED-□SE DE□ELOPMENT
RA□NES A□EN□E, PORTSMO□TH, NH

HOTEL AND RESTA□RANT TRIP DISTRIB□TION

DATE: 7□14□2021
SCALE: NO SCALE
FIG□RE 10

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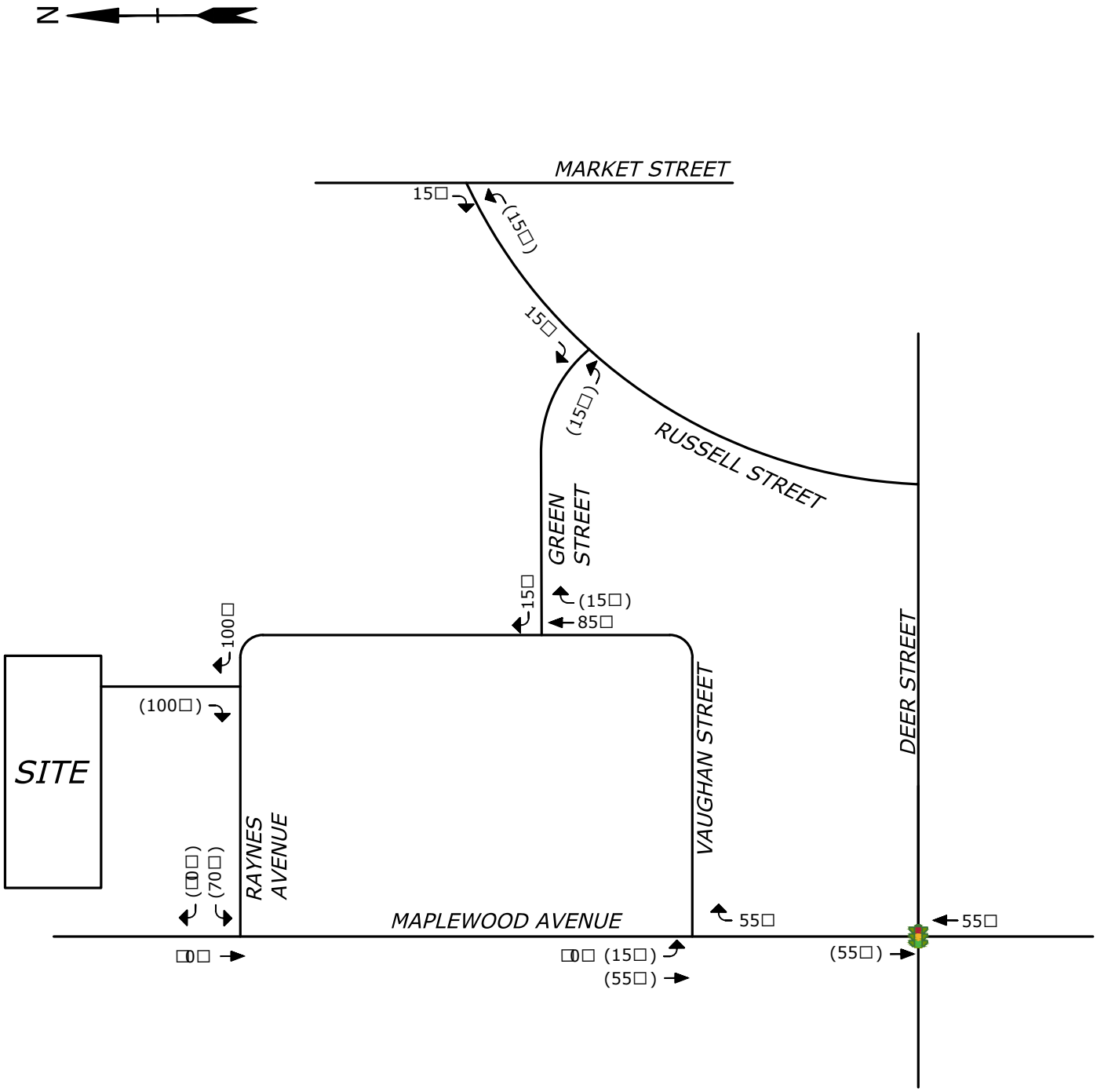

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TRAFFIC SIGNAL
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(□□) E□ITING

PROPOSED MI□ED-□SE DE□ELOPMENT
RA□NES A□EN□E, PORTSMO□TH, NH

RETAIL TRIP DISTRIB□TION

DATE: 7□14□2021
SCALE: NO SCALE
FIG□RE 11

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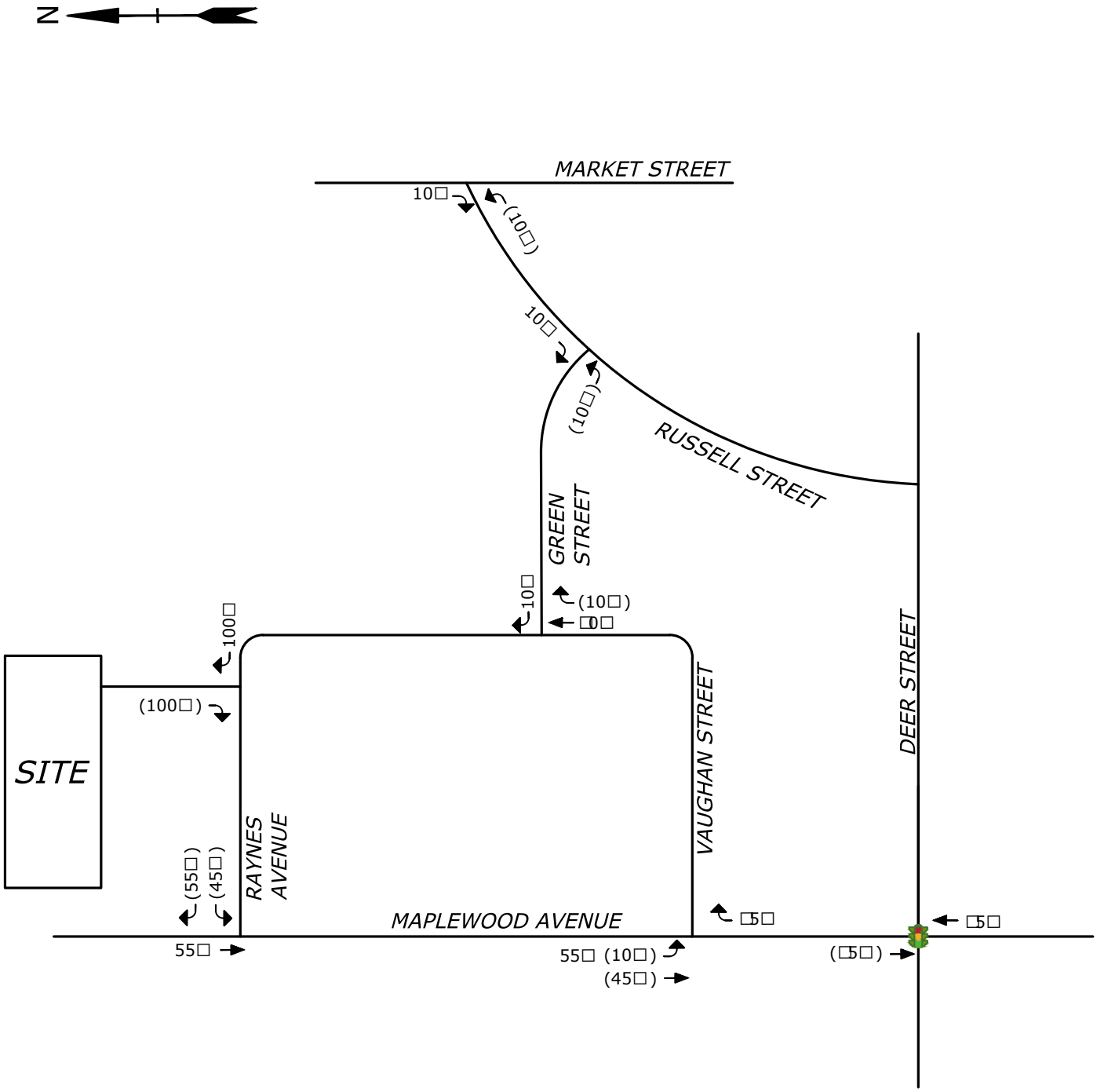

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TRAFFIC SIGNAL
□□ ENTERING
(□□) E□ITING

PROPOSED MI□ED-□SE DE□ELOPMENT
RA□NES A□EN□E, PORTSMO□TH, NH

RESIDENTIAL TRIP DISTRIB□TION

DATE: 7□14□2021
SCALE: NO SCALE
FIG□RE 12

Tighe&Bond
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Jul 16, 2021-8:00am Plotted By: MStout□
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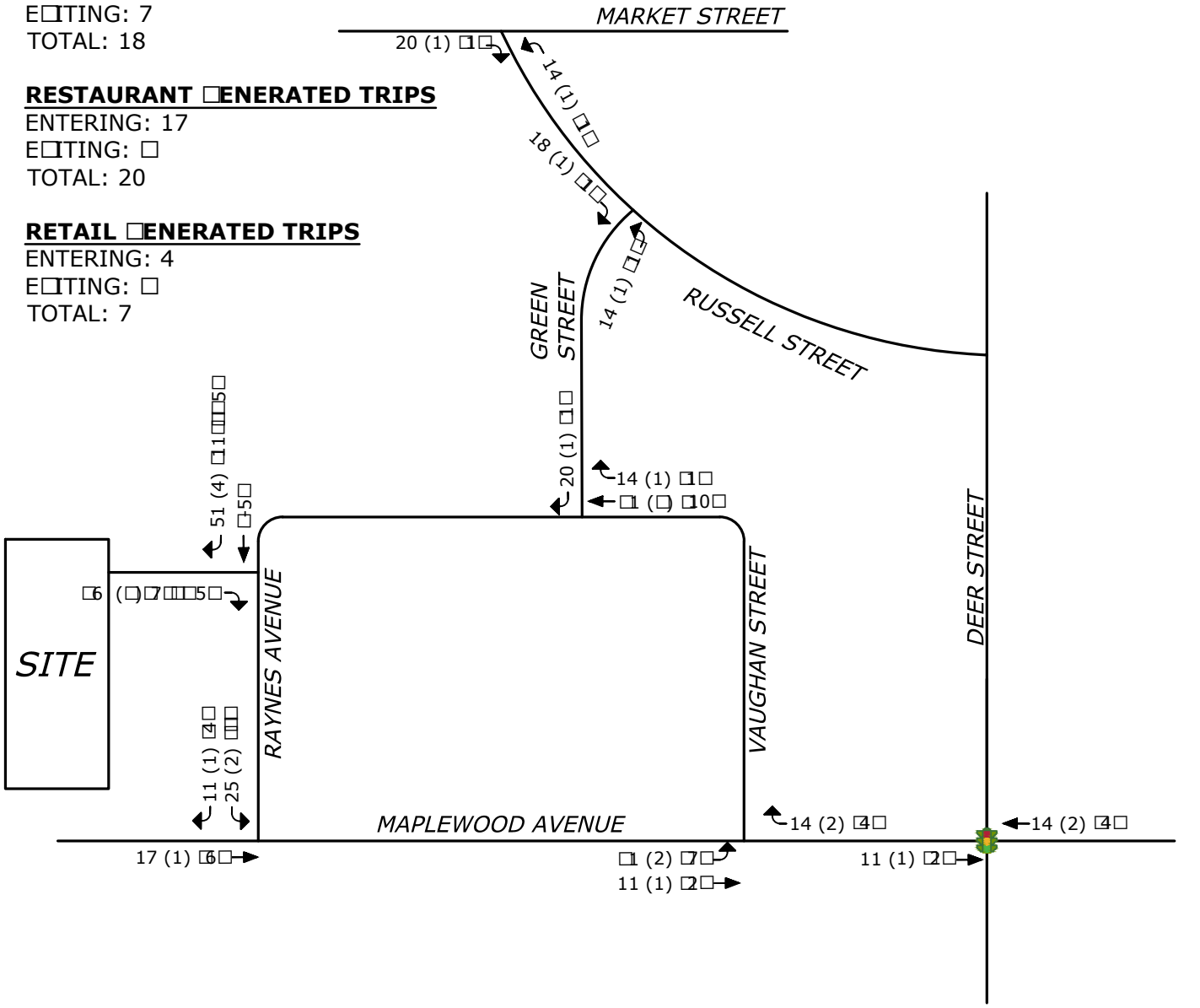
HOTEL □ENERATED TRIPS
ENTERING: □4
E□ITING: □□
TOTAL: 67

RESIDENTIAL □ENERATED TRIPS
ENTERING: 11
E□ITING: 7
TOTAL: 18

RESTAURANT □ENERATED TRIPS
ENTERING: 17
E□ITING: □
TOTAL: 20

RETAIL □ENERATED TRIPS
ENTERING: 4
E□ITING: □
TOTAL: 7



LE□END

TRAFFIC SIGNAL

□□ HOTEL & RESTA□RANT TRIPS
(□□) RETAIL TRIPS
□□□□ RESIDENTIAL TRIPS
□□□□ PASS-B□TRIPS

PROPOSED MI□ED-□SE DE□ELOPMENT
RA□NES A□EN□E, PORTSMO□TH, NH

WEEKDA□AFTERNOON PEAK HO□R SITE GENERATED TRIPS

DATE: 7□14□2021
SCALE: NO SCALE
FIG□RE 1□

Tighe&Bond
www.tighebond.com

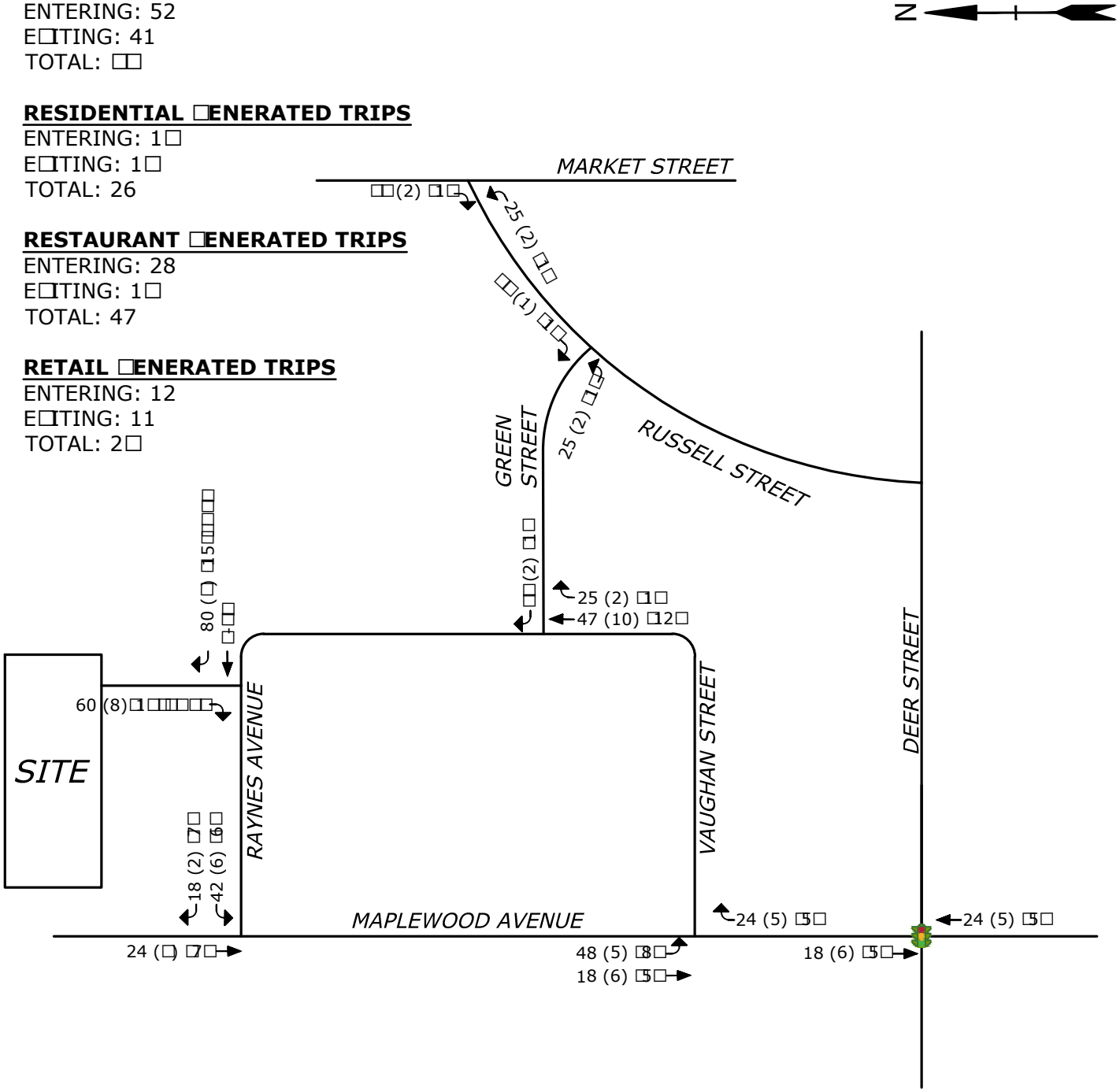
Jul 16, 2021-8:00am Plotted By: MStout□
Tighe & Bond, Inc. C:\□sers\MStout□appdata\local\temp\AcPublish_□1176\Traffic Volume Figures.dwg

HOTEL □ENERATED TRIPS
ENTERING: 52
E□ITING: 41
TOTAL: □□

RESIDENTIAL □ENERATED TRIPS
ENTERING: 1□
E□ITING: 1□
TOTAL: 26

RESTAURANT □ENERATED TRIPS
ENTERING: 28
E□ITING: 1□
TOTAL: 47

RETAIL □ENERATED TRIPS
ENTERING: 12
E□ITING: 11
TOTAL: 2□



LE□END

TRAFFIC SIGNAL

□□ HOTEL & RESTA□RANT TRIPS
(□□) RETAIL TRIPS
□□□□ RESIDENTIAL TRIPS
□□□□ PASS-B□TRIPS

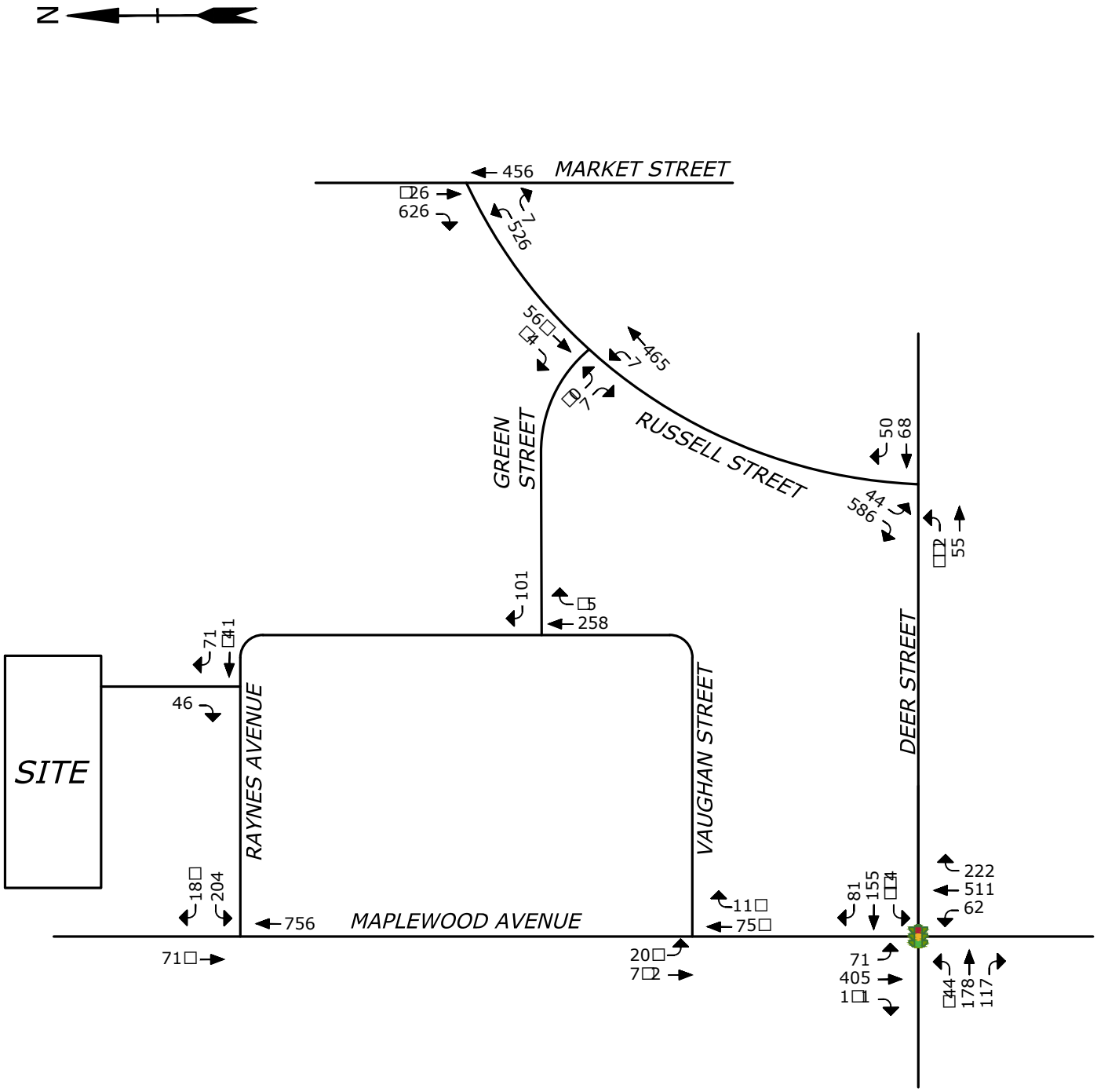
PROPOSED MI□ED-□SE DE□ELOPMENT
RA□NES A□EN□E, PORTSMO□TH, NH

SAT□RDA□MIDDA□PEAK HO□R SITE GENERATED TRIPS

DATE: 8□2□2021
SCALE: NO SCALE
FIG□RE 14

Tighe&Bond
www.tighebond.com

Aug 02, 2021-10:15am Plotted By: MStout□
Tighe & Bond, Inc. J:\P\P05□5 Pro Con General Proposals\P05□5-007 Raynes Ave Hotel\Drawings_Figures\AutoCAD\Figures\Tra□□ □olume Figures.dwg



LEGEND

TRAFFIC SIGNAL

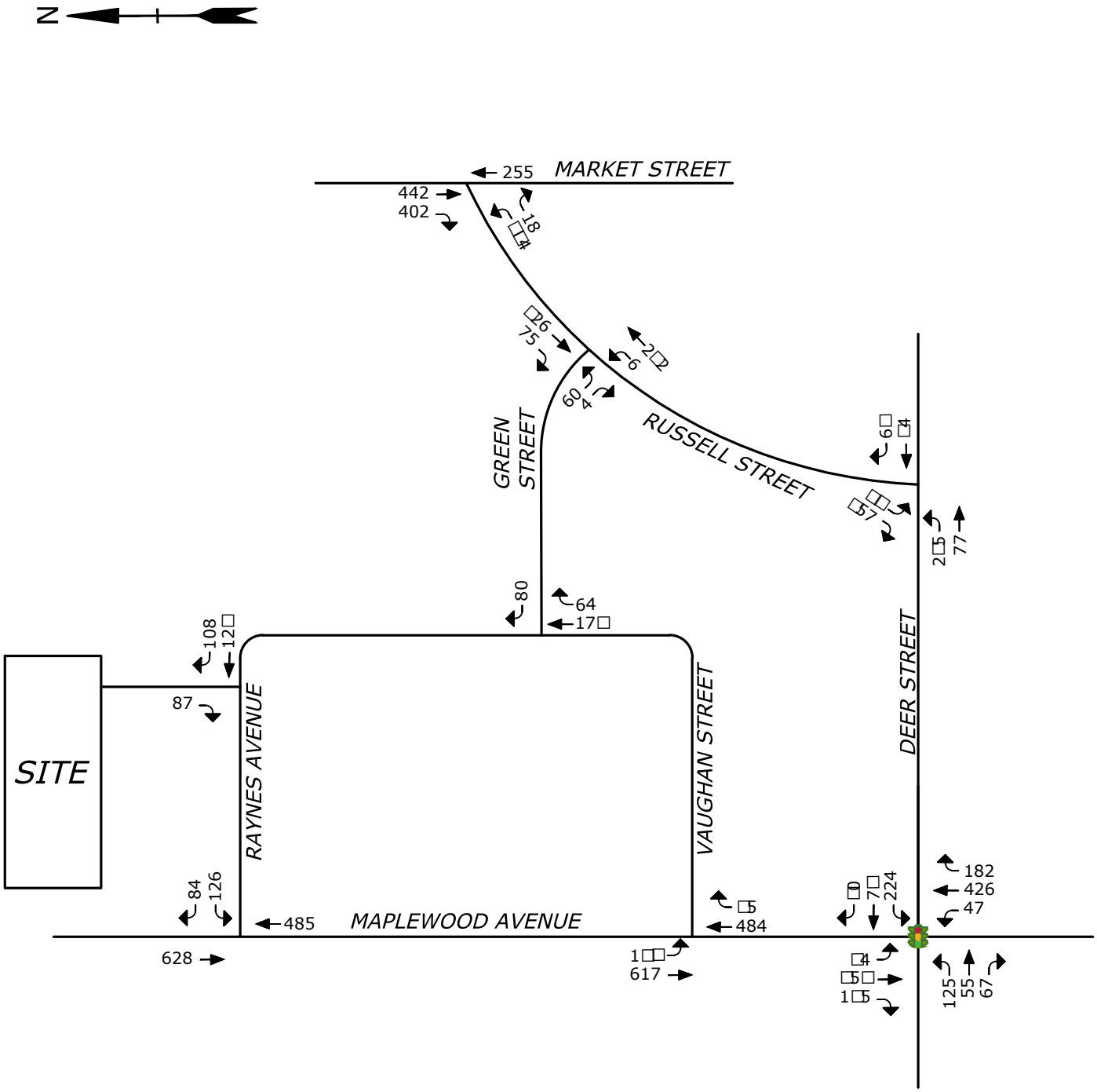
PROPOSED MIXED-USE DEVELOPMENT
RAYNES AVENUE, PORTSMOUTH, NH

2022 BUILD WEEKDAY AFTERNOON PEAK HOUR TRAFFIC VOLUMES

DATE: 7/14/2021
SCALE: NO SCALE
FIGURE 15

Tighe&Bond
www.tighebond.com

Jul 16, 2021-8:00am Plotted By: MStout
Tighe & Bond, Inc. C:\Users\MStout\appdata\local\temp\AcPublish_1176\Traffic Volume Figures.dwg



LEGEND

TRAFFIC SIGNAL

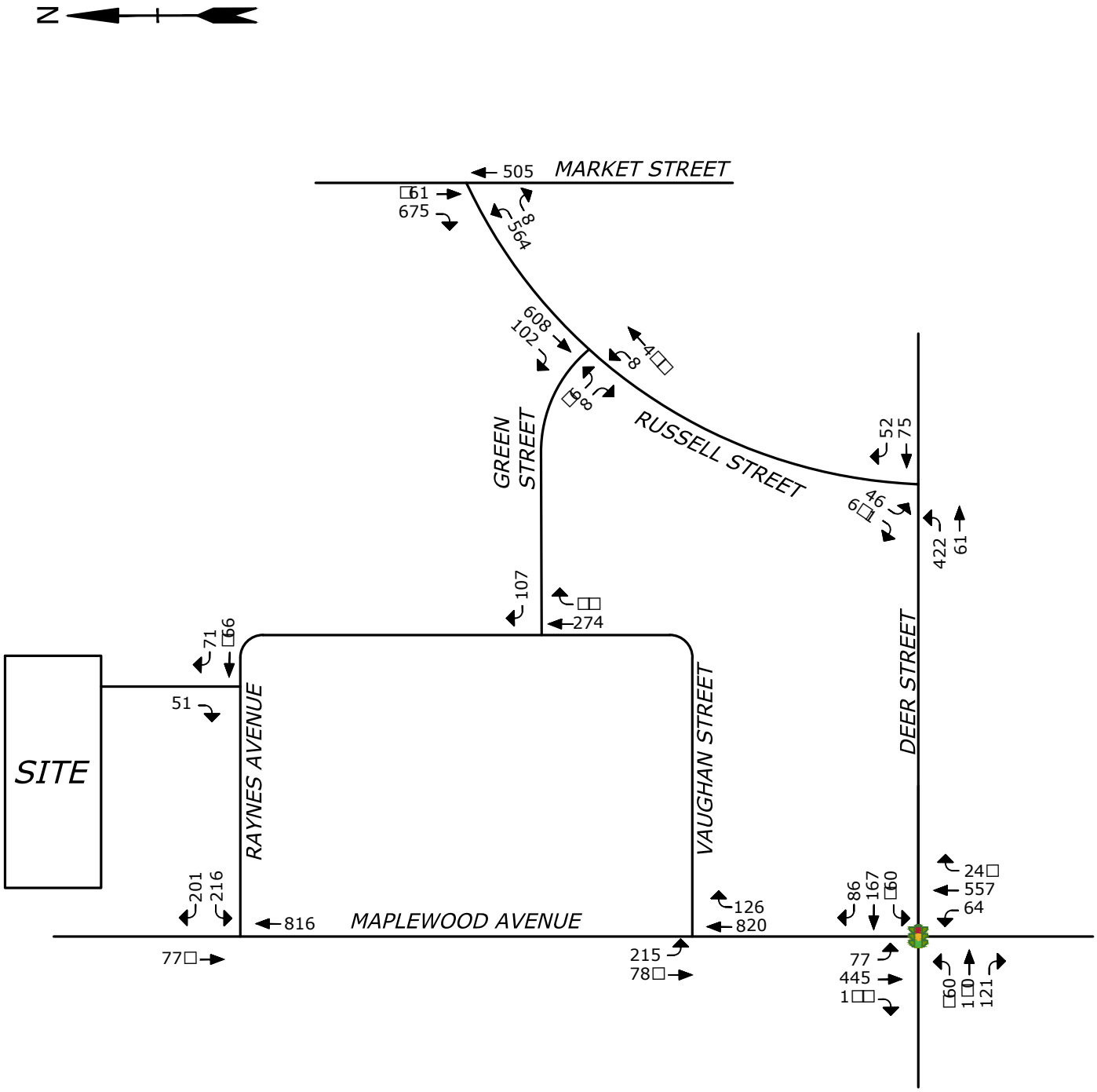
PROPOSED MIXED-USE DEVELOPMENT
RAYNES AVENUE, PORTSMOUTH, NH

2022 BUILD SATURDAY MIDDAY PEAK HOUR TRAFFIC VOLUMES

DATE: 8/2/2021
SCALE: NO SCALE
FIGURE 16

Tighe&Bond
www.tighebond.com

Aug 02, 2021-11:16am Plotted By: MStoutt
Tighe & Bond, Inc. J:\P\P05\05-007 Pro Con General Proposals\P05\05-007 Raynes Ave Hotel\Drawings_Figures\AutoCAD\Figures\Traffic Volume Figures.dwg



LEGEND

TRAFFIC SIGNAL

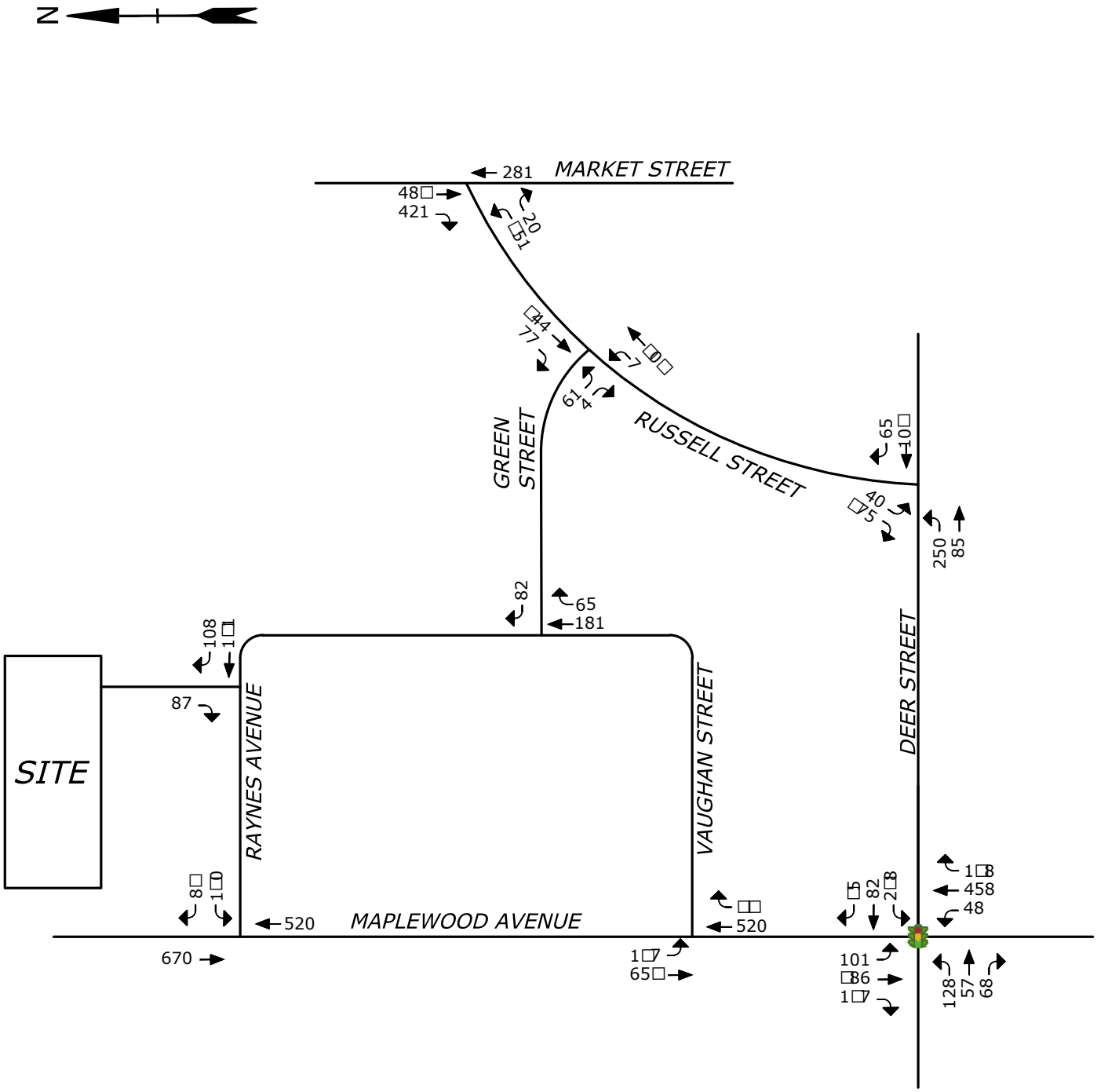
PROPOSED MIXED-USE DEVELOPMENT
RAYNES AVENUE, PORTSMOUTH, NH

2021 BUILD WEEKDAY AFTERNOON PEAK HOUR TRAFFIC VOLUMES

DATE: 7/14/2021
SCALE: NO SCALE
FIGURE 17

Tighe&Bond
www.tighebond.com

Jul 16, 2021-8:00am Plotted By: MStout
Tighe & Bond, Inc. C:\Users\MStout\appdata\local\temp\AcPublish_1176\Traffic Volume Figures.dwg



LEGEND

TRAFFIC SIGNAL

PROPOSED MIXED-USE DEVELOPMENT
RAYNES AVENUE, PORTSMOUTH, NH

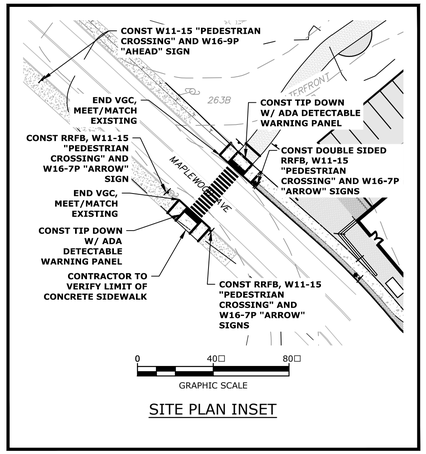
2022 BUILD SATURDAY MIDDAY PEAK HOUR TRAFFIC VOLUMES

DATE: 8/2/2021
SCALE: NO SCALE
FIGURE 18

Tighe&Bond
www.tighebond.com

Aug 02, 2021-8:[illegible]am Plotted By: MStout
Tighe & Bond, Inc. J:\P\P05[illegible]5 Pro Con General Proposals\P05[illegible]5-007 Raynes Ave Hotel\Drawings_Figures\AutoCAD\Figures\Traffic Volume Figures.dwg

APPENDIX C
Site Development Plan



SITE PLAN INSET

OPTIONAL RECONSTRUCTED KAYAK LAUNCH RAMP

OPTIONAL RECONSTRUCTED TIMBER PIER

CONST WETLAND BOUNDARY SIGN

CITY TO COORDINATE WITH LANDOWNER TO RELOCATE EXISTING EASEMENT

TAX MAP 123, LOT 15

TAX MAP 123, LOT 15-1

25' VEGETATED BUFFER

NORTH MILL POND GREENWAY TRAIL

CONST WETLAND BOUNDARY SIGN

PROPOSED GREENWAY COMMUNITY SPACE AREA = 27,352 SF

50' WATERFRONT BUFFER

CONST D11-1 "BIKE ROUTE" AND M4-6 "END" SIGNS

CONST D11-1 "BIKE ROUTE" SIGN

CONST FENCE (SEE LANDSCAPE PLAN)

CONST DISTRICT STANDARD, 24' POLE

TRANSITION FROM SGC TO MVGC

PROPOSED BIKE RACKS (TYP OF 5)

CONST 10' WIDE CROSS WALK

BEGIN VGC, MEET/MATCH EXISTING

TRANSITION FROM MVGC TO VGC

MAPLEWOOD AVE

TRANSITION FROM VGC TO MVGC

CONST DISTRICT STANDARD, 16' POLE

CONST W11-15 "PEDESTRIAN CROSSING" AND W16-9P "AHEAD" SIGN

CONST R5-1 "DO NOT ENTER", R1-1 "STOP" SIGNS AND BAR

CONST 10' WIDE CROSS WALK

TAX MAP 123, LOT 7-1

CONST TIP DOWN W/ ADA DETECTABLE WARNING PANEL

END MVGC

CONST SLIDING GATE W/20' OPENING (SEE LANDSCAPE PLAN)

COMMERCIAL SPACE ± 3,750 SF

RESIDENTIAL LOBBY ± 2,000 SF

BUILDING A 5-STORY MIXED USE BUILDING ± 65,650 SF

COMMERCIAL SPACE ± 4,350 SF

CONST R7-8 "RESERVED" AND R7-8P "VAN ACCESSIBLE" SIGNS (TYP OF 2)

CONST TIP DOWN

CONST FLUSH PAVER CROSSWALK (SEE LANDSCAPE PLAN SHEET L-101)

LIMIT OF UPPER FLOOR AREA

46 SPACES

10 SPACES

8 VALET SPACES

4 VALET SPACES

4 VALET SPACES

6 SPACES

16 SPACES

8 SPACES

4 SPACES

STAIRS

ELEVATOR

STAIRS

CONST "LOADING ZONE, NO PARKING 6AM - 9AM" SIGNS (TYP OF 2)

CONST CONC SIDEWALK W/ 2' BRICK BAND

SWL

RAYNES AVE

CONST ARROW PAVEMENT MARKING (TYP) (SEE DETAIL)

CONST R5-1 "DO NOT ENTER" AND R1-1 "STOP" SIGNS

FINAL PAVING AND STRIPING AREA (SEE SITE NOTE 21)

CONST R6-1R "ONE WAY" AND R3-2 SIGNS

TAX MAP 123, LOT 8

CONST BOLLARD MOUNTED R7-8 "RESERVED" AND R7-8P "VAN ACCESSIBLE" SIGNS (TYP OF 2)

PROPOSED BIKE RACKS (TYP OF 4)

CONST R7-8 "RESERVED" SIGN

CONST BOLLARD MOUNTED R7-8 "RESERVED" SIGN

CONST FENCE (SEE LANDSCAPE PLAN)

CONST TRANSFORMER (COORD W/ EVERSOURCE)

PROPOSED BOLLARDS (TYP OF 7)

50 SPACES

LIMIT OF UPPER FLOOR AREA

END VGC

7 SPACES

CONST TIP DOWN

CONST CONCRETE SIDEWALK

CONST FLUSH PAVERS (SEE LANDSCAPED PLAN SHEET L-101)

BUILDING B 5-STORY HOTEL ± 63,400 SF

HOTEL LOBBY ± 7,400 SF

TRANSITION FROM MVGC TO VGC

CONST DISTRICT STANDARD, 16' POLE

CONST PAVERS (SEE LANDSCAPE PLAN SHEET L-101)

CONST FLUSH VGC

BEGIN VGC, MEET/MATCH EXISTING

CONST TIP DOWN

TRANSITION FROM VGC TO MVGC

TRANSITION FROM MVGC TO VGC

TAX MAP 123, LOT 9

TOTAL BUFFER ZONE

ZONE AE

ZONE A

11 SPACES

TRANSITION FROM VGC TO SGC

SITE RECORDING NOTES:

1. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
2. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.
3. THIS IS NOT A BOUNDARY SURVEY AND SHALL NOT BE USED AS SUCH.

SEE SHEET G-100 FOR SITE NOTES AND LEGEND

0 20 40
GRAPHIC SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE – BRADLEY M. CZYPRYN No. 09390 LICENSED PROFESSIONAL ENGINEER – 7-21-21

STATE OF NEW HAMPSHIRE – PATRICK M. CROSSMAN No. 16576 LICENSED PROFESSIONAL ENGINEER – 7-21-2021

Pr□□□□□d
M□□□d U□□
D□□□□□□□ □□□

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
H	7□21□2021	TAC Resubmission
G	5□26□2021	CC Resubmission
F	5□1□□2021	TAC Resubmission
E	4□28□2021	CC Resubmission
D	4□21□2021	TAC Resubmission
C	□□22□2021	TAC Submission
B	□□10□2021	Design Review Resubmission
A	12□1□2020	TAC Wor□Session

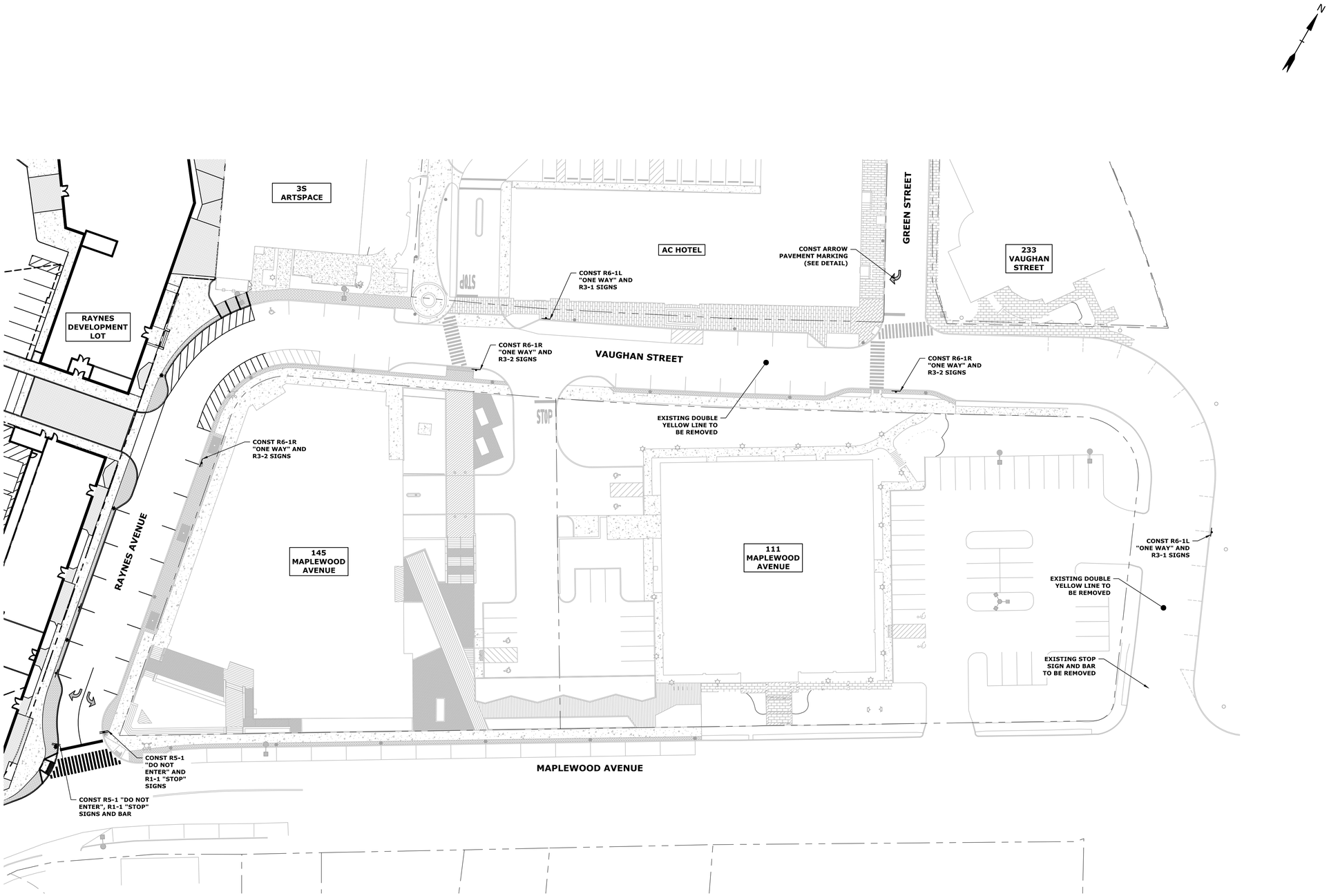
PROJECT NO:	P-05□5-007
DATE:	December 22, 2020
FILE:	P-05□5-007-C-DSGN.DWG
DRAWN B□	C□K
CHECKED B□	NAH□MC
APPRO□ED B□	BLM

SITE PLAN

SCALE: AS SHOWN

C-102.1

Last Saved: 7□2□2021
Plotted: Wed, Jul 20, 2021 - 1:46pm By: NAHansen
Tighe & Bond: J:\P\P05□5 Pro Con General Proposals\P05□5-007 Raynes Ave Hotel\Drawings, Figures\AutoCAD\Sheet\P-05□5-007-C-DSGN.dwg



SEE SHEET G-100 FOR SITE NOTES AND LEGEND

Tighe&Bond

STATE OF NEW HAMPSHIRE BRADLEE MEZQUITA No. 00000 LICENSED PROFESSIONAL ENGINEER 7-21-21

STATE OF NEW HAMPSHIRE PATRICK M. CRIMMINS No. 18870 LICENSED PROFESSIONAL ENGINEER 7-21-2021

0 20 40
GRAPHIC SCALE

Pr d
M d U
D

North Mill Pond Holdings, LLC

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
H	7/21/2021	TAC Resubmission
G	5/26/2021	CC Resubmission
F	5/1/2021	TAC Resubmission
E	4/28/2021	CC Resubmission
D	4/21/2021	TAC Resubmission
C	2/22/2021	TAC Submission
B	1/10/2021	Design Review Resubmission
A	12/1/2020	TAC Wor Session

PROJECT NO:	P-05-007
DATE:	December 22, 2020
FILE:	P-05-007-C-DSGN.DWG
DRAWN B	CJK
CHECKED B	NAH/PMC
APPRO ED B	BLM

NEIGHBORHOOD SIGNAGE PLAN

SCALE: AS SHOWN

C-102.2

Last Saved: 7/20/2021
Plotted On:Jul 20, 2021-1:46pm By: NAHansen
Tighe & Bond:J:\P\P05-007 Pro Con General Proposals\P05-007 Raynes Ave Hotel\Drawings_Figures\AutoCAD\Sheet\P-05-007-C-DSGN.dwg

APPENDIX D

Capacity Analysis Methodology

CAPACITY ANALYSIS METHODOLOGY

A primary result of capacity analysis is the assignment of levels of service to traffic facilities under various traffic flow conditions. The capacity analysis methodology is based on the concepts and procedures in the *Highway Capacity Manual* (HCM).[1] The concept of level of service (LOS) is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six levels of service are defined for each type of facility. They are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst. Since the level of service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of levels of service, depending on the time of day, day of week, or period of year. A description of the operating condition under each level of service is provided below:

- *LOS A* describes conditions with little to no delay to motorists.
- *LOS B* represents a desirable level with relatively low delay to motorists.
- *LOS C* describes conditions with average delays to motorists.
- *LOS D* describes operations where the influence of congestion becomes more noticeable. Delays are still within an acceptable range.
- *LOS E* represents operating conditions with high delay values. This level is considered by many agencies to be the limit of acceptable delay.
- *LOS F* is considered to be unacceptable to most drivers with high delay values that often occur, when arrival flow rates exceed the capacity of the intersection.

Signalized Intersections

Levels of service for signalized intersections are also calculated using the operational analysis methodology of the HCM. The methodology for signalized intersections assesses the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on average *control* delay. Control delay is used to establish the operating characteristics for an intersection or an approach to an intersection. Volume-to-capacity (v/c) ratios are also used to help signify the utilization of a lane group's capacity at an intersection. A v/c ratio of ≥1.00 represents conditions when the traffic signal cycle capacity is fully utilized and indicates a capacity failure. The level-of-service criteria for signalized intersections are shown in Table A-1.

[1] *Highway Capacity Manual, 6TH Edition: A Guide for Multimodal Mobility Analysis.* Washington, D.C.: Transportation Research Board, 2016.

Unsignalized Intersections

Levels of service for unsignalized intersections are calculated using the operational analysis methodology of the HCM. The procedure accounts for lane configuration on both the minor and major street approaches, conflicting traffic stream volumes, and the type of intersection control (STOP, YIELD, or all-way STOP control). The definition of level of service for unsignalized intersections is a function of average *control* delay. Control delay at an unsignalized intersection is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line. This time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position.

Volume-to-capacity (v/c) ratios are also used to help signify the utilization of a movement's capacity at an intersection. A v/c ratio of ≥1.00 represents conditions when the movement is fully utilized and indicates a capacity failure. The capacity of the movements is based on the distribution of gaps in the major street traffic stream, the selection of gaps to complete the desired movement, and the follow-up headways for each driver in the queue. When an unsignalized intersection is located within 0.25 miles of a signalized intersection, traffic flows may not be random and some platoon structure may exist, thereby affecting the minor street operations. The level-of-service criteria for unsignalized intersections are shown in Table A-1.

TABLE A-1
Level-of-Service Criteria for Intersections

Level of Service	**Signalized Intersection Criteria** Average Control Delay (Seconds per Vehicle)	**Unsignalized Intersection Criteria** Average Control Delay (Seconds per Vehicle)	**V/C Ratio >1.00[a]**
A	≤10	≤10	F
B	>10 and ≤20	>10 and ≤15	F
C	>20 and ≤35	>15 and ≤25	F
D	>35 and ≤55	>25 and ≤35	F
E	>55 and ≤80	>35 and ≤50	F
F	>80	>50	F

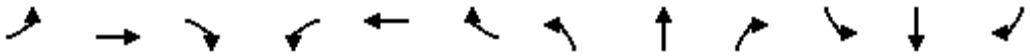
Note: [a]For approach-based and intersection-wide assessments, LOS is defined solely by control delay.

Source: *Highway Capacity Manual, 6th Edition: A Guide for Multimodal Mobility Analysis.* Washington, D.C.: Transportation Research Board, 2016. Exhibit 19-8, Pg. 19-16.

For signalized intersections, this delay criterion may be applied in assigning level-of-service designations to individual lane groups, to individual intersection approaches, or to the entire intersection. For unsignalized intersections, this delay criterion may be applied in assigning level-of-service designations to individual lane groups on the minor street approaches or to the left turns from the major street approaches.

APPENDIX E

Capacity Analyses
2022 No Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	344	178	117	334	155	81	62	491	222	71	391	191
Future Volume (vph)	344	178	117	334	155	81	62	491	222	71	391	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	13	13	12	14	14	11	11	13	11	11	11
Storage Length (ft)	0		0	0		100	0		0	0		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975			0.948				0.850		0.951	
Flt Protected		0.974		0.950			0.950			0.950		
Satd. Flow (prot)	0	1828	0	1770	1884	0	1711	1801	1636	1711	1712	0
Flt Permitted		0.390		0.538			0.349			0.288		
Satd. Flow (perm)	0	732	0	1002	1884	0	628	1801	1636	519	1712	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			23				221		27	
Link Speed (mph)		25			25			25			30	
Link Distance (ft)		363			453			585			231	
Travel Time (s)		9.9			12.4			16.0			5.3	
Peak Hour Factor	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	521	270	177	439	204	107	71	564	255	87	477	233
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	968	0	439	311	0	71	564	255	87	710	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Prot	pm+pt	NA	
Protected Phases		4			8			2	2	1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0	11.0	16.0	
Total Split (s)	33.0	33.0		33.0	33.0		35.0	35.0	35.0	16.0	51.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%		31.8%	31.8%	31.8%	14.5%	46.4%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	Max	Max		None	None		C-Max	C-Max	C-Max	None	C-Max	
Act Effct Green (s)		27.0		27.0	27.0		59.7	59.7	59.7	71.0	71.0	
Actuated g/C Ratio		0.25		0.25	0.25		0.54	0.54	0.54	0.65	0.65	
v/c Ratio		5.18		1.79	0.65		0.21	0.58	0.26	0.21	0.64	
Control Delay		1902.1		399.9	41.7		16.7	20.8	3.7	8.5	14.5	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		1902.1		399.9	41.7		16.7	20.8	3.7	8.5	14.5	
LOS		F		F	D		B	C	A	A	B	
Approach Delay		1902.1			251.4			15.6			13.8	
Approach LOS		F			F			B			B	
Queue Length 50th (ft)		~1186		~466	183		26	265	11	21	266	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	24%
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	

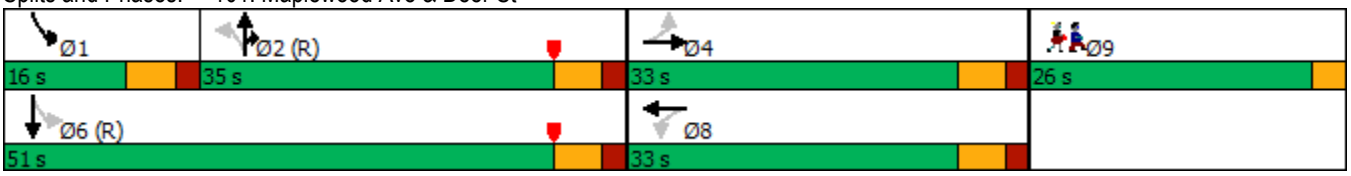
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		#982		#530	224		56	375	48	36	321	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)		187		245	479		341	977	989	443	1114	
Starvation Cap Reductn		0		0	0		0	0	0	0	0	
Spillback Cap Reductn		0		0	0		0	0	0	0	0	
Storage Cap Reductn		0		0	0		0	0	0	0	0	
Reduced v/c Ratio		5.18		1.79	0.65		0.21	0.58	0.26	0.20	0.64	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 6 (5%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 5.18			
Intersection Signal Delay: 603.4		Intersection LOS: F	
Intersection Capacity Utilization 114.6%		ICU Level of Service H	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 101: Maplewood Ave & Deer St



Lane Group	Ø9
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	25.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	143	786	26	96	599
Future Vol, veh/h	33	143	786	26	96	599
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	179	983	33	108	673

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1889	1000	0	0	1016	0
Stage 1	1000	-	-	-	-	-
Stage 2	889	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	77	295	-	-	683	-
Stage 1	356	-	-	-	-	-
Stage 2	402	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	58	295	-	-	683	-
Mov Cap-2 Maneuver	58	-	-	-	-	-
Stage 1	356	-	-	-	-	-
Stage 2	300	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	231.7	0	1.6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	167	683	-
HCM Lane V/C Ratio	-	-	1.317	0.158	-
HCM Control Delay (s)	-	-	231.7	11.3	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	13	0.6	-

Intersection	
Int Delay, s/veh	28.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	84	30	785	73	18	626
Future Vol, veh/h	84	30	785	73	18	626
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	79	79	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	112	40	994	92	21	745

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1827	1040	0	0	1086	0
Stage 1	1040	-	-	-	-	-
Stage 2	787	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 84	280	-	-	642	-
Stage 1	341	-	-	-	-	-
Stage 2	449	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 79	280	-	-	642	-
Mov Cap-2 Maneuver	~ 79	-	-	-	-	-
Stage 1	341	-	-	-	-	-
Stage 2	424	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 375.7	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	97	642	-
HCM Lane V/C Ratio	-	-	1.567	0.033	-
HCM Control Delay (s)	-	-	$ 375.7	10.8	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	11.7	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	72	86	13	66	106
Future Vol, veh/h	7	72	86	13	66	106
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	81	81	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	77	106	16	108	174

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	504	114	0	0	122	0
Stage 1	114	-	-	-	-	-
Stage 2	390	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	528	939	-	-	1465	-
Stage 1	911	-	-	-	-	-
Stage 2	684	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	485	939	-	-	1465	-
Mov Cap-2 Maneuver	485	-	-	-	-	-
Stage 1	911	-	-	-	-	-
Stage 2	628	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	2.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	867	1465	-
HCM Lane V/C Ratio	-	-	0.098	0.074	-
HCM Control Delay (s)	-	-	9.6	7.7	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.2	-

Intersection	
Int Delay, s/veh	28.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	392	55	68	50	44	586
Future Vol, veh/h	392	55	68	50	44	586
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	88	88	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	436	61	77	57	49	651

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	134	0	-	0	1039	106
Stage 1	-	-	-	-	106	-
Stage 2	-	-	-	-	933	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1451	-	-	-	255	948
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	383	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1451	-	-	-	176	948
Mov Cap-2 Maneuver	-	-	-	-	176	-
Stage 1	-	-	-	-	633	-
Stage 2	-	-	-	-	383	-

Approach	EB	WB	SB
HCM Control Delay, s	7.5	0	49
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1451	-	-	-	726
HCM Lane V/C Ratio	0.3	-	-	-	0.964
HCM Control Delay (s)	8.5	0	-	-	49
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	1.3	-	-	-	14.7

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	75	7	7	465	563	75
Future Vol, veh/h	75	7	7	465	563	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	85	85	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	129	12	8	547	670	89

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1278	715	759	0	-	0
Stage 1	715	-	-	-	-	-
Stage 2	563	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	183	431	852	-	-	-
Stage 1	485	-	-	-	-	-
Stage 2	570	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	181	431	852	-	-	-
Mov Cap-2 Maneuver	181	-	-	-	-	-
Stage 1	479	-	-	-	-	-
Stage 2	570	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	64.7	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	852	-	190	-	-
HCM Lane V/C Ratio	0.01	-	0.744	-	-
HCM Control Delay (s)	9.3	0	64.7	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0	-	4.9	-	-

Intersection	
Int Delay, s/veh	180.9

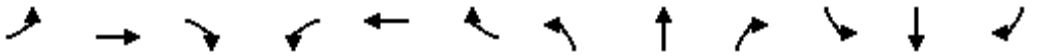
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	510	7	0	456	326	604
Future Vol, veh/h	510	7	0	456	326	604
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	71	71	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	630	9	0	642	388	719

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1030	388	-	0	-	0
Stage 1	388	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 259	660	0	-	-	-
Stage 1	686	-	0	-	-	-
Stage 2	~ 524	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 259	660	-	-	-	-
Mov Cap-2 Maneuver	~ 259	-	-	-	-	-
Stage 1	686	-	-	-	-	-
Stage 2	~ 524	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 676.6	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	259	660	-	-
HCM Lane V/C Ratio	-	2.431	0.013	-	-
HCM Control Delay (s)	-	$ 685.7	10.5	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	51	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	55	67	224	79	90	47	390	182	94	324	135
Future Volume (vph)	125	55	67	224	79	90	47	390	182	94	324	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	13	13	12	14	14	11	11	13	11	11	11
Storage Length (ft)	0		0	0		100	0		0	0		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.963			0.920				0.850		0.956	
Flt Protected		0.975		0.950			0.950			0.950		
Satd. Flow (prot)	0	1807	0	1770	1828	0	1711	1801	1636	1711	1721	0
Flt Permitted		0.626		0.535			0.465			0.261		
Satd. Flow (perm)	0	1160	0	997	1828	0	837	1801	1636	470	1721	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			50				202		23	
Link Speed (mph)		25			25			25			30	
Link Distance (ft)		363			453			585			231	
Travel Time (s)		9.9			12.4			16.0			5.3	
Peak Hour Factor	0.78	0.78	0.78	0.86	0.86	0.86	0.90	0.90	0.90	0.91	0.91	0.91
Adj. Flow (vph)	160	71	86	260	92	105	52	433	202	103	356	148
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	317	0	260	197	0	52	433	202	103	504	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Prot	pm+pt	NA	
Protected Phases		4			8			2	2	1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0	11.0	16.0	
Total Split (s)	33.0	33.0		33.0	33.0		35.0	35.0	35.0	16.0	51.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%		31.8%	31.8%	31.8%	14.5%	46.4%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	Max	Max		None	None		C-Max	C-Max	C-Max	None	C-Max	
Act Effct Green (s)		27.0		27.0	27.0		40.8	40.8	40.8	55.4	55.4	
Actuated g/C Ratio		0.25		0.25	0.25		0.37	0.37	0.37	0.50	0.50	
v/c Ratio		1.07		1.07	0.41		0.17	0.65	0.28	0.31	0.57	
Control Delay		111.1		117.0	28.5		31.9	38.5	5.5	20.6	24.5	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		111.1		117.0	28.5		31.9	38.5	5.5	20.6	24.5	
LOS		F		F	C		C	D	A	C	C	
Approach Delay		111.1			78.9			28.3			23.9	
Approach LOS		F			E			C			C	
Queue Length 50th (ft)		~240		~203	86		29	295	0	45	277	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	24%
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	

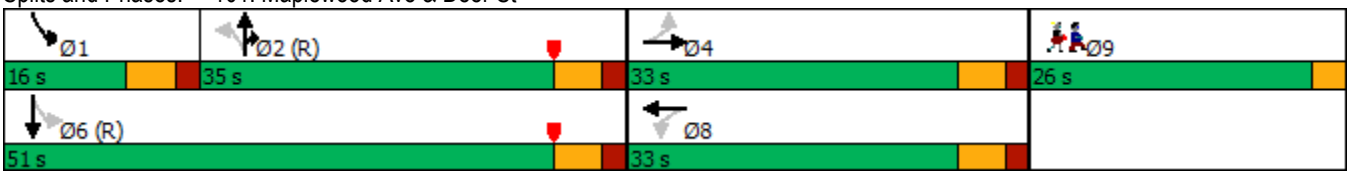
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		#331		#341	145		65	#484	56	82	405	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)		296		244	486		310	668	734	349	877	
Starvation Cap Reductn		0		0	0		0	0	0	0	0	
Spillback Cap Reductn		0		0	0		0	0	0	0	0	
Storage Cap Reductn		0		0	0		0	0	0	0	0	
Reduced v/c Ratio		1.07		1.07	0.41		0.17	0.65	0.28	0.30	0.57	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 6 (5%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay: 50.9		Intersection LOS: D	
Intersection Capacity Utilization 79.9%		ICU Level of Service D	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 101: Maplewood Ave & Deer St



Lane Group	Ø9
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	52	489	11	42	552
Future Vol, veh/h	21	52	489	11	42	552
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	91	91	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	64	537	12	46	600

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1235	543	0	0	549	0
Stage 1	543	-	-	-	-	-
Stage 2	692	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	195	540	-	-	1021	-
Stage 1	582	-	-	-	-	-
Stage 2	497	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	182	540	-	-	1021	-
Mov Cap-2 Maneuver	182	-	-	-	-	-
Stage 1	582	-	-	-	-	-
Stage 2	463	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.1	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	345	1021	-
HCM Lane V/C Ratio	-	-	0.261	0.045	-
HCM Control Delay (s)	-	-	19.1	8.7	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1	0.1	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	4	495	48	6	563
Future Vol, veh/h	25	4	495	48	6	563
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	5	563	55	7	640

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1245	591	0	0	618	0
Stage 1	591	-	-	-	-	-
Stage 2	654	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	192	507	-	-	962	-
Stage 1	553	-	-	-	-	-
Stage 2	517	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	190	507	-	-	962	-
Mov Cap-2 Maneuver	190	-	-	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	511	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.5	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	208	962	-
HCM Lane V/C Ratio	-	-	0.158	0.007	-
HCM Control Delay (s)	-	-	25.5	8.8	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0	-

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	37	58	8	27	36
Future Vol, veh/h	7	37	58	8	27	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	67	67	67	67	67	67
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	55	87	12	40	54

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	227	93	0	0	99	0
Stage 1	93	-	-	-	-	-
Stage 2	134	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	761	964	-	-	1494	-
Stage 1	931	-	-	-	-	-
Stage 2	892	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	740	964	-	-	1494	-
Mov Cap-2 Maneuver	740	-	-	-	-	-
Stage 1	931	-	-	-	-	-
Stage 2	867	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	3.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	920	1494	-
HCM Lane V/C Ratio	-	-	0.071	0.027	-
HCM Control Delay (s)	-	-	9.2	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	9.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	235	77	94	63	39	357
Future Vol, veh/h	235	77	94	63	39	357
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	81	81	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	258	85	116	78	44	401

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	194	0	-	0	756	155
Stage 1	-	-	-	-	155	-
Stage 2	-	-	-	-	601	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1379	-	-	-	376	891
Stage 1	-	-	-	-	873	-
Stage 2	-	-	-	-	547	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1379	-	-	-	302	891
Mov Cap-2 Maneuver	-	-	-	-	302	-
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	547	-

Approach	EB	WB	SB
HCM Control Delay, s	6.2	0	16.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1379	-	-	-	747
HCM Lane V/C Ratio	0.187	-	-	-	0.596
HCM Control Delay (s)	8.2	0	-	-	16.7
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.7	-	-	-	4

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	32	4	6	292	326	39
Future Vol, veh/h	32	4	6	292	326	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	83	83	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	5	7	352	351	42

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	738	372	393	0	-	0
Stage 1	372	-	-	-	-	-
Stage 2	366	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	385	674	1166	-	-	-
Stage 1	697	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	382	674	1166	-	-	-
Mov Cap-2 Maneuver	382	-	-	-	-	-
Stage 1	692	-	-	-	-	-
Stage 2	702	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.2	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1166	-	401	-	-
HCM Lane V/C Ratio	0.006	-	0.12	-	-
HCM Control Delay (s)	8.1	0	15.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection	
Int Delay, s/veh	16.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	306	18	0	255	442	366
Future Vol, veh/h	306	18	0	255	442	366
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	85	85	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	348	20	0	300	486	402

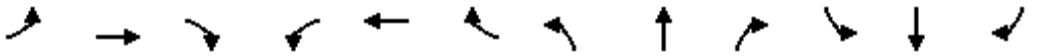
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	786	486	-	0	-	0
Stage 1	486	-	-	-	-	-
Stage 2	300	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	361	581	0	-	-	-
Stage 1	618	-	0	-	-	-
Stage 2	752	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	361	581	-	-	-	-
Mov Cap-2 Maneuver	361	-	-	-	-	-
Stage 1	618	-	-	-	-	-
Stage 2	752	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	69.6	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	361	581	-	-
HCM Lane V/C Ratio	-	0.963	0.035	-	-
HCM Control Delay (s)	-	73	11.4	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	10.6	0.1	-	-

APPENDIX E

Capacity Analyses
2022 Build Conditions



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	344	178	117	334	155	81	62	511	222	71	405	191
Future Volume (vph)	344	178	117	334	155	81	62	511	222	71	405	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	13	13	12	14	14	11	11	13	11	11	11
Storage Length (ft)	0		0	0		100	0		0	0		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975			0.948				0.850		0.952	
Flt Protected		0.974		0.950			0.950			0.950		
Satd. Flow (prot)	0	1828	0	1770	1884	0	1711	1801	1636	1711	1714	0
Flt Permitted		0.390		0.538			0.336			0.272		
Satd. Flow (perm)	0	732	0	1002	1884	0	605	1801	1636	490	1714	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			23				212		26	
Link Speed (mph)		25			25			25			30	
Link Distance (ft)		363			453			585			231	
Travel Time (s)		9.9			12.4			16.0			5.3	
Peak Hour Factor	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	521	270	177	439	204	107	71	587	255	87	494	233
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	968	0	439	311	0	71	587	255	87	727	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Prot	pm+pt	NA	
Protected Phases		4			8			2	2	1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0	11.0	16.0	
Total Split (s)	33.0	33.0		33.0	33.0		35.0	35.0	35.0	16.0	51.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%		31.8%	31.8%	31.8%	14.5%	46.4%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	Max	Max		None	None		C-Max	C-Max	C-Max	None	C-Max	
Act Effct Green (s)		27.0		27.0	27.0		59.7	59.7	59.7	71.0	71.0	
Actuated g/C Ratio		0.25		0.25	0.25		0.54	0.54	0.54	0.65	0.65	
v/c Ratio		5.18		1.79	0.65		0.22	0.60	0.26	0.22	0.65	
Control Delay		1902.1		399.9	41.7		16.9	21.4	4.0	8.6	14.9	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		1902.1		399.9	41.7		16.9	21.4	4.0	8.6	14.9	
LOS		F		F	D		B	C	A	A	B	
Approach Delay		1902.1			251.4			16.2			14.2	
Approach LOS		F			F			B			B	
Queue Length 50th (ft)		~1186		~466	183		26	281	14	21	277	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	24%
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	

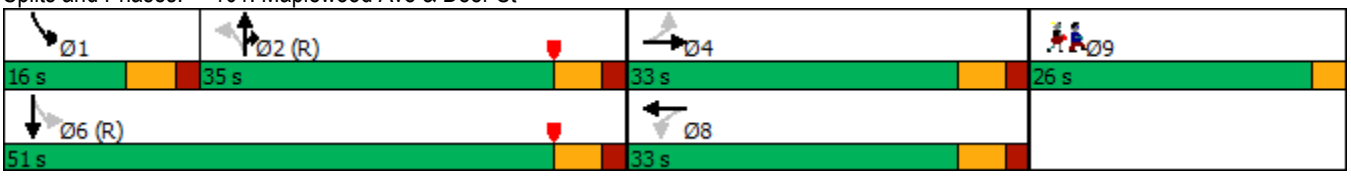
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		#982		#530	224		57	396	52	36	334	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)		187		245	479		328	977	985	427	1115	
Starvation Cap Reductn		0		0	0		0	0	0	0	0	
Spillback Cap Reductn		0		0	0		0	0	0	0	0	
Storage Cap Reductn		0		0	0		0	0	0	0	0	
Reduced v/c Ratio		5.18		1.79	0.65		0.22	0.60	0.26	0.20	0.65	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 6 (5%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 5.18			
Intersection Signal Delay: 596.8		Intersection LOS: F	
Intersection Capacity Utilization 115.3%		ICU Level of Service H	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 101: Maplewood Ave & Deer St



Lane Group	Ø9
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	103.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	204	189	756	0	0	719
Future Vol, veh/h	204	189	756	0	0	719
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	255	236	945	0	0	808

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1753	945	0	-	-	-
Stage 1	945	-	-	-	-	-
Stage 2	808	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 94	318	-	0	0	-
Stage 1	378	-	-	0	0	-
Stage 2	438	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	~ 94	318	-	-	-	-
Mov Cap-2 Maneuver	~ 94	-	-	-	-	-
Stage 1	378	-	-	-	-	-
Stage 2	438	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 472.5	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	94	318	-
HCM Lane V/C Ratio	-	2.713	0.743	-
HCM Control Delay (s)	-	$ 870.6	42.9	-
HCM Lane LOS	-	F	E	-
HCM 95th %tile Q(veh)	-	24.1	5.6	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

202: Maplewood Ave & Vaughan St
2022 Build Weekday PM Peak

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	759	119	203	732
Future Volume (Veh/h)	0	0	759	119	203	732
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.75	0.75	0.79	0.79	0.84	0.84
Hourly flow rate (vph)	0	0	961	151	242	871
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			231			
pX, platoon unblocked	0.77	0.77			0.77	
vC, conflicting volume	2392	1036			1112	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2651	902			999	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			55	
cM capacity (veh/h)	11	261			537	

Direction, Lane #	NB 1	SB 1
Volume Total	1112	1113
Volume Left	0	242
Volume Right	151	0
cSH	1700	537
Volume to Capacity	0.65	0.45
Queue Length 95th (ft)	0	58
Control Delay (s)	0.0	16.1
Lane LOS		C
Approach Delay (s)	0.0	16.1
Approach LOS		

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	103.6%	ICU Level of Service	G
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	101	258	95	0	0
Future Vol, veh/h	0	101	258	95	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	16979
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	81	81	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	109	319	117	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	-	378	0	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	669	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	669	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	11.4	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	669
HCM Lane V/C Ratio	-	-	0.162
HCM Control Delay (s)	-	-	11.4
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.6

Intersection	
Int Delay, s/veh	28.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	392	55	68	50	44	586
Future Vol, veh/h	392	55	68	50	44	586
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	88	88	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	436	61	77	57	49	651

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	134	0	-	0	1039	106
Stage 1	-	-	-	-	106	-
Stage 2	-	-	-	-	933	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1451	-	-	-	255	948
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	383	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1451	-	-	-	176	948
Mov Cap-2 Maneuver	-	-	-	-	176	-
Stage 1	-	-	-	-	633	-
Stage 2	-	-	-	-	383	-

Approach	EB	WB	SB
HCM Control Delay, s	7.5	0	49
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1451	-	-	-	726
HCM Lane V/C Ratio	0.3	-	-	-	0.964
HCM Control Delay (s)	8.5	0	-	-	49
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	1.3	-	-	-	14.7

Intersection	
Int Delay, s/veh	10.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	91	7	7	465	563	97
Future Vol, veh/h	91	7	7	465	563	97
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	85	85	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	157	12	8	547	670	115

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1291	728	785	0	-	0
Stage 1	728	-	-	-	-	-
Stage 2	563	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	180	423	834	-	-	-
Stage 1	478	-	-	-	-	-
Stage 2	570	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	177	423	834	-	-	-
Mov Cap-2 Maneuver	177	-	-	-	-	-
Stage 1	471	-	-	-	-	-
Stage 2	570	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	96.5	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	834	-	185	-	-
HCM Lane V/C Ratio	0.01	-	0.913	-	-
HCM Control Delay (s)	9.4	0	96.5	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0	-	7	-	-

Intersection	
Int Delay, s/veh	192.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	526	7	0	456	326	626
Future Vol, veh/h	526	7	0	456	326	626
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	71	71	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	649	9	0	642	388	745

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1030	388	-	0	-	0
Stage 1	388	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 259	660	0	-	-	-
Stage 1	686	-	0	-	-	-
Stage 2	~ 524	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 259	660	-	-	-	-
Mov Cap-2 Maneuver	~ 259	-	-	-	-	-
Stage 1	686	-	-	-	-	-
Stage 2	~ 524	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 710.3	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	259	660	-	-
HCM Lane V/C Ratio	-	2.507	0.013	-	-
HCM Control Delay (s)	-	$ 719.6	10.5	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	53.4	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

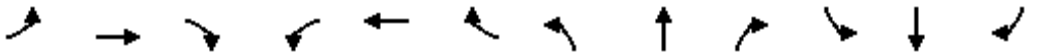
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	341	71	0	51
Future Vol, veh/h	0	0	341	71	0	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	371	77	0	55

Major/Minor	Major2		Minor2	
Conflicting Flow All	-	0	-	410
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	642
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-		
Mov Cap-1 Maneuver	-	-	-	642
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	SB
HCM Control Delay, s	0	11.1
HCM LOS		B

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	642
HCM Lane V/C Ratio	-	-	0.086
HCM Control Delay (s)	-	-	11.1
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	55	67	224	79	90	47	426	182	94	353	135
Future Volume (vph)	125	55	67	224	79	90	47	426	182	94	353	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	13	13	12	14	14	11	11	13	11	11	11
Storage Length (ft)	0		0	0		100	0		0	0		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.963			0.920				0.850		0.958	
Flt Protected		0.975		0.950			0.950			0.950		
Satd. Flow (prot)	0	1807	0	1770	1828	0	1711	1801	1636	1711	1725	0
Flt Permitted		0.575		0.518			0.363			0.204		
Satd. Flow (perm)	0	1066	0	965	1828	0	654	1801	1636	367	1725	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			49				209		21	
Link Speed (mph)		25			25			25			30	
Link Distance (ft)		363			453			585			231	
Travel Time (s)		9.9			12.4			16.0			5.3	
Peak Hour Factor	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	189	83	102	295	104	118	54	490	209	115	430	165
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	374	0	295	222	0	54	490	209	115	595	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Prot	pm+pt	NA	
Protected Phases		4			8			2	2	1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0	11.0	16.0	
Total Split (s)	33.0	33.0		33.0	33.0		35.0	35.0	35.0	16.0	51.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%		31.8%	31.8%	31.8%	14.5%	46.4%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	Max	Max		None	None		C-Max	C-Max	C-Max	None	C-Max	
Act Effct Green (s)		27.0		27.0	27.0		40.7	40.7	40.7	55.4	55.4	
Actuated g/C Ratio		0.25		0.25	0.25		0.37	0.37	0.37	0.50	0.50	
v/c Ratio		1.37		1.25	0.46		0.22	0.74	0.28	0.40	0.68	
Control Delay		220.8		179.1	30.7		34.0	42.2	5.5	22.3	28.1	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		220.8		179.1	30.7		34.0	42.2	5.5	22.3	28.1	
LOS		F		F	C		C	D	A	C	C	
Approach Delay		220.8			115.4			31.4			27.1	
Approach LOS		F			F			C			C	
Queue Length 50th (ft)		~343		~260	103		31	~372	0	51	358	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	24%
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	

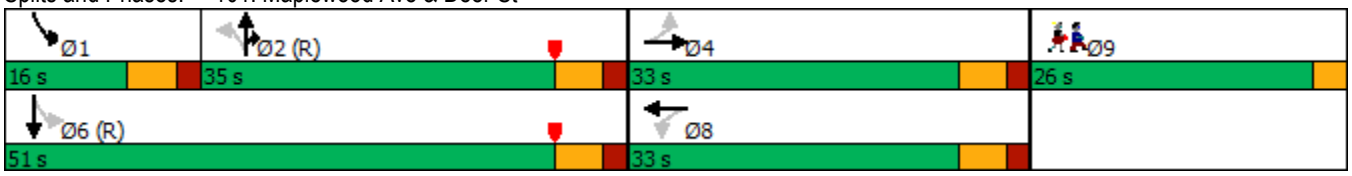
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		#332		#337	140		67	#544	50	81	441	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)		273		236	485		241	665	736	307	879	
Starvation Cap Reductn		0		0	0		0	0	0	0	0	
Spillback Cap Reductn		0		0	0		0	0	0	0	0	
Storage Cap Reductn		0		0	0		0	0	0	0	0	
Reduced v/c Ratio		1.37		1.25	0.46		0.22	0.74	0.28	0.37	0.68	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 6 (5%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.37			
Intersection Signal Delay: 78.6		Intersection LOS: E	
Intersection Capacity Utilization 81.4%		ICU Level of Service D	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 101: Maplewood Ave & Deer St



Lane Group	Ø9
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Intersection	
Int Delay, s/veh	8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	126	84	485	0	0	628
Future Vol, veh/h	126	84	485	0	0	628
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	91	91	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	156	104	533	0	0	683

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1216	533	0	-	-	-
Stage 1	533	-	-	-	-	-
Stage 2	683	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	200	547	-	0	0	-
Stage 1	588	-	-	0	0	-
Stage 2	502	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	200	547	-	-	-	-
Mov Cap-2 Maneuver	200	-	-	-	-	-
Stage 1	588	-	-	-	-	-
Stage 2	502	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	45.3	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	200	547	-
HCM Lane V/C Ratio	-	0.778	0.19	-
HCM Control Delay (s)	-	66.8	13.1	-
HCM Lane LOS	-	F	B	-
HCM 95th %tile Q(veh)	-	5.3	0.7	-

202: Maplewood Ave & Vaughan St
2022 Build Saturday Midday

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	484	95	133	617
Future Volume (Veh/h)	0	0	484	95	133	617
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.90	0.90	0.93	0.93
Hourly flow rate (vph)	0	0	538	106	143	663
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			231			
pX, platoon unblocked	0.77	0.77			0.77	
vC, conflicting volume	1540	591			644	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1552	321			390	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			84	
cM capacity (veh/h)	81	555			901	

Direction, Lane #	NB 1	SB 1
Volume Total	644	806
Volume Left	0	143
Volume Right	106	0
cSH	1700	901
Volume to Capacity	0.38	0.16
Queue Length 95th (ft)	0	14
Control Delay (s)	0.0	3.8
Lane LOS		A
Approach Delay (s)	0.0	3.8
Approach LOS		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	80	173	64	0	0
Future Vol, veh/h	0	80	173	64	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	67	67	78	78	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	119	222	82	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	-	263	0	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	776	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	776	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	10.5	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	776
HCM Lane V/C Ratio	-	-	0.154
HCM Control Delay (s)	-	-	10.5
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.5

Intersection	
Int Delay, s/veh	9.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	235	77	94	63	39	357
Future Vol, veh/h	235	77	94	63	39	357
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	81	81	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	258	85	116	78	44	401

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	194	0	-	0	756	155
Stage 1	-	-	-	-	155	-
Stage 2	-	-	-	-	601	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1379	-	-	-	376	891
Stage 1	-	-	-	-	873	-
Stage 2	-	-	-	-	547	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1379	-	-	-	302	891
Mov Cap-2 Maneuver	-	-	-	-	302	-
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	547	-

Approach	EB	WB	SB
HCM Control Delay, s	6.2	0	16.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1379	-	-	-	747
HCM Lane V/C Ratio	0.187	-	-	-	0.596
HCM Control Delay (s)	8.2	0	-	-	16.7
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.7	-	-	-	4

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	60	4	6	292	326	75
Future Vol, veh/h	60	4	6	292	326	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	83	83	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	80	5	7	352	351	81

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	758	392	432	0	-	0
Stage 1	392	-	-	-	-	-
Stage 2	366	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	375	657	1128	-	-	-
Stage 1	683	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	372	657	1128	-	-	-
Mov Cap-2 Maneuver	372	-	-	-	-	-
Stage 1	678	-	-	-	-	-
Stage 2	702	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.1	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1128	-	382	-	-
HCM Lane V/C Ratio	0.006	-	0.223	-	-
HCM Control Delay (s)	8.2	0	17.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.8	-	-

Intersection	
Int Delay, s/veh	22.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	334	18	0	255	442	402
Future Vol, veh/h	334	18	0	255	442	402
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	85	85	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	380	20	0	300	486	442

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	786	486	-	0	-	0
Stage 1	486	-	-	-	-	-
Stage 2	300	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 361	581	0	-	-	-
Stage 1	618	-	0	-	-	-
Stage 2	752	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 361	581	-	-	-	-
Mov Cap-2 Maneuver	~ 361	-	-	-	-	-
Stage 1	618	-	-	-	-	-
Stage 2	752	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	91.9	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	361	581	-	-
HCM Lane V/C Ratio	-	1.051	0.035	-	-
HCM Control Delay (s)	-	96.2	11.4	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	13.1	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	123	108	0	87
Future Vol, veh/h	0	0	123	108	0	87
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	1	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	134	117	0	95

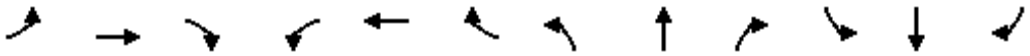
Major/Minor	Major2		Minor2	
Conflicting Flow All	-	0	-	193
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	849
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-		
Mov Cap-1 Maneuver	-	-	-	849
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	SB
HCM Control Delay, s	0	9.8
HCM LOS		A

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	849
HCM Lane V/C Ratio	-	-	0.111
HCM Control Delay (s)	-	-	9.8
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0.4

APPENDIX E

Capacity Analyses
2032 No Build Conditions

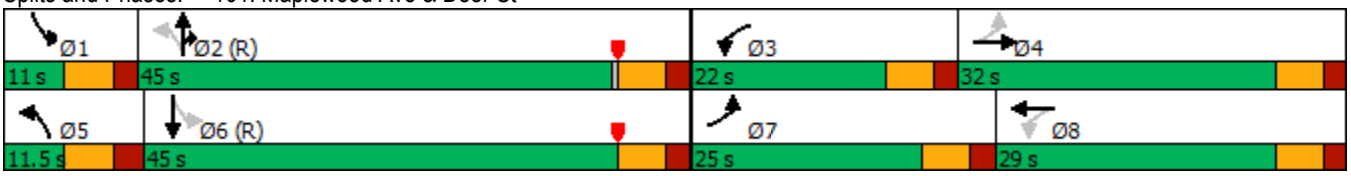


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	360	190	121	360	167	86	64	537	243	77	431	199
Future Volume (vph)	360	190	121	360	167	86	64	537	243	77	431	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	13	13	12	14	14	11	11	13	11	11	11
Storage Length (ft)	0		0	0		100	0		0	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.942			0.949				0.850		0.953	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1813	0	1770	1886	0	1711	1801	1636	1711	1716	0
Flt Permitted	0.197			0.174			0.101			0.100		
Satd. Flow (perm)	342	1813	0	324	1886	0	182	1801	1636	180	1716	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			21				252		23	
Link Speed (mph)		25			25			25			30	
Link Distance (ft)		363			453			585			231	
Travel Time (s)		9.9			12.4			16.0			5.3	
Peak Hour Factor	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	545	288	183	474	220	113	74	617	279	94	526	243
Shared Lane Traffic (%)												
Lane Group Flow (vph)	545	471	0	474	333	0	74	617	279	94	769	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Prot	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	2	1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	29.0		20.0	25.0		11.5	29.0	29.0	11.0	28.0	
Total Split (s)	25.0	32.0		22.0	29.0		11.5	45.0	45.0	11.0	45.0	
Total Split (%)	22.6%	29.0%		19.9%	26.2%		10.4%	40.7%	40.7%	10.0%	40.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.5	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.5	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max		None	None		None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	45.0	26.0		39.0	23.0		44.0	39.5	39.5	45.3	41.3	
Actuated g/C Ratio	0.41	0.24		0.35	0.21		0.40	0.36	0.36	0.41	0.37	
v/c Ratio	1.50	1.05		1.47	0.81		0.52	0.96	0.37	0.66	1.17	
Control Delay	263.1	96.7		253.6	56.0		31.6	62.5	5.9	42.2	126.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	263.1	96.7		253.6	56.0		31.6	62.5	5.9	42.2	126.1	
LOS	F	F		F	E		C	E	A	D	F	
Approach Delay		185.9			172.1			43.9			116.9	
Approach LOS		F			F			D			F	
Queue Length 50th (ft)	~480	~351		~414	213		29	424	12	37	~672	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#418	301		#476	256		56	#619	62	#72	#785	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)	364	447		323	409		141	643	746	142	655	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	1.50	1.05		1.47	0.81		0.52	0.96	0.37	0.66	1.17	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110.5			
Actuated Cycle Length: 110.5			
Offset: 6 (5%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.50			
Intersection Signal Delay: 128.9		Intersection LOS: F	
Intersection Capacity Utilization 96.7%		ICU Level of Service F	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 101: Maplewood Ave & Deer St



Intersection	
Int Delay, s/veh	47.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	152	849	28	103	646
Future Vol, veh/h	36	152	849	28	103	646
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	190	1061	35	116	726

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2037	1079	0	0	1096	0
Stage 1	1079	-	-	-	-	-
Stage 2	958	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	62	265	-	-	637	-
Stage 1	326	-	-	-	-	-
Stage 2	373	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 43	265	-	-	637	-
Mov Cap-2 Maneuver	~ 43	-	-	-	-	-
Stage 1	326	-	-	-	-	-
Stage 2	259	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 431.1	0	1.6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	133	637	-
HCM Lane V/C Ratio	-	-	1.767	0.182	-
HCM Control Delay (s)	-	-	$ 431.1	11.9	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	17.7	0.7	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	46.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	90	33	848	78	20	677
Future Vol, veh/h	90	33	848	78	20	677
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	79	79	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	120	44	1073	99	24	806

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1977	1123	0	0	1172	0
Stage 1	1123	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 68	250	-	-	596	-
Stage 1	311	-	-	-	-	-
Stage 2	417	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 63	250	-	-	596	-
Mov Cap-2 Maneuver	~ 63	-	-	-	-	-
Stage 1	311	-	-	-	-	-
Stage 2	387	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 610.7	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	79	596	-
HCM Lane V/C Ratio	-	-	2.076	0.04	-
HCM Control Delay (s)	-	-	$ 610.7	11.3	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	14.8	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	77	92	15	70	113
Future Vol, veh/h	8	77	92	15	70	113
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	81	81	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	83	114	19	115	185

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	539	124	0	0	133	0
Stage 1	124	-	-	-	-	-
Stage 2	415	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	503	927	-	-	1452	-
Stage 1	902	-	-	-	-	-
Stage 2	666	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	459	927	-	-	1452	-
Mov Cap-2 Maneuver	459	-	-	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	607	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	2.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	846	1452	-
HCM Lane V/C Ratio	-	-	0.108	0.079	-
HCM Control Delay (s)	-	-	9.8	7.7	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.3	-

Intersection	
Int Delay, s/veh	46.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	422	61	75	52	46	631
Future Vol, veh/h	422	61	75	52	46	631
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	88	88	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	469	68	85	59	51	701

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	144	0	-	0	1121	115
Stage 1	-	-	-	-	115	-
Stage 2	-	-	-	-	1006	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1438	-	-	-	228	937
Stage 1	-	-	-	-	910	-
Stage 2	-	-	-	-	353	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1438	-	-	-	151	937
Mov Cap-2 Maneuver	-	-	-	-	151	-
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	353	-

Approach	EB	WB	SB
HCM Control Delay, s	7.6	0	83.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1438	-	-	-	692
HCM Lane V/C Ratio	0.326	-	-	-	1.087
HCM Control Delay (s)	8.7	0	-	-	83.9
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	1.4	-	-	-	21

Intersection	
Int Delay, s/veh	10.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	80	8	8	499	608	80
Future Vol, veh/h	80	8	8	499	608	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	85	85	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	138	14	9	587	724	95

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1377	772	819	0	-	0
Stage 1	772	-	-	-	-	-
Stage 2	605	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	160	400	810	-	-	-
Stage 1	456	-	-	-	-	-
Stage 2	545	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	157	400	810	-	-	-
Mov Cap-2 Maneuver	157	-	-	-	-	-
Stage 1	449	-	-	-	-	-
Stage 2	545	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	103.7	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	810	-	166	-	-
HCM Lane V/C Ratio	0.012	-	0.914	-	-
HCM Control Delay (s)	9.5	0	103.7	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0	-	6.7	-	-

Intersection	
Int Delay, s/veh	251

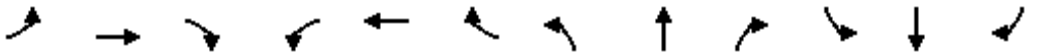
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	548	8	0	505	361	653
Future Vol, veh/h	548	8	0	505	361	653
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	71	71	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	677	10	0	711	430	777

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1141	430	-	0	-	0
Stage 1	430	-	-	-	-	-
Stage 2	711	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 222	625	0	-	-	-
Stage 1	~ 656	-	0	-	-	-
Stage 2	~ 487	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 222	625	-	-	-	-
Mov Cap-2 Maneuver	~ 222	-	-	-	-	-
Stage 1	~ 656	-	-	-	-	-
Stage 2	~ 487	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 952.4	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	222	625	-	-
HCM Lane V/C Ratio	-	3.047	0.016	-	-
HCM Control Delay (s)	-	$ 966.1	10.9	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	61	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

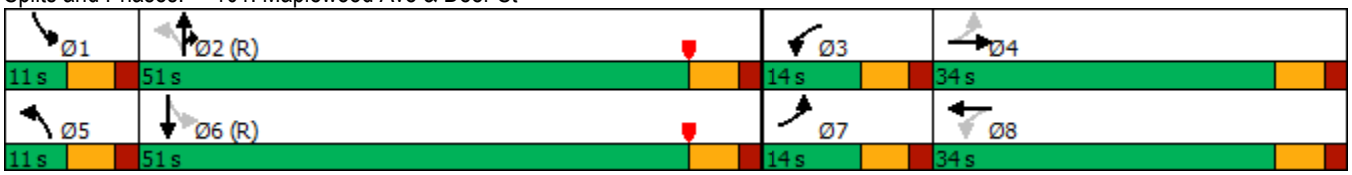


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	57	68	238	82	95	48	422	198	101	357	137
Future Volume (vph)	128	57	68	238	82	95	48	422	198	101	357	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	13	13	12	14	14	11	11	13	11	11	11
Storage Length (ft)	0		0	0		100	0		0	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.918			0.920				0.850		0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1767	0	1770	1828	0	1711	1801	1636	1711	1725	0
Flt Permitted	0.527			0.609			0.250			0.302		
Satd. Flow (perm)	916	1767	0	1134	1828	0	450	1801	1636	544	1725	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52			51				220		21	
Link Speed (mph)		25			25			25			30	
Link Distance (ft)		363			453			585			231	
Travel Time (s)		9.9			12.4			16.0			5.3	
Peak Hour Factor	0.78	0.78	0.78	0.86	0.86	0.86	0.90	0.90	0.90	0.91	0.91	0.91
Adj. Flow (vph)	164	73	87	277	95	110	53	469	220	111	392	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	164	160	0	277	205	0	53	469	220	111	543	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Prot	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	2	1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	4.0	5.0		4.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	29.0		10.0	29.0		11.0	29.0	29.0	11.0	28.0	
Total Split (s)	14.0	34.0		14.0	34.0		11.0	51.0	51.0	11.0	51.0	
Total Split (%)	12.7%	30.9%		12.7%	30.9%		10.0%	46.4%	46.4%	10.0%	46.4%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max		None	None		None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	36.0	28.0		36.0	28.0		50.0	45.0	45.0	51.2	47.2	
Actuated g/C Ratio	0.33	0.25		0.33	0.25		0.45	0.41	0.41	0.47	0.43	
v/c Ratio	0.46	0.33		0.66	0.41		0.20	0.64	0.28	0.36	0.72	
Control Delay	29.3	24.3		36.7	28.1		15.8	30.8	3.7	18.4	32.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	29.3	24.3		36.7	28.1		15.8	30.8	3.7	18.4	32.4	
LOS	C	C		D	C		B	C	A	B	C	
Approach Delay		26.8			33.0			21.7			30.1	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	78	61		142	89		18	260	0	40	311	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	110	97		204	149		39	374	46	71	451	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)	353	488		417	503		261	736	799	306	752	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.46	0.33		0.66	0.41		0.20	0.64	0.28	0.36	0.72	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 6 (5%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 27.4		Intersection LOS: C	
Intersection Capacity Utilization 71.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 101: Maplewood Ave & Deer St



Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	56	525	12	44	592
Future Vol, veh/h	23	56	525	12	44	592
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	91	91	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	69	577	13	48	643

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1323	584	0	0	590	0
Stage 1	584	-	-	-	-	-
Stage 2	739	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	172	512	-	-	985	-
Stage 1	557	-	-	-	-	-
Stage 2	472	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	159	512	-	-	985	-
Mov Cap-2 Maneuver	159	-	-	-	-	-
Stage 1	557	-	-	-	-	-
Stage 2	436	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.8	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	311	985	-
HCM Lane V/C Ratio	-	-	0.314	0.049	-
HCM Control Delay (s)	-	-	21.8	8.8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.3	0.2	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	5	532	51	7	604
Future Vol, veh/h	26	5	532	51	7	604
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	90	90	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	6	591	57	8	649

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1285	620	0	0	648	0
Stage 1	620	-	-	-	-	-
Stage 2	665	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	182	488	-	-	938	-
Stage 1	536	-	-	-	-	-
Stage 2	511	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	180	488	-	-	938	-
Mov Cap-2 Maneuver	180	-	-	-	-	-
Stage 1	536	-	-	-	-	-
Stage 2	504	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.8	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	200	938	-
HCM Lane V/C Ratio	-	-	0.176	0.008	-
HCM Control Delay (s)	-	-	26.8	8.9	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0	-

Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	38	62	9	28	38
Future Vol, veh/h	8	38	62	9	28	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	67	67	78	78	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	57	79	12	31	42

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	189	85	0	0	91	0
Stage 1	85	-	-	-	-	-
Stage 2	104	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	800	974	-	-	1504	-
Stage 1	938	-	-	-	-	-
Stage 2	920	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	783	974	-	-	1504	-
Mov Cap-2 Maneuver	783	-	-	-	-	-
Stage 1	938	-	-	-	-	-
Stage 2	901	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	3.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	934	1504	-
HCM Lane V/C Ratio	-	-	0.074	0.02	-
HCM Control Delay (s)	-	-	9.2	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	10.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	250	85	103	65	40	375
Future Vol, veh/h	250	85	103	65	40	375
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	81	81	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	275	93	127	80	45	421

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	207	0	-	0	810	167
Stage 1	-	-	-	-	167	-
Stage 2	-	-	-	-	643	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1364	-	-	-	349	877
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	523	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1364	-	-	-	275	877
Mov Cap-2 Maneuver	-	-	-	-	275	-
Stage 1	-	-	-	-	679	-
Stage 2	-	-	-	-	523	-

Approach	EB	WB	SB
HCM Control Delay, s	6.2	0	18.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1364	-	-	-	724
HCM Lane V/C Ratio	0.201	-	-	-	0.644
HCM Control Delay (s)	8.3	0	-	-	18.5
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.8	-	-	-	4.7

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	33	4	7	309	344	41
Future Vol, veh/h	33	4	7	309	344	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	83	83	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	5	8	372	370	44

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	780	392	414	0	-	0
Stage 1	392	-	-	-	-	-
Stage 2	388	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	364	657	1145	-	-	-
Stage 1	683	-	-	-	-	-
Stage 2	686	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	361	657	1145	-	-	-
Mov Cap-2 Maneuver	361	-	-	-	-	-
Stage 1	677	-	-	-	-	-
Stage 2	686	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.9	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1145	-	379	-	-
HCM Lane V/C Ratio	0.007	-	0.13	-	-
HCM Control Delay (s)	8.2	0	15.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection	
Int Delay, s/veh	28.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	323	20	0	281	489	385
Future Vol, veh/h	323	20	0	281	489	385
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	85	85	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	367	23	0	331	537	423

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	868	537	-	0	-	0
Stage 1	537	-	-	-	-	-
Stage 2	331	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 323	544	0	-	-	-
Stage 1	586	-	0	-	-	-
Stage 2	728	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 323	544	-	-	-	-
Mov Cap-2 Maneuver	~ 323	-	-	-	-	-
Stage 1	586	-	-	-	-	-
Stage 2	728	-	-	-	-	-

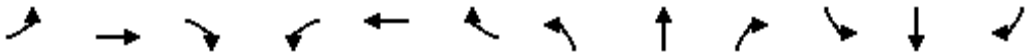
Approach	EB	NB	SB
HCM Control Delay, s	121.5	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	323	544	-	-
HCM Lane V/C Ratio	-	1.136	0.042	-	-
HCM Control Delay (s)	-	128.3	11.9	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	14.8	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

APPENDIX E

Capacity Analyses
2032 Build Conditions

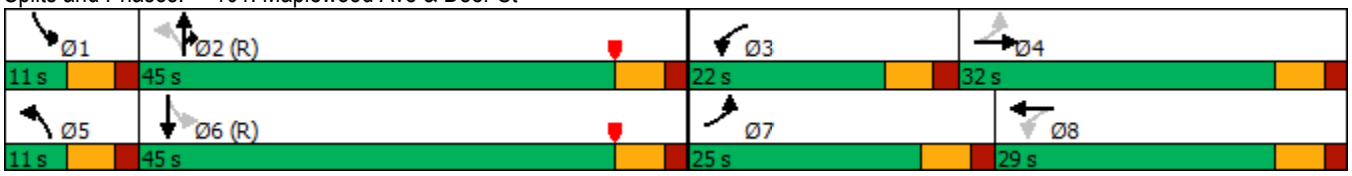


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	360	190	121	360	167	86	64	557	243	77	445	199
Future Volume (vph)	360	190	121	360	167	86	64	557	243	77	445	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	13	13	12	14	14	11	11	13	11	11	11
Storage Length (ft)	0		0	0		100	0		0	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.942			0.949				0.850		0.954	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1813	0	1770	1886	0	1711	1801	1636	1711	1718	0
Flt Permitted	0.199			0.174			0.103			0.100		
Satd. Flow (perm)	346	1813	0	324	1886	0	185	1801	1636	180	1718	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			21				243		23	
Link Speed (mph)		25			25			25			30	
Link Distance (ft)		363			453			585			231	
Travel Time (s)		9.9			12.4			16.0			5.3	
Peak Hour Factor	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	545	288	183	474	220	113	74	640	279	94	543	243
Shared Lane Traffic (%)												
Lane Group Flow (vph)	545	471	0	474	333	0	74	640	279	94	786	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Prot	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	2	1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	29.0		11.0	29.0		11.0	29.0	29.0	11.0	28.0	
Total Split (s)	25.0	32.0		22.0	29.0		11.0	45.0	45.0	11.0	45.0	
Total Split (%)	22.7%	29.1%		20.0%	26.4%		10.0%	40.9%	40.9%	10.0%	40.9%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max		None	None		None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	45.0	26.0		39.0	23.0		44.0	39.0	39.0	45.2	41.2	
Actuated g/C Ratio	0.41	0.24		0.35	0.21		0.40	0.35	0.35	0.41	0.37	
v/c Ratio	1.49	1.05		1.46	0.81		0.52	1.00	0.38	0.66	1.20	
Control Delay	257.6	95.1		249.7	55.6		30.8	72.7	6.5	41.8	134.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	257.6	95.1		249.7	55.6		30.8	72.7	6.5	41.8	134.7	
LOS	F	F		F	E		C	E	A	D	F	
Approach Delay		182.3			169.6			51.0			124.7	
Approach LOS		F			F			D			F	
Queue Length 50th (ft)	~475	~348		~411	212		29	~450	17	37	~691	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	#415	300		#474	255		55	#655	67	#71	#804	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)	367	449		325	410		143	638	736	143	657	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	1.49	1.05		1.46	0.81		0.52	1.00	0.38	0.66	1.20	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.49			
Intersection Signal Delay: 130.5		Intersection LOS: F	
Intersection Capacity Utilization 97.0%		ICU Level of Service F	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 101: Maplewood Ave & Deer St



Intersection	
Int Delay, s/veh	145.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	216	201	816	0	0	773
Future Vol, veh/h	216	201	816	0	0	773
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	270	251	1020	0	0	869

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1889	1020	0	-	-	-
Stage 1	1020	-	-	-	-	-
Stage 2	869	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 77	287	-	0	0	-
Stage 1	348	-	-	0	0	-
Stage 2	410	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	~ 77	287	-	-	-	-
Mov Cap-2 Maneuver	~ 77	-	-	-	-	-
Stage 1	348	-	-	-	-	-
Stage 2	410	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 674.6	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	77	287	-
HCM Lane V/C Ratio	-	3.506	0.875	-
HCM Control Delay (s)	-	$ 1241.7	65.2	-
HCM Lane LOS	-	F	F	-
HCM 95th %tile Q(veh)	-	27.8	7.7	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	820	126	215	789
Future Volume (Veh/h)	0	0	820	126	215	789
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.75	0.75	0.79	0.79	0.84	0.84
Hourly flow rate (vph)	0	0	1038	159	256	939
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			231			
pX, platoon unblocked	0.42	0.42			0.42	
vC, conflicting volume	2568	1118			1197	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4020	598			786	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			28	
cM capacity (veh/h)	0	213			353	

Direction, Lane #	NB 1	SB 1
Volume Total	1197	1195
Volume Left	0	256
Volume Right	159	0
cSH	1700	353
Volume to Capacity	0.70	0.72
Queue Length 95th (ft)	0	136
Control Delay (s)	0.0	37.8
Lane LOS		E
Approach Delay (s)	0.0	37.8
Approach LOS		

Intersection Summary			
Average Delay	18.9		
Intersection Capacity Utilization	110.9%	ICU Level of Service	H
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	107	274	100	0	0
Future Vol, veh/h	0	107	274	100	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	16979
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	81	81	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	115	338	123	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	-	400	0	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	650	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	650	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	11.7	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	650
HCM Lane V/C Ratio	-	-	0.177
HCM Control Delay (s)	-	-	11.7
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.6

Intersection	
Int Delay, s/veh	46.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	422	61	75	52	46	631
Future Vol, veh/h	422	61	75	52	46	631
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	88	88	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	469	68	85	59	51	701

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	144	0	-	0	1121	115
Stage 1	-	-	-	-	115	-
Stage 2	-	-	-	-	1006	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1438	-	-	-	228	937
Stage 1	-	-	-	-	910	-
Stage 2	-	-	-	-	353	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1438	-	-	-	151	937
Mov Cap-2 Maneuver	-	-	-	-	151	-
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	353	-

Approach	EB	WB	SB
HCM Control Delay, s	7.6	0	83.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1438	-	-	-	692
HCM Lane V/C Ratio	0.326	-	-	-	1.087
HCM Control Delay (s)	8.7	0	-	-	83.9
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	1.4	-	-	-	21

Intersection	
Int Delay, s/veh	17.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	96	8	8	499	608	102
Future Vol, veh/h	96	8	8	499	608	102
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	85	85	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	166	14	9	587	724	121

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1390	785	845	0	-	0
Stage 1	785	-	-	-	-	-
Stage 2	605	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 157	393	792	-	-	-
Stage 1	449	-	-	-	-	-
Stage 2	545	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 154	393	792	-	-	-
Mov Cap-2 Maneuver	~ 154	-	-	-	-	-
Stage 1	441	-	-	-	-	-
Stage 2	545	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	159.2	0.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	792	-	162	-	-
HCM Lane V/C Ratio	0.012	-	1.107	-	-
HCM Control Delay (s)	9.6	0	159.2	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0	-	9.4	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	264.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	564	8	0	505	361	675
Future Vol, veh/h	564	8	0	505	361	675
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	71	71	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	696	10	0	711	430	804

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1141	430	-	0	-	0
Stage 1	430	-	-	-	-	-
Stage 2	711	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 222	625	0	-	-	-
Stage 1	~ 656	-	0	-	-	-
Stage 2	~ 487	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 222	625	-	-	-	-
Mov Cap-2 Maneuver	~ 222	-	-	-	-	-
Stage 1	~ 656	-	-	-	-	-
Stage 2	~ 487	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 992	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	222	625	-	-
HCM Lane V/C Ratio	-	3.136	0.016	-	-
HCM Control Delay (s)	-	$ 1005.9	10.9	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	63.4	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

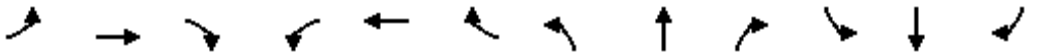
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	366	71	0	51
Future Vol, veh/h	0	0	366	71	0	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	398	77	0	55

Major/Minor	Major2		Minor2	
Conflicting Flow All	-	0	-	437
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	620
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-		
Mov Cap-1 Maneuver	-	-	-	620
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	SB
HCM Control Delay, s	0	11.4
HCM LOS		B

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	620
HCM Lane V/C Ratio	-	-	0.089
HCM Control Delay (s)	-	-	11.4
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.3

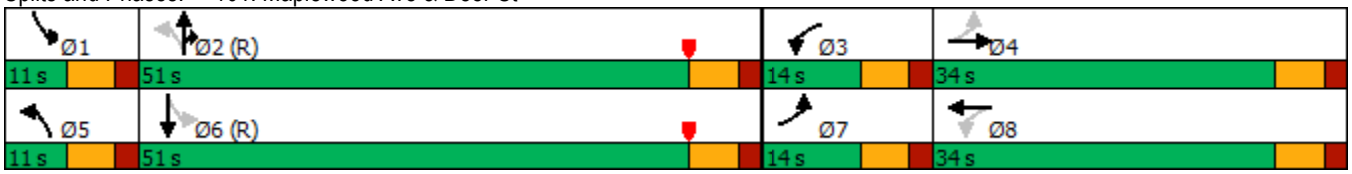


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	57	68	238	82	95	48	458	198	101	386	137
Future Volume (vph)	128	57	68	238	82	95	48	458	198	101	386	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	13	13	12	14	14	11	11	13	11	11	11
Storage Length (ft)	0		0	0		100	0		0	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.918			0.920				0.850		0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1767	0	1770	1828	0	1711	1801	1636	1711	1730	0
Flt Permitted	0.527			0.609			0.219			0.263		
Satd. Flow (perm)	916	1767	0	1134	1828	0	394	1801	1636	474	1730	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52			51				220		20	
Link Speed (mph)		25			25			25			30	
Link Distance (ft)		363			453			585			231	
Travel Time (s)		9.9			12.4			16.0			5.3	
Peak Hour Factor	0.78	0.78	0.78	0.86	0.86	0.86	0.90	0.90	0.90	0.91	0.91	0.91
Adj. Flow (vph)	164	73	87	277	95	110	53	509	220	111	424	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	164	160	0	277	205	0	53	509	220	111	575	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Prot	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	2	1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	29.0		11.0	29.0		11.0	29.0	29.0	11.0	28.0	
Total Split (s)	14.0	34.0		14.0	34.0		11.0	51.0	51.0	11.0	51.0	
Total Split (%)	12.7%	30.9%		12.7%	30.9%		10.0%	46.4%	46.4%	10.0%	46.4%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Max		None	None		None	C-Max	C-Max	None	C-Max	
Act Effct Green (s)	36.0	28.0		36.0	28.0		50.0	45.0	45.0	51.2	47.2	
Actuated g/C Ratio	0.33	0.25		0.33	0.25		0.45	0.41	0.41	0.47	0.43	
v/c Ratio	0.46	0.33		0.66	0.41		0.22	0.69	0.28	0.40	0.76	
Control Delay	29.3	24.3		36.7	28.1		16.2	32.8	3.7	19.5	34.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	29.3	24.3		36.7	28.1		16.2	32.8	3.7	19.5	34.6	
LOS	C	C		D	C		B	C	A	B	C	
Approach Delay		26.8			33.0			23.5			32.2	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	78	61		142	89		18	291	0	40	340	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	110	97		204	149		39	416	46	71	#494	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)	353	488		417	503		238	736	799	276	753	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.46	0.33		0.66	0.41		0.22	0.69	0.28	0.40	0.76	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 6 (5%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 28.6		Intersection LOS: C	
Intersection Capacity Utilization 73.2%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 101: Maplewood Ave & Deer St



Intersection	
Int Delay, s/veh	10.8

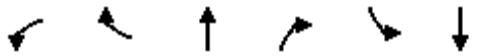
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	130	89	520	0	0	670
Future Vol, veh/h	130	89	520	0	0	670
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	91	91	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	160	110	571	0	0	728

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1299	571	0	-	-	-
Stage 1	571	-	-	-	-	-
Stage 2	728	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	178	520	-	0	0	-
Stage 1	565	-	-	0	0	-
Stage 2	478	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	178	520	-	-	-	-
Mov Cap-2 Maneuver	178	-	-	-	-	-
Stage 1	565	-	-	-	-	-
Stage 2	478	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	62.8	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	178	520	-
HCM Lane V/C Ratio	-	0.902	0.211	-
HCM Control Delay (s)	-	96.3	13.8	-
HCM Lane LOS	-	F	B	-
HCM 95th %tile Q(veh)	-	6.7	0.8	-

202: Maplewood Ave & Vaughan St
2032 Build Saturday Midday



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	520	99	137	659
Future Volume (Veh/h)	0	0	520	99	137	659
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.88	0.88	0.90	0.90	0.93	0.93
Hourly flow rate (vph)	0	0	578	110	147	709
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			231			
pX, platoon unblocked	0.70	0.70			0.70	
vC, conflicting volume	1636	633			688	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1693	268			346	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			83	
cM capacity (veh/h)	60	542			853	

Direction, Lane #	NB 1	SB 1
Volume Total	688	856
Volume Left	0	147
Volume Right	110	0
cSH	1700	853
Volume to Capacity	0.40	0.17
Queue Length 95th (ft)	0	15
Control Delay (s)	0.0	4.2
Lane LOS		A
Approach Delay (s)	0.0	4.2
Approach LOS		

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	82	181	65	0	0
Future Vol, veh/h	0	82	181	65	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	67	67	78	78	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	122	232	83	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	-	274	0	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	765	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	765	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	10.6	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	765
HCM Lane V/C Ratio	-	-	0.16
HCM Control Delay (s)	-	-	10.6
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.6

Intersection	
Int Delay, s/veh	10.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	250	85	103	65	40	375
Future Vol, veh/h	250	85	103	65	40	375
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	81	81	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	275	93	127	80	45	421

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	207	0	-	0	810	167
Stage 1	-	-	-	-	167	-
Stage 2	-	-	-	-	643	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1364	-	-	-	349	877
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	523	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1364	-	-	-	275	877
Mov Cap-2 Maneuver	-	-	-	-	275	-
Stage 1	-	-	-	-	679	-
Stage 2	-	-	-	-	523	-

Approach	EB	WB	SB
HCM Control Delay, s	6.2	0	18.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1364	-	-	-	724
HCM Lane V/C Ratio	0.201	-	-	-	0.644
HCM Control Delay (s)	8.3	0	-	-	18.5
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.8	-	-	-	4.7

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	61	4	7	309	344	77
Future Vol, veh/h	61	4	7	309	344	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	83	83	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	81	5	8	372	370	83

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	800	412	453	0	-	0
Stage 1	412	-	-	-	-	-
Stage 2	388	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	354	640	1108	-	-	-
Stage 1	669	-	-	-	-	-
Stage 2	686	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	351	640	1108	-	-	-
Mov Cap-2 Maneuver	351	-	-	-	-	-
Stage 1	663	-	-	-	-	-
Stage 2	686	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.1	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1108	-	361	-	-
HCM Lane V/C Ratio	0.008	-	0.24	-	-
HCM Control Delay (s)	8.3	0	18.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.9	-	-

Intersection	
Int Delay, s/veh	37.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	351	20	0	281	489	421
Future Vol, veh/h	351	20	0	281	489	421
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	85	85	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	399	23	0	331	537	463

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	868	537	-	0	-	0
Stage 1	537	-	-	-	-	-
Stage 2	331	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 323	544	0	-	-	-
Stage 1	586	-	0	-	-	-
Stage 2	728	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 323	544	-	-	-	-
Mov Cap-2 Maneuver	~ 323	-	-	-	-	-
Stage 1	586	-	-	-	-	-
Stage 2	728	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	155.6	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	323	544	-	-
HCM Lane V/C Ratio	-	1.235	0.042	-	-
HCM Control Delay (s)	-	163.8	11.9	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	17.9	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	131	108	0	87
Future Vol, veh/h	0	0	131	108	0	87
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	1	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	142	117	0	95

Major/Minor	Major2		Minor2	
Conflicting Flow All	-	0	-	201
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	840
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-		
Mov Cap-1 Maneuver	-	-	-	840
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	SB
HCM Control Delay, s	0	9.8
HCM LOS		A

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	840
HCM Lane V/C Ratio	-	-	0.113
HCM Control Delay (s)	-	-	9.8
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0.4

APPENDIX F
Trip Generation

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Raynes Ave Hotel	**Organization:**	
Project Location:	Portsmouth, NH	**Performed By:**	
Scenario Description:		**Date:**	
Analysis Year:	2020/2030	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail				20	10	10
Restaurant				34	23	11
Cinema/Entertainment				0		
Residential				26	16	10
Hotel				70	36	34
All Other Land Uses[2]				0		
Total				150	85	65

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		3	0	3	1
Restaurant	0	5		0	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	2	0		0
Hotel	0	0	1	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	150	85	65
Internal Capture Percentage	25%	22%	29%
External Vehicle-Trips[3]	112	66	46
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	60%	70%
Restaurant	26%	73%
Cinema/Entertainment	N/A	N/A
Residential	31%	30%
Hotel	6%	3%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Raynes Ave Hotel
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	10	10	1.00	10	10
Restaurant	1.00	23	23	1.00	11	11
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	16	16	1.00	10	10
Hotel	1.00	36	36	1.00	34	34

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		3	0	3	1
Restaurant	0	5		1	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	0	4	2	0		0
Hotel	0	5	23	0	1	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	0	0	1	0
Retail	0		7	0	7	6
Restaurant	0	5		0	3	26
Cinema/Entertainment	0	0	1		1	0
Residential	0	1	3	0		4
Hotel	0	0	1	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	6	4	10	4	0	0
Restaurant	6	17	23	17	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	5	11	16	11	0	0
Hotel	2	34	36	34	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	7	3	10	3	0	0
Restaurant	8	3	11	3	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	7	10	7	0	0
Hotel	1	33	34	33	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

APPENDIX G

111 Maplewood Avenue Traffic Evaluation

Proposed Office Building
111 Maplewood Avenue
Portsmouth, NH

TO: Eric Eby, PE
Parking and Transportation Engineer
Department of Public Works
City of Portsmouth, NH

FROM: Vinod Kalikiri, PE, PTOE

DATE: March 18, 2019

Tighe & Bond has prepared this *Traffic Evaluation* to summarize the projected changes in the traffic operations related to the construction of an approximately 74,000 square foot (sf) office building with ancillary commercial space (the Project) to be located at 111 Maplewood Avenue in Portsmouth, New Hampshire (the Site).

The 111 Maplewood Avenue property will be subdivided into two parcels. The proposed development will be located on the northern parcel, which is bounded by Maplewood Avenue on the south, Raynes Avenue on the north, and Vaughan Street on the east. The Site is currently developed with paved parking spaces that are used by the existing building located on the south parcel, and lawn/landscaping.

Vehicular access to the Site will be provided by a driveway located at the general location of the existing curb cut, along the south side of Vaughan Street. As part of the Project, 37 parking spaces will be provided on the north parcel for use by the proposed office and commercial uses. The site plan also shows an additional 13 spaces on the south parcel that can be accessed via the site driveway. The Project will also install curb extensions to better define the on-street parking along the perimeter of the Site. A copy of the site plan is included in the Appendix.

The trip generation analysis indicates that the Project can be expected to generate approximately 180 trips during the weekday evening peak hour (approximately 50 entering trips + 130 exiting trips). Approximately 60 percent of the Site traffic will be oriented to/from the north on Maplewood Avenue; 20 percent via Market Street and the remaining 20 percent to/from the south on Maplewood Avenue.

Detailed weekday evening peak hour traffic operations analysis was prepared for the study locations. The analysis was conducted for four different scenarios:

- 2020 No-Build scenario – includes an annual background traffic growth rate
- 2020 Build scenario – adds the Project-generated traffic volumes to the 2020 No-Build scenario
- 2030 No-Build scenario – includes an annual background traffic growth rate and traffic from nearby proposed development projects.
- 2030 Build scenario – adds the Project-generated traffic volumes to the 2030 No-Build scenario

The remainder of the report summarizes the evaluation which includes a description of the study area, traffic volume counts during the weekday evening commuter peak period, trip generation estimates for the Project, estimated trip distribution patterns for the new Project-related trips, traffic volume projections for each of the analysis scenarios, traffic operations analysis for the study area intersections, and a summary of the study findings.

Study Methodology

This traffic evaluation and its supporting analyses were conducted in accordance with New Hampshire Department of Transportation (NHDOT) and the City of Portsmouth guidelines and are described below. The study area and the peak analysis period included in the study were reviewed with City staff during a scoping meeting prior to initiating the traffic analysis.

An inventory of existing conditions was conducted and includes a description of the roadway and intersection geometries and the collection of existing traffic volumes. Existing vehicular traffic counts were collected at the study area intersections during the weekday evening commuter peak period. The traffic data collection effort forms the basis for the operations analysis conducted as part of this traffic evaluation.

The future conditions analyses evaluate traffic-related impacts associated with additional development and traffic growth, with and without the Project. An opening year evaluation was conducted for the year 2020 (with and without the Project) and a long-term evaluation was conducted for the year 2030 (with and without the Project).

Existing Conditions

This section includes a description of existing study area roadway geometry, intersection geometry, intersection traffic control, and data collection efforts within the study area. **Figure 1** shows the location of the Site in context with the surrounding roadway network and study area.

Roadway Descriptions

Maplewood Avenue is a two-lane roadway (one lane in each direction) that runs east-west between Woodbury Avenue and Congress Street. On-street parallel parking, bike lanes and sidewalks are provided on both sides of Maplewood Avenue in the vicinity of the Project. The roadway has a posted speed limit of 25 miles per hour (mph) near the site.

The other study area roadways (Raynes Avenue, Vaughan Street, Deer Street, Russell Street, and Market Street) within the study area have similar urban characteristics: two-lane roadway, on-street parallel parking, sidewalks, and low speed limits (25 mph or less). Land uses near the Site are a mix of commercial businesses, restaurants, hotels and residential.

Intersection Descriptions

Maplewood Avenue/Raynes Avenue

Raynes Avenue intersects Maplewood Avenue from the east to form a three-way unsignalized intersection. All approaches at this intersection provide a single general-purpose lane. Sidewalks are provided on both sides of Maplewood Avenue. On-street parallel parking is provided on both sides of Maplewood Avenue and Raynes Avenue. Maplewood Avenue

operates with the right of way while the minor street approach of Raynes Avenue operates under stop control. A bike lane is striped along both sides of Maplewood Avenue.

Maplewood Avenue/Vaughan Street

Vaughan Street and a private driveway intersect Maplewood Avenue from the east and the west, respectively, to form a four-way unsignalized intersection. All approaches at this intersection provide a single general-purpose lane. Sidewalks are provided on both sides of Maplewood Avenue, but no crosswalks are provided at the intersection. On-street parallel parking is provided on both sides of Maplewood Avenue west of Vaughan Street and on both sides of Vaughan Street. A bike lane is striped along both sides of Maplewood Avenue north of the intersection and along Maplewood Avenue northbound approach south of the intersection. Maplewood Avenue operates with the right of way while the minor street approaches of Vaughan Street and the private driveway operate as the stop-controlled approaches.

Maplewood Avenue/Deer Street

Deer Street intersects Maplewood Avenue from the east and west to form a four-way signalized intersection. Maplewood Avenue southbound approach consists of left turn only lane and a right/through shared lane. Maplewood Avenue northbound approach consists of an exclusive left turn lane, exclusive through lane and an exclusive right turn lane. Deer Street eastbound approach consists of a single general-purpose lane. Deer Street westbound approach consists of an exclusive left turn lane and a right and through shared lane. The intersection is equipped with an exclusive actuated pedestrian phase. Each leg of the intersection has painted crosswalks.

Vaughan Street/111 Maplewood Avenue North Driveway

111 Maplewood Ave driveway intersects Vaughan Street from the west to form a three-way unsignalized intersection. All approaches at this intersection provide a single general-purpose lane. Sidewalks and on-street parallel parking are provided on both sides of the Vaughan Street.

Vaughan Street/Green Street

Green Street intersects Vaughan Street from the east, forming a three-way unsignalized intersection. Both roadways provide a single lane of travel in each direction. Vehicles exiting from Green Street operate under stop control. The width of Green Street ranges between 17 and 24 feet of pavement with no delineation of travel lanes or shoulders. A brick paver sidewalk exists on the east side of Green Street, south of the railroad tracks. On-street parking is allowed on the south side of Vaughan Street at the intersection.

Deer Street/Russell Street

Russell Street intersects Deer Street from the north to form a three-way unsignalized intersection. The southbound approach on Russell Street provides a single general-purpose lane that operates under a stop control. The westbound and eastbound approaches on Deer Street both provide a single general-purpose lane. The intersection provides sidewalks on all sides of the intersection approaches. A crosswalk is available for pedestrians crossing Deer Street east of Russell Street. On Street parking is available on all approaches.

Russell Street/Green Street

Green Street intersects Russell Street from the west to form a three-way unsignalized intersection. The eastbound approach of Green Street provides a single general-purpose lane that operates under stop control. The northbound and southbound approaches on Russell Street also both provide a single multi-use lane. Sidewalk is provided on both sides of Russell

Street, but no crosswalks are provided at the intersection. On-street metered parking is provided on Russell Street south of Green Street.

Market Street/Russell Street

Russell Street intersects Market Street from the south, forming a three-way unsignalized intersection. Market Street eastbound consists of a through lane and a channelized right turn lane that operates as free flow movements. The westbound approach consists of a single through lane. The intersection geometry is designed to prohibit westbound left turns from Market Street to Russell Street. The Russell Street approach is a single lane that is wide enough for right turning vehicles to bypass waiting left turning vehicles. The Russell Street approach operates under stop control. Pedestrian crosswalks are provided along Russell Street and the westbound Market Street approach with sidewalks provided on all approaches. It is noted that the intersection is fully signalized with mast arms, vehicular and pedestrian signal heads, etc. However, the signal indications are in flashing mode, with yellow indications facing Market Street and red indication facing Russell Street.

Existing Traffic Data

Evaluation of the traffic impacts related to the Project requires the quantification of existing roadway and traffic conditions throughout the study area. Traffic conditions were determined by conducting manual turning movement and vehicle classification counts (TMCs) at the study area intersections during the weekday evening peak period (4:00 PM to 6:00 PM) in January 2019. A review of the data indicates that the weekday evening peak hour occurs between 5:00 PM and 6:00 PM. The traffic count data is provided in the Appendix.

Seasonal Variation

The counts were seasonally adjusted to peak month conditions based on nearby traffic volume count stations located in proximity to Portsmouth. Specifically, based on data available from the Urban Highway (Group 4) continuous count stations for years 2014 to 2016, a seasonal adjustment factor of 19 percent was used in the analysis. Detailed calculations are provided in the Appendix.

Future Conditions

The Project's impacts were evaluated for the years 2020 (opening year) and 2030 (10 years from opening year), in accordance with NHDOT traffic assessment guidelines. No-Build conditions (without Project-generated traffic) and Build conditions (with Project-generated traffic) were evaluated for both analysis years.

No-Build Conditions

The following section describes the estimation of traffic volumes in the study area for the No-Build scenarios. The No-Build scenarios will serve as the baseline for comparison purposes to measure the impacts of the Project.

Planned Roadway and Intersection Projects

Information obtain from the City traffic department staff was used to identify planned roadway development projects in the area that could affect future traffic conditions. The following improvements, described in record studies prepared for other projects in the area, were considered when developing the No-Build conditions analysis.

- *US Route 1 Bypass Bridge Project:* As a result of the US Route 1 By-pass bridge closure, vehicles accessing Downtown Portsmouth via Maplewood Avenue from the by-pass have migrated to alternate routes. To reflect the restored traffic volumes after the bridge construction is completed, estimated traffic volumes associated with the rerouting were obtained from record studies[1] and included in the analysis.
- *Market Street/Russell Street reconstruction:* The City is in the early planning stages for the construction of a roundabout at the intersection of Market Street/Russell Street. At this time, no detailed plans have been developed. Therefore, this improvement is not included in the future conditions presented in this study. It is anticipated that a roundabout configuration would have a beneficial effect on the traffic operations and safety at the intersection.
- *North End Portsmouth Development (also referred to as the "Harbor Corp Project") Off-Site Improvements:* The time table for this project is currently unknown. However, since the development related traffic volumes are included in the No-Build analysis, traffic improvements proposed for this development were also take into consideration, where applicable.
- *Maplewood Avenue Corridor Project:* The Maplewood Avenue corridor improvement project includes full depth pavement construction/reclamation, sidewalk construction, drainage/water/sewer improvements, traffic calming measures, pavement striping, and improvements to bicycle accommodations. The Project extends between Woodbury Avenue to the west and Dennett Street to the east. Construction will be completed in 2019.
- *Maplewood Avenue Road Diet:* The City has conducted preliminary planning for a possible Maplewood Avenue Road Diet Project. The concept of the road diet would consider one through travel lane along Maplewood Avenue with auxiliary turn lanes provided, where necessary, at the intersections with Deer Street, Hanover Street, and Islington Street. This would present an opportunity for landscaped islands and/or improved bicycle accommodations. These improvements were not included in the future-year conditions as the construction timetable undetermined.
- *Maplewood Avenue Railroad Crossing:* NHDOT has been designing improvements for several rail crossings in the State. As part of the project, the DOT is seeking to reconstruct the at-grade crossing along Maplewood Avenue immediately north of Deer Street, as well as the railroad crossing on Green Street immediately west of Russell Street. The improvements are set to include new signage, railroad gates and signals where appropriate. However, this project has been delayed and implementation dates are currently unknown.

Traffic Growth

To develop future base line traffic volume conditions, two components of traffic growth were considered. The first component to determining traffic growth is to estimate an annual average traffic growth rate. Based on a review of recent studies[1] in the vicinity of the Project, a one percent per year background traffic growth rate was assumed in the analysis.

[1] Traffic Impact Assessment for *Proposed Hotel at 299 Vaughan Street (March 2017)* and Traffic Impact and Access Study for *Deer Street Parking Garage & Deer Street Associates Development (December 2016)*

The second component to determining traffic growth is identifying any proposed development projects that are near or within the study area. Based on discussions with the City of Portsmouth staff, it was determined that the following projects are either planned, under construction, or partially occupied. Traffic volumes related to these projects were obtained from record studies[1] and distributed through the study area.

- *Deer Street Garage and Mixed-Use Development:* This project will be located in the northwest corner of the Maplewood Avenue/Deer Street intersection. The traffic study for the project indicates that the full build-out of the project consists of a 600-stall municipal public parking garage with 4,700 sf of integral retail; and four mixed-use buildings. The four mixed-use buildings include a combination of 80 residential apartments, 108 hotel rooms, 41,300 sf of office, 20,000 sf of retail, 9,900 sf of restaurants, a 4,700 sf bar, and a 2,700 sf bank.
- *299 Vaughan Street:* This project is located at the corner of the intersection Vaughan Street and Green Street. It involves the demolition of an auto parts store and construction of a 143-room hotel with approximately 2,900 square feet of leasable commercial/retail space. This project is not yet occupied.
- *40 Bridge Street:* This project consists of constructing a 4,025 sf restaurant and six residential condos. The project has been constructed.
- *75 Congress Street:* This project consists of constructing 10 residential condos. Due to the low traffic-generating nature of this land use and the limited number of units, traffic generated by the development was assumed to be included as part of the 1.0 percent annual background growth rate.
- *Harbor Corp Redevelopment:* This project consists of constructing a 98-room hotel and conference center, 14 condominium units, a 40,000 sf grocery store, and a 540-space parking garage.
- *172 Hanover Street:* The project consists of renovating a 7,000 sf restaurant that has been vacant for several years.
- *30 Maplewood Avenue:* The vacancy assumptions for this development that were included in the Deer Street garage traffic study were used in the current study as well.
- *46-64 Maplewood Avenue:* This project consists of constructing 22 residential apartments and 13,475 sf of retail space. The project is under construction.
- *173-175 Market Street:* This project consists of constructing 3,331 sf of commercial space, 1,759 sf of office space, and six residential condos. The project is currently under construction.

It is assumed that other smaller developments or small vacancies in existing developments are captured by the background traffic growth rate assumptions used in the analysis.

No-Build Traffic Volumes

The 2020 and 2030 No-Build weekday evening peak hour traffic volumes were developed by applying the one percent annual traffic growth rate to the seasonally adjusted 2019 traffic volumes. In addition, volumes from the background projects were added to the traffic networks. The resulting 2020 and 2030 No-Build weekday evening peak hour traffic volumes are shown in **Figure 2** and **Figure 3**, respectively.

Build Conditions

The Project will consist of a new 74,000 sf office building with ancillary commercial space. Limited parking will be available on the Site. Additional parking demand for the Site would be

handled by off-site parking areas, including potentially the Foundry Place parking garage accessed via Deer Street and Bridge Street. The following sections describe the methodology to estimate the total number of Project-generated trips and their distribution within the study area roadway network.

Trip Generation

To develop the trip generation characteristics of the new Project, data published in the Institute of Transportation Engineers (ITE) *Trip Generation Manual* were used. ITE provides data to estimate the total number of vehicular trips associated with a site based on the specific land uses. To estimate the trip generation for the Project, ITE Land Use Code (LUC) 710 – Office and LUC 820 – Retail/Shopping Center were used. The weekday daily and the morning and evening peak hour trip generation estimates for the Project are presented in Table 1.

Table 1: **Weekday Evening Trip Generation**

Time Period	Office[1]	Retail[2]	Total
Weekday PM Peak Hour			
Enter	23	26	49
Exit	106	26	132
Total	***129***	***52***	***181***

1 Based on ITE LUC 710 – Office for 70,000 sf
2 Based on ITE LUC 820 – Shopping Center for 4,000 sf

As shown in Table 1, weekday pm office and retail site generates 49 entering trips and 132 trips.

Trip Distribution

The trip distribution identifies the various travel paths for vehicles arriving and leaving the Project site. Trip distribution patterns for the Project were based on a review of traffic studies conducted for nearby projects[2] and Journey to Work data published by the United States Census.

For analysis purposes, it was assumed that approximately 25% of the proposed office traffic will travel to the Site. The remaining 75% of the office traffic was assumed to park in off-site parking areas in the area, most notably the Foundry Place garage. During the evening peak hour, since the office usage of the parking will be minimal, it was assumed that all commercial traffic would travel to the Site. In addition to Site generated traffic, traffic volume redistribution resulting from the elimination of the south parcel driveway on Maplewood Avenue was also taken into consideration. The trip distribution patterns are shown in **Figure 4**. The vehicular trips associated with the Project were assigned to the study area and are shown in **Figure 5** for the weekday evening peak hour.

[2] Traffic Impact and Access Study for *Deer Street Parking Garage & Deer Street Associates Development (December 2016)*

Build Traffic Volumes

The 2020 and 2030 Build traffic volume networks were developed by adding the Project-generated trips to the 2020 and 2030 No-Build traffic volume networks. The Build conditions traffic volume networks are shown in **Figure 6** and **Figure 7**, respectively.

Traffic Operations Analysis

Intersection capacity analyses were performed for the study area intersections based on the criteria published in the Highway Capacity Manual. Level of service (LOS) is the term that defines the conditions that may occur on a given roadway or at an intersection when accommodating various traffic volume loads. Levels of service range from A to F with LOS A representing the best operating conditions and LOS F representing congested conditions. The results are summarized in Table 2 and 3. Analysis worksheets are provided in the Appendix.

The analysis for the Maplewood Avenue/Deer Street signalized intersection indicates that when all planned development projects are constructed, fully occupied and are generating traffic at the levels projected in the individual studies, traffic operations at the intersection during the weekday evening peak hour, especially for the left turn movements from the Deer Street approaches and the southbound through movement on Maplewood Avenue can be expected to be congested. A review of the traffic volumes indicates that the proposed office development at 111 Maplewood Avenue would not substantially affect the operations of the intersection but would add to the future volumes at the intersection. When the geometric improvement at the intersection proposed by others are designed, additional refinements may be necessary to operate the intersection at optimal levels.

A review of the unsignalized intersections' analyses indicates that, as expected in busy urban corridors and shown in other studies prepared in the area, side street approaches at the Maplewood Avenue at Raynes Avenue and Maplewood Avenue at Vaughan Street intersections are projected to experience some delay. The intersection of Market Street at Russell Street also shows congested operations in the future without the implementation of major infrastructure improvements, like the proposed roundabout. All other unsignalized intersections in the study area generally show acceptable operations.

Conclusions

The Project is estimated to generate approximately 180 trips during the weekday evening peak hour (approximately 50 entering trips + 130 exiting trips). Approximately 60 percent of the Site traffic will be oriented to/from the north on Maplewood Avenue; 20 percent via Market Street and the remaining 20 percent to/from the south on Maplewood Avenue.

Capacity analysis indicates that when planned background projects in the area are all constructed, substantial traffic volumes will be added to the study area network which in turn could add delays and congestion at certain locations along Maplewood Avenue, especially for the side street movements. Site generated traffic represents a relatively small percentage of the cumulative traffic volume expected to be generated by the planned background projects.

As the planned projects get implemented, and the traffic improvements associated with the projects are design, additional consideration should be given to accommodate side street movements. System-wide traffic improvement measures, such as promotion of reduced automobile usage, enhanced transit services to the area and promotion of remote/under utilized parking areas can also be considered by the City to reduce the volume of vehicular traffic generated within the downtown street network during peak times.

TABLE 2: Signalized Intersection Operations Summary

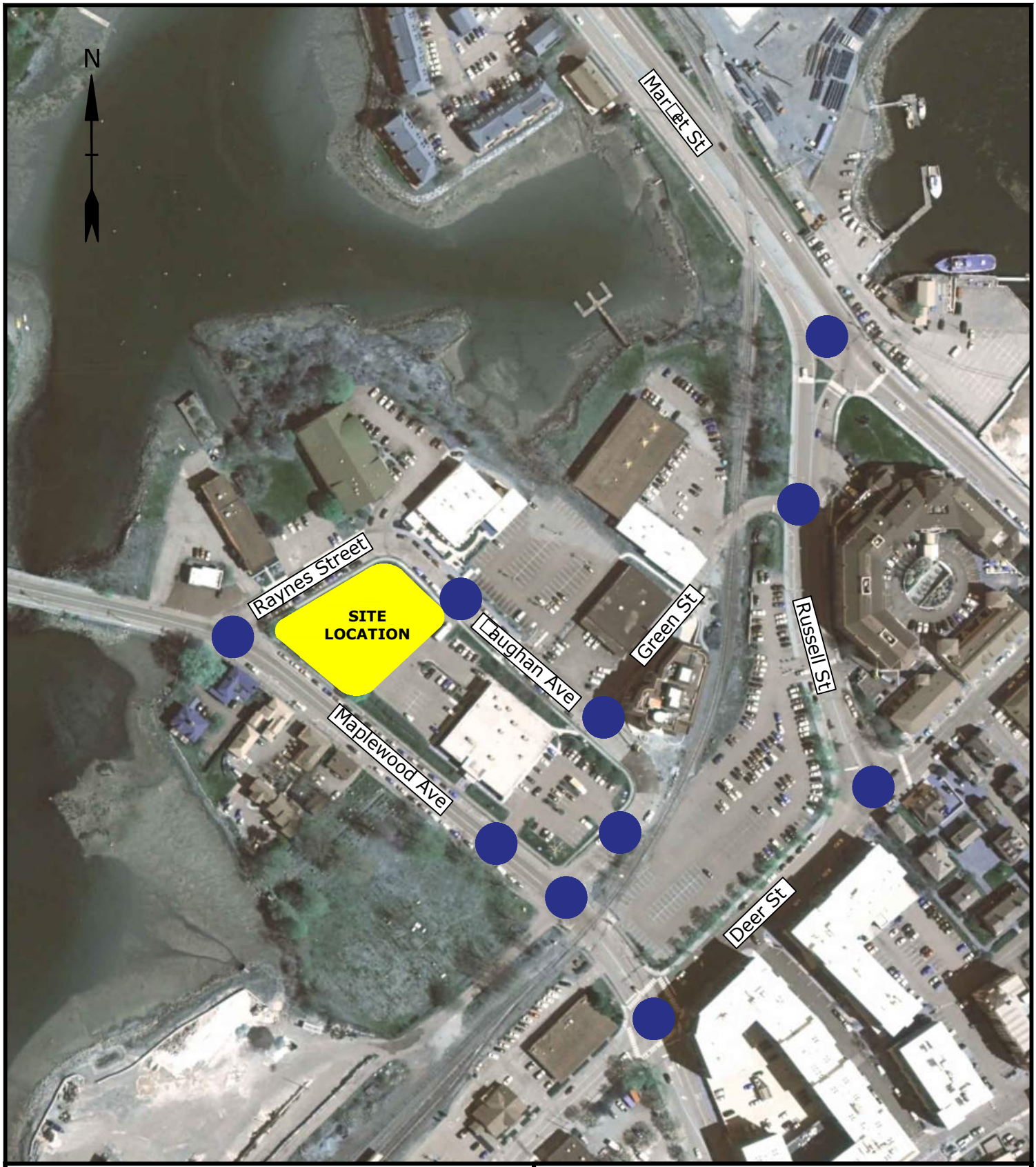
Intersection / Lane Group	2020 No Build					2020 Build					2030 No Build					2030 Build				
	V/C	Del	LOS	50th Q	95th Q	V/C	Del	LOS	50th Q	95th Q	V/C	Del	LOS	50th Q	95th Q	V/C	Del	LOS	50th Q	95th Q
Maplewood Ave / Deer St																				
Deer St EBL	>1.2	>120	F	~181	#165	>1.2	>120	F	~273	#266	>1.2	>120	F	~205	#194	>1.2	>120	F	~261	#253
Deer St EBT/R	0.77	43	D	153	153	0.82	43	D	172	177	0.78	43	D	161	162	0.84	47	D	183	186
Deer St WBL	>1.2	>120	F	~212	#258	>1.2	>120	F	~213	#285	>1.2	>120	F	~247	#298	>1.2	>120	F	~260	#340
Deer St WBT/R	0.70	39	D	139	171	0.65	34	C	134	174	0.73	40	D	151	185	0.69	37	D	148	188
Maplewood Ave NBL	0.32	19	B	16	37	0.37	22	C	18	39	0.33	21	C	16	38	0.37	22	C	18	40
Maplewood Ave NBT	0.76	32	C	270	#429	0.83	37	D	272	#438	0.84	38	D	313	#492	0.88	42	D	318	#501
Maplewood Ave NBR	0.15	19	B	0	45	0.15	19	B	0	45	0.17	19	B	0	46	0.17	20	B	0	46
Maplewood Ave SBL	0.32	17	B	24	48	0.41	19	B	26	48	0.42	19	B	27	51	0.48	21	C	29	51
Maplewood Ave SBT/R	0.96	53	D	~394	#537	1.08	88	F	~430	#566	1.05	78	E	~470	#604	1.13	105	F	~512	#633
Overall Intersection	1.09	*83*	F			1.19	97	F			1.20	100	F			>1.2	>120	F		

LOS	level-of-service
Del	Average intersection delay, measured in seconds
v/c	Volume to capacity ratio
50th Q and 95th Q	Percentile queues measured in feet
#	95th percentile volume exceeds capacity, queue may be longer
~	Volume exceeds capacity. Queues are shown after two signal cycles

TABLE 3: Unsignalized Intersection Operations Summary

Intersection / Lane Group	2020 No Build				2020 Build				2030 No Build				2030 Build			
	V/C	Del	LOS	95th Q	V/C	Del	LOS	95th Q	V/C	Del	LOS	95th Q	V/C	Del	LOS	95th Q
Maplewood Ave / Raynes Ave:																
Maplewood Ave SBL/T	0.1	10	A	0.2	0.1	10	B	0.4	0.1	10	B	0.3	0.1	11	B	0.4
Raynes Ave WBL/R	0.6	45	E	3.1	0.9	90	F	6.8	0.7	71	F	4.7	1.1	>120	F	9.6
Maplewood Ave / Kennebunk Bank Driveway:																
Maplewood Ave SBL/T	0.0	10	A	0	NA	NA	NA	NA	0.0	10	A	0	NA	NA	NA	NA
Kennebunk Bank WBL/R	0.1	24	C	0.3	NA	NA	NA	NA	0.1	27	D	0.4	NA	NA	NA	NA
Maplewood Ave / Vaughan St:																
Maplewood Ave SBL/T	0.0	10	A	0.1	0.0	10	B	0.1	0.0	10	B	0.1	0.0	11	B	0.1
Vaughan St WBL/R	0.4	51	F	1.9	0.7	90	F	4.2	0.6	72	F	2.7	0.9	>120	F	5.5
Vaughan St / Kennebunk Bank Driveway:																
Vaughan St EBL/T	0.0	7	A	0	0.2	10	B	0.5	0.0	7	A	0	0.0	8	A	0
Kennebunk Bank SBL/R	0.0	9	A	0	0.0	8	A	0	0.0	9	A	0	0.1	10	A	0.3
Vaughan St / Green St:																
Vaughan St SBL/T	0.0	7	A	0.1	0.0	8	A	0.1	0.0	7	A	0.1	0.0	7	A	0
Green St WBL/R	0.1	9	A	0.2	0.1	9	A	0.2	0.1	9	A	0.2	0.1	9	A	0.2
Vaughan St / Site Driveway:																
Vaughan St NBL/T	0.0	7	A	0	0.0	8	A	0	0.0	8	A	0	0.0	8	A	0
Site Driveway EBL/R	0.0	10	A	0.1	0.2	10	B	0.5	0.0	10	A	0.1	0.2	11	B	0.6
Deer St / Russell St:																
Deer St EBL/T	0.3	8	A	1.1	0.3	8	A	1.1	0.3	9	A	1.2	0.3	9	A	1.3
Russell St SBL/R	0.8	29	D	9.6	0.9	32	D	10.2	0.9	43	E	13.1	1.0	47	E	14
Green St / Russell St:																
Russell St NBL/T	0.0	9	A	0	0.0	9	A	0	0.0	9	A	0	0.0	9	A	0
Green St EBL/R	0.3	27	D	1.4	0.4	32	D	2.1	0.4	32	D	1.9	0.5	39	E	2.7
Russell St / Market St:																
Russell St EBL	>1.2	>120	F	38.6	>1.2	>120	F	42.4	>1.2	>120	F	47.5	>1.2	>120	F	51.4
Russell St EBR	0.0	11	B	0	0.0	11	B	0	0.0	11	B	0	0.0	11	B	0

LOS	level-of-service
Del	Average intersection delay, measured in seconds
v/c	Volume to capacity ratio
95th Q	Percentile queues measured in vehicles



L□□□□d

Study Area Location

Proposed O□□ce Building
111 Maplewood Avenue, Portsmouth NH

Study Area

DATE: 0□□18□201□
SCALE: 1" □ 200□
FIG□RE 1

Tighe&Bond
www.tighebond.com

Mar 18, 201□ 10:21am Plotted By: □Mayboroda
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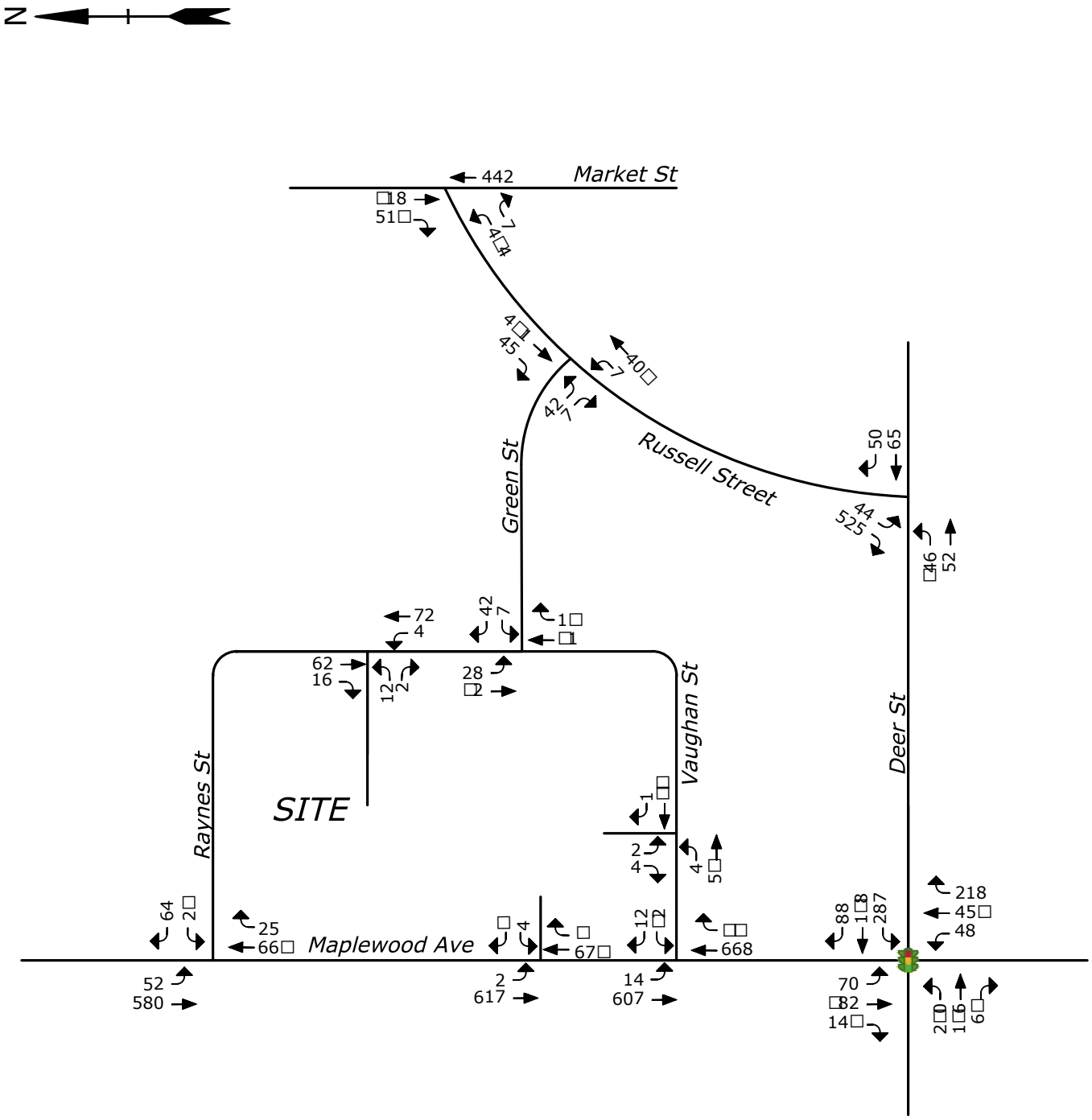

LEGEND

TRAFFIC SIGNAL

Proposed Office Building
111 Maplewood Avenue, Portsmouth NH

2020 No Build Peak Hour Traffic Volumes

DATE: 01/18/2019
SCALE: No Scale
FIGURE 2

Tighe&Bond
www.tighebond.com

Mar 18, 2019 - 10:21am Plotted By: Mayboroda
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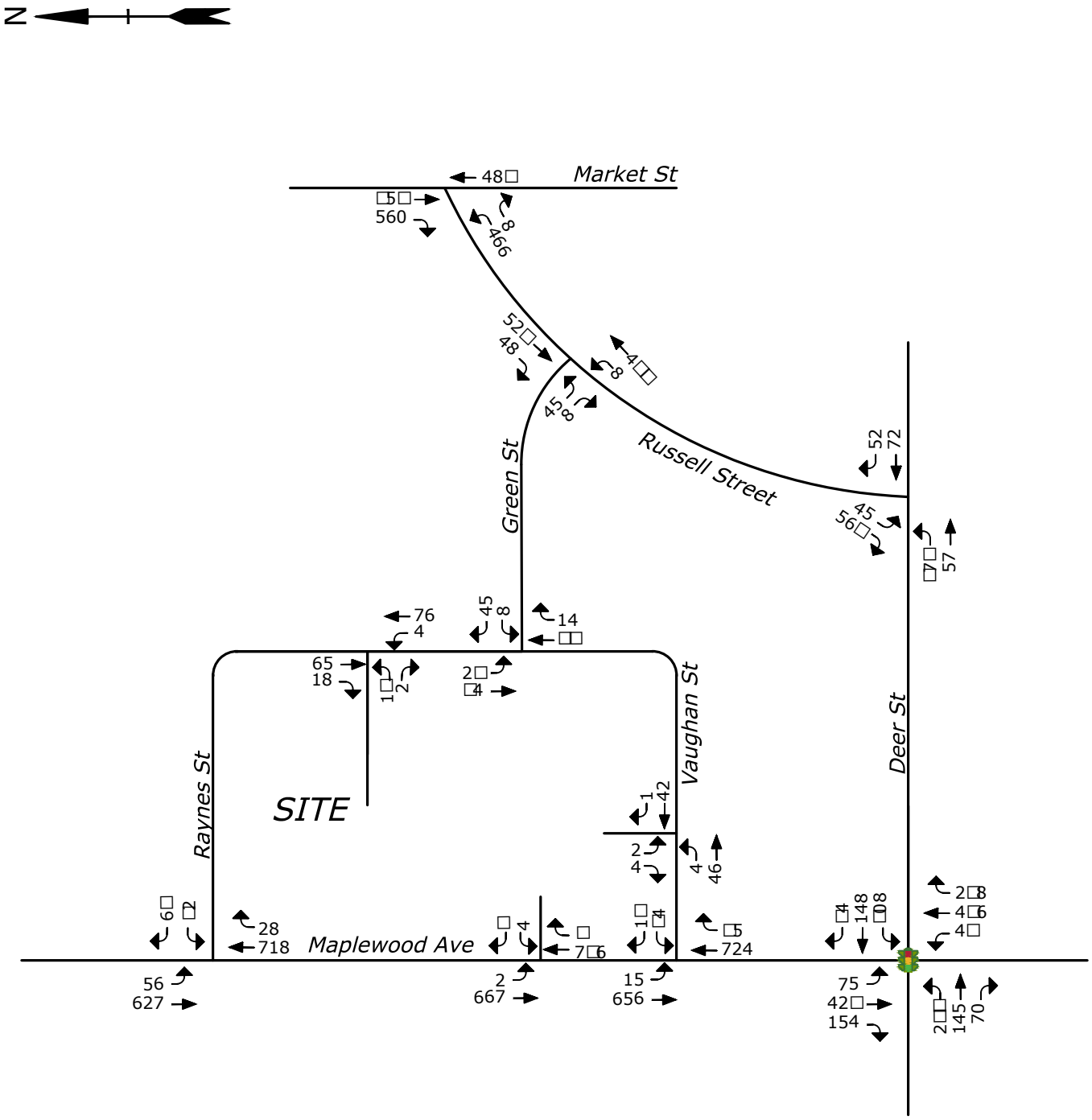
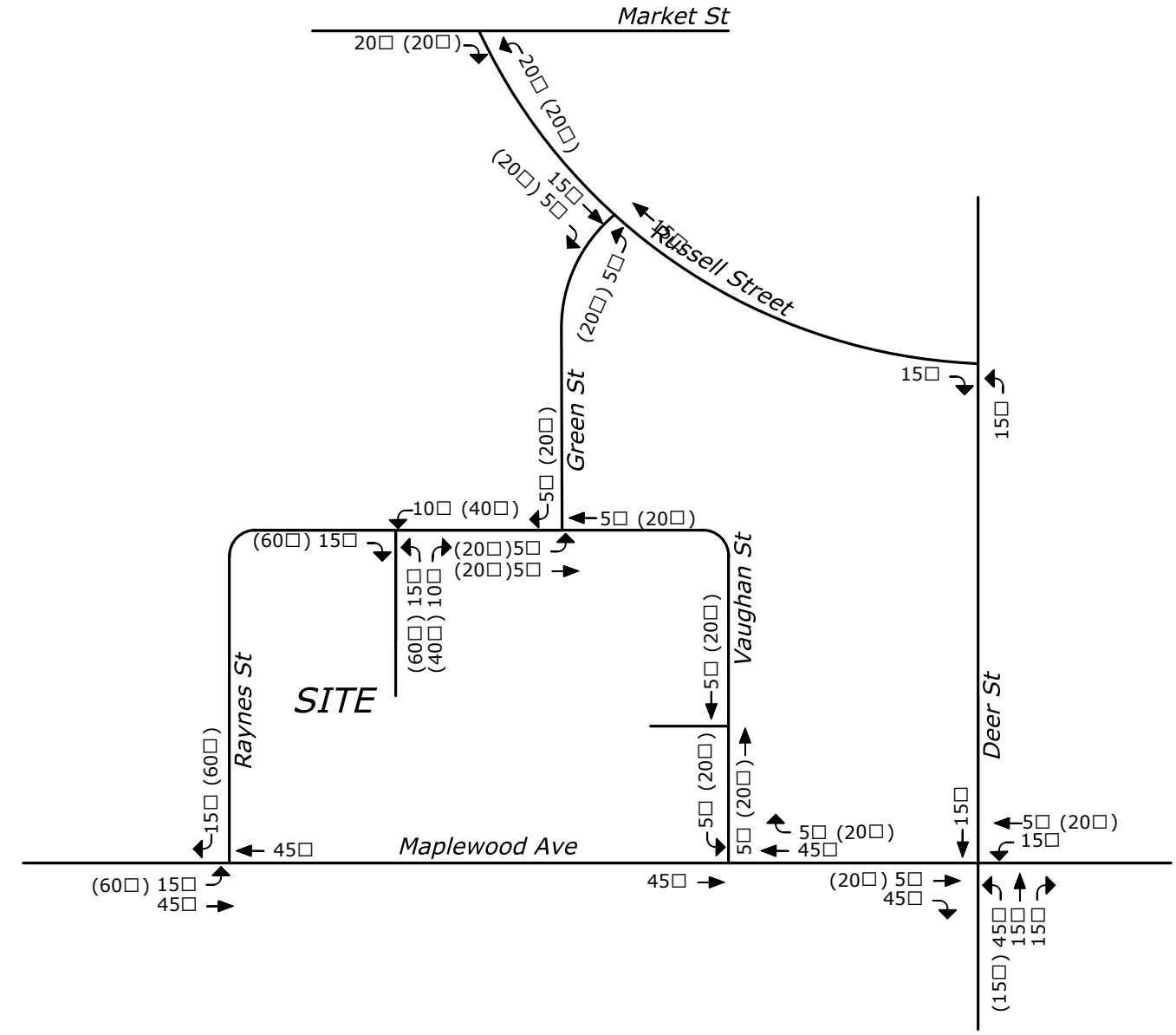


LEGEND

TRAFFIC SIGNAL

Proposed Office Building 111 Maplewood Avenue, Portsmouth NH	
2010 No Build Peak Hour Traffic Volumes	
DATE: 01/18/2011	Tighe&Bond www.tighebond.com
SCALE: No Scale	
FIGURE 1	

Mar 18, 2011 10:21am Plotted By: Mayboroda
Tighe & Bond, Inc. J:\K\K0076 The Kane Company - General Proposals\0076-01 Maplewood\Traffic\Figures\AutoCAD\Diversion Figure - Future.dwg

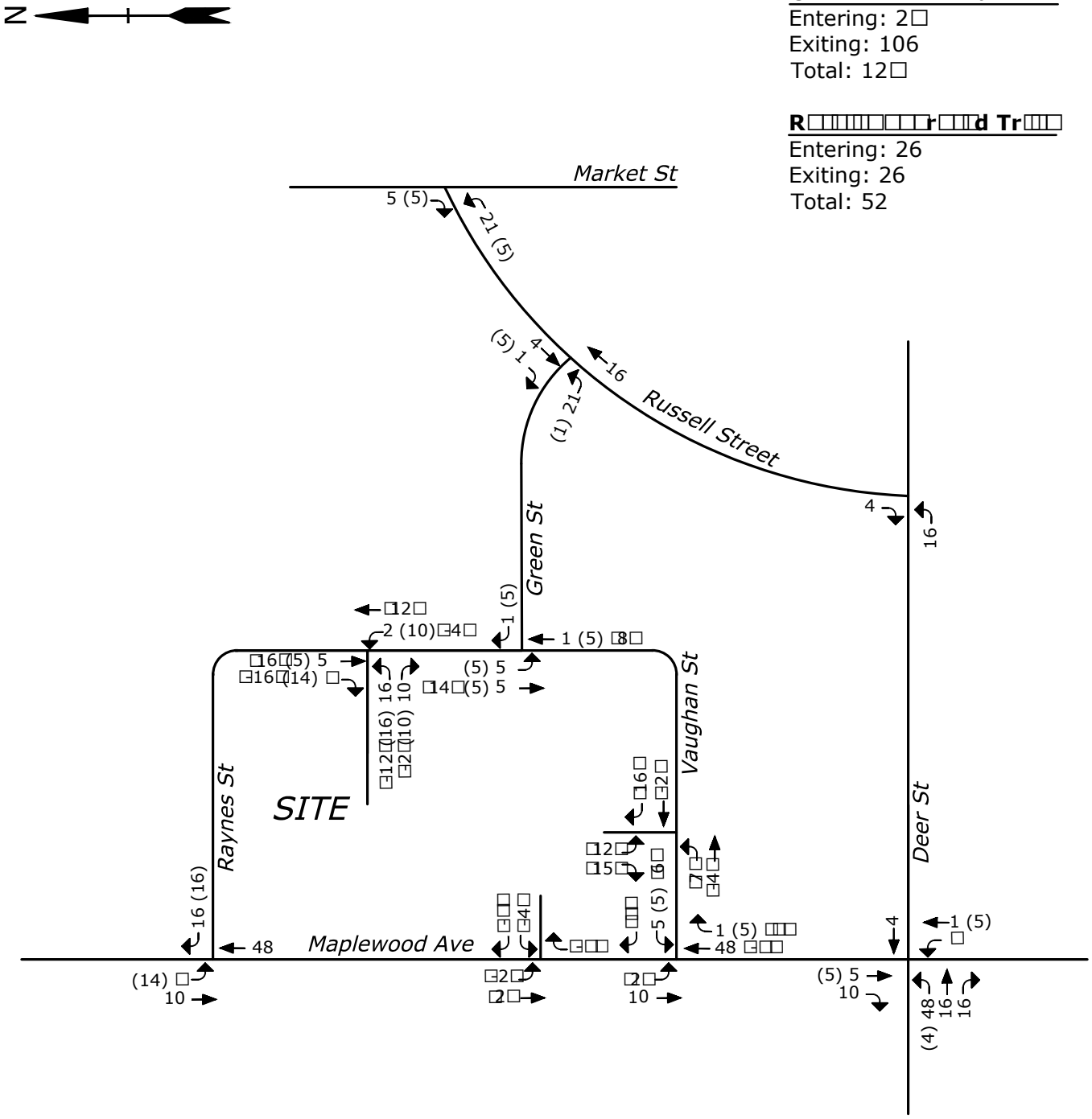


LE□END

□□ O□□ce Trips
(□□) Retail Trips

Proposed O□□ce Building 111 Maplewood Avenue, Portsmouth NH	
Trip Distribution	
DATE: 0□/18/201□	Tighe&Bond www.tighebond.com
SCALE: No Scale	
FIG□RE 4	

Mar 18, 201□ 10:21am Plotted By: □Mayboroda
Tighe & Bond, Inc. J:\K\K0076 The Kane Company - General Proposals\0076-01□Maplewood\Tra□□□\Figures\AutoCAD\Diversion □igure - Future.dwg



Office Trips
Entering: 2
Exiting: 106
Total: 12

Retail Trips
Entering: 26
Exiting: 26
Total: 52

LEGEND

- Office Trips
- (Retail Trips)
- Driveway Redistribution

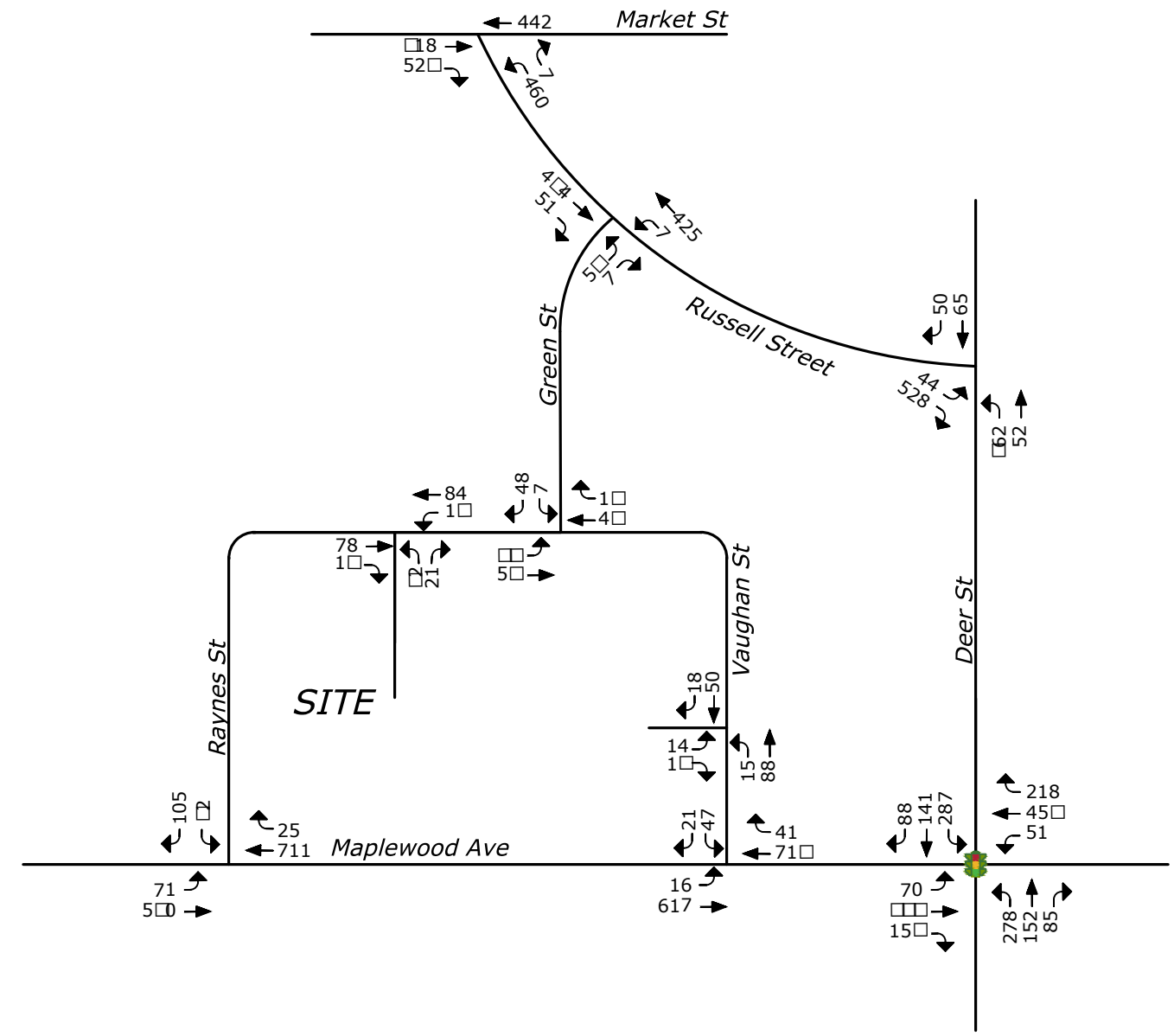
Proposed Office Building
111 Maplewood Avenue, Portsmouth NH

Site Generated Trips

DATE: 03/18/2015
SCALE: No Scale
FIGURE 5

Tighe&Bond
www.tighebond.com

Mar 18, 2015 10:21am Plotted By: Mayboroda
Tighe & Bond, Inc. J:\K\K0076 The Kane Company - General Proposals\0076-01 Maplewood\Trailer\Figures\AutoCAD\Diversion Figure - Future.dwg



LEGEND

TRAFFIC SIGNAL

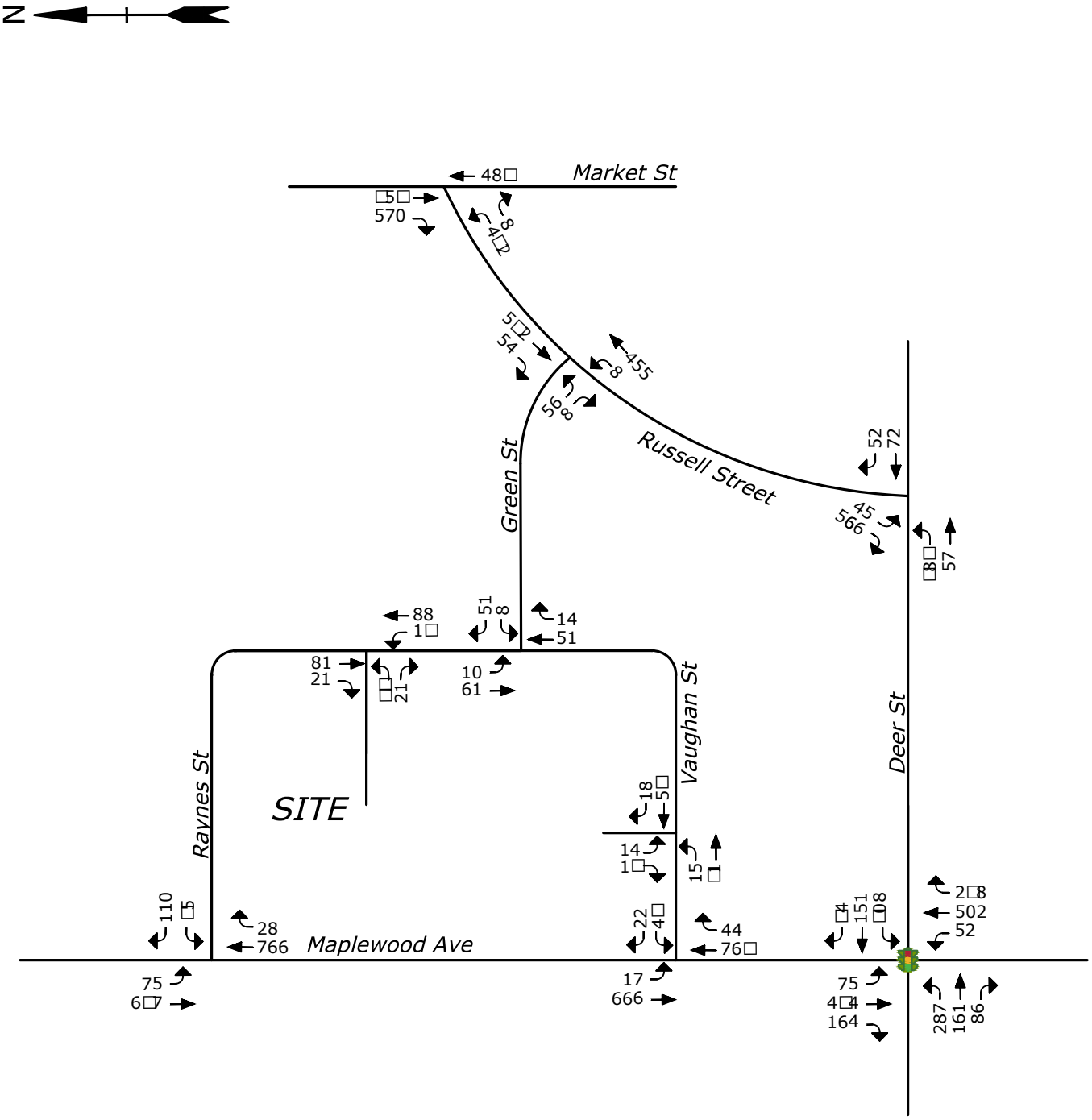
Proposed Office Building
111 Maplewood Avenue, Portsmouth NH

2020 Build Peak Hour Traffic Volumes

DATE: 03/18/2019
SCALE: No Scale
FIGURE 6

Tighe&Bond
www.tighebond.com

Mar 18, 2019 - 10:21am Plotted By: Mayboroda
Tighe & Bond, Inc. J:\K\K0076 The Kane Company - General Proposals\0076-01 Maplewood\Traffic\Figures\AutoCAD\Diversion Figure - Future.dwg



LEGEND

TRAFFIC SIGNAL

Proposed Office Building
111 Maplewood Avenue, Portsmouth NH

2010 Build Peak Hour Traffic Volumes

DATE: 01/18/2011
SCALE: No Scale
FIGURE 7

Tighe&Bond
www.tighebond.com

Mar 18, 2011 10:21am Plotted By: Mayboroda
Tighe & Bond, Inc. J:\K\K0076 The Kane Company - General Proposals\0076-01 Maplewood\Traffic\Figures\AutoCAD\Diversion Figure - Future.dwg

Site Plan

SITE DATA:

LOCATION: TAX MAP 124. LOT 8

OWNER: RJF-MAPLEWOOD, LLC
30 TEMPLE STREET, SUITE 400
NASHUA, NH 03060

ZONING DISTRICT: CHARACTER DISTRICT 5 (CD5)
DOWNTOWN OVERLAY DISTRICT
NORTH END INCENTIVE OVERLAY DISTRICT
HISTORIC DISTRICT

PROPOSED USE: OFFICE

PROPOSED LOT SIZE: ±0.98 ACRES (±42,794 SF)

PARKING REQUIREMENTS

PARKING SPACES REQUIRED:		
OFFICE	±74,000 SF	0 SPACES
DOWNTOWN OVERLAY DISTRICT		-4 SPACES
TOTAL MINIMUM PARKING SPACES REQUIRED =		0 SPACES

TOTAL PARKING SPACES PROVIDED:
TOTAL PARKING SPACES PROVIDED = 37 SPACES

TWO (2) ADA ACCESSIBLE SPACES REQUIRED

	REQUIRED	PROVIDED
PARKING STALL SIZE:	8.5' X 19'	8.5' X 19'
DRIVE AISLE:	***22'	22'

***ZONING ORDINANCE 10.1114.21 ALLOWS MINIMUM 22' AISLE WIDTH FOR 90 DEGREE PARKING IN A PARKING STRUCTURE

BIKE SPACES REQUIRED:		
1 BIKE SPACE / 10 PARKING SPACES	4 SPACES	4 SPACES

DEVELOPMENT STANDARDS

BUILDING PLACEMENT (PRINCIPAL BUILDING):	REQUIRED	PROPOSED
MAXIMUM PRINCIPAL FRONT YARD:	5 FT	±12 FT
MAXIMUM SECONDARY FRONT YARD:	5 FT	±7 FT
SIDE YARD:	NR	
MINIMUM REAR YARD:	5 FT	N/A
MINIMUM FRONT LOT LINE BUILDOUT:	80%	±90.7%

BUILDING AND LOT OCCUPATION:	REQUIRED	PROPOSED
MAXIMUM BUILDING BLOCK LENGTH:	225 FT	194 FT
MAXIMUM FACADE MODULATION LENGTH:	100 FT	<100 FT
MAXIMUM ENTRANCE SPACING:	50 FT	<50 FT
MAXIMUM BUILDING COVERAGE:	95%	±49.1%
MAXIMUM BUILDING FOOTPRINT:	*30,000 SF	21,000 SF
MINIMUM LOT AREA:	NR	
MINIMUM LOT AREA PER DWELLING UNIT:	NR	
MINIMUM OPEN SPACE:	5%	17.6%
MAXIMUM GROUND FLOOR GFA PER USE:	15,000 SF	11,301 SF

*ZONING ORDINANCE 10.5A46.20 ALLOWS 30,000SF BUILDING FOOTPRINT WITH 20% COMMUNITY SPACE.

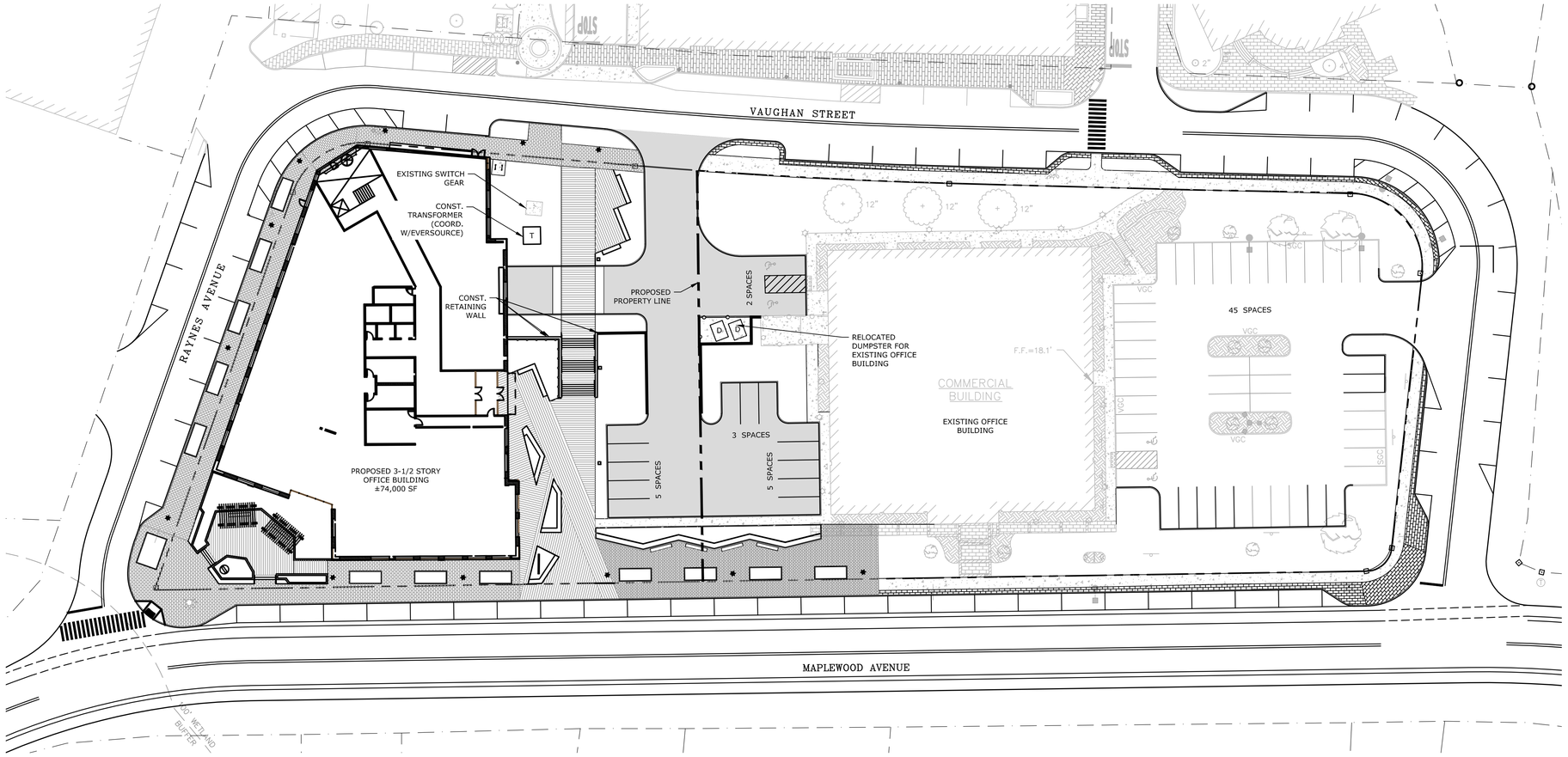
BUILDING FORM (PRINCIPAL BUILDING):	REQUIRED	PROVIDED
BUILDING HEIGHT:	**60 FT	55 FT
MAXIMUM FINISHED FLOOR SURFACE OF GROUND FLOOR ABOVE SIDEWALK GRADE:	36 IN	
MINIMUM GROUND STORY HEIGHT:	12 FT	
MINIMUM SECOND STORY HEIGHT:	10 FT	
FACADE GLAZING:		
STOOP FACADE TYPE	20% - 50%	
ALLOWED ROOF TYPES		
FLAT, GABLE, HIP, GAMBREL, MANSARD		FLAT

**ZONING ORDINANCE 10.5A46.20 ALLOWS A 1-STORY, UP TO 10' HEIGHT INCREASE WITH 20% COMMUNITY SPACE.

COMMUNITY SPACE:	8,559 SF	11,367 SF
	20%	26.6%

LEGEND

- PROPERTY LINE
- PROPOSED PROPERTY LINE
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB
- PROPOSED BUILDING
- PROPOSED PAVEMENT SECTION
- PROPOSED CONCRETE SIDEWALK
- PROPOSED BRICK SIDEWALK
- PROPOSED BOLLARD
- BLDG BUILDING
- TYP TYPICAL
- COORD COORDINATE
- 30'R PROPOSED CURB RADIUS
- VGC PROPOSED VERTICAL GRANITE CURB
- SGC PROPOSED SLOPED GRANITE CURB



SCALE IN FEET
0 30 60
GRAPHIC SCALE

Tighe&Bond
Engineers Environmental Specialists

Pr□□□□□d
O□□□□□ B□□d□□□

RW Nor□d□□
Holdings, LLC

Portsmouth,
New Hampshire

MARK	DATE	DESCRIPTION
A	□□18□201□	TAC Submission

PROJECT NO:	K-0076-01□
DATE:	0□□18□201□
FILE:	K-0076-01□ C-SITE.dwg
DRAWN B□	NAH
CHECKED:	PMC
APPRO□ED:	BLM

O□ERALL SITE PLAN

SCALE: AS SHOWN

C-102

Last Save Date: March 15, 201□ 1:1□PM By: NAHANSEN
Plotted Date: March 15, 201□ Plotted By: Nick A. Hansen
T&B File Location: J:\K\K0076 The Kane Company - General Proposals\0076-01□Maplewood\Drawings, Figures\AutoCAD\Che□K-0076-01□C-SITE.dwg Layout Tab: C-102

Traffic Data

PDI File #: **196718 A**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Raynes Avenue W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Maplewood Avenue from North					Raynes Avenue from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	76	10	0	86	4	0	4	0	8	2	83	0	0	85	1	0	0	0	1	180
4:15 PM	0	66	7	0	73	6	0	4	0	10	4	105	0	0	109	0	0	0	0	0	192
4:30 PM	0	65	2	0	67	6	0	6	2	14	4	96	0	0	100	0	0	0	0	0	181
4:45 PM	0	90	8	0	98	9	0	1	0	10	2	101	0	0	103	0	0	0	0	0	211
Total	0	297	27	0	324	25	0	15	2	42	12	385	0	0	397	1	0	0	0	1	764
5:00 PM	0	80	10	0	90	15	0	6	0	21	7	137	0	0	144	0	0	0	0	0	255
5:15 PM	0	89	9	0	98	11	0	5	0	16	9	105	0	0	114	0	0	0	0	0	228
5:30 PM	0	107	6	0	113	11	0	10	0	21	4	104	0	0	108	0	0	0	0	0	242
5:45 PM	0	95	7	0	102	6	0	3	0	9	1	96	0	0	97	0	0	0	0	0	208
Total	0	371	32	0	403	43	0	24	0	67	21	442	0	0	463	0	0	0	0	0	933
Grand Total	0	668	59	0	727	68	0	39	2	109	33	827	0	0	860	1	0	0	0	1	1697
Approach %	0.0	91.9	8.1	0.0		62.4	0.0	35.8	1.8		3.8	96.2	0.0	0.0		100.0	0.0	0.0	0.0		
Total %	0.0	39.4	3.5	0.0	42.8	4.0	0.0	2.3	0.1	6.4	1.9	48.7	0.0	0.0	50.7	0.1	0.0	0.0	0.0	0.1	
Exiting Leg Total					895					94					708					0	1697
Cars	0	664	59	0	723	68	0	39	2	109	33	820	0	0	853	1	0	0	0	1	1686
% Cars	0.0	99.4	100.0	0.0	99.4	100.0	0.0	100.0	100.0	100.0	100.0	99.2	0.0	0.0	99.2	100.0	0.0	0.0	0.0	100.0	99.4
Exiting Leg Total					888					94					704					0	1686
Heavy Vehicles	0	4	0	0	4	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	11
% Heavy Vehicles	0.0	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.6
Exiting Leg Total					7					0					4					0	11

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	Maplewood Avenue from North					Raynes Avenue from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:45 PM	0	90	8	0	98	9	0	1	0	10	2	101	0	0	103	0	0	0	0	0	211
5:00 PM	0	80	10	0	90	15	0	6	0	21	7	137	0	0	144	0	0	0	0	0	255
5:15 PM	0	89	9	0	98	11	0	5	0	16	9	105	0	0	114	0	0	0	0	0	228
5:30 PM	0	107	6	0	113	11	0	10	0	21	4	104	0	0	108	0	0	0	0	0	242
Total Volume	0	366	33	0	399	46	0	22	0	68	22	447	0	0	469	0	0	0	0	0	936
% Approach Total	0.0	91.7	8.3	0.0		67.6	0.0	32.4	0.0		4.7	95.3	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.855	0.825	0.000	0.883	0.767	0.000	0.550	0.000	0.810	0.611	0.816	0.000	0.000	0.814	0.000	0.000	0.000	0.000	0.000	0.918
Cars	0	366	33	0	399	46	0	22	0	68	22	444	0	0	466	0	0	0	0	0	933
Cars %	0.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0	0.0	100.0	100.0	99.3	0.0	0.0	99.4	0.0	0.0	0.0	0.0	0.0	99.7
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.3
Cars Enter Leg	0	366	33	0	399	46	0	22	0	68	22	444	0	0	466	0	0	0	0	0	933
Heavy Enter Leg	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
Total Entering Leg	0	366	33	0	399	46	0	22	0	68	22	447	0	0	469	0	0	0	0	0	936
Cars Exiting Leg					490					55					388					0	933
Heavy Exiting Leg					3					0					0					0	3
Total Exiting Leg					493					55					388					0	936

PDI File #: **196718 A**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Raynes Avenue W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars-Combined (Motorcycles, Cars, Light Goods)

	Maplewood Avenue from North					Raynes Avenue from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	72	10	0	82	4	0	4	0	8	2	81	0	0	83	1	0	0	0	1	174
4:15 PM	0	66	7	0	73	6	0	4	0	10	4	104	0	0	108	0	0	0	0	0	191
4:30 PM	0	65	2	0	67	6	0	6	2	14	4	96	0	0	100	0	0	0	0	0	181
4:45 PM	0	90	8	0	98	9	0	1	0	10	2	99	0	0	101	0	0	0	0	0	209
Total	0	293	27	0	320	25	0	15	2	42	12	380	0	0	392	1	0	0	0	1	755
5:00 PM	0	80	10	0	90	15	0	6	0	21	7	136	0	0	143	0	0	0	0	0	254
5:15 PM	0	89	9	0	98	11	0	5	0	16	9	105	0	0	114	0	0	0	0	0	228
5:30 PM	0	107	6	0	113	11	0	10	0	21	4	104	0	0	108	0	0	0	0	0	242
5:45 PM	0	95	7	0	102	6	0	3	0	9	1	95	0	0	96	0	0	0	0	0	207
Total	0	371	32	0	403	43	0	24	0	67	21	440	0	0	461	0	0	0	0	0	931
Grand Total	0	664	59	0	723	68	0	39	2	109	33	820	0	0	853	1	0	0	0	1	1686
Approach %	0.0	91.8	8.2	0.0		62.4	0.0	35.8	1.8		3.9	96.1	0.0	0.0		100.0	0.0	0.0	0.0		
Total %	0.0	39.4	3.5	0.0	42.9	4.0	0.0	2.3	0.1	6.5	2.0	48.6	0.0	0.0	50.6	0.1	0.0	0.0	0.0	0.1	
Exiting Leg Total					888					94					704					0	1686

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	Maplewood Avenue from North					Raynes Avenue from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:45 PM	0	90	8	0	98	9	0	1	0	10	2	99	0	0	101	0	0	0	0	0	209
5:00 PM	0	80	10	0	90	15	0	6	0	21	7	136	0	0	143	0	0	0	0	0	254
5:15 PM	0	89	9	0	98	11	0	5	0	16	9	105	0	0	114	0	0	0	0	0	228
5:30 PM	0	107	6	0	113	11	0	10	0	21	4	104	0	0	108	0	0	0	0	0	242
Total Volume	0	366	33	0	399	46	0	22	0	68	22	444	0	0	466	0	0	0	0	0	933
% Approach Total	0.0	91.7	8.3	0.0		67.6	0.0	32.4	0.0		4.7	95.3	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.855	0.825	0.000	0.883	0.767	0.000	0.550	0.000	0.810	0.611	0.816	0.000	0.000	0.815	0.000	0.000	0.000	0.000	0.000	0.918
Entering Leg	0	366	33	0	399	46	0	22	0	68	22	444	0	0	466	0	0	0	0	0	933
Exiting Leg					490					55					388					0	933
Total					889					123					854					0	1866

PDI File #: **196718 A**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Raynes Avenue W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Maplewood Avenue from North					Raynes Avenue from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	6
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
Total	0	4	0	0	4	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	9
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
Grand Total	0	4	0	0	4	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	11
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	36.4	0.0	0.0	36.4	0.0	0.0	0.0	0.0	0.0	0.0	63.6	0.0	0.0	63.6	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					7					0					4					0	11
Buses	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
% Buses	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	28.6	0.0	0.0	28.6	0.0	0.0	0.0	0.0	0.0	36.4
Exiting Leg Total					2					0					2					0	4
Single-Unit Trucks	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	7
% Single-Unit	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	71.4	0.0	0.0	71.4	0.0	0.0	0.0	0.0	0.0	63.6
Exiting Leg Total					5					0					2					0	7
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North					Raynes Avenue from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	6
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
Total Volume	0	4	0	0	4	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	9
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.375
Buses	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Buses %	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	33.3
Single-Unit Trucks	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	6
Single-Unit %	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	80.0	0.0	0.0	80.0	0.0	0.0	0.0	0.0	0.0	66.7
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Single-Unit Trucks	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	6
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	0	4	0	0	4	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	9
Buses					1					0					2					0	3
Single-Unit Trucks					4					0					2					0	6
Articulated Trucks					0					0					0					0	0
Total Exiting Leg					5					0					4					0	9

PDI File #: **196718 A**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Raynes Avenue W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Maplewood Avenue from North					Raynes Avenue from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	61	7	0	68	2	0	4	0	6	2	69	0	0	71	1	0	0	0	1	146
4:15 PM	0	59	7	0	66	6	0	2	0	8	3	95	0	0	98	0	0	0	0	0	172
4:30 PM	0	51	0	0	51	5	0	6	2	13	4	78	0	0	82	0	0	0	0	0	146
4:45 PM	0	86	7	0	93	8	0	0	0	8	2	91	0	0	93	0	0	0	0	0	194
Total	0	257	21	0	278	21	0	12	2	35	11	333	0	0	344	1	0	0	0	1	658
5:00 PM	0	73	9	0	82	13	0	6	0	19	7	125	0	0	132	0	0	0	0	0	233
5:15 PM	0	83	7	0	90	11	0	5	0	16	8	98	0	0	106	0	0	0	0	0	212
5:30 PM	0	104	6	0	110	9	0	8	0	17	4	91	0	0	95	0	0	0	0	0	222
5:45 PM	0	90	6	0	96	6	0	3	0	9	1	88	0	0	89	0	0	0	0	0	194
Total	0	350	28	0	378	39	0	22	0	61	20	402	0	0	422	0	0	0	0	0	861
Grand Total	0	607	49	0	656	60	0	34	2	96	31	735	0	0	766	1	0	0	0	1	1519
Approach %	0.0	92.5	7.5	0.0		62.5	0.0	35.4	2.1		4.0	96.0	0.0	0.0		100.0	0.0	0.0	0.0		
Total %	0.0	40.0	3.2	0.0	43.2	3.9	0.0	2.2	0.1	6.3	2.0	48.4	0.0	0.0	50.4	0.1	0.0	0.0	0.0	0.1	
Exiting Leg Total					795					82					642					0	1519

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	Maplewood Avenue from North					Raynes Avenue from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:45 PM	0	86	7	0	93	8	0	0	0	8	2	91	0	0	93	0	0	0	0	0	194
5:00 PM	0	73	9	0	82	13	0	6	0	19	7	125	0	0	132	0	0	0	0	0	233
5:15 PM	0	83	7	0	90	11	0	5	0	16	8	98	0	0	106	0	0	0	0	0	212
5:30 PM	0	104	6	0	110	9	0	8	0	17	4	91	0	0	95	0	0	0	0	0	222
Total Volume	0	346	29	0	375	41	0	19	0	60	21	405	0	0	426	0	0	0	0	0	861
% Approach Total	0.0	92.3	7.7	0.0		68.3	0.0	31.7	0.0		4.9	95.1	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.832	0.806	0.000	0.852	0.788	0.000	0.594	0.000	0.789	0.656	0.810	0.000	0.000	0.807	0.000	0.000	0.000	0.000	0.000	0.924
Entering Leg	0	346	29	0	375	41	0	19	0	60	21	405	0	0	426	0	0	0	0	0	861
Exiting Leg					446					50					365					0	861
Total					821					110					791					0	1722

PDI File #: **196718 A**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Raynes Avenue W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Light Goods Vehicle

	Maplewood Avenue from North					Raynes Avenue from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	11	3	0	14	2	0	0	0	2	0	12	0	0	12	0	0	0	0	0	28
4:15 PM	0	7	0	0	7	0	0	2	0	2	1	9	0	0	10	0	0	0	0	0	19
4:30 PM	0	14	2	0	16	1	0	0	0	1	0	18	0	0	18	0	0	0	0	0	35
4:45 PM	0	4	1	0	5	1	0	1	0	2	0	8	0	0	8	0	0	0	0	0	15
Total	0	36	6	0	42	4	0	3	0	7	1	47	0	0	48	0	0	0	0	0	97
5:00 PM	0	7	1	0	8	2	0	0	0	2	0	11	0	0	11	0	0	0	0	0	21
5:15 PM	0	6	2	0	8	0	0	0	0	0	1	7	0	0	8	0	0	0	0	0	16
5:30 PM	0	3	0	0	3	2	0	2	0	4	0	13	0	0	13	0	0	0	0	0	20
5:45 PM	0	5	1	0	6	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	13
Total	0	21	4	0	25	4	0	2	0	6	1	38	0	0	39	0	0	0	0	0	70
Grand Total	0	57	10	0	67	8	0	5	0	13	2	85	0	0	87	0	0	0	0	0	167
Approach %	0.0	85.1	14.9	0.0		61.5	0.0	38.5	0.0		2.3	97.7	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	34.1	6.0	0.0	40.1	4.8	0.0	3.0	0.0	7.8	1.2	50.9	0.0	0.0	52.1	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					93					12					62					0	167

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North					Raynes Avenue from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	11	3	0	14	2	0	0	0	2	0	12	0	0	12	0	0	0	0	0	28
4:15 PM	0	7	0	0	7	0	0	2	0	2	1	9	0	0	10	0	0	0	0	0	19
4:30 PM	0	14	2	0	16	1	0	0	0	1	0	18	0	0	18	0	0	0	0	0	35
4:45 PM	0	4	1	0	5	1	0	1	0	2	0	8	0	0	8	0	0	0	0	0	15
Total Volume	0	36	6	0	42	4	0	3	0	7	1	47	0	0	48	0	0	0	0	0	97
% Approach Total	0.0	85.7	14.3	0.0		57.1	0.0	42.9	0.0		2.1	97.9	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.643	0.500	0.000	0.656	0.500	0.000	0.375	0.000	0.875	0.250	0.653	0.000	0.000	0.667	0.000	0.000	0.000	0.000	0.000	0.693
Entering Leg	0	36	6	0	42	4	0	3	0	7	1	47	0	0	48	0	0	0	0	0	97
Exiting Leg					51					7					39					0	97
Total					93					14					87					0	194

PDI File #: **196718 A**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Raynes Avenue W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class: **Buses**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

	Maplewood Avenue from North					Raynes Avenue from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					2					0					2					0	4

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North					Raynes Avenue from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Exiting Leg					1					0					2					0	3
Total					3					0					3					0	6

PDI File #: **196718 A**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Raynes Avenue W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Maplewood Avenue from North					Raynes Avenue from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
Total	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	6
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	7
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	28.6	0.0	0.0	28.6	0.0	0.0	0.0	0.0	0.0	0.0	71.4	0.0	0.0	71.4	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					5					0					2					0	7

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North					Raynes Avenue from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
Total Volume	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	6
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	6
Exiting Leg					4					0					2					0	6
Total					6					0					6					0	12

PDI File #: **196718 A**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Raynes Avenue W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Maplewood Avenue from North					Raynes Avenue from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North					Raynes Avenue from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg					0					0					0					0	0
Total					0					0					0					0	0

PDI File #: **196718 A**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Raynes Avenue W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class:

Bicycles (on Roadway and Crosswalks)

	Maplewood Avenue from North							Raynes Avenue from East							Maplewood Avenue from South							Driveway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
Grand Total	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	50.0	0.0	50.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							1							0							1							0	2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Maplewood Avenue from North							Raynes Avenue from East							Maplewood Avenue from South							Driveway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
Total Volume	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
Exiting Leg							1							0							1							0	2
Total							1							1							2							0	4

PDI File #: **196718 A**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Raynes Avenue W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Maplewood Avenue from North							Raynes Avenue from East							Maplewood Avenue from South							Driveway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
Total	0	0	0	0	0	0	0	0	0	0	0	3	2	5	0	0	0	0	0	0	0	0	0	0	0	3	0	3	8
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	1	1	0	0	0	0	0	0	0	3
Grand Total	0	0	0	0	0	0	0	0	0	0	0	3	4	7	0	0	0	0	0	1	1	0	0	0	0	3	0	3	11
Approach %	0	0	0	0	0	0		0	0	0	0	42.9	57.1		0	0	0	0	0	100		0	0	0	0	100	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	27.3	36.4	63.6	0	0	0	0	0	9.09	9.09	0	0	0	0	27.3	0	27.3	
Exiting Leg Total							0							7							1							3	11

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North							Raynes Avenue from East							Maplewood Avenue from South							Driveway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
Total Volume	0	0	0	0	0	0	0	0	0	0	0	3	2	5	0	0	0	0	0	0	0	0	0	0	0	3	0	3	8
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	60.0	40.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	100.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.250	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.750	1.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	3	2	5	0	0	0	0	0	0	0	0	0	0	0	3	0	3	8
Exiting Leg							0							5							0							3	8
Total							0							10							0							6	16

PDI File #: **196718 B**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Kennebunk Savings Bank Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Maplewood Avenue from North				Kennebunk Savings Bank Driveway from East				Maplewood Avenue from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	79	0	0	79	3	4	0	7	2	81	0	83	169
4:15 PM	73	1	0	74	5	2	0	7	0	101	0	101	182
4:30 PM	71	0	0	71	1	2	0	3	2	100	0	102	176
4:45 PM	92	0	0	92	0	1	0	1	1	97	0	98	191
Total	315	1	0	316	9	9	0	18	5	379	0	384	718
5:00 PM	89	0	0	89	1	0	0	1	1	146	0	147	237
5:15 PM	92	1	0	93	3	2	0	5	1	105	0	106	204
5:30 PM	119	0	0	119	0	2	0	2	0	109	0	109	230
5:45 PM	102	1	0	103	5	0	1	6	1	95	0	96	205
Total	402	2	0	404	9	4	1	14	3	455	0	458	876
Grand Total	717	3	0	720	18	13	1	32	8	834	0	842	1594
Approach %	99.6	0.4	0.0		56.3	40.6	3.1		1.0	99.0	0.0		
Total %	45.0	0.2	0.0	45.2	1.1	0.8	0.1	2.0	0.5	52.3	0.0	52.8	
Exiting Leg Total				852				12				730	1594
Cars	713	3	0	716	18	13	1	32	8	827	0	835	1583
% Cars	99.4	100.0	0.0	99.4	100.0	100.0	100.0	100.0	100.0	99.2	0.0	99.2	99.3
Exiting Leg Total				845				12				726	1583
Heavy Vehicles	4	0	0	4	0	0	0	0	0	7	0	7	11
% Heavy Vehicles	0.6	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.8	0.7
Exiting Leg Total				7				0				4	11

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Maplewood Avenue from North				Kennebunk Savings Bank Driveway from East				Maplewood Avenue from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	89	0	0	89	1	0	0	1	1	146	0	147	237
5:15 PM	92	1	0	93	3	2	0	5	1	105	0	106	204
5:30 PM	119	0	0	119	0	2	0	2	0	109	0	109	230
5:45 PM	102	1	0	103	5	0	1	6	1	95	0	96	205
Total Volume	402	2	0	404	9	4	1	14	3	455	0	458	876
% Approach Total	99.5	0.5	0.0		64.3	28.6	7.1		0.7	99.3	0.0		
PHF	0.845	0.500	0.000	0.849	0.450	0.500	0.250	0.583	0.750	0.779	0.000	0.779	0.924
Cars	402	2	0	404	9	4	1	14	3	453	0	456	874
Cars %	100.0	100.0	0.0	100.0	100.0	100.0	100.0	100.0	100.0	99.6	0.0	99.6	99.8
Heavy Vehicles	0	0	0	0	0	0	0	0	0	2	0	2	2
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.4	0.2
Cars Enter Leg	402	2	0	404	9	4	1	14	3	453	0	456	874
Heavy Enter Leg	0	0	0	0	0	0	0	0	0	2	0	2	2
Total Entering Leg	402	2	0	404	9	4	1	14	3	455	0	458	876
Cars Exiting Leg				462				6				406	874
Heavy Exiting Leg				2				0				0	2
Total Exiting Leg				464				6				406	876

PDI File #: **196718 B**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Kennebunk Savings Bank Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Maplewood Avenue from North				Kennebunk Savings Bank Driveway from East				Maplewood Avenue from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	77	0	0	77	3	4	0	7	2	79	0	81	165
4:15 PM	71	1	0	72	5	2	0	7	0	100	0	100	179
4:30 PM	71	0	0	71	1	2	0	3	2	100	0	102	176
4:45 PM	92	0	0	92	0	1	0	1	1	95	0	96	189
Total	311	1	0	312	9	9	0	18	5	374	0	379	709
5:00 PM	89	0	0	89	1	0	0	1	1	145	0	146	236
5:15 PM	92	1	0	93	3	2	0	5	1	105	0	106	204
5:30 PM	119	0	0	119	0	2	0	2	0	109	0	109	230
5:45 PM	102	1	0	103	5	0	1	6	1	94	0	95	204
Total	402	2	0	404	9	4	1	14	3	453	0	456	874
Grand Total	713	3	0	716	18	13	1	32	8	827	0	835	1583
Approach %	99.6	0.4	0.0		56.3	40.6	3.1		1.0	99.0	0.0		
Total %	45.0	0.2	0.0	45.2	1.1	0.8	0.1	2.0	0.5	52.2	0.0	52.7	
Exiting Leg Total				845				12				726	1583

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Maplewood Avenue from North				Kennebunk Savings Bank Driveway from East				Maplewood Avenue from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	89	0	0	89	1	0	0	1	1	145	0	146	236
5:15 PM	92	1	0	93	3	2	0	5	1	105	0	106	204
5:30 PM	119	0	0	119	0	2	0	2	0	109	0	109	230
5:45 PM	102	1	0	103	5	0	1	6	1	94	0	95	204
Total Volume	402	2	0	404	9	4	1	14	3	453	0	456	874
% Approach Total	99.5	0.5	0.0		64.3	28.6	7.1		0.7	99.3	0.0		
PHF	0.845	0.500	0.000	0.849	0.450	0.500	0.250	0.583	0.750	0.781	0.000	0.781	0.926
Entering Leg	402	2	0	404	9	4	1	14	3	453	0	456	874
Exiting Leg				462				6				406	874
Total				866				20				862	1748

PDI File #: **196718 B**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Kennebunk Savings Bank Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Maplewood Avenue from North				Kennebunk Savings Bank Driveway from East				Maplewood Avenue from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	2	0	0	2	0	0	0	0	0	2	0	2	4
4:15 PM	2	0	0	2	0	0	0	0	0	1	0	1	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	2	0	2	2
Total	4	0	0	4	0	0	0	0	0	5	0	5	9
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	0	0	0	0	2	0	2	2
Grand Total	4	0	0	4	0	0	0	0	0	7	0	7	11
Approach %	100.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
Total %	36.4	0.0	0.0	36.4	0.0	0.0	0.0	0.0	0.0	63.6	0.0	63.6	
Exiting Leg Total				7				0				4	11
Buses	2	0	0	2	0	0	0	0	0	2	0	2	4
% Buses	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	28.6	0.0	28.6	36.4
Exiting Leg Total				2				0				2	4
Single-Unit Trucks	2	0	0	2	0	0	0	0	0	5	0	5	7
% Single-Unit	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	71.4	0.0	71.4	63.6
Exiting Leg Total				5				0				2	7
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North				Kennebunk Savings Bank Driveway from East				Maplewood Avenue from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	2	0	0	2	0	0	0	0	0	2	0	2	4
4:15 PM	2	0	0	2	0	0	0	0	0	1	0	1	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	2	0	2	2
Total Volume	4	0	0	4	0	0	0	0	0	5	0	5	9
% Approach Total	100.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
PHF	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.625	0.563
Buses	2	0	0	2	0	0	0	0	0	1	0	1	3
Buses %	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	20.0	33.3
Single-Unit Trucks	2	0	0	2	0	0	0	0	0	4	0	4	6
Single-Unit %	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	80.0	0.0	80.0	66.7
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	2	0	0	2	0	0	0	0	0	1	0	1	3
Single-Unit Trucks	2	0	0	2	0	0	0	0	0	4	0	4	6
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	4	0	0	4	0	0	0	0	0	5	0	5	9
Buses				1				0				2	3
Single-Unit Trucks				4				0				2	6
Articulated Trucks				0				0				0	0
Total Exiting Leg				5				0				4	9

PDI File #: **196718 B**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Kennebunk Savings Bank Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Maplewood Avenue from North				Kennebunk Savings Bank Driveway from East				Maplewood Avenue from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	65	0	0	65	3	3	0	6	2	67	0	69	140
4:15 PM	59	0	0	59	5	1	0	6	0	89	0	89	154
4:30 PM	57	0	0	57	1	2	0	3	2	82	0	84	144
4:45 PM	87	0	0	87	0	1	0	1	0	88	0	88	176
Total	268	0	0	268	9	7	0	16	4	326	0	330	614
5:00 PM	82	0	0	82	0	0	0	0	1	135	0	136	218
5:15 PM	86	1	0	87	3	0	0	3	0	98	0	98	188
5:30 PM	110	0	0	110	0	2	0	2	0	96	0	96	208
5:45 PM	94	1	0	95	5	0	1	6	1	88	0	89	190
Total	372	2	0	374	8	2	1	11	2	417	0	419	804
Grand Total	640	2	0	642	17	9	1	27	6	743	0	749	1418
Approach %	99.7	0.3	0.0		63.0	33.3	3.7		0.8	99.2	0.0		
Total %	45.1	0.1	0.0	45.3	1.2	0.6	0.1	1.9	0.4	52.4	0.0	52.8	
Exiting Leg Total				760				9				649	1418

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Maplewood Avenue from North				Kennebunk Savings Bank Driveway from East				Maplewood Avenue from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	82	0	0	82	0	0	0	0	1	135	0	136	218
5:15 PM	86	1	0	87	3	0	0	3	0	98	0	98	188
5:30 PM	110	0	0	110	0	2	0	2	0	96	0	96	208
5:45 PM	94	1	0	95	5	0	1	6	1	88	0	89	190
Total Volume	372	2	0	374	8	2	1	11	2	417	0	419	804
% Approach Total	99.5	0.5	0.0		72.7	18.2	9.1		0.5	99.5	0.0		
PHF	0.845	0.500	0.000	0.850	0.400	0.250	0.250	0.458	0.500	0.772	0.000	0.770	0.922
Entering Leg	372	2	0	374	8	2	1	11	2	417	0	419	804
Exiting Leg				425				5				374	804
Total				799				16				793	1608

PDI File #: **196718 B**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Kennebunk Savings Bank Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Light Goods Vehicle**

	Maplewood Avenue from North				Kennebunk Savings Bank Driveway from East				Maplewood Avenue from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	12	0	0	12	0	1	0	1	0	12	0	12	25
4:15 PM	12	1	0	13	0	1	0	1	0	11	0	11	25
4:30 PM	14	0	0	14	0	0	0	0	0	18	0	18	32
4:45 PM	5	0	0	5	0	0	0	0	1	7	0	8	13
Total	43	1	0	44	0	2	0	2	1	48	0	49	95
5:00 PM	7	0	0	7	1	0	0	1	0	10	0	10	18
5:15 PM	6	0	0	6	0	2	0	2	1	7	0	8	16
5:30 PM	9	0	0	9	0	0	0	0	0	13	0	13	22
5:45 PM	8	0	0	8	0	0	0	0	0	6	0	6	14
Total	30	0	0	30	1	2	0	3	1	36	0	37	70
Grand Total	73	1	0	74	1	4	0	5	2	84	0	86	165
Approach %	98.6	1.4	0.0		20.0	80.0	0.0		2.3	97.7	0.0		
Total %	44.2	0.6	0.0	44.8	0.6	2.4	0.0	3.0	1.2	50.9	0.0	52.1	
Exiting Leg Total				85				3				77	165

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North				Kennebunk Savings Bank Driveway from East				Maplewood Avenue from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	12	0	0	12	0	1	0	1	0	12	0	12	25
4:15 PM	12	1	0	13	0	1	0	1	0	11	0	11	25
4:30 PM	14	0	0	14	0	0	0	0	0	18	0	18	32
4:45 PM	5	0	0	5	0	0	0	0	1	7	0	8	13
Total Volume	43	1	0	44	0	2	0	2	1	48	0	49	95
% Approach Total	97.7	2.3	0.0		0.0	100.0	0.0		2.0	98.0	0.0		
PHF	0.768	0.250	0.000	0.786	0.000	0.500	0.000	0.500	0.250	0.667	0.000	0.681	0.742
Entering Leg	43	1	0	44	0	2	0	2	1	48	0	49	95
Exiting Leg				48				2				45	95
Total				92				4				94	190

PDI File #: **196718 B**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Kennebunk Savings Bank Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Maplewood Avenue from North				Kennebunk Savings Bank Driveway from East				Maplewood Avenue from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
4:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	0	0	2	0	0	0	0	0	1	0	1	3
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	0	1	1
Grand Total	2	0	0	2	0	0	0	0	0	2	0	2	4
Approach %	100.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
Total %	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	50.0	
Exiting Leg Total				2				0				2	4

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North				Kennebunk Savings Bank Driveway from East				Maplewood Avenue from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
4:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	2	0	0	2	0	0	0	0	0	1	0	1	3
% Approach Total	100.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
PHF	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.375
Entering Leg	2	0	0	2	0	0	0	0	0	1	0	1	3
Exiting Leg				1				0				2	3
Total				3				0				3	6

PDI File #: **196718 B**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Kennebunk Savings Bank Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Single-Unit Trucks**

	Maplewood Avenue from North				Kennebunk Savings Bank Driveway from East				Maplewood Avenue from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
4:15 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	2	0	2	2
Total	2	0	0	2	0	0	0	0	0	4	0	4	6
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	0	0	0	0	1	0	1	1
Grand Total	2	0	0	2	0	0	0	0	0	5	0	5	7
Approach %	100.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
Total %	28.6	0.0	0.0	28.6	0.0	0.0	0.0	0.0	0.0	71.4	0.0	71.4	
Exiting Leg Total				5				0				2	7

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North				Kennebunk Savings Bank Driveway from East				Maplewood Avenue from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
4:15 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	2	0	2	2
Total Volume	2	0	0	2	0	0	0	0	0	4	0	4	6
% Approach Total	100.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
PHF	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.750
Entering Leg	2	0	0	2	0	0	0	0	0	4	0	4	6
Exiting Leg				4				0				2	6
Total				6				0				6	12

PDI File #: **196718 B**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Kennebunk Savings Bank Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Maplewood Avenue from North				Kennebunk Savings Bank Driveway from East				Maplewood Avenue from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North				Kennebunk Savings Bank Driveway from East				Maplewood Avenue from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **196718 B**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Kennebunk Savings Bank Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Maplewood Avenue from North						Kennebunk Savings Bank Driveway from East						Maplewood Avenue from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	1	0	0	0	0	1	0	0	0	0	1	1	0	1	0	0	0	1	3
Total	1	0	0	0	0	1	0	0	0	0	1	1	0	1	0	0	0	1	3
Grand Total	1	0	0	0	0	1	0	0	0	0	1	1	0	1	0	0	0	1	3
Approach %	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	100.0		0.0	100.0	0.0	0.0	0.0		
Total %	33.3	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	33.3	33.3	0.0	33.3	0.0	0.0	0.0	33.3	
Exiting Leg Total						1						1						1	3

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Maplewood Avenue from North						Kennebunk Savings Bank Driveway from East						Maplewood Avenue from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	1	0	0	0	0	1	0	0	0	0	1	1	0	1	0	0	0	1	3
Total Volume	1	0	0	0	0	1	0	0	0	0	1	1	0	1	0	0	0	1	3
% Approach Total	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	100.0		0.0	100.0	0.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.250	0.000	0.000	0.000	0.250	0.250
Entering Leg	1	0	0	0	0	1	0	0	0	0	1	1	0	1	0	0	0	1	3
Exiting Leg						1						1						1	3
Total						2						2						2	6

PDI File #: **196718 B**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Kennebunk Savings Bank Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Maplewood Avenue from North						Kennebunk Savings Bank Driveway from East						Maplewood Avenue from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	3
4:15 PM	0	0	0	1	0	1	0	0	0	1	1	2	0	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	4
4:45 PM	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	4
Total	0	0	0	1	0	1	0	0	0	4	9	13	0	0	0	0	0	0	14
5:00 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	4
Grand Total	0	0	0	1	0	1	0	0	0	4	13	17	0	0	0	0	0	0	18
Approach %	0	0	0	100	0		0	0	0	23.529	76.471		0	0	0	0	0		
Total %	0	0	0	5.5556	0	5.5556	0	0	0	22.222	72.222	94.444	0	0	0	0	0	0	
Exiting Leg Total						1						17						0	18

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North						Kennebunk Savings Bank Driveway from East						Maplewood Avenue from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	3
4:15 PM	0	0	0	1	0	1	0	0	0	1	1	2	0	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	4
4:45 PM	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	4
Total Volume	0	0	0	1	0	1	0	0	0	4	9	13	0	0	0	0	0	0	14
% Approach Total	0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	30.8	69.2		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.333	0.563	0.813	0.000	0.000	0.000	0.000	0.000	0.000	0.875
Entering Leg	0	0	0	1	0	1	0	0	0	4	9	13	0	0	0	0	0	0	14
Exiting Leg						1						13						0	14
Total						2						26						0	28

PDI File #: **196718 C**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Vaughan Street W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Maplewood Avenue from North					Vaughan Street from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	79	3	0	82	0	0	7	0	7	4	84	0	0	88	0	0	0	0	0	177
4:15 PM	0	76	1	0	77	1	0	3	0	4	7	100	0	0	107	0	0	0	0	0	188
4:30 PM	0	72	1	0	73	3	0	4	0	7	7	99	0	0	106	0	0	0	0	0	186
4:45 PM	0	94	1	0	95	2	0	1	0	3	3	97	0	0	100	0	0	0	0	0	198
Total	0	321	6	0	327	6	0	15	0	21	21	380	0	0	401	0	0	0	0	0	749
5:00 PM	0	85	4	0	89	3	0	5	0	8	3	143	0	1	147	0	0	0	0	0	244
5:15 PM	0	90	3	1	94	2	0	7	0	9	3	104	0	0	107	0	0	0	0	0	210
5:30 PM	0	119	2	0	121	4	0	3	0	7	4	104	0	0	108	0	0	0	0	0	236
5:45 PM	0	99	3	0	102	1	0	2	0	3	8	95	0	0	103	0	0	0	0	0	208
Total	0	393	12	1	406	10	0	17	0	27	18	446	0	1	465	0	0	0	0	0	898
Grand Total	0	714	18	1	733	16	0	32	0	48	39	826	0	1	866	0	0	0	0	0	1647
Approach %	0.0	97.4	2.5	0.1		33.3	0.0	66.7	0.0		4.5	95.4	0.0	0.1		0.0	0.0	0.0	0.0		
Total %	0.0	43.4	1.1	0.1	44.5	1.0	0.0	1.9	0.0	2.9	2.4	50.2	0.0	0.1	52.6	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					843					57					747					0	1647
Cars	0	710	18	1	729	16	0	32	0	48	39	819	0	1	859	0	0	0	0	0	1636
% Cars	0.0	99.4	100.0	100.0	99.5	100.0	0.0	100.0	0.0	100.0	100.0	99.2	0.0	100.0	99.2	0.0	0.0	0.0	0.0	0.0	99.3
Exiting Leg Total					836					57					743					0	1636
Heavy Vehicles	0	4	0	0	4	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	11
% Heavy Vehicles	0.0	0.6	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.7
Exiting Leg Total					7					0					4					0	11

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Maplewood Avenue from North					Vaughan Street from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:00 PM	0	85	4	0	89	3	0	5	0	8	3	143	0	1	147	0	0	0	0	0	244
5:15 PM	0	90	3	1	94	2	0	7	0	9	3	104	0	0	107	0	0	0	0	0	210
5:30 PM	0	119	2	0	121	4	0	3	0	7	4	104	0	0	108	0	0	0	0	0	236
5:45 PM	0	99	3	0	102	1	0	2	0	3	8	95	0	0	103	0	0	0	0	0	208
Total Volume	0	393	12	1	406	10	0	17	0	27	18	446	0	1	465	0	0	0	0	0	898
% Approach Total	0.0	96.8	3.0	0.2		37.0	0.0	63.0	0.0		3.9	95.9	0.0	0.2		0.0	0.0	0.0	0.0		
PHF	0.000	0.826	0.750	0.250	0.839	0.625	0.000	0.607	0.000	0.750	0.563	0.780	0.000	0.250	0.791	0.000	0.000	0.000	0.000	0.000	0.920
Cars	0	393	12	1	406	10	0	17	0	27	18	444	0	1	463	0	0	0	0	0	896
Cars %	0.0	100.0	100.0	100.0	100.0	100.0	0.0	100.0	0.0	100.0	100.0	99.6	0.0	100.0	99.6	0.0	0.0	0.0	0.0	0.0	99.8
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.2
Cars Enter Leg	0	393	12	1	406	10	0	17	0	27	18	444	0	1	463	0	0	0	0	0	896
Heavy Enter Leg	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
Total Entering Leg	0	393	12	1	406	10	0	17	0	27	18	446	0	1	465	0	0	0	0	0	898
Cars Exiting Leg					455					30					411					0	896
Heavy Exiting Leg					2					0					0					0	2
Total Exiting Leg					457					30					411					0	898

PDI File #: **196718 C**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Vaughan Street W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars-Combined (Motorcycles, Cars, Light Goods)

	Maplewood Avenue from North					Vaughan Street from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	77	3	0	80	0	0	7	0	7	4	82	0	0	86	0	0	0	0	0	173
4:15 PM	0	74	1	0	75	1	0	3	0	4	7	99	0	0	106	0	0	0	0	0	185
4:30 PM	0	72	1	0	73	3	0	4	0	7	7	99	0	0	106	0	0	0	0	0	186
4:45 PM	0	94	1	0	95	2	0	1	0	3	3	95	0	0	98	0	0	0	0	0	196
Total	0	317	6	0	323	6	0	15	0	21	21	375	0	0	396	0	0	0	0	0	740
5:00 PM	0	85	4	0	89	3	0	5	0	8	3	142	0	1	146	0	0	0	0	0	243
5:15 PM	0	90	3	1	94	2	0	7	0	9	3	104	0	0	107	0	0	0	0	0	210
5:30 PM	0	119	2	0	121	4	0	3	0	7	4	104	0	0	108	0	0	0	0	0	236
5:45 PM	0	99	3	0	102	1	0	2	0	3	8	94	0	0	102	0	0	0	0	0	207
Total	0	393	12	1	406	10	0	17	0	27	18	444	0	1	463	0	0	0	0	0	896
Grand Total	0	710	18	1	729	16	0	32	0	48	39	819	0	1	859	0	0	0	0	0	1636
Approach %	0.0	97.4	2.5	0.1		33.3	0.0	66.7	0.0		4.5	95.3	0.0	0.1		0.0	0.0	0.0	0.0		
Total %	0.0	43.4	1.1	0.1	44.6	1.0	0.0	2.0	0.0	2.9	2.4	50.1	0.0	0.1	52.5	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					836					57					743					0	1636

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Maplewood Avenue from North					Vaughan Street from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:00 PM	0	85	4	0	89	3	0	5	0	8	3	142	0	1	146	0	0	0	0	0	243
5:15 PM	0	90	3	1	94	2	0	7	0	9	3	104	0	0	107	0	0	0	0	0	210
5:30 PM	0	119	2	0	121	4	0	3	0	7	4	104	0	0	108	0	0	0	0	0	236
5:45 PM	0	99	3	0	102	1	0	2	0	3	8	94	0	0	102	0	0	0	0	0	207
Total Volume	0	393	12	1	406	10	0	17	0	27	18	444	0	1	463	0	0	0	0	0	896
% Approach Total	0.0	96.8	3.0	0.2		37.0	0.0	63.0	0.0		3.9	95.9	0.0	0.2		0.0	0.0	0.0	0.0		
PHF	0.000	0.826	0.750	0.250	0.839	0.625	0.000	0.607	0.000	0.750	0.563	0.782	0.000	0.250	0.793	0.000	0.000	0.000	0.000	0.000	0.922
Entering Leg	0	393	12	1	406	10	0	17	0	27	18	444	0	1	463	0	0	0	0	0	896
Exiting Leg					455					30					411					0	896
Total					861					57					874					0	1792

PDI File #: **196718 C**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Vaughan Street W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Maplewood Avenue from North					Vaughan Street from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
4:15 PM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
Total	0	4	0	0	4	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	9
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
Grand Total	0	4	0	0	4	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	11
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	36.4	0.0	0.0	36.4	0.0	0.0	0.0	0.0	0.0	0.0	63.6	0.0	0.0	63.6	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					7					0					4					0	11
Buses	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
% Buses	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	28.6	0.0	0.0	28.6	0.0	0.0	0.0	0.0	0.0	36.4
Exiting Leg Total					2					0					2					0	4
Single-Unit Trucks	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	7
% Single-Unit	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	71.4	0.0	0.0	71.4	0.0	0.0	0.0	0.0	0.0	63.6
Exiting Leg Total					5					0					2					0	7
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North					Vaughan Street from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
4:15 PM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
Total Volume	0	4	0	0	4	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	9
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.563
Buses	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Buses %	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	33.3
Single-Unit Trucks	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	6
Single-Unit %	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	80.0	0.0	0.0	80.0	0.0	0.0	0.0	0.0	0.0	66.7
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Single-Unit Trucks	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	6
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	0	4	0	0	4	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	9
Buses					1					0					2					0	3
Single-Unit Trucks					4					0					2					0	6
Articulated Trucks					0					0					0					0	0
Total Exiting Leg					5					0					4					0	9

PDI File #: **196718 C**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Vaughan Street W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Maplewood Avenue from North					Vaughan Street from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	64	3	0	67	0	0	7	0	7	3	70	0	0	73	0	0	0	0	0	147
4:15 PM	0	61	1	0	62	1	0	3	0	4	7	88	0	0	95	0	0	0	0	0	161
4:30 PM	0	59	0	0	59	3	0	4	0	7	6	83	0	0	89	0	0	0	0	0	155
4:45 PM	0	89	1	0	90	2	0	0	0	2	3	87	0	0	90	0	0	0	0	0	182
Total	0	273	5	0	278	6	0	14	0	20	19	328	0	0	347	0	0	0	0	0	645
5:00 PM	0	78	4	0	82	2	0	4	0	6	3	133	0	1	137	0	0	0	0	0	225
5:15 PM	0	83	3	1	87	2	0	6	0	8	3	97	0	0	100	0	0	0	0	0	195
5:30 PM	0	110	2	0	112	3	0	3	0	6	4	92	0	0	96	0	0	0	0	0	214
5:45 PM	0	92	2	0	94	1	0	2	0	3	8	89	0	0	97	0	0	0	0	0	194
Total	0	363	11	1	375	8	0	15	0	23	18	411	0	1	430	0	0	0	0	0	828
Grand Total	0	636	16	1	653	14	0	29	0	43	37	739	0	1	777	0	0	0	0	0	1473
Approach %	0.0	97.4	2.5	0.2		32.6	0.0	67.4	0.0		4.8	95.1	0.0	0.1		0.0	0.0	0.0	0.0		
Total %	0.0	43.2	1.1	0.1	44.3	1.0	0.0	2.0	0.0	2.9	2.5	50.2	0.0	0.1	52.7	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					754					53					666					0	1473

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Maplewood Avenue from North					Vaughan Street from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:00 PM	0	78	4	0	82	2	0	4	0	6	3	133	0	1	137	0	0	0	0	0	225
5:15 PM	0	83	3	1	87	2	0	6	0	8	3	97	0	0	100	0	0	0	0	0	195
5:30 PM	0	110	2	0	112	3	0	3	0	6	4	92	0	0	96	0	0	0	0	0	214
5:45 PM	0	92	2	0	94	1	0	2	0	3	8	89	0	0	97	0	0	0	0	0	194
Total Volume	0	363	11	1	375	8	0	15	0	23	18	411	0	1	430	0	0	0	0	0	828
% Approach Total	0.0	96.8	2.9	0.3		34.8	0.0	65.2	0.0		4.2	95.6	0.0	0.2		0.0	0.0	0.0	0.0		
PHF	0.000	0.825	0.688	0.250	0.837	0.667	0.000	0.625	0.000	0.719	0.563	0.773	0.000	0.250	0.785	0.000	0.000	0.000	0.000	0.000	0.920
Entering Leg	0	363	11	1	375	8	0	15	0	23	18	411	0	1	430	0	0	0	0	0	828
Exiting Leg					420					29					379					0	828
Total					795					52					809					0	1656

PDI File #: **196718 C**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Vaughan Street W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Light Goods Vehicle

	Maplewood Avenue from North					Vaughan Street from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	13	0	0	13	0	0	0	0	0	1	12	0	0	13	0	0	0	0	0	26
4:15 PM	0	13	0	0	13	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	24
4:30 PM	0	13	1	0	14	0	0	0	0	0	1	16	0	0	17	0	0	0	0	0	31
4:45 PM	0	5	0	0	5	0	0	1	0	1	0	8	0	0	8	0	0	0	0	0	14
Total	0	44	1	0	45	0	0	1	0	1	2	47	0	0	49	0	0	0	0	0	95
5:00 PM	0	7	0	0	7	1	0	1	0	2	0	9	0	0	9	0	0	0	0	0	18
5:15 PM	0	7	0	0	7	0	0	1	0	1	0	7	0	0	7	0	0	0	0	0	15
5:30 PM	0	9	0	0	9	1	0	0	0	1	0	12	0	0	12	0	0	0	0	0	22
5:45 PM	0	7	1	0	8	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	13
Total	0	30	1	0	31	2	0	2	0	4	0	33	0	0	33	0	0	0	0	0	68
Grand Total	0	74	2	0	76	2	0	3	0	5	2	80	0	0	82	0	0	0	0	0	163
Approach %	0.0	97.4	2.6	0.0		40.0	0.0	60.0	0.0		2.4	97.6	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	45.4	1.2	0.0	46.6	1.2	0.0	1.8	0.0	3.1	1.2	49.1	0.0	0.0	50.3	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					82					4					77					0	163

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North					Vaughan Street from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	13	0	0	13	0	0	0	0	0	1	12	0	0	13	0	0	0	0	0	26
4:15 PM	0	13	0	0	13	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	24
4:30 PM	0	13	1	0	14	0	0	0	0	0	1	16	0	0	17	0	0	0	0	0	31
4:45 PM	0	5	0	0	5	0	0	1	0	1	0	8	0	0	8	0	0	0	0	0	14
Total Volume	0	44	1	0	45	0	0	1	0	1	2	47	0	0	49	0	0	0	0	0	95
% Approach Total	0.0	97.8	2.2	0.0		0.0	0.0	100.0	0.0		4.1	95.9	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.846	0.250	0.000	0.804	0.000	0.000	0.250	0.000	0.250	0.500	0.734	0.000	0.000	0.721	0.000	0.000	0.000	0.000	0.000	0.766
Entering Leg	0	44	1	0	45	0	0	1	0	1	2	47	0	0	49	0	0	0	0	0	95
Exiting Leg					47					3					45					0	95
Total					92					4					94					0	190

PDI File #: **196718 C**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Vaughan Street W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Maplewood Avenue from North					Vaughan Street from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
4:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					2					0					2					0	4

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North					Vaughan Street from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
4:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.375
Entering Leg	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Exiting Leg					1					0					2					0	3
Total					3					0					3					0	6

PDI File #: **196718 C**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Vaughan Street W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Maplewood Avenue from North					Vaughan Street from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
4:15 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
Total	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	6
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	7
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	28.6	0.0	0.0	28.6	0.0	0.0	0.0	0.0	0.0	0.0	71.4	0.0	0.0	71.4	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					5					0					2					0	7

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North					Vaughan Street from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
4:15 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
Total Volume	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	6
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.750
Entering Leg	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	6
Exiting Leg					4					0					2					0	6
Total					6					0					6					0	12

PDI File #: **196718 C**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Vaughan Street W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Maplewood Avenue from North					Vaughan Street from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North					Vaughan Street from East					Maplewood Avenue from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg					0					0					0					0	0
Total					0					0					0					0	0

PDI File #: **196718 C**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Vaughan Street W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Maplewood Avenue from North							Vaughan Street from East							Maplewood Avenue from South							Driveway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	2	0	0	0	0	0	0	0	3
Total	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2	1	0	0	0	0	3	0	0	0	0	0	0	0	4
Grand Total	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2	1	0	0	0	0	3	0	0	0	0	0	0	0	4
Approach %	0.0	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		66.7	33.3	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	25.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	25.0	0.0	0.0	0.0	0.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							1							2							1							0	4

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Maplewood Avenue from North							Vaughan Street from East							Maplewood Avenue from South							Driveway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	2	0	0	0	0	0	0	0	3
Total Volume	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2	1	0	0	0	0	3	0	0	0	0	0	0	0	4
% Approach Total	0.0	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		66.7	33.3	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.250	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.333
Entering Leg	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2	1	0	0	0	0	3	0	0	0	0	0	0	0	4
Exiting Leg							1							2							1							0	4
Total							2							2							4							0	8

PDI File #: **196718 C**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Vaughan Street W: Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Maplewood Avenue from North							Vaughan Street from East							Maplewood Avenue from South							Driveway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	1	4
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2	4
4:30 PM	0	0	0	0	0	1	1	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	1	0	1	6
4:45 PM	0	0	0	0	0	1	1	0	0	0	0	0	5	5	0	0	0	0	1	0	1	0	0	0	0	3	0	3	10
Total	0	0	0	0	0	2	2	0	0	0	0	4	10	14	0	0	0	0	1	0	1	0	0	0	0	6	1	7	24
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
Total	0	0	0	0	0	0	0	0	0	0	0	1	6	7	0	0	0	0	0	0	0	0	0	0	0	1	2	3	10
Grand Total	0	0	0	0	0	2	2	0	0	0	0	5	16	21	0	0	0	0	1	0	1	0	0	0	0	7	3	10	34
Approach %	0	0	0	0	0	100		0	0	0	0	23.8	76.2		0	0	0	0	100	0		0	0	0	0	70	30		
Total %	0	0	0	0	0	5.88	5.88	0	0	0	0	14.7	47.1	61.8	0	0	0	0	2.94	0	2.94	0	0	0	0	20.6	8.82	29.4	
Exiting Leg Total							2							21							1							10	34

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North							Vaughan Street from East							Maplewood Avenue from South							Driveway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	1	4
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2	4
4:30 PM	0	0	0	0	0	1	1	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	1	0	1	6
4:45 PM	0	0	0	0	0	1	1	0	0	0	0	0	5	5	0	0	0	0	1	0	1	0	0	0	0	3	0	3	10
Total Volume	0	0	0	0	0	2	2	0	0	0	0	4	10	14	0	0	0	0	1	0	1	0	0	0	0	6	1	7	24
% Approach Total	0.0	0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	0.0	28.6	71.4		0.0	0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0	85.7	14.3		
PHF	0.000	0.000	0.000	0.000	0.000	0.500	0.500	0.000	0.000	0.000	0.000	0.333	0.500	0.700	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.500	0.250	0.583	0.600
Entering Leg	0	0	0	0	0	2	2	0	0	0	0	4	10	14	0	0	0	0	1	0	1	0	0	0	0	6	1	7	24
Exiting Leg							2							14							1							7	24
Total							4							28							2							14	48

PDI File #: **196718 D**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Deer Street W: Deer Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Maplewood Avenue from North					Deer Street from East					Maplewood Avenue from South					Deer Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	13	57	11	0	81	10	9	29	0	48	43	66	1	0	110	1	18	12	0	31	270
4:15 PM	14	57	12	0	83	11	13	25	0	49	39	78	3	0	120	2	14	17	0	33	285
4:30 PM	13	57	7	0	77	8	18	24	0	50	50	81	4	0	135	3	7	17	0	27	289
4:45 PM	11	70	12	0	93	8	12	43	0	63	31	76	3	0	110	3	14	16	0	33	299
Total	51	241	42	0	334	37	52	121	0	210	163	301	11	0	475	9	53	62	0	124	1143
5:00 PM	10	71	7	0	88	13	27	37	0	77	45	99	2	0	146	1	21	36	0	58	369
5:15 PM	11	77	8	0	96	15	14	34	0	63	39	79	1	0	119	1	21	12	0	34	312
5:30 PM	10	95	19	0	124	13	22	63	0	98	37	82	2	0	121	0	23	13	0	36	379
5:45 PM	9	81	10	0	100	8	18	35	0	61	41	83	0	0	124	4	8	12	0	24	309
Total	40	324	44	0	408	49	81	169	0	299	162	343	5	0	510	6	73	73	0	152	1369
Grand Total	91	565	86	0	742	86	133	290	0	509	325	644	16	0	985	15	126	135	0	276	2512
Approach %	12.3	76.1	11.6	0.0		16.9	26.1	57.0	0.0		33.0	65.4	1.6	0.0		5.4	45.7	48.9	0.0		
Total %	3.6	22.5	3.4	0.0	29.5	3.4	5.3	11.5	0.0	20.3	12.9	25.6	0.6	0.0	39.2	0.6	5.0	5.4	0.0	11.0	
Exiting Leg Total					865					537					870					240	2512
Cars	90	562	86	0	738	86	133	284	0	503	318	638	14	0	970	15	125	134	0	274	2485
% Cars	98.9	99.5	100.0	0.0	99.5	100.0	100.0	97.9	0.0	98.8	97.8	99.1	87.5	0.0	98.5	100.0	99.2	99.3	0.0	99.3	98.9
Exiting Leg Total					858					529					861					237	2485
Heavy Vehicles	1	3	0	0	4	0	0	6	0	6	7	6	2	0	15	0	1	1	0	2	27
% Heavy Vehicles	1.1	0.5	0.0	0.0	0.5	0.0	0.0	2.1	0.0	1.2	2.2	0.9	12.5	0.0	1.5	0.0	0.8	0.7	0.0	0.7	1.1
Exiting Leg Total					7					8					9					3	27

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Maplewood Avenue from North					Deer Street from East					Maplewood Avenue from South					Deer Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:00 PM	10	71	7	0	88	13	27	37	0	77	45	99	2	0	146	1	21	36	0	58	369
5:15 PM	11	77	8	0	96	15	14	34	0	63	39	79	1	0	119	1	21	12	0	34	312
5:30 PM	10	95	19	0	124	13	22	63	0	98	37	82	2	0	121	0	23	13	0	36	379
5:45 PM	9	81	10	0	100	8	18	35	0	61	41	83	0	0	124	4	8	12	0	24	309
Total Volume	40	324	44	0	408	49	81	169	0	299	162	343	5	0	510	6	73	73	0	152	1369
% Approach Total	9.8	79.4	10.8	0.0		16.4	27.1	56.5	0.0		31.8	67.3	1.0	0.0		3.9	48.0	48.0	0.0		
PHF	0.909	0.853	0.579	0.000	0.823	0.817	0.750	0.671	0.000	0.763	0.900	0.866	0.625	0.000	0.873	0.375	0.793	0.507	0.000	0.655	0.903
Cars	40	324	44	0	408	49	81	166	0	296	158	341	5	0	504	6	73	73	0	152	1360
Cars %	100.0	100.0	100.0	0.0	100.0	100.0	100.0	98.2	0.0	99.0	97.5	99.4	100.0	0.0	98.8	100.0	100.0	100.0	0.0	100.0	99.3
Heavy Vehicles	0	0	0	0	0	0	0	3	0	3	4	2	0	0	6	0	0	0	0	0	9
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	1.0	2.5	0.6	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.7
Cars Enter Leg	40	324	44	0	408	49	81	166	0	296	158	341	5	0	504	6	73	73	0	152	1360
Heavy Enter Leg	0	0	0	0	0	0	0	3	0	3	4	2	0	0	6	0	0	0	0	0	9
Total Entering Leg	40	324	44	0	408	49	81	169	0	299	162	343	5	0	510	6	73	73	0	152	1369
Cars Exiting Leg					463					275					496					126	1360
Heavy Exiting Leg					2					4					3					0	9
Total Exiting Leg					465					279					499					126	1369

PDI File #: **196718 D**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Deer Street W: Deer Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars-Combined (Motorcycles, Cars, Light Goods)

	Maplewood Avenue from North					Deer Street from East					Maplewood Avenue from South					Deer Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	12	56	11	0	79	10	9	28	0	47	42	64	1	0	107	1	18	12	0	31	264
4:15 PM	14	55	12	0	81	11	13	25	0	49	38	78	2	0	118	2	14	16	0	32	280
4:30 PM	13	57	7	0	77	8	18	23	0	49	50	81	4	0	135	3	7	17	0	27	288
4:45 PM	11	70	12	0	93	8	12	42	0	62	30	74	2	0	106	3	13	16	0	32	293
Total	50	238	42	0	330	37	52	118	0	207	160	297	9	0	466	9	52	61	0	122	1125
5:00 PM	10	71	7	0	88	13	27	36	0	76	44	98	2	0	144	1	21	36	0	58	366
5:15 PM	11	77	8	0	96	15	14	34	0	63	38	79	1	0	118	1	21	12	0	34	311
5:30 PM	10	95	19	0	124	13	22	61	0	96	37	82	2	0	121	0	23	13	0	36	377
5:45 PM	9	81	10	0	100	8	18	35	0	61	39	82	0	0	121	4	8	12	0	24	306
Total	40	324	44	0	408	49	81	166	0	296	158	341	5	0	504	6	73	73	0	152	1360
Grand Total	90	562	86	0	738	86	133	284	0	503	318	638	14	0	970	15	125	134	0	274	2485
Approach %	12.2	76.2	11.7	0.0		17.1	26.4	56.5	0.0		32.8	65.8	1.4	0.0		5.5	45.6	48.9	0.0		
Total %	3.6	22.6	3.5	0.0	29.7	3.5	5.4	11.4	0.0	20.2	12.8	25.7	0.6	0.0	39.0	0.6	5.0	5.4	0.0	11.0	
Exiting Leg Total					858					529					861					237	2485

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Maplewood Avenue from North					Deer Street from East					Maplewood Avenue from South					Deer Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:00 PM	10	71	7	0	88	13	27	36	0	76	44	98	2	0	144	1	21	36	0	58	366
5:15 PM	11	77	8	0	96	15	14	34	0	63	38	79	1	0	118	1	21	12	0	34	311
5:30 PM	10	95	19	0	124	13	22	61	0	96	37	82	2	0	121	0	23	13	0	36	377
5:45 PM	9	81	10	0	100	8	18	35	0	61	39	82	0	0	121	4	8	12	0	24	306
Total Volume	40	324	44	0	408	49	81	166	0	296	158	341	5	0	504	6	73	73	0	152	1360
% Approach Total	9.8	79.4	10.8	0.0		16.6	27.4	56.1	0.0		31.3	67.7	1.0	0.0		3.9	48.0	48.0	0.0		
PHF	0.909	0.853	0.579	0.000	0.823	0.817	0.750	0.680	0.000	0.771	0.898	0.870	0.625	0.000	0.875	0.375	0.793	0.507	0.000	0.655	0.902
Entering Leg	40	324	44	0	408	49	81	166	0	296	158	341	5	0	504	6	73	73	0	152	1360
Exiting Leg					463					275					496					126	1360
Total					871					571					1000					278	2720

PDI File #: **196718 D**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Deer Street W: Deer Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Maplewood Avenue from North					Deer Street from East					Maplewood Avenue from South					Deer Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	1	1	0	0	2	0	0	1	0	1	1	2	0	0	3	0	0	0	0	0	6
4:15 PM	0	2	0	0	2	0	0	0	0	0	1	0	1	0	2	0	0	1	0	1	5
4:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	1	0	1	1	2	1	0	4	0	1	0	0	1	6
Total	1	3	0	0	4	0	0	3	0	3	3	4	2	0	9	0	1	1	0	2	18
5:00 PM	0	0	0	0	0	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3	0	0	0	0	0	3
Total	0	0	0	0	0	0	0	3	0	3	4	2	0	0	6	0	0	0	0	0	9
Grand Total	1	3	0	0	4	0	0	6	0	6	7	6	2	0	15	0	1	1	0	2	27
Approach %	25.0	75.0	0.0	0.0		0.0	0.0	100.0	0.0		46.7	40.0	13.3	0.0		0.0	50.0	50.0	0.0		
Total %	3.7	11.1	0.0	0.0	14.8	0.0	0.0	22.2	0.0	22.2	25.9	22.2	7.4	0.0	55.6	0.0	3.7	3.7	0.0	7.4	
Exiting Leg Total					7					8					9					3	27
Buses	0	2	0	0	2	0	0	6	0	6	7	2	0	0	9	0	0	0	0	0	17
% Buses	0.0	66.7	0.0	0.0	50.0	0.0	0.0	100.0	0.0	100.0	100.0	33.3	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	63.0
Exiting Leg Total					2					7					8					0	17
Single-Unit Trucks	1	1	0	0	2	0	0	0	0	0	0	4	2	0	6	0	1	1	0	2	10
% Single-Unit	100.0	33.3	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7	100.0	0.0	40.0	0.0	100.0	100.0	0.0	100.0	37.0
Exiting Leg Total					5					1					1					3	10
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North					Deer Street from East					Maplewood Avenue from South					Deer Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	1	1	0	0	2	0	0	1	0	1	1	2	0	0	3	0	0	0	0	0	6
4:15 PM	0	2	0	0	2	0	0	0	0	0	1	0	1	0	2	0	0	1	0	1	5
4:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	1	0	1	1	2	1	0	4	0	1	0	0	1	6
Total Volume	1	3	0	0	4	0	0	3	0	3	3	4	2	0	9	0	1	1	0	2	18
% Approach Total	25.0	75.0	0.0	0.0		0.0	0.0	100.0	0.0		33.3	44.4	22.2	0.0		0.0	50.0	50.0	0.0		
PHF	0.250	0.375	0.000	0.000	0.500	0.000	0.000	0.750	0.000	0.750	0.750	0.500	0.500	0.000	0.563	0.000	0.250	0.250	0.000	0.500	0.750
Buses	0	2	0	0	2	0	0	3	0	3	3	1	0	0	4	0	0	0	0	0	9
Buses %	0.0	66.7	0.0	0.0	50.0	0.0	0.0	100.0	0.0	100.0	100.0	25.0	0.0	0.0	44.4	0.0	0.0	0.0	0.0	0.0	50.0
Single-Unit Trucks	1	1	0	0	2	0	0	0	0	0	0	3	2	0	5	0	1	1	0	2	9
Single-Unit %	100.0	33.3	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	75.0	100.0	0.0	55.6	0.0	100.0	100.0	0.0	100.0	50.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	2	0	0	2	0	0	3	0	3	3	1	0	0	4	0	0	0	0	0	9
Single-Unit Trucks	1	1	0	0	2	0	0	0	0	0	0	3	2	0	5	0	1	1	0	2	9
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	1	3	0	0	4	0	0	3	0	3	3	4	2	0	9	0	1	1	0	2	18
Buses					1					3					5					0	9
Single-Unit Trucks					4					1					1					3	9
Articulated Trucks					0					0					0					0	0
Total Exiting Leg					5					4					6					3	18

PDI File #: **196718 D**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Deer Street W: Deer Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Maplewood Avenue from North					Deer Street from East					Maplewood Avenue from South					Deer Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	11	52	8	0	71	7	7	25	0	39	39	54	1	0	94	1	15	12	0	28	232
4:15 PM	11	47	9	0	67	10	11	22	0	43	33	67	2	0	102	2	11	16	0	29	241
4:30 PM	12	44	7	0	63	6	17	23	0	46	45	68	4	0	117	2	7	15	0	24	250
4:45 PM	11	66	10	0	87	6	11	36	0	53	26	69	2	0	97	3	11	15	0	29	266
Total	45	209	34	0	288	29	46	106	0	181	143	258	9	0	410	8	44	58	0	110	989
5:00 PM	9	64	7	0	80	12	24	30	0	66	40	92	2	0	134	1	19	35	0	55	335
5:15 PM	10	70	7	0	87	15	11	31	0	57	34	75	1	0	110	1	19	9	0	29	283
5:30 PM	9	89	18	0	116	12	19	57	0	88	36	75	2	0	113	0	20	9	0	29	346
5:45 PM	8	75	10	0	93	7	17	30	0	54	38	77	0	0	115	3	6	12	0	21	283
Total	36	298	42	0	376	46	71	148	0	265	148	319	5	0	472	5	64	65	0	134	1247
Grand Total	81	507	76	0	664	75	117	254	0	446	291	577	14	0	882	13	108	123	0	244	2236
Approach %	12.2	76.4	11.4	0.0		16.8	26.2	57.0	0.0		33.0	65.4	1.6	0.0		5.3	44.3	50.4	0.0		
Total %	3.6	22.7	3.4	0.0	29.7	3.4	5.2	11.4	0.0	19.9	13.0	25.8	0.6	0.0	39.4	0.6	4.8	5.5	0.0	10.9	
Exiting Leg Total					775					475					774					212	2236

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Maplewood Avenue from North					Deer Street from East					Maplewood Avenue from South					Deer Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:00 PM	9	64	7	0	80	12	24	30	0	66	40	92	2	0	134	1	19	35	0	55	335
5:15 PM	10	70	7	0	87	15	11	31	0	57	34	75	1	0	110	1	19	9	0	29	283
5:30 PM	9	89	18	0	116	12	19	57	0	88	36	75	2	0	113	0	20	9	0	29	346
5:45 PM	8	75	10	0	93	7	17	30	0	54	38	77	0	0	115	3	6	12	0	21	283
Total Volume	36	298	42	0	376	46	71	148	0	265	148	319	5	0	472	5	64	65	0	134	1247
% Approach Total	9.6	79.3	11.2	0.0		17.4	26.8	55.8	0.0		31.4	67.6	1.1	0.0		3.7	47.8	48.5	0.0		
PHF	0.900	0.837	0.583	0.000	0.810	0.767	0.740	0.649	0.000	0.753	0.925	0.867	0.625	0.000	0.881	0.417	0.800	0.464	0.000	0.609	0.901
Entering Leg	36	298	42	0	376	46	71	148	0	265	148	319	5	0	472	5	64	65	0	134	1247
Exiting Leg					430					254					451					112	1247
Total					806					519					923					246	2494

PDI File #: **196718 D**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
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City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Light Goods Vehicle

	Maplewood Avenue from North					Deer Street from East					Maplewood Avenue from South					Deer Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	1	4	3	0	8	3	2	3	0	8	3	10	0	0	13	0	3	0	0	3	32
4:15 PM	3	8	3	0	14	1	2	3	0	6	5	11	0	0	16	0	3	0	0	3	39
4:30 PM	1	13	0	0	14	2	1	0	0	3	5	13	0	0	18	1	0	2	0	3	38
4:45 PM	0	4	2	0	6	2	1	6	0	9	4	5	0	0	9	0	2	1	0	3	27
Total	5	29	8	0	42	8	6	12	0	26	17	39	0	0	56	1	8	3	0	12	136
5:00 PM	1	7	0	0	8	1	3	6	0	10	4	6	0	0	10	0	2	1	0	3	31
5:15 PM	1	7	1	0	9	0	3	3	0	6	4	4	0	0	8	0	2	3	0	5	28
5:30 PM	1	6	1	0	8	1	3	4	0	8	1	7	0	0	8	0	3	4	0	7	31
5:45 PM	1	6	0	0	7	1	1	5	0	7	1	5	0	0	6	1	2	0	0	3	23
Total	4	26	2	0	32	3	10	18	0	31	10	22	0	0	32	1	9	8	0	18	113
Grand Total	9	55	10	0	74	11	16	30	0	57	27	61	0	0	88	2	17	11	0	30	249
Approach %	12.2	74.3	13.5	0.0		19.3	28.1	52.6	0.0		30.7	69.3	0.0	0.0		6.7	56.7	36.7	0.0		
Total %	3.6	22.1	4.0	0.0	29.7	4.4	6.4	12.0	0.0	22.9	10.8	24.5	0.0	0.0	35.3	0.8	6.8	4.4	0.0	12.0	
Exiting Leg Total					83					54					87					25	249

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North					Deer Street from East					Maplewood Avenue from South					Deer Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	1	4	3	0	8	3	2	3	0	8	3	10	0	0	13	0	3	0	0	3	32
4:15 PM	3	8	3	0	14	1	2	3	0	6	5	11	0	0	16	0	3	0	0	3	39
4:30 PM	1	13	0	0	14	2	1	0	0	3	5	13	0	0	18	1	0	2	0	3	38
4:45 PM	0	4	2	0	6	2	1	6	0	9	4	5	0	0	9	0	2	1	0	3	27
Total Volume	5	29	8	0	42	8	6	12	0	26	17	39	0	0	56	1	8	3	0	12	136
% Approach Total	11.9	69.0	19.0	0.0		30.8	23.1	46.2	0.0		30.4	69.6	0.0	0.0		8.3	66.7	25.0	0.0		
PHF	0.417	0.558	0.667	0.000	0.750	0.667	0.750	0.500	0.000	0.722	0.850	0.750	0.000	0.000	0.778	0.250	0.667	0.375	0.000	1.000	0.872
Entering Leg	5	29	8	0	42	8	6	12	0	26	17	39	0	0	56	1	8	3	0	12	136
Exiting Leg					50					33					42					11	136
Total					92					59					98					23	272

PDI File #: **196718 D**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Deer Street W: Deer Street**
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Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
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Class:

PRECISION DATA INDUSTRIES, LLC
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Buses

	Maplewood Avenue					Deer Street					Maplewood Avenue					Deer Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	1	0	0	1	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	4
4:15 PM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	2
Total	0	2	0	0	2	0	0	3	0	3	3	1	0	0	4	0	0	0	0	0	9
5:00 PM	0	0	0	0	0	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	3	0	3	4	1	0	0	5	0	0	0	0	0	8
Grand Total	0	2	0	0	2	0	0	6	0	6	7	2	0	0	9	0	0	0	0	0	17
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		77.8	22.2	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	11.8	0.0	0.0	11.8	0.0	0.0	35.3	0.0	35.3	41.2	11.8	0.0	0.0	52.9	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					2					7					8					0	17

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue					Deer Street					Maplewood Avenue					Deer Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	1	0	0	1	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	4
4:15 PM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	2
Total Volume	0	2	0	0	2	0	0	3	0	3	3	1	0	0	4	0	0	0	0	0	9
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		75.0	25.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.750	0.000	0.750	0.750	0.250	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.563
Entering Leg	0	2	0	0	2	0	0	3	0	3	3	1	0	0	4	0	0	0	0	0	9
Exiting Leg					1					3					5					0	9
Total					3					6					9					0	18

PDI File #: **196718 D**
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Class:

Single-Unit Trucks

	Maplewood Avenue from North					Deer Street from East					Maplewood Avenue from South					Deer Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
4:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	0	1	0	0	1	4
Total	1	1	0	0	2	0	0	0	0	0	0	3	2	0	5	0	1	1	0	2	9
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	1	1	0	0	2	0	0	0	0	0	0	4	2	0	6	0	1	1	0	2	10
Approach %	50.0	50.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	66.7	33.3	0.0		0.0	50.0	50.0	0.0		
Total %	10.0	10.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	20.0	0.0	60.0	0.0	10.0	10.0	0.0	20.0	
Exiting Leg Total					5					1					1					3	10

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North					Deer Street from East					Maplewood Avenue from South					Deer Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
4:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	0	1	0	0	1	4
Total Volume	1	1	0	0	2	0	0	0	0	0	0	3	2	0	5	0	1	1	0	2	9
% Approach Total	50.0	50.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	60.0	40.0	0.0		0.0	50.0	50.0	0.0		
PHF	0.250	0.250	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.500	0.000	0.417	0.000	0.250	0.250	0.000	0.500	0.563
Entering Leg	1	1	0	0	2	0	0	0	0	0	0	3	2	0	5	0	1	1	0	2	9
Exiting Leg					4					1					1					3	9
Total					6					1					6					5	18

PDI File #: **196718 D**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Deer Street W: Deer Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Maplewood Avenue from North					Deer Street from East					Maplewood Avenue from South					Deer Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North					Deer Street from East					Maplewood Avenue from South					Deer Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg					0					0					0					0	0
Total					0					0					0					0	0

PDI File #: **196718 D**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Deer Street W: Deer Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Maplewood Avenue from North							Deer Street from East							Maplewood Avenue from South							Deer Street from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	1	3
Total	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	1	0	0	0	1	4
Grand Total	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	1	0	0	0	1	4
Approach %	100.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0	0.0		
Total %	25.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	25.0	0.0	0.0	0.0	25.0	
Exiting Leg Total							3							0							0							1	4

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Maplewood Avenue from North							Deer Street from East							Maplewood Avenue from South							Deer Street from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	1	3
Total Volume	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	1	0	0	0	1	4
% Approach Total	100.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.333
Entering Leg	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	1	0	0	0	1	4
Exiting Leg							3							0							0							1	4
Total							4							0							2							2	8

PDI File #: **196718 D**
Location: **N: Maplewood Avenue S: Maplewood Avenue**
Location: **E: Deer Street W: Deer Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Maplewood Avenue from North							Deer Street from East							Maplewood Avenue from South							Deer Street from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0	0	0	1	1	2	0	0	0	0	1	1	2	6
4:15 PM	0	0	0	0	0	2	2	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
4:30 PM	0	0	0	0	0	1	1	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
4:45 PM	0	0	0	0	1	0	1	0	0	0	0	0	5	5	0	0	0	0	1	2	3	0	0	0	0	2	0	2	11
Total	0	0	0	0	1	4	5	0	0	0	0	1	12	13	0	0	0	0	2	3	5	0	0	0	0	3	1	4	27
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0	0	0	1	0	1	3
5:30 PM	0	0	0	0	1	0	1	0	0	0	0	1	1	2	0	0	0	0	2	1	3	0	0	0	0	0	0	0	6
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2	2	4
Total	0	0	0	0	1	0	1	0	0	0	0	1	3	4	0	0	0	0	3	3	6	0	0	0	0	1	2	3	14
Grand Total	0	0	0	0	2	4	6	0	0	0	0	2	15	17	0	0	0	0	5	6	11	0	0	0	0	4	3	7	41
Approach %	0	0	0	0	33.3	66.7		0	0	0	0	11.8	88.2		0	0	0	0	45.5	54.5		0	0	0	0	57.1	42.9		
Total %	0	0	0	0	4.88	9.76	14.6	0	0	0	0	4.88	36.6	41.5	0	0	0	0	12.2	14.6	26.8	0	0	0	0	9.76	7.32	17.1	
Exiting Leg Total							6							17							11							7	41

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Maplewood Avenue from North							Deer Street from East							Maplewood Avenue from South							Deer Street from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0	0	0	1	1	2	0	0	0	0	1	1	2	6
4:15 PM	0	0	0	0	0	2	2	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
4:30 PM	0	0	0	0	0	1	1	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
4:45 PM	0	0	0	0	1	0	1	0	0	0	0	0	5	5	0	0	0	0	1	2	3	0	0	0	0	2	0	2	11
Total Volume	0	0	0	0	1	4	5	0	0	0	0	1	12	13	0	0	0	0	2	3	5	0	0	0	0	3	1	4	27
% Approach Total	0.0	0.0	0.0	0.0	20.0	80.0		0.0	0.0	0.0	0.0	7.7	92.3		0.0	0.0	0.0	0.0	40.0	60.0		0.0	0.0	0.0	0.0	75.0	25.0		
PHF	0.000	0.000	0.000	0.000	0.250	0.500	0.625	0.000	0.000	0.000	0.000	0.250	0.600	0.650	0.000	0.000	0.000	0.000	0.500	0.375	0.417	0.000	0.000	0.000	0.000	0.375	0.250	0.500	0.614
Entering Leg	0	0	0	0	1	4	5	0	0	0	0	1	12	13	0	0	0	0	2	3	5	0	0	0	0	3	1	4	27
Exiting Leg							5							13							5							4	27
Total							10							26							10							8	54

PDI File #: **196718 E**
Location: **N: Kennebunk Savings Bank Driveway**
Location: **E: Vaughan Street W: Vaughan Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Kennebunk Savings Bank Driveway				Vaughan Street				Vaughan Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	2	2	0	4	0	4	0	4	7	0	0	7	15
4:15 PM	1	0	0	1	1	2	0	3	6	2	0	8	12
4:30 PM	0	0	0	0	1	7	0	8	8	0	0	8	16
4:45 PM	2	0	0	2	0	2	1	3	4	0	0	4	9
Total	5	2	0	7	2	15	1	18	25	2	0	27	52
5:00 PM	1	0	0	1	1	7	0	8	7	0	0	7	16
5:15 PM	0	0	0	0	0	9	0	9	5	1	0	6	15
5:30 PM	2	1	0	3	0	5	0	5	5	1	0	6	14
5:45 PM	1	1	0	2	0	2	0	2	9	2	0	11	15
Total	4	2	0	6	1	23	0	24	26	4	0	30	60
Grand Total	9	4	0	13	3	38	1	42	51	6	0	57	112
Approach %	69.2	30.8	0.0		7.1	90.5	2.4		89.5	10.5	0.0		
Total %	8.0	3.6	0.0	11.6	2.7	33.9	0.9	37.5	45.5	5.4	0.0	50.9	
Exiting Leg Total				9				56				47	112
Cars	9	4	0	13	3	38	1	42	51	6	0	57	112
% Cars	100.0	100.0	0.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.0	100.0	100.0
Exiting Leg Total				9				56				47	112
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Kennebunk Savings Bank Driveway				Vaughan Street				Vaughan Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
5:00 PM	1	0	0	1	1	7	0	8	7	0	0	7	16
5:15 PM	0	0	0	0	0	9	0	9	5	1	0	6	15
5:30 PM	2	1	0	3	0	5	0	5	5	1	0	6	14
5:45 PM	1	1	0	2	0	2	0	2	9	2	0	11	15
Total Volume	4	2	0	6	1	23	0	24	26	4	0	30	60
% Approach Total	66.7	33.3	0.0		4.2	95.8	0.0		86.7	13.3	0.0		
PHF	0.500	0.500	0.000	0.500	0.250	0.639	0.000	0.667	0.722	0.500	0.000	0.682	0.938
Cars	4	2	0	6	1	23	0	24	26	4	0	30	60
Cars %	100.0	100.0	0.0	100.0	100.0	100.0	0.0	100.0	100.0	100.0	0.0	100.0	100.0
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cars Enter Leg	4	2	0	6	1	23	0	24	26	4	0	30	60
Heavy Enter Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	4	2	0	6	1	23	0	24	26	4	0	30	60
Cars Exiting Leg				5				28				27	60
Heavy Exiting Leg				0				0				0	0
Total Exiting Leg				5				28				27	60

PDI File #: **196718 E**
Location: **N: Kennebunk Savings Bank Driveway**
Location: **E: Vaughan Street W: Vaughan Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Kennebunk Savings Bank Driveway				Vaughan Street				Vaughan Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	2	2	0	4	0	4	0	4	7	0	0	7	15
4:15 PM	1	0	0	1	1	2	0	3	6	2	0	8	12
4:30 PM	0	0	0	0	1	7	0	8	8	0	0	8	16
4:45 PM	2	0	0	2	0	2	1	3	4	0	0	4	9
Total	5	2	0	7	2	15	1	18	25	2	0	27	52
5:00 PM	1	0	0	1	1	7	0	8	7	0	0	7	16
5:15 PM	0	0	0	0	0	9	0	9	5	1	0	6	15
5:30 PM	2	1	0	3	0	5	0	5	5	1	0	6	14
5:45 PM	1	1	0	2	0	2	0	2	9	2	0	11	15
Total	4	2	0	6	1	23	0	24	26	4	0	30	60
Grand Total	9	4	0	13	3	38	1	42	51	6	0	57	112
Approach %	69.2	30.8	0.0		7.1	90.5	2.4		89.5	10.5	0.0		
Total %	8.0	3.6	0.0	11.6	2.7	33.9	0.9	37.5	45.5	5.4	0.0	50.9	
Exiting Leg Total				9				56				47	112

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Kennebunk Savings Bank Driveway				Vaughan Street				Vaughan Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
5:00 PM	1	0	0	1	1	7	0	8	7	0	0	7	16
5:15 PM	0	0	0	0	0	9	0	9	5	1	0	6	15
5:30 PM	2	1	0	3	0	5	0	5	5	1	0	6	14
5:45 PM	1	1	0	2	0	2	0	2	9	2	0	11	15
Total Volume	4	2	0	6	1	23	0	24	26	4	0	30	60
% Approach Total	66.7	33.3	0.0		4.2	95.8	0.0		86.7	13.3	0.0		
PHF	0.500	0.500	0.000	0.500	0.250	0.639	0.000	0.667	0.722	0.500	0.000	0.682	0.938
Entering Leg	4	2	0	6	1	23	0	24	26	4	0	30	60
Exiting Leg				5				28				27	60
Total				11				52				57	120

PDI File #: **196718 E**
Location: **N: Kennebunk Savings Bank Driveway**
Location: **E: Vaughan Street W: Vaughan Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Kennebunk Savings Bank Driveway				Vaughan Street				Vaughan Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Single-Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Kennebunk Savings Bank Driveway				Vaughan Street				Vaughan Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses				0				0				0	0
Single-Unit Trucks				0				0				0	0
Articulated Trucks				0				0				0	0
Total Exiting Leg				0				0				0	0

PDI File #: **196718 E**
Location: **N: Kennebunk Savings Bank Driveway**
Location: **E: Vaughan Street W: Vaughan Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Kennebunk Savings Bank Driveway				Vaughan Street				Vaughan Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	2	2	0	4	0	4	0	4	6	0	0	6	14
4:15 PM	1	0	0	1	1	2	0	3	6	2	0	8	12
4:30 PM	0	0	0	0	1	7	0	8	6	0	0	6	14
4:45 PM	1	0	0	1	0	2	0	2	4	0	0	4	7
Total	4	2	0	6	2	15	0	17	22	2	0	24	47
5:00 PM	1	0	0	1	0	5	0	5	7	0	0	7	13
5:15 PM	0	0	0	0	0	8	0	8	5	1	0	6	14
5:30 PM	2	1	0	3	0	4	0	4	5	1	0	6	13
5:45 PM	1	1	0	2	0	2	0	2	9	2	0	11	15
Total	4	2	0	6	0	19	0	19	26	4	0	30	55
Grand Total	8	4	0	12	2	34	0	36	48	6	0	54	102
Approach %	66.7	33.3	0.0		5.6	94.4	0.0		88.9	11.1	0.0		
Total %	7.8	3.9	0.0	11.8	2.0	33.3	0.0	35.3	47.1	5.9	0.0	52.9	
Exiting Leg Total				8				52				42	102

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Kennebunk Savings Bank Driveway				Vaughan Street				Vaughan Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
5:00 PM	1	0	0	1	0	5	0	5	7	0	0	7	13
5:15 PM	0	0	0	0	0	8	0	8	5	1	0	6	14
5:30 PM	2	1	0	3	0	4	0	4	5	1	0	6	13
5:45 PM	1	1	0	2	0	2	0	2	9	2	0	11	15
Total Volume	4	2	0	6	0	19	0	19	26	4	0	30	55
% Approach Total	66.7	33.3	0.0		0.0	100.0	0.0		86.7	13.3	0.0		
PHF	0.500	0.500	0.000	0.500	0.000	0.594	0.000	0.594	0.722	0.500	0.000	0.682	0.917
Entering Leg	4	2	0	6	0	19	0	19	26	4	0	30	55
Exiting Leg				4				28				23	55
Total				10				47				53	110

PDI File #: **196718 E**
Location: **N: Kennebunk Savings Bank Driveway**
Location: **E: Vaughan Street W: Vaughan Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Light Goods Vehicle**

	Kennebunk Savings Bank Driveway				Vaughan Street				Vaughan Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	2	0	0	2	2
4:45 PM	1	0	0	1	0	0	1	1	0	0	0	0	2
Total	1	0	0	1	0	0	1	1	3	0	0	3	5
5:00 PM	0	0	0	0	1	2	0	3	0	0	0	0	3
5:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
5:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	4	0	5	0	0	0	0	5
Grand Total	1	0	0	1	1	4	1	6	3	0	0	3	10
Approach %	100.0	0.0	0.0		16.7	66.7	16.7		100.0	0.0	0.0		
Total %	10.0	0.0	0.0	10.0	10.0	40.0	10.0	60.0	30.0	0.0	0.0	30.0	
Exiting Leg Total				1				4				5	10

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Kennebunk Savings Bank Driveway				Vaughan Street				Vaughan Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:30 PM	0	0	0	0	0	0	0	0	2	0	0	2	2
4:45 PM	1	0	0	1	0	0	1	1	0	0	0	0	2
5:00 PM	0	0	0	0	1	2	0	3	0	0	0	0	3
5:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
Total Volume	1	0	0	1	1	3	1	5	2	0	0	2	8
% Approach Total	100.0	0.0	0.0		20.0	60.0	20.0		100.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.250	0.250	0.375	0.250	0.417	0.250	0.000	0.000	0.250	0.667
Entering Leg	1	0	0	1	1	3	1	5	2	0	0	2	8
Exiting Leg				1				3				4	8
Total				2				8				6	16

PDI File #: **196718 E**
Location: **N: Kennebunk Savings Bank Driveway**
Location: **E: Vaughan Street W: Vaughan Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
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Buses

	Kennebunk Savings Bank Driveway				Vaughan Street				Vaughan Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Kennebunk Savings Bank Driveway				Vaughan Street				Vaughan Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **196718 E**
Location: **N: Kennebunk Savings Bank Driveway**
Location: **E: Vaughan Street W: Vaughan Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

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Single-Unit Trucks

	Kennebunk Savings Bank Driveway				Vaughan Street				Vaughan Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Kennebunk Savings Bank Driveway				Vaughan Street				Vaughan Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **196718 E**
Location: **N: Kennebunk Savings Bank Driveway**
Location: **E: Vaughan Street W: Vaughan Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

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46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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Articulated Trucks

	Kennebunk Savings Bank Driveway				Vaughan Street				Vaughan Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Kennebunk Savings Bank Driveway				Vaughan Street				Vaughan Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **196718 E**
Location: **N: Kennebunk Savings Bank Driveway**
Location: **E: Vaughan Street W: Vaughan Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Bicycles (on Roadway and Crosswalks)**

	Kennebunk Savings Bank Driveway						Vaughan Street						Vaughan Street						
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
Approach %	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0	
Exiting Leg Total						0						2						0	2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Kennebunk Savings Bank Driveway						Vaughan Street						Vaughan Street						
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.500	0.500
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
Exiting Leg						0						2						0	2
Total						0						2						2	4

PDI File #: **196718 E**
Location: **N: Kennebunk Savings Bank Driveway**
Location: **E: Vaughan Street W: Vaughan Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Kennebunk Savings Bank Driveway						Vaughan Street						Vaughan Street						
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	1	1	0	0	0	1	0	1	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	1	0	0	0	1	0	1	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Grand Total	0	0	0	1	2	3	0	0	0	1	0	1	0	0	0	0	0	0	4
Approach %	0	0	0	33.333	66.667		0	0	0	100	0		0	0	0	0	0		
Total %	0	0	0	25	50	75	0	0	0	25	0	25	0	0	0	0	0	0	
Exiting Leg Total						3						1						0	4

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Kennebunk Savings Bank Driveway						Vaughan Street						Vaughan Street						
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	1	1	0	0	0	1	0	1	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	1	1	0	0	0	1	0	1	0	0	0	0	0	0	2
% Approach Total	0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	1	1	0	0	0	1	0	1	0	0	0	0	0	0	2
Exiting Leg						1						1						0	2
Total						2						2						0	4

PDI File #: **196718 F**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **E: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Vaughan Street from North				Green Street from East				Vaughan Street from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	2	5	0	7	2	2	0	4	5	5	0	10	21
4:15 PM	2	0	0	2	5	1	0	6	3	4	0	7	15
4:30 PM	6	2	0	8	3	2	0	5	2	7	1	10	23
4:45 PM	2	2	0	4	4	0	0	4	3	3	0	6	14
Total	12	9	0	21	14	5	0	19	13	19	1	33	73
5:00 PM	7	4	0	11	5	1	0	6	3	4	0	7	24
5:15 PM	4	4	0	8	2	4	0	6	1	3	0	4	18
5:30 PM	4	0	1	5	6	1	0	7	4	3	0	7	19
5:45 PM	2	1	0	3	7	0	0	7	3	5	0	8	18
Total	17	9	1	27	20	6	0	26	11	15	0	26	79
Grand Total	29	18	1	48	34	11	0	45	24	34	1	59	152
Approach %	60.4	37.5	2.1		75.6	24.4	0.0		40.7	57.6	1.7		
Total %	19.1	11.8	0.7	31.6	22.4	7.2	0.0	29.6	15.8	22.4	0.7	38.8	
Exiting Leg Total				69				42				41	152
Cars	29	18	1	48	34	11	0	45	24	34	1	59	152
% Cars	100.0	100.0	100.0	100.0	100.0	100.0	0.0	100.0	100.0	100.0	100.0	100.0	100.0
Exiting Leg Total				69				42				41	152
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Vaughan Street from North				Green Street from East				Vaughan Street from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:30 PM	6	2	0	8	3	2	0	5	2	7	1	10	23
4:45 PM	2	2	0	4	4	0	0	4	3	3	0	6	14
5:00 PM	7	4	0	11	5	1	0	6	3	4	0	7	24
5:15 PM	4	4	0	8	2	4	0	6	1	3	0	4	18
Total Volume	19	12	0	31	14	7	0	21	9	17	1	27	79
% Approach Total	61.3	38.7	0.0		66.7	33.3	0.0		33.3	63.0	3.7		
PHF	0.679	0.750	0.000	0.705	0.700	0.438	0.000	0.875	0.750	0.607	0.250	0.675	0.823
Cars	19	12	0	31	14	7	0	21	9	17	1	27	79
Cars %	100.0	100.0	0.0	100.0	100.0	100.0	0.0	100.0	100.0	100.0	100.0	100.0	100.0
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cars Enter Leg	19	12	0	31	14	7	0	21	9	17	1	27	79
Heavy Enter Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	19	12	0	31	14	7	0	21	9	17	1	27	79
Cars Exiting Leg				31				21				27	79
Heavy Exiting Leg				0				0				0	0
Total Exiting Leg				31				21				27	79

PDI File #: **196718 F**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **E: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Vaughan Street from North				Green Street from East				Vaughan Street from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	2	5	0	7	2	2	0	4	5	5	0	10	21
4:15 PM	2	0	0	2	5	1	0	6	3	4	0	7	15
4:30 PM	6	2	0	8	3	2	0	5	2	7	1	10	23
4:45 PM	2	2	0	4	4	0	0	4	3	3	0	6	14
Total	12	9	0	21	14	5	0	19	13	19	1	33	73
5:00 PM	7	4	0	11	5	1	0	6	3	4	0	7	24
5:15 PM	4	4	0	8	2	4	0	6	1	3	0	4	18
5:30 PM	4	0	1	5	6	1	0	7	4	3	0	7	19
5:45 PM	2	1	0	3	7	0	0	7	3	5	0	8	18
Total	17	9	1	27	20	6	0	26	11	15	0	26	79
Grand Total	29	18	1	48	34	11	0	45	24	34	1	59	152
Approach %	60.4	37.5	2.1		75.6	24.4	0.0		40.7	57.6	1.7		
Total %	19.1	11.8	0.7	31.6	22.4	7.2	0.0	29.6	15.8	22.4	0.7	38.8	
Exiting Leg Total				69				42				41	152

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Vaughan Street from North				Green Street from East				Vaughan Street from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:30 PM	6	2	0	8	3	2	0	5	2	7	1	10	23
4:45 PM	2	2	0	4	4	0	0	4	3	3	0	6	14
5:00 PM	7	4	0	11	5	1	0	6	3	4	0	7	24
5:15 PM	4	4	0	8	2	4	0	6	1	3	0	4	18
Total Volume	19	12	0	31	14	7	0	21	9	17	1	27	79
% Approach Total	61.3	38.7	0.0		66.7	33.3	0.0		33.3	63.0	3.7		
PHF	0.679	0.750	0.000	0.705	0.700	0.438	0.000	0.875	0.750	0.607	0.250	0.675	0.823
Entering Leg	19	12	0	31	14	7	0	21	9	17	1	27	79
Exiting Leg				31				21				27	79
Total				62				42				54	158

PDI File #: **196718 F**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **E: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Vaughan Street from North				Green Street from East				Vaughan Street from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Single-Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Vaughan Street from North				Green Street from East				Vaughan Street from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses				0				0				0	0
Single-Unit Trucks				0				0				0	0
Articulated Trucks				0				0				0	0
Total Exiting Leg				0				0				0	0

PDI File #: **196718 F**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **E: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Cars**

	Vaughan Street from North				Green Street from East				Vaughan Street from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	2	1	0	3	2	2	0	4	5	4	0	9	16
4:15 PM	2	0	0	2	5	1	0	6	3	4	0	7	15
4:30 PM	6	1	0	7	2	2	0	4	1	6	1	8	19
4:45 PM	1	1	0	2	3	0	0	3	2	3	0	5	10
Total	11	3	0	14	12	5	0	17	11	17	1	29	60
5:00 PM	5	2	0	7	5	0	0	5	3	4	0	7	19
5:15 PM	4	3	0	7	1	3	0	4	1	3	0	4	15
5:30 PM	4	0	1	5	5	0	0	5	4	2	0	6	16
5:45 PM	2	0	0	2	6	0	0	6	2	5	0	7	15
Total	15	5	1	21	17	3	0	20	10	14	0	24	65
Grand Total	26	8	1	35	29	8	0	37	21	31	1	53	125
Approach %	74.3	22.9	2.9		78.4	21.6	0.0		39.6	58.5	1.9		
Total %	20.8	6.4	0.8	28.0	23.2	6.4	0.0	29.6	16.8	24.8	0.8	42.4	
Exiting Leg Total				61				29				35	125

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Vaughan Street from North				Green Street from East				Vaughan Street from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	5	2	0	7	5	0	0	5	3	4	0	7	19
5:15 PM	4	3	0	7	1	3	0	4	1	3	0	4	15
5:30 PM	4	0	1	5	5	0	0	5	4	2	0	6	16
5:45 PM	2	0	0	2	6	0	0	6	2	5	0	7	15
Total Volume	15	5	1	21	17	3	0	20	10	14	0	24	65
% Approach Total	71.4	23.8	4.8		85.0	15.0	0.0		41.7	58.3	0.0		
PHF	0.750	0.417	0.250	0.750	0.708	0.250	0.000	0.833	0.625	0.700	0.000	0.857	0.855
Entering Leg	15	5	1	21	17	3	0	20	10	14	0	24	65
Exiting Leg				32				15				18	65
Total				53				35				42	130

PDI File #: **196718 F**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **E: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Light Goods Vehicle**

	Vaughan Street from North				Green Street from East				Vaughan Street from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	4	0	4	0	0	0	0	0	1	0	1	5
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	1	1	0	0	1	1	1	0	2	4
4:45 PM	1	1	0	2	1	0	0	1	1	0	0	1	4
Total	1	6	0	7	2	0	0	2	2	2	0	4	13
5:00 PM	2	2	0	4	0	1	0	1	0	0	0	0	5
5:15 PM	0	1	0	1	1	1	0	2	0	0	0	0	3
5:30 PM	0	0	0	0	1	1	0	2	0	1	0	1	3
5:45 PM	0	1	0	1	1	0	0	1	1	0	0	1	3
Total	2	4	0	6	3	3	0	6	1	1	0	2	14
Grand Total	3	10	0	13	5	3	0	8	3	3	0	6	27
Approach %	23.1	76.9	0.0		62.5	37.5	0.0		50.0	50.0	0.0		
Total %	11.1	37.0	0.0	48.1	18.5	11.1	0.0	29.6	11.1	11.1	0.0	22.2	
Exiting Leg Total				8				13				6	27

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:30 PM	Vaughan Street from North				Green Street from East				Vaughan Street from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:30 PM	0	1	0	1	1	0	0	1	1	1	0	2	4
4:45 PM	1	1	0	2	1	0	0	1	1	0	0	1	4
5:00 PM	2	2	0	4	0	1	0	1	0	0	0	0	5
5:15 PM	0	1	0	1	1	1	0	2	0	0	0	0	3
Total Volume	3	5	0	8	3	2	0	5	2	1	0	3	16
% Approach Total	37.5	62.5	0.0		60.0	40.0	0.0		66.7	33.3	0.0		
PHF	0.375	0.625	0.000	0.500	0.750	0.500	0.000	0.625	0.500	0.250	0.000	0.375	0.800
Entering Leg	3	5	0	8	3	2	0	5	2	1	0	3	16
Exiting Leg				4				7				5	16
Total				12				12				8	32

PDI File #: **196718 F**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **E: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Buses**

	Vaughan Street from North				Green Street from East				Vaughan Street from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Vaughan Street from North				Green Street from East				Vaughan Street from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **196718 F**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **E: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class:

Single-Unit Trucks

	Vaughan Street from North				Green Street from East				Vaughan Street from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Vaughan Street from North				Green Street from East				Vaughan Street from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **196718 F**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **E: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class:

Articulated Trucks

	Vaughan Street from North				Green Street from East				Vaughan Street from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Vaughan Street from North				Green Street from East				Vaughan Street from South				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **196718 F**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **E: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Vaughan Street from North						Green Street from East						Vaughan Street from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
5:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	2
Total	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	2	3
Grand Total	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	2	3
Approach %	0.0	100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		
Total %	0.0	33.3	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7	0.0	0.0	0.0	66.7	
Exiting Leg Total						2						1						0	3

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Vaughan Street from North						Green Street from East						Vaughan Street from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
5:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	2
Total Volume	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	2	3
% Approach Total	0.0	100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.500	0.375
Entering Leg	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	2	3
Exiting Leg						2						1						0	3
Total						3						1						2	6

PDI File #: **196718 F**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **E: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Vaughan Street from North						Green Street from East						Vaughan Street from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	3	3	0	0	0	0	4	4	0	0	0	0	0	0	7
4:45 PM	0	0	0	0	1	1	0	0	0	0	2	2	0	0	0	0	0	0	3
Total	0	0	0	1	4	5	0	0	0	1	6	7	0	0	0	0	0	0	12
5:00 PM	0	0	0	0	2	2	0	0	0	1	2	3	0	0	0	5	0	5	10
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	1	1	3
5:45 PM	0	0	0	0	1	1	0	0	0	0	3	3	0	0	0	0	0	0	4
Total	0	0	0	0	3	3	0	0	0	1	7	8	0	0	0	5	1	6	17
Grand Total	0	0	0	1	7	8	0	0	0	2	13	15	0	0	0	5	1	6	29
Approach %	0	0	0	12.5	87.5		0	0	0	13.333	86.667		0	0	0	83.333	16.667		
Total %	0	0	0	3.4483	24.138	27.586	0	0	0	6.8966	44.828	51.724	0	0	0	17.241	3.4483	20.69	
Exiting Leg Total						8						15						6	29

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Vaughan Street from North						Green Street from East						Vaughan Street from South						
	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	U-Turn	CW-WB	CW-EB	Total	Total
4:15 PM	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	3	3	0	0	0	0	4	4	0	0	0	0	0	0	7
4:45 PM	0	0	0	0	1	1	0	0	0	0	2	2	0	0	0	0	0	0	3
5:00 PM	0	0	0	0	2	2	0	0	0	1	2	3	0	0	0	5	0	5	10
Total Volume	0	0	0	1	6	7	0	0	0	2	8	10	0	0	0	5	0	5	22
% Approach Total	0.0	0.0	0.0	14.3	85.7		0.0	0.0	0.0	20.0	80.0		0.0	0.0	0.0	100.0	0.0		
PHF	0.000	0.000	0.000	0.250	0.500	0.583	0.000	0.000	0.000	0.500	0.500	0.625	0.000	0.000	0.000	0.250	0.000	0.250	0.550
Entering Leg	0	0	0	1	6	7	0	0	0	2	8	10	0	0	0	5	0	5	22
Exiting Leg						7						10						5	22
Total						14						20						10	44

PDI File #: **196718 G**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **W: Office Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Vaughan Street from North				Vaughan Street from South				Office Driveway from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	1	7	0	8	6	1	0	7	0	0	0	0	15
4:15 PM	0	2	0	2	9	0	0	9	0	1	0	1	12
4:30 PM	0	5	0	5	9	0	1	10	1	0	0	1	16
4:45 PM	2	4	1	7	5	0	0	5	0	2	0	2	14
Total	3	18	1	22	29	1	1	31	1	3	0	4	57
5:00 PM	6	6	0	12	8	1	2	11	1	7	0	8	31
5:15 PM	4	10	0	14	5	0	0	5	0	2	0	2	21
5:30 PM	2	5	0	7	8	1	0	9	0	2	0	2	18
5:45 PM	4	2	0	6	10	2	0	12	1	1	0	2	20
Total	16	23	0	39	31	4	2	37	2	12	0	14	90
Grand Total	19	41	1	61	60	5	3	68	3	15	0	18	147
Approach %	31.1	67.2	1.6		88.2	7.4	4.4		16.7	83.3	0.0		
Total %	12.9	27.9	0.7	41.5	40.8	3.4	2.0	46.3	2.0	10.2	0.0	12.2	
Exiting Leg Total				76				47				24	147
Cars	19	41	1	61	60	5	3	68	3	15	0	18	147
% Cars	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.0	100.0	100.0
Exiting Leg Total				76				47				24	147
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Vaughan Street from North				Vaughan Street from South				Office Driveway from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
5:00 PM	6	6	0	12	8	1	2	11	1	7	0	8	31
5:15 PM	4	10	0	14	5	0	0	5	0	2	0	2	21
5:30 PM	2	5	0	7	8	1	0	9	0	2	0	2	18
5:45 PM	4	2	0	6	10	2	0	12	1	1	0	2	20
Total Volume	16	23	0	39	31	4	2	37	2	12	0	14	90
% Approach Total	41.0	59.0	0.0		83.8	10.8	5.4		14.3	85.7	0.0		
PHF	0.667	0.575	0.000	0.696	0.775	0.500	0.250	0.771	0.500	0.429	0.000	0.438	0.726
Cars	16	23	0	39	31	4	2	37	2	12	0	14	90
Cars %	100.0	100.0	0.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.0	100.0	100.0
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cars Enter Leg	16	23	0	39	31	4	2	37	2	12	0	14	90
Heavy Enter Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	16	23	0	39	31	4	2	37	2	12	0	14	90
Cars Exiting Leg				43				27				20	90
Heavy Exiting Leg				0				0				0	0
Total Exiting Leg				43				27				20	90

PDI File #: **196718 G**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **W: Office Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Vaughan Street from North				Vaughan Street from South				Office Driveway from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	1	7	0	8	6	1	0	7	0	0	0	0	15
4:15 PM	0	2	0	2	9	0	0	9	0	1	0	1	12
4:30 PM	0	5	0	5	9	0	1	10	1	0	0	1	16
4:45 PM	2	4	1	7	5	0	0	5	0	2	0	2	14
Total	3	18	1	22	29	1	1	31	1	3	0	4	57
5:00 PM	6	6	0	12	8	1	2	11	1	7	0	8	31
5:15 PM	4	10	0	14	5	0	0	5	0	2	0	2	21
5:30 PM	2	5	0	7	8	1	0	9	0	2	0	2	18
5:45 PM	4	2	0	6	10	2	0	12	1	1	0	2	20
Total	16	23	0	39	31	4	2	37	2	12	0	14	90
Grand Total	19	41	1	61	60	5	3	68	3	15	0	18	147
Approach %	31.1	67.2	1.6		88.2	7.4	4.4		16.7	83.3	0.0		
Total %	12.9	27.9	0.7	41.5	40.8	3.4	2.0	46.3	2.0	10.2	0.0	12.2	
Exiting Leg Total				76				47				24	147

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Vaughan Street from North				Vaughan Street from South				Office Driveway from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
5:00 PM	6	6	0	12	8	1	2	11	1	7	0	8	31
5:15 PM	4	10	0	14	5	0	0	5	0	2	0	2	21
5:30 PM	2	5	0	7	8	1	0	9	0	2	0	2	18
5:45 PM	4	2	0	6	10	2	0	12	1	1	0	2	20
Total Volume	16	23	0	39	31	4	2	37	2	12	0	14	90
% Approach Total	41.0	59.0	0.0		83.8	10.8	5.4		14.3	85.7	0.0		
PHF	0.667	0.575	0.000	0.696	0.775	0.500	0.250	0.771	0.500	0.429	0.000	0.438	0.726
Entering Leg	16	23	0	39	31	4	2	37	2	12	0	14	90
Exiting Leg				43				27				20	90
Total				82				64				34	180

PDI File #: **196718 G**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **W: Office Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Vaughan Street from North				Vaughan Street from South				Office Driveway from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Single-Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Vaughan Street from North				Vaughan Street from South				Office Driveway from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses				0				0				0	0
Single-Unit Trucks				0				0				0	0
Articulated Trucks				0				0				0	0
Total Exiting Leg				0				0				0	0

PDI File #: **196718 G**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **W: Office Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Cars**

	Vaughan Street from North				Vaughan Street from South				Office Driveway from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	1	3	0	4	5	1	0	6	0	0	0	0	10
4:15 PM	0	2	0	2	9	0	0	9	0	1	0	1	12
4:30 PM	0	4	0	4	7	0	1	8	1	0	0	1	13
4:45 PM	2	2	1	5	4	0	0	4	0	2	0	2	11
Total	3	11	1	15	25	1	1	27	1	3	0	4	46
5:00 PM	6	3	0	9	8	1	2	11	1	7	0	8	28
5:15 PM	4	9	0	13	4	0	0	4	0	2	0	2	19
5:30 PM	2	5	0	7	7	0	0	7	0	1	0	1	15
5:45 PM	3	1	0	4	9	2	0	11	1	1	0	2	17
Total	15	18	0	33	28	3	2	33	2	11	0	13	79
Grand Total	18	29	1	48	53	4	3	60	3	14	0	17	125
Approach %	37.5	60.4	2.1		88.3	6.7	5.0		17.6	82.4	0.0		
Total %	14.4	23.2	0.8	38.4	42.4	3.2	2.4	48.0	2.4	11.2	0.0	13.6	
Exiting Leg Total				68				35				22	125

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Vaughan Street from North				Vaughan Street from South				Office Driveway from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
5:00 PM	6	3	0	9	8	1	2	11	1	7	0	8	28
5:15 PM	4	9	0	13	4	0	0	4	0	2	0	2	19
5:30 PM	2	5	0	7	7	0	0	7	0	1	0	1	15
5:45 PM	3	1	0	4	9	2	0	11	1	1	0	2	17
Total Volume	15	18	0	33	28	3	2	33	2	11	0	13	79
% Approach Total	45.5	54.5	0.0		84.8	9.1	6.1		15.4	84.6	0.0		
PHF	0.625	0.500	0.000	0.635	0.778	0.375	0.250	0.750	0.500	0.393	0.000	0.406	0.705
Entering Leg	15	18	0	33	28	3	2	33	2	11	0	13	79
Exiting Leg				39				22				18	79
Total				72				55				31	158

PDI File #: **196718 G**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **W: Office Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Light Goods Vehicle**

	Vaughan Street from North				Vaughan Street from South				Office Driveway from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	4	0	4	1	0	0	1	0	0	0	0	5
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	1	2	0	0	2	0	0	0	0	3
4:45 PM	0	2	0	2	1	0	0	1	0	0	0	0	3
Total	0	7	0	7	4	0	0	4	0	0	0	0	11
5:00 PM	0	3	0	3	0	0	0	0	0	0	0	0	3
5:15 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
5:30 PM	0	0	0	0	1	1	0	2	0	1	0	1	3
5:45 PM	1	1	0	2	1	0	0	1	0	0	0	0	3
Total	1	5	0	6	3	1	0	4	0	1	0	1	11
Grand Total	1	12	0	13	7	1	0	8	0	1	0	1	22
Approach %	7.7	92.3	0.0		87.5	12.5	0.0		0.0	100.0	0.0		
Total %	4.5	54.5	0.0	59.1	31.8	4.5	0.0	36.4	0.0	4.5	0.0	4.5	
Exiting Leg Total				8				12				2	22

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Vaughan Street from North				Vaughan Street from South				Office Driveway from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	4	0	4	1	0	0	1	0	0	0	0	5
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	1	2	0	0	2	0	0	0	0	3
4:45 PM	0	2	0	2	1	0	0	1	0	0	0	0	3
Total Volume	0	7	0	7	4	0	0	4	0	0	0	0	11
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.438	0.000	0.438	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.550
Entering Leg	0	7	0	7	4	0	0	4	0	0	0	0	11
Exiting Leg				4				7				0	11
Total				11				11				0	22

PDI File #: **196718 G**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **W: Office Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Buses**

	Vaughan Street from North				Vaughan Street from South				Office Driveway from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Vaughan Street from North				Vaughan Street from South				Office Driveway from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **196718 G**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **W: Office Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Single-Unit Trucks**

	Vaughan Street from North				Vaughan Street from South				Office Driveway from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Vaughan Street from North				Vaughan Street from South				Office Driveway from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **196718 G**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **W: Office Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class:

Articulated Trucks

	Vaughan Street from North				Vaughan Street from South				Office Driveway from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Vaughan Street from North				Vaughan Street from South				Office Driveway from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **196718 G**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **W: Office Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Vaughan Street from North						Vaughan Street from South						Office Driveway from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1
5:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	2
Grand Total	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	2
Approach %	0.0	100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total %	0.0	50.0	0.0	0.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total						1						1						0	2

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Vaughan Street from North						Vaughan Street from South						Office Driveway from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1
5:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	2
% Approach Total	0.0	100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	2
Exiting Leg						1						1						0	2
Total						2						2						0	4

PDI File #: **196718 G**
Location: **N: Vaughan Street S: Vaughan Street**
Location: **W: Office Driveway**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Vaughan Street from North						Vaughan Street from South						Office Driveway from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0	1	1	2	5
4:15 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	1	1	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	5	5
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
Total	0	0	0	2	1	3	0	0	0	0	2	2	0	0	0	5	6	11	16
5:00 PM	0	0	0	5	0	5	0	0	0	0	0	0	0	0	0	4	1	5	10
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	3	1	4	6
5:45 PM	0	0	0	9	2	11	0	0	0	0	0	0	0	0	0	5	0	5	16
Total	0	0	0	16	2	18	0	0	0	0	0	0	0	0	0	12	2	14	32
Grand Total	0	0	0	18	3	21	0	0	0	0	2	2	0	0	0	17	8	25	48
Approach %	0	0	0	85.714	14.286		0	0	0	0	100		0	0	0	68	32		
Total %	0	0	0	37.5	6.25	43.75	0	0	0	0	4.1667	4.1667	0	0	0	35.417	16.667	52.083	
Exiting Leg Total						21						2						25	48

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Vaughan Street from North						Vaughan Street from South						Office Driveway from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
5:00 PM	0	0	0	5	0	5	0	0	0	0	0	0	0	0	0	4	1	5	10
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	3	1	4	6
5:45 PM	0	0	0	9	2	11	0	0	0	0	0	0	0	0	0	5	0	5	16
Total Volume	0	0	0	16	2	18	0	0	0	0	0	0	0	0	0	12	2	14	32
% Approach Total	0.0	0.0	0.0	88.9	11.1		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	85.7	14.3		
PHF	0.000	0.000	0.000	0.444	0.250	0.409	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.600	0.500	0.700	0.500
Entering Leg	0	0	0	16	2	18	0	0	0	0	0	0	0	0	0	12	2	14	32
Exiting Leg						18						0						14	32
Total						36						0						28	64

PDI File #: **196718 H**
Location: **N: Russell Street**
Location: **E: Deer Street W: Deer Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Russell Street from North				Deer Street from East				Deer Street from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	48	2	0	50	4	8	0	12	5	55	0	60	122
4:15 PM	40	3	0	43	4	16	1	21	8	50	0	58	122
4:30 PM	51	7	0	58	5	9	0	14	9	50	0	59	131
4:45 PM	52	3	0	55	6	18	0	24	15	36	0	51	130
Total	191	15	0	206	19	51	1	71	37	191	0	228	505
5:00 PM	76	6	0	82	7	9	0	16	8	63	0	71	169
5:15 PM	65	0	1	66	3	16	0	19	10	51	0	61	146
5:30 PM	86	2	0	88	3	16	0	19	15	54	0	69	176
5:45 PM	79	2	0	81	2	11	0	13	9	46	1	56	150
Total	306	10	1	317	15	52	0	67	42	214	1	257	641
Grand Total	497	25	1	523	34	103	1	138	79	405	1	485	1146
Approach %	95.0	4.8	0.2		24.6	74.6	0.7		16.3	83.5	0.2		
Total %	43.4	2.2	0.1	45.6	3.0	9.0	0.1	12.0	6.9	35.3	0.1	42.3	
Exiting Leg Total				440				105				601	1146
Cars	488	25	1	514	34	103	1	138	79	398	1	478	1130
% Cars	98.2	100.0	100.0	98.3	100.0	100.0	100.0	100.0	100.0	98.3	100.0	98.6	98.6
Exiting Leg Total				433				105				592	1130
Heavy Vehicles	9	0	0	9	0	0	0	0	0	7	0	7	16
% Heavy Vehicles	1.8	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	1.7	0.0	1.4	1.4
Exiting Leg Total				7				0				9	16

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Russell Street from North				Deer Street from East				Deer Street from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
5:00 PM	76	6	0	82	7	9	0	16	8	63	0	71	169
5:15 PM	65	0	1	66	3	16	0	19	10	51	0	61	146
5:30 PM	86	2	0	88	3	16	0	19	15	54	0	69	176
5:45 PM	79	2	0	81	2	11	0	13	9	46	1	56	150
Total Volume	306	10	1	317	15	52	0	67	42	214	1	257	641
% Approach Total	96.5	3.2	0.3		22.4	77.6	0.0		16.3	83.3	0.4		
PHF	0.890	0.417	0.250	0.901	0.536	0.813	0.000	0.882	0.700	0.849	0.250	0.905	0.911
Cars	301	10	1	312	15	52	0	67	42	210	1	253	632
Cars %	98.4	100.0	100.0	98.4	100.0	100.0	0.0	100.0	100.0	98.1	100.0	98.4	98.6
Heavy Vehicles	5	0	0	5	0	0	0	0	0	4	0	4	9
Heavy Vehicles %	1.6	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	1.9	0.0	1.6	1.4
Cars Enter Leg	301	10	1	312	15	52	0	67	42	210	1	253	632
Heavy Enter Leg	5	0	0	5	0	0	0	0	0	4	0	4	9
Total Entering Leg	306	10	1	317	15	52	0	67	42	214	1	257	641
Cars Exiting Leg				226				52				354	632
Heavy Exiting Leg				4				0				5	9
Total Exiting Leg				230				52				359	641

PDI File #: **196718 H**
Location: **N: Russell Street**
Location: **E: Deer Street W: Deer Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Russell Street from North				Deer Street from East				Deer Street from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	47	2	0	49	4	8	0	12	5	54	0	59	120
4:15 PM	38	3	0	41	4	16	1	21	8	49	0	57	119
4:30 PM	51	7	0	58	5	9	0	14	9	50	0	59	131
4:45 PM	51	3	0	54	6	18	0	24	15	35	0	50	128
Total	187	15	0	202	19	51	1	71	37	188	0	225	498
5:00 PM	75	6	0	81	7	9	0	16	8	62	0	70	167
5:15 PM	65	0	1	66	3	16	0	19	10	50	0	60	145
5:30 PM	83	2	0	85	3	16	0	19	15	54	0	69	173
5:45 PM	78	2	0	80	2	11	0	13	9	44	1	54	147
Total	301	10	1	312	15	52	0	67	42	210	1	253	632
Grand Total	488	25	1	514	34	103	1	138	79	398	1	478	1130
Approach %	94.9	4.9	0.2		24.6	74.6	0.7		16.5	83.3	0.2		
Total %	43.2	2.2	0.1	45.5	3.0	9.1	0.1	12.2	7.0	35.2	0.1	42.3	
Exiting Leg Total				433				105				592	1130

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Russell Street from North				Deer Street from East				Deer Street from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
5:00 PM	75	6	0	81	7	9	0	16	8	62	0	70	167
5:15 PM	65	0	1	66	3	16	0	19	10	50	0	60	145
5:30 PM	83	2	0	85	3	16	0	19	15	54	0	69	173
5:45 PM	78	2	0	80	2	11	0	13	9	44	1	54	147
Total Volume	301	10	1	312	15	52	0	67	42	210	1	253	632
% Approach Total	96.5	3.2	0.3		22.4	77.6	0.0		16.6	83.0	0.4		
PHF	0.907	0.417	0.250	0.918	0.536	0.813	0.000	0.882	0.700	0.847	0.250	0.904	0.913
Entering Leg	301	10	1	312	15	52	0	67	42	210	1	253	632
Exiting Leg				226				52				354	632
Total				538				119				607	1264

PDI File #: **196718 H**
Location: **N: Russell Street**
Location: **E: Deer Street W: Deer Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Russell Street from North				Deer Street from East				Deer Street from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
4:15 PM	2	0	0	2	0	0	0	0	0	1	0	1	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
Total	4	0	0	4	0	0	0	0	0	3	0	3	7
5:00 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
5:30 PM	3	0	0	3	0	0	0	0	0	0	0	0	3
5:45 PM	1	0	0	1	0	0	0	0	0	2	0	2	3
Total	5	0	0	5	0	0	0	0	0	4	0	4	9
Grand Total	9	0	0	9	0	0	0	0	0	7	0	7	16
Approach %	100.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
Total %	56.3	0.0	0.0	56.3	0.0	0.0	0.0	0.0	0.0	43.8	0.0	43.8	
Exiting Leg Total				7				0				9	16
Buses	9	0	0	9	0	0	0	0	0	7	0	7	16
% Buses	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0	100.0
Exiting Leg Total				7				0				9	16
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Single-Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Russell Street from North				Deer Street from East				Deer Street from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
5:00 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
5:30 PM	3	0	0	3	0	0	0	0	0	0	0	0	3
5:45 PM	1	0	0	1	0	0	0	0	0	2	0	2	3
Total Volume	5	0	0	5	0	0	0	0	0	4	0	4	9
% Approach Total	100.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
PHF	0.417	0.000	0.000	0.417	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.750
Buses	5	0	0	5	0	0	0	0	0	4	0	4	9
Buses %	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0	100.0
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	5	0	0	5	0	0	0	0	0	4	0	4	9
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	5	0	0	5	0	0	0	0	0	4	0	4	9
Buses				4				0				5	9
Single-Unit Trucks				0				0				0	0
Articulated Trucks				0				0				0	0
Total Exiting Leg				4				0				5	9

PDI File #: **196718 H**
Location: **N: Russell Street**
Location: **E: Deer Street W: Deer Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Russell Street from North				Deer Street from East				Deer Street from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	42	1	0	43	3	6	0	9	4	47	0	51	103
4:15 PM	31	3	0	34	4	16	1	21	7	41	0	48	103
4:30 PM	48	6	0	54	4	6	0	10	9	46	0	55	119
4:45 PM	45	2	0	47	6	16	0	22	12	31	0	43	112
Total	166	12	0	178	17	44	1	62	32	165	0	197	437
5:00 PM	67	6	0	73	7	8	0	15	7	58	0	65	153
5:15 PM	57	0	1	58	3	16	0	19	10	45	0	55	132
5:30 PM	75	2	0	77	3	15	0	18	15	48	0	63	158
5:45 PM	72	2	0	74	2	10	0	12	9	41	1	51	137
Total	271	10	1	282	15	49	0	64	41	192	1	234	580
Grand Total	437	22	1	460	32	93	1	126	73	357	1	431	1017
Approach %	95.0	4.8	0.2		25.4	73.8	0.8		16.9	82.8	0.2		
Total %	43.0	2.2	0.1	45.2	3.1	9.1	0.1	12.4	7.2	35.1	0.1	42.4	
Exiting Leg Total				390				96				531	1017

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Russell Street from North				Deer Street from East				Deer Street from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
5:00 PM	67	6	0	73	7	8	0	15	7	58	0	65	153
5:15 PM	57	0	1	58	3	16	0	19	10	45	0	55	132
5:30 PM	75	2	0	77	3	15	0	18	15	48	0	63	158
5:45 PM	72	2	0	74	2	10	0	12	9	41	1	51	137
Total Volume	271	10	1	282	15	49	0	64	41	192	1	234	580
% Approach Total	96.1	3.5	0.4		23.4	76.6	0.0		17.5	82.1	0.4		
PHF	0.903	0.417	0.250	0.916	0.536	0.766	0.000	0.842	0.683	0.828	0.250	0.900	0.918
Entering Leg	271	10	1	282	15	49	0	64	41	192	1	234	580
Exiting Leg				208				51				321	580
Total				490				115				555	1160

PDI File #: **196718 H**
Location: **N: Russell Street**
Location: **E: Deer Street W: Deer Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Light Goods Vehicle**

	Russell Street from North				Deer Street from East				Deer Street from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	5	1	0	6	1	2	0	3	1	7	0	8	17
4:15 PM	7	0	0	7	0	0	0	0	1	8	0	9	16
4:30 PM	3	1	0	4	1	3	0	4	0	4	0	4	12
4:45 PM	6	1	0	7	0	2	0	2	3	4	0	7	16
Total	21	3	0	24	2	7	0	9	5	23	0	28	61
5:00 PM	8	0	0	8	0	1	0	1	1	4	0	5	14
5:15 PM	8	0	0	8	0	0	0	0	0	5	0	5	13
5:30 PM	8	0	0	8	0	1	0	1	0	6	0	6	15
5:45 PM	6	0	0	6	0	1	0	1	0	3	0	3	10
Total	30	0	0	30	0	3	0	3	1	18	0	19	52
Grand Total	51	3	0	54	2	10	0	12	6	41	0	47	113
Approach %	94.4	5.6	0.0		16.7	83.3	0.0		12.8	87.2	0.0		
Total %	45.1	2.7	0.0	47.8	1.8	8.8	0.0	10.6	5.3	36.3	0.0	41.6	
Exiting Leg Total				43				9				61	113

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Russell Street from North				Deer Street from East				Deer Street from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	5	1	0	6	1	2	0	3	1	7	0	8	17
4:15 PM	7	0	0	7	0	0	0	0	1	8	0	9	16
4:30 PM	3	1	0	4	1	3	0	4	0	4	0	4	12
4:45 PM	6	1	0	7	0	2	0	2	3	4	0	7	16
Total Volume	21	3	0	24	2	7	0	9	5	23	0	28	61
% Approach Total	87.5	12.5	0.0		22.2	77.8	0.0		17.9	82.1	0.0		
PHF	0.750	0.750	0.000	0.857	0.500	0.583	0.000	0.563	0.417	0.719	0.000	0.778	0.897
Entering Leg	21	3	0	24	2	7	0	9	5	23	0	28	61
Exiting Leg				25				8				28	61
Total				49				17				56	122

PDI File #: **196718 H**
Location: **N: Russell Street**
Location: **E: Deer Street W: Deer Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Russell Street				Deer Street				Deer Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
4:15 PM	2	0	0	2	0	0	0	0	0	1	0	1	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
Total	4	0	0	4	0	0	0	0	0	3	0	3	7
5:00 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
5:30 PM	3	0	0	3	0	0	0	0	0	0	0	0	3
5:45 PM	1	0	0	1	0	0	0	0	0	2	0	2	3
Total	5	0	0	5	0	0	0	0	0	4	0	4	9
Grand Total	9	0	0	9	0	0	0	0	0	7	0	7	16
Approach %	100.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
Total %	56.3	0.0	0.0	56.3	0.0	0.0	0.0	0.0	0.0	43.8	0.0	43.8	
Exiting Leg Total				7				0				9	16

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Russell Street				Deer Street				Deer Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
5:00 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
5:30 PM	3	0	0	3	0	0	0	0	0	0	0	0	3
5:45 PM	1	0	0	1	0	0	0	0	0	2	0	2	3
Total Volume	5	0	0	5	0	0	0	0	0	4	0	4	9
% Approach Total	100.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
PHF	0.417	0.000	0.000	0.417	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.750
Entering Leg	5	0	0	5	0	0	0	0	0	4	0	4	9
Exiting Leg				4				0				5	9
Total				9				0				9	18

PDI File #: **196718 H**
Location: **N: Russell Street**
Location: **E: Deer Street W: Deer Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Single-Unit Trucks**

	Russell Street from North				Deer Street from East				Deer Street from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Russell Street from North				Deer Street from East				Deer Street from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **196718 H**
Location: **N: Russell Street**
Location: **E: Deer Street W: Deer Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Russell Street				Deer Street				Deer Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Russell Street				Deer Street				Deer Street				
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **196718 H**
Location: **N: Russell Street**
Location: **E: Deer Street W: Deer Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Russell Street from North						Deer Street from East						Deer Street from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total						0						0						0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Russell Street from North						Deer Street from East						Deer Street from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg						0						0						0	0
Total						0						0						0	0

PDI File #: **196718 H**
Location: **N: Russell Street**
Location: **E: Deer Street W: Deer Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Russell Street						Deer Street						Deer Street						
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	1	2	3	0	0	0	0	0	0	3
4:30 PM	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	1	1	0	0	0	2	3	5	0	0	0	1	0	1	7
Total	0	0	0	0	2	2	0	0	0	4	6	10	0	0	0	1	0	1	13
5:00 PM	0	0	0	0	1	1	0	0	0	2	6	8	0	0	0	1	1	2	11
5:15 PM	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	1	1	0	0	0	1	1	2	0	0	0	0	0	0	3
Total	0	0	0	0	2	2	0	0	0	4	10	14	0	0	0	1	1	2	18
Grand Total	0	0	0	0	4	4	0	0	0	8	16	24	0	0	0	2	1	3	31
Approach %	0	0	0	0	100		0	0	0	33.333	66.667		0	0	0	66.667	33.333		
Total %	0	0	0	0	12.903	12.903	0	0	0	25.806	51.613	77.419	0	0	0	6.4516	3.2258	9.6774	
Exiting Leg Total						4						24						3	31

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Russell Street						Deer Street						Deer Street						
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:15 PM	0	0	0	0	0	0	0	0	0	1	2	3	0	0	0	0	0	0	3
4:30 PM	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	1	1	0	0	0	2	3	5	0	0	0	1	0	1	7
5:00 PM	0	0	0	0	1	1	0	0	0	2	6	8	0	0	0	1	1	2	11
Total Volume	0	0	0	0	3	3	0	0	0	5	12	17	0	0	0	2	1	3	23
% Approach Total	0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	29.4	70.6		0.0	0.0	0.0	66.7	33.3		
PHF	0.000	0.000	0.000	0.000	0.750	0.750	0.000	0.000	0.000	0.625	0.500	0.531	0.000	0.000	0.000	0.500	0.250	0.375	0.523
Entering Leg	0	0	0	0	3	3	0	0	0	5	12	17	0	0	0	2	1	3	23
Exiting Leg						3						17						3	23
Total						6						34						6	46

PDI File #: **196718 I**
Location: **N: Russell Street S: Russell Street**
Location: **W: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Russell Street from North				Russell Street from South				Green Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	2	46	0	48	59	2	0	61	1	9	0	10	119
4:15 PM	8	46	0	54	51	1	0	52	2	4	0	6	112
4:30 PM	4	55	0	59	51	1	0	52	3	9	0	12	123
4:45 PM	4	55	0	59	47	2	0	49	2	7	0	9	117
Total	18	202	0	220	208	6	0	214	8	29	0	37	471
5:00 PM	5	76	0	81	70	1	0	71	3	10	0	13	165
5:15 PM	2	64	0	66	58	1	0	59	0	5	0	5	130
5:30 PM	5	93	0	98	60	1	0	61	1	4	0	5	164
5:45 PM	11	73	0	84	48	1	0	49	1	6	0	7	140
Total	23	306	0	329	236	4	0	240	5	25	0	30	599
Grand Total	41	508	0	549	444	10	0	454	13	54	0	67	1070
Approach %	7.5	92.5	0.0		97.8	2.2	0.0		19.4	80.6	0.0		
Total %	3.8	47.5	0.0	51.3	41.5	0.9	0.0	42.4	1.2	5.0	0.0	6.3	
Exiting Leg Total				498				521				51	1070
Cars	41	499	0	540	437	10	0	447	13	54	0	67	1054
% Cars	100.0	98.2	0.0	98.4	98.4	100.0	0.0	98.5	100.0	100.0	0.0	100.0	98.5
Exiting Leg Total				491				512				51	1054
Heavy Vehicles	0	9	0	9	7	0	0	7	0	0	0	0	16
% Heavy Vehicles	0.0	1.8	0.0	1.6	1.6	0.0	0.0	1.5	0.0	0.0	0.0	0.0	1.5
Exiting Leg Total				7				9				0	16

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Russell Street from North				Russell Street from South				Green Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
5:00 PM	5	76	0	81	70	1	0	71	3	10	0	13	165
5:15 PM	2	64	0	66	58	1	0	59	0	5	0	5	130
5:30 PM	5	93	0	98	60	1	0	61	1	4	0	5	164
5:45 PM	11	73	0	84	48	1	0	49	1	6	0	7	140
Total Volume	23	306	0	329	236	4	0	240	5	25	0	30	599
% Approach Total	7.0	93.0	0.0		98.3	1.7	0.0		16.7	83.3	0.0		
PHF	0.523	0.823	0.000	0.839	0.843	1.000	0.000	0.845	0.417	0.625	0.000	0.577	0.908
Cars	23	301	0	324	232	4	0	236	5	25	0	30	590
Cars %	100.0	98.4	0.0	98.5	98.3	100.0	0.0	98.3	100.0	100.0	0.0	100.0	98.5
Heavy Vehicles	0	5	0	5	4	0	0	4	0	0	0	0	9
Heavy Vehicles %	0.0	1.6	0.0	1.5	1.7	0.0	0.0	1.7	0.0	0.0	0.0	0.0	1.5
Cars Enter Leg	23	301	0	324	232	4	0	236	5	25	0	30	590
Heavy Enter Leg	0	5	0	5	4	0	0	4	0	0	0	0	9
Total Entering Leg	23	306	0	329	236	4	0	240	5	25	0	30	599
Cars Exiting Leg				257				306				27	590
Heavy Exiting Leg				4				5				0	9
Total Exiting Leg				261				311				27	599

PDI File #: **196718 I**
Location: **N: Russell Street S: Russell Street**
Location: **W: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Russell Street from North				Russell Street from South				Green Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	2	45	0	47	58	2	0	60	1	9	0	10	117
4:15 PM	8	44	0	52	50	1	0	51	2	4	0	6	109
4:30 PM	4	55	0	59	51	1	0	52	3	9	0	12	123
4:45 PM	4	54	0	58	46	2	0	48	2	7	0	9	115
Total	18	198	0	216	205	6	0	211	8	29	0	37	464
5:00 PM	5	75	0	80	69	1	0	70	3	10	0	13	163
5:15 PM	2	64	0	66	57	1	0	58	0	5	0	5	129
5:30 PM	5	90	0	95	60	1	0	61	1	4	0	5	161
5:45 PM	11	72	0	83	46	1	0	47	1	6	0	7	137
Total	23	301	0	324	232	4	0	236	5	25	0	30	590
Grand Total	41	499	0	540	437	10	0	447	13	54	0	67	1054
Approach %	7.6	92.4	0.0		97.8	2.2	0.0		19.4	80.6	0.0		
Total %	3.9	47.3	0.0	51.2	41.5	0.9	0.0	42.4	1.2	5.1	0.0	6.4	
Exiting Leg Total				491				512				51	1054

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Russell Street from North				Russell Street from South				Green Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
5:00 PM	5	75	0	80	69	1	0	70	3	10	0	13	163
5:15 PM	2	64	0	66	57	1	0	58	0	5	0	5	129
5:30 PM	5	90	0	95	60	1	0	61	1	4	0	5	161
5:45 PM	11	72	0	83	46	1	0	47	1	6	0	7	137
Total Volume	23	301	0	324	232	4	0	236	5	25	0	30	590
% Approach Total	7.1	92.9	0.0		98.3	1.7	0.0		16.7	83.3	0.0		
PHF	0.523	0.836	0.000	0.853	0.841	1.000	0.000	0.843	0.417	0.625	0.000	0.577	0.905
Entering Leg	23	301	0	324	232	4	0	236	5	25	0	30	590
Exiting Leg				257				306				27	590
Total				581				542				57	1180

PDI File #: **196718 I**
Location: **N: Russell Street S: Russell Street**
Location: **W: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Russell Street from North				Russell Street from South				Green Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
4:15 PM	0	2	0	2	1	0	0	1	0	0	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
Total	0	4	0	4	3	0	0	3	0	0	0	0	7
5:00 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
5:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
5:30 PM	0	3	0	3	0	0	0	0	0	0	0	0	3
5:45 PM	0	1	0	1	2	0	0	2	0	0	0	0	3
Total	0	5	0	5	4	0	0	4	0	0	0	0	9
Grand Total	0	9	0	9	7	0	0	7	0	0	0	0	16
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	56.3	0.0	56.3	43.8	0.0	0.0	43.8	0.0	0.0	0.0	0.0	
Exiting Leg Total				7				9				0	16
Buses	0	9	0	9	7	0	0	7	0	0	0	0	16
% Buses	0.0	100.0	0.0	100.0	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
Exiting Leg Total				7				9				0	16
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Single-Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Russell Street from North				Russell Street from South				Green Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
5:00 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
5:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
5:30 PM	0	3	0	3	0	0	0	0	0	0	0	0	3
5:45 PM	0	1	0	1	2	0	0	2	0	0	0	0	3
Total Volume	0	5	0	5	4	0	0	4	0	0	0	0	9
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.417	0.000	0.417	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.750
Buses	0	5	0	5	4	0	0	4	0	0	0	0	9
Buses %	0.0	100.0	0.0	100.0	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	5	0	5	4	0	0	4	0	0	0	0	9
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	0	5	0	5	4	0	0	4	0	0	0	0	9
Buses				4				5				0	9
Single-Unit Trucks				0				0				0	0
Articulated Trucks				0				0				0	0
Total Exiting Leg				4				5				0	9

PDI File #: **196718 I**
Location: **N: Russell Street S: Russell Street**
Location: **W: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Cars**

	Russell Street from North				Russell Street from South				Green Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	1	40	0	41	50	2	0	52	1	6	0	7	100
4:15 PM	8	38	0	46	41	1	0	42	1	4	0	5	93
4:30 PM	3	52	0	55	46	1	0	47	2	7	0	9	111
4:45 PM	3	47	0	50	41	2	0	43	1	4	0	5	98
Total	15	177	0	192	178	6	0	184	5	21	0	26	402
5:00 PM	2	68	0	70	64	1	0	65	3	6	0	9	144
5:15 PM	1	54	0	55	53	1	0	54	0	3	0	3	112
5:30 PM	3	83	0	86	54	1	0	55	1	4	0	5	146
5:45 PM	10	65	0	75	42	1	0	43	1	4	0	5	123
Total	16	270	0	286	213	4	0	217	5	17	0	22	525
Grand Total	31	447	0	478	391	10	0	401	10	38	0	48	927
Approach %	6.5	93.5	0.0		97.5	2.5	0.0		20.8	79.2	0.0		
Total %	3.3	48.2	0.0	51.6	42.2	1.1	0.0	43.3	1.1	4.1	0.0	5.2	
Exiting Leg Total				429				457				41	927

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Russell Street from North				Russell Street from South				Green Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
5:00 PM	2	68	0	70	64	1	0	65	3	6	0	9	144
5:15 PM	1	54	0	55	53	1	0	54	0	3	0	3	112
5:30 PM	3	83	0	86	54	1	0	55	1	4	0	5	146
5:45 PM	10	65	0	75	42	1	0	43	1	4	0	5	123
Total Volume	16	270	0	286	213	4	0	217	5	17	0	22	525
% Approach Total	5.6	94.4	0.0		98.2	1.8	0.0		22.7	77.3	0.0		
PHF	0.400	0.813	0.000	0.831	0.832	1.000	0.000	0.835	0.417	0.708	0.000	0.611	0.899
Entering Leg	16	270	0	286	213	4	0	217	5	17	0	22	525
Exiting Leg				230				275				20	525
Total				516				492				42	1050

PDI File #: **196718 I**
Location: **N: Russell Street S: Russell Street**
Location: **W: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Light Goods Vehicle

	Russell Street from North				Russell Street from South				Green Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	1	5	0	6	8	0	0	8	0	3	0	3	17
4:15 PM	0	6	0	6	9	0	0	9	1	0	0	1	16
4:30 PM	1	3	0	4	5	0	0	5	1	2	0	3	12
4:45 PM	1	7	0	8	5	0	0	5	1	3	0	4	17
Total	3	21	0	24	27	0	0	27	3	8	0	11	62
5:00 PM	3	7	0	10	5	0	0	5	0	4	0	4	19
5:15 PM	1	10	0	11	4	0	0	4	0	2	0	2	17
5:30 PM	2	7	0	9	6	0	0	6	0	0	0	0	15
5:45 PM	1	7	0	8	4	0	0	4	0	2	0	2	14
Total	7	31	0	38	19	0	0	19	0	8	0	8	65
Grand Total	10	52	0	62	46	0	0	46	3	16	0	19	127
Approach %	16.1	83.9	0.0		100.0	0.0	0.0		15.8	84.2	0.0		
Total %	7.9	40.9	0.0	48.8	36.2	0.0	0.0	36.2	2.4	12.6	0.0	15.0	
Exiting Leg Total				62				55				10	127

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:45 PM	Russell Street from North				Russell Street from South				Green Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:45 PM	1	7	0	8	5	0	0	5	1	3	0	4	17
5:00 PM	3	7	0	10	5	0	0	5	0	4	0	4	19
5:15 PM	1	10	0	11	4	0	0	4	0	2	0	2	17
5:30 PM	2	7	0	9	6	0	0	6	0	0	0	0	15
Total Volume	7	31	0	38	20	0	0	20	1	9	0	10	68
% Approach Total	18.4	81.6	0.0		100.0	0.0	0.0		10.0	90.0	0.0		
PHF	0.583	0.775	0.000	0.864	0.833	0.000	0.000	0.833	0.250	0.563	0.000	0.625	0.895
Entering Leg	7	31	0	38	20	0	0	20	1	9	0	10	68
Exiting Leg				29				32				7	68
Total				67				52				17	136

PDI File #: **196718 I**
Location: **N: Russell Street S: Russell Street**
Location: **W: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Russell Street from North				Russell Street from South				Green Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
4:15 PM	0	2	0	2	1	0	0	1	0	0	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
Total	0	4	0	4	3	0	0	3	0	0	0	0	7
5:00 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
5:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
5:30 PM	0	3	0	3	0	0	0	0	0	0	0	0	3
5:45 PM	0	1	0	1	2	0	0	2	0	0	0	0	3
Total	0	5	0	5	4	0	0	4	0	0	0	0	9
Grand Total	0	9	0	9	7	0	0	7	0	0	0	0	16
Approach %	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	56.3	0.0	56.3	43.8	0.0	0.0	43.8	0.0	0.0	0.0	0.0	
Exiting Leg Total				7				9				0	16

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Russell Street from North				Russell Street from South				Green Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
5:00 PM	0	1	0	1	1	0	0	1	0	0	0	0	2
5:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
5:30 PM	0	3	0	3	0	0	0	0	0	0	0	0	3
5:45 PM	0	1	0	1	2	0	0	2	0	0	0	0	3
Total Volume	0	5	0	5	4	0	0	4	0	0	0	0	9
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.417	0.000	0.417	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.750
Entering Leg	0	5	0	5	4	0	0	4	0	0	0	0	9
Exiting Leg				4				5				0	9
Total				9				9				0	18

PDI File #: **196718 I**
Location: **N: Russell Street S: Russell Street**
Location: **W: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Single-Unit Trucks**

	Russell Street from North				Russell Street from South				Green Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Russell Street from North				Russell Street from South				Green Street from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **196718 I**
Location: **N: Russell Street S: Russell Street**
Location: **W: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Russell Street				Russell Street				Green Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Russell Street				Russell Street				Green Street				
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **196718 I**
Location: **N: Russell Street S: Russell Street**
Location: **W: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Russell Street from North						Russell Street from South						Green Street from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total						0						0						0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Russell Street from North						Russell Street from South						Green Street from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg						0						0						0	0
Total						0						0						0	0

PDI File #: **196718 I**
Location: **N: Russell Street S: Russell Street**
Location: **W: Green Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Russell Street from North						Russell Street from South						Green Street from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
4:30 PM	0	0	0	1	1	2	0	0	0	0	2	2	0	0	0	0	1	1	5
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	1	2	0	0	0	1	2	3	0	0	0	0	1	1	6
5:00 PM	0	0	0	1	1	2	0	0	0	0	2	2	0	0	0	0	1	1	5
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	1	1	2	4
Total	0	0	0	2	2	4	0	0	0	0	2	2	0	0	0	1	2	3	9
Grand Total	0	0	0	3	3	6	0	0	0	1	4	5	0	0	0	1	3	4	15
Approach %	0	0	0	50	50		0	0	0	20	80		0	0	0	25	75		
Total %	0	0	0	20	20	40	0	0	0	6.6667	26.667	33.333	0	0	0	6.6667	20	26.667	
Exiting Leg Total						6						5						4	15

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Russell Street from North						Russell Street from South						Green Street from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
4:30 PM	0	0	0	1	1	2	0	0	0	0	2	2	0	0	0	0	1	1	5
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	1	1	2	0	0	0	0	2	2	0	0	0	0	1	1	5
Total Volume	0	0	0	2	2	4	0	0	0	1	4	5	0	0	0	0	2	2	11
% Approach Total	0.0	0.0	0.0	50.0	50.0		0.0	0.0	0.0	20.0	80.0		0.0	0.0	0.0	0.0	100.0		
PHF	0.000	0.000	0.000	0.500	0.500	0.500	0.000	0.000	0.000	0.250	0.500	0.625	0.000	0.000	0.000	0.000	0.500	0.500	0.550
Entering Leg	0	0	0	2	2	4	0	0	0	1	4	5	0	0	0	0	2	2	11
Exiting Leg						4						5						2	11
Total						8						10						4	22

PDI File #: **196718 J**
Location: **S: Russell Street**
Location: **E: Market Street W: Market Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Market Street from East				Russell Street from South				Market Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	72	0	0	72	2	62	0	64	48	39	0	87	223
4:15 PM	78	0	0	78	0	57	0	57	54	53	0	107	242
4:30 PM	88	0	0	88	4	54	0	58	62	60	1	123	269
4:45 PM	86	0	0	86	2	53	0	55	55	71	0	126	267
Total	324	0	0	324	8	226	0	234	219	223	1	443	1001
5:00 PM	132	0	0	132	3	78	0	81	81	63	0	144	357
5:15 PM	84	0	0	84	0	64	0	64	69	59	0	128	276
5:30 PM	78	0	0	78	3	54	0	57	95	84	0	179	314
5:45 PM	81	0	0	81	0	60	0	60	84	69	0	153	294
Total	375	0	0	375	6	256	0	262	329	275	0	604	1241
Grand Total	699	0	0	699	14	482	0	496	548	498	1	1047	2242
Approach %	100.0	0.0	0.0		2.8	97.2	0.0		52.3	47.6	0.1		
Total %	31.2	0.0	0.0	31.2	0.6	21.5	0.0	22.1	24.4	22.2	0.0	46.7	
Exiting Leg Total				512				548				1182	2242
Cars	697	0	0	697	14	475	0	489	539	495	1	1035	2221
% Cars	99.7	0.0	0.0	99.7	100.0	98.5	0.0	98.6	98.4	99.4	100.0	98.9	99.1
Exiting Leg Total				509				539				1173	2221
Heavy Vehicles	2	0	0	2	0	7	0	7	9	3	0	12	21
% Heavy Vehicles	0.3	0.0	0.0	0.3	0.0	1.5	0.0	1.4	1.6	0.6	0.0	1.1	0.9
Exiting Leg Total				3				9				9	21

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Market Street from East				Russell Street from South				Market Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	132	0	0	132	3	78	0	81	81	63	0	144	357
5:15 PM	84	0	0	84	0	64	0	64	69	59	0	128	276
5:30 PM	78	0	0	78	3	54	0	57	95	84	0	179	314
5:45 PM	81	0	0	81	0	60	0	60	84	69	0	153	294
Total Volume	375	0	0	375	6	256	0	262	329	275	0	604	1241
% Approach Total	100.0	0.0	0.0		2.3	97.7	0.0		54.5	45.5	0.0		
PHF	0.710	0.000	0.000	0.710	0.500	0.821	0.000	0.809	0.866	0.818	0.000	0.844	0.869
Cars	375	0	0	375	6	252	0	258	324	273	0	597	1230
Cars %	100.0	0.0	0.0	100.0	100.0	98.4	0.0	98.5	98.5	99.3	0.0	98.8	99.1
Heavy Vehicles	0	0	0	0	0	4	0	4	5	2	0	7	11
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	1.6	0.0	1.5	1.5	0.7	0.0	1.2	0.9
Cars Enter Leg	375	0	0	375	6	252	0	258	324	273	0	597	1230
Heavy Enter Leg	0	0	0	0	0	4	0	4	5	2	0	7	11
Total Entering Leg	375	0	0	375	6	256	0	262	329	275	0	604	1241
Cars Exiting Leg				279				324				627	1230
Heavy Exiting Leg				2				5				4	11
Total Exiting Leg				281				329				631	1241

PDI File #: **196718 J**
Location: **S: Russell Street**
Location: **E: Market Street W: Market Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Market Street from East				Russell Street from South				Market Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	72	0	0	72	2	61	0	63	47	39	0	86	221
4:15 PM	76	0	0	76	0	56	0	56	52	53	0	105	237
4:30 PM	88	0	0	88	4	54	0	58	62	59	1	122	268
4:45 PM	86	0	0	86	2	52	0	54	54	71	0	125	265
Total	322	0	0	322	8	223	0	231	215	222	1	438	991
5:00 PM	132	0	0	132	3	77	0	80	80	63	0	143	355
5:15 PM	84	0	0	84	0	63	0	63	69	58	0	127	274
5:30 PM	78	0	0	78	3	54	0	57	92	84	0	176	311
5:45 PM	81	0	0	81	0	58	0	58	83	68	0	151	290
Total	375	0	0	375	6	252	0	258	324	273	0	597	1230
Grand Total	697	0	0	697	14	475	0	489	539	495	1	1035	2221
Approach %	100.0	0.0	0.0		2.9	97.1	0.0		52.1	47.8	0.1		
Total %	31.4	0.0	0.0	31.4	0.6	21.4	0.0	22.0	24.3	22.3	0.0	46.6	
Exiting Leg Total				509				539				1173	2221

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Market Street from East				Russell Street from South				Market Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	132	0	0	132	3	77	0	80	80	63	0	143	355
5:15 PM	84	0	0	84	0	63	0	63	69	58	0	127	274
5:30 PM	78	0	0	78	3	54	0	57	92	84	0	176	311
5:45 PM	81	0	0	81	0	58	0	58	83	68	0	151	290
Total Volume	375	0	0	375	6	252	0	258	324	273	0	597	1230
% Approach Total	100.0	0.0	0.0		2.3	97.7	0.0		54.3	45.7	0.0		
PHF	0.710	0.000	0.000	0.710	0.500	0.818	0.000	0.806	0.880	0.813	0.000	0.848	0.866
Entering Leg	375	0	0	375	6	252	0	258	324	273	0	597	1230
Exiting Leg				279				324				627	1230
Total				654				582				1224	2460

PDI File #: **196718 J**
Location: **S: Russell Street**
Location: **E: Market Street W: Market Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Market Street from East				Russell Street from South				Market Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
4:15 PM	2	0	0	2	0	1	0	1	2	0	0	2	5
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
4:45 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
Total	2	0	0	2	0	3	0	3	4	1	0	5	10
5:00 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
5:15 PM	0	0	0	0	0	1	0	1	0	1	0	1	2
5:30 PM	0	0	0	0	0	0	0	0	3	0	0	3	3
5:45 PM	0	0	0	0	0	2	0	2	1	1	0	2	4
Total	0	0	0	0	0	4	0	4	5	2	0	7	11
Grand Total	2	0	0	2	0	7	0	7	9	3	0	12	21
Approach %	100.0	0.0	0.0		0.0	100.0	0.0		75.0	25.0	0.0		
Total %	9.5	0.0	0.0	9.5	0.0	33.3	0.0	33.3	42.9	14.3	0.0	57.1	
Exiting Leg Total				3				9				9	21
Buses	1	0	0	1	0	7	0	7	9	0	0	9	17
% Buses	50.0	0.0	0.0	50.0	0.0	100.0	0.0	100.0	100.0	0.0	0.0	75.0	81.0
Exiting Leg Total				0				9				8	17
Single-Unit Trucks	1	0	0	1	0	0	0	0	0	3	0	3	4
% Single-Unit	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	25.0	19.0
Exiting Leg Total				3				0				1	4
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Market Street from East				Russell Street from South				Market Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
5:15 PM	0	0	0	0	0	1	0	1	0	1	0	1	2
5:30 PM	0	0	0	0	0	0	0	0	3	0	0	3	3
5:45 PM	0	0	0	0	0	2	0	2	1	1	0	2	4
Total Volume	0	0	0	0	0	4	0	4	5	2	0	7	11
% Approach Total	0.0	0.0	0.0		0.0	100.0	0.0		71.4	28.6	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.417	0.500	0.000	0.583	0.688
Buses	0	0	0	0	0	4	0	4	5	0	0	5	9
Buses %	0.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0	100.0	0.0	0.0	71.4	81.8
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	2	0	2	2
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	28.6	18.2
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	0	0	0	0	4	0	4	5	0	0	5	9
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	2	0	2	2
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	0	0	0	0	0	4	0	4	5	2	0	7	11
Buses				0				5				4	9
Single-Unit Trucks				2				0				0	2
Articulated Trucks				0				0				0	0
Total Exiting Leg				2				5				4	11

PDI File #: **196718 J**
Location: **S: Russell Street**
Location: **E: Market Street W: Market Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Cars**

	Market Street from East				Russell Street from South				Market Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	67	0	0	67	1	53	0	54	42	37	0	79	200
4:15 PM	67	0	0	67	0	47	0	47	46	49	0	95	209
4:30 PM	82	0	0	82	4	48	0	52	59	53	1	113	247
4:45 PM	75	0	0	75	2	43	0	45	48	64	0	112	232
Total	291	0	0	291	7	191	0	198	195	203	1	399	888
5:00 PM	117	0	0	117	2	69	0	71	69	54	0	123	311
5:15 PM	82	0	0	82	0	56	0	56	58	54	0	112	250
5:30 PM	78	0	0	78	3	49	0	52	84	82	0	166	296
5:45 PM	80	0	0	80	0	50	0	50	75	68	0	143	273
Total	357	0	0	357	5	224	0	229	286	258	0	544	1130
Grand Total	648	0	0	648	12	415	0	427	481	461	1	943	2018
Approach %	100.0	0.0	0.0		2.8	97.2	0.0		51.0	48.9	0.1		
Total %	32.1	0.0	0.0	32.1	0.6	20.6	0.0	21.2	23.8	22.8	0.0	46.7	
Exiting Leg Total				473				481				1064	2018

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Market Street from East				Russell Street from South				Market Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	117	0	0	117	2	69	0	71	69	54	0	123	311
5:15 PM	82	0	0	82	0	56	0	56	58	54	0	112	250
5:30 PM	78	0	0	78	3	49	0	52	84	82	0	166	296
5:45 PM	80	0	0	80	0	50	0	50	75	68	0	143	273
Total Volume	357	0	0	357	5	224	0	229	286	258	0	544	1130
% Approach Total	100.0	0.0	0.0		2.2	97.8	0.0		52.6	47.4	0.0		
PHF	0.763	0.000	0.000	0.763	0.417	0.812	0.000	0.806	0.851	0.787	0.000	0.819	0.908
Entering Leg	357	0	0	357	5	224	0	229	286	258	0	544	1130
Exiting Leg				263				286				581	1130
Total				620				515				1125	2260

PDI File #: **196718 J**
Location: **S: Russell Street**
Location: **E: Market Street W: Market Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Light Goods Vehicle**

	Market Street from East				Russell Street from South				Market Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	5	0	0	5	1	8	0	9	5	2	0	7	21
4:15 PM	9	0	0	9	0	9	0	9	6	4	0	10	28
4:30 PM	6	0	0	6	0	6	0	6	3	6	0	9	21
4:45 PM	11	0	0	11	0	9	0	9	6	7	0	13	33
Total	31	0	0	31	1	32	0	33	20	19	0	39	103
5:00 PM	15	0	0	15	1	8	0	9	11	9	0	20	44
5:15 PM	2	0	0	2	0	7	0	7	11	4	0	15	24
5:30 PM	0	0	0	0	0	5	0	5	8	2	0	10	15
5:45 PM	1	0	0	1	0	8	0	8	8	0	0	8	17
Total	18	0	0	18	1	28	0	29	38	15	0	53	100
Grand Total	49	0	0	49	2	60	0	62	58	34	0	92	203
Approach %	100.0	0.0	0.0		3.2	96.8	0.0		63.0	37.0	0.0		
Total %	24.1	0.0	0.0	24.1	1.0	29.6	0.0	30.5	28.6	16.7	0.0	45.3	
Exiting Leg Total				36				58				109	203

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Market Street from East				Russell Street from South				Market Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:15 PM	9	0	0	9	0	9	0	9	6	4	0	10	28
4:30 PM	6	0	0	6	0	6	0	6	3	6	0	9	21
4:45 PM	11	0	0	11	0	9	0	9	6	7	0	13	33
5:00 PM	15	0	0	15	1	8	0	9	11	9	0	20	44
Total Volume	41	0	0	41	1	32	0	33	26	26	0	52	126
% Approach Total	100.0	0.0	0.0		3.0	97.0	0.0		50.0	50.0	0.0		
PHF	0.683	0.000	0.000	0.683	0.250	0.889	0.000	0.917	0.591	0.722	0.000	0.650	0.716
Entering Leg	41	0	0	41	1	32	0	33	26	26	0	52	126
Exiting Leg				27				26				73	126
Total				68				59				125	252

PDI File #: **196718 J**
Location: **S: Russell Street**
Location: **E: Market Street W: Market Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Market Street from East				Russell Street from South				Market Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
4:15 PM	1	0	0	1	0	1	0	1	2	0	0	2	4
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
Total	1	0	0	1	0	3	0	3	4	0	0	4	8
5:00 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
5:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	3	0	0	3	3
5:45 PM	0	0	0	0	0	2	0	2	1	0	0	1	3
Total	0	0	0	0	0	4	0	4	5	0	0	5	9
Grand Total	1	0	0	1	0	7	0	7	9	0	0	9	17
Approach %	100.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
Total %	5.9	0.0	0.0	5.9	0.0	41.2	0.0	41.2	52.9	0.0	0.0	52.9	
Exiting Leg Total				0				9				8	17

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

5:00 PM	Market Street from East				Russell Street from South				Market Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
5:00 PM	0	0	0	0	0	1	0	1	1	0	0	1	2
5:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	3	0	0	3	3
5:45 PM	0	0	0	0	0	2	0	2	1	0	0	1	3
Total Volume	0	0	0	0	0	4	0	4	5	0	0	5	9
% Approach Total	0.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.417	0.000	0.000	0.417	0.750
Entering Leg	0	0	0	0	0	4	0	4	5	0	0	5	9
Exiting Leg				0				5				4	9
Total				0				9				9	18

PDI File #: **196718 J**
Location: **S: Russell Street**
Location: **E: Market Street W: Market Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Single-Unit Trucks**

	Market Street from East				Russell Street from South				Market Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	1	0	0	0	0	0	1	0	1	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	0	0	0	0	2	0	2	2
Grand Total	1	0	0	1	0	0	0	0	0	3	0	3	4
Approach %	100.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
Total %	25.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	75.0	0.0	75.0	
Exiting Leg Total				3				0				1	4

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Market Street from East				Russell Street from South				Market Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	0	0	0	0	1	0	1	2
% Approach Total	100.0	0.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
PHF	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.500
Entering Leg	1	0	0	1	0	0	0	0	0	1	0	1	2
Exiting Leg				1				0				1	2
Total				2				0				2	4

PDI File #: **196718 J**
Location: **S: Russell Street**
Location: **E: Market Street W: Market Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class:

Articulated Trucks

	Market Street from East				Russell Street from South				Market Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total				0				0				0	0

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Market Street from East				Russell Street from South				Market Street from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **196718 J**
Location: **S: Russell Street**
Location: **E: Market Street W: Market Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
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Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Market Street from East						Russell Street from South						Market Street from West						
	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Approach %	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total %	100.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total						0						0						1	1

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Market Street from East						Russell Street from South						Market Street from West						
	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% Approach Total	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Exiting Leg						0						0						1	1
Total						1						0						1	2

PDI File #: **196718 J**
Location: **S: Russell Street**
Location: **E: Market Street W: Market Street**
City, State: **Portsmouth, NH**
Client: **Tighe & Bond/ M. Santos**
Site Code: **200076019**
Count Date: **Thursday, January 31, 2019**
Start Time: **4:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Market Street from East						Russell Street from South						Market Street from West						
	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	U-Turn	CW-NB	CW-SB	Total	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	1	0	0	0	1	0	1	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	2	2	0	0	0	1	0	1	0	0	0	0	0	0	3
Approach %	0	0	0	0	100		0	0	0	100	0		0	0	0	0	0		
Total %	0	0	0	0	66.667	66.667	0	0	0	33.333	0	33.333	0	0	0	0	0	0	
Exiting Leg Total						2						1						0	3

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:15 PM	Market Street from East						Russell Street from South						Market Street from West						
	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	U-Turn	CW-NB	CW-SB	Total	Total
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	2	2	0	0	0	1	0	1	0	0	0	0	0	0	3
% Approach Total	0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.500	0.500	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.750
Entering Leg	0	0	0	0	2	2	0	0	0	1	0	1	0	0	0	0	0	0	3
Exiting Leg						2						1						0	3
Total						4						2						0	6

Seasonal Adjustment Factors

Group 4 Peak Adjustment Factor

Year	2014	2015	2016
Adj. Factor	1.25	1.179865	1.151118

Average 1.19

GROUP	COUNTER	TOWN	LOCATION
04	02051003	BOW	NH 3A south of Robinson Rd
04	02089001	CHICHESTE	NH 28 (Suncook Valley Rd) north of Bear Hill Rd
04	02091001	CLAREMON	NH 12/103 east of Vermont SL
04	62099056	CONCORD	NH 106 (Sheep Davis Rd) at Loudon TL (north of Ashby Rd)
04	72099278	CONCORD	US 3 (Fisherville Rd) north of Sewalls Falls Rd
04	02125001	DOVER	Dover Point Rd south of Thornwood Ln
04	02133021	DURHAM	US 4 east of NH 108
04	82197076	HAMPTON	US 1 (Lafayette Rd) south of Ramp to NH 101
04	02229022	HUDSON	Circumferential Hwy east of Nashua TL
04	02253025	LEBANON	0
04	02255001	LEE	NH 125 (Calef Hwy) north of Pinkham Rd
04	02287001	MARLBOR(	NH 12 at Swanzey TL
04	02297001	MERRIMA(	US 3 (Daniel Webster Hwy) north of Hilton Dr
04	02303001	MILFORD	NH 101A at Amherst TL (west of Overlook Dr)
04	02315051	NASHUA	NH 111 (Bridge / Ferry St) at Hudson TL
04	02339001	NEWPORT	NH 10 1 mile south of Croydon TL (north of Corbin Rd)
04	02345001	NORTH HA	US 1 (Lafayette Rd) north of North Rd
04	62387052	RINDGE	US 202 at Jaffrey TL (north of County Rd)
04	62389040	ROCHESTE	NH 16 (Spaulding TPK) between Exit 12-13
04	02445001	TEMPLE	NH 101 at Wilton TL (west of Old County Farm Rd)
04	02489001	WINDHAM	NH 28 at Derry TL (north of Northland Rd)

Trip Generation

Land Use	Size	Units	Daily			AM Peak Hour			PM Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Office (710)	70	ksf	376	376	752	106	15	121	25	117	142
Retail (820)	4	ksf	337	337	674	47	41	88	28	28	56
TOTAL			**713**	**713**	**1426**	**153**	**56**	**209**	**53**	**145**	**198**
Office Trip Generation (710)											
Transit Trips	1.50%		6	6	12	2	0	2	0	2	2
Walk/Bike Trips	8.0%		30	30	60	8	1	9	2	9	11
Total New Vehicle Trips			340	340	680	96	14	110	23	106	129
Retail Trip Generation (710)											
Transit Trips	1.50%		5	5	10	1	1	2	0	0	0
Walk/Bike Trips	8.0%		27	27	54	4	3	7	2	2	4
Total New Vehicle Trips			305	305	610	42	37	79	26	26	52
Net New Trip Generation			**645**	**645**	**1290**	**138**	**51**	**189**	**49**	**132**	**181**

ITE Trip Generation 10, Office, Weekday Daily

Query | Filter

DATA SOURCE:
Trip Generation Manual, 10th Ed

SEARCH BY LAND USE CODE:
710

LAND USE CATEGORY:
(700-799) Office

LAND USE :
710 - General Office Building

INDEPENDENT VARIABLE (IV):
1000 Sq. Ft. GFA

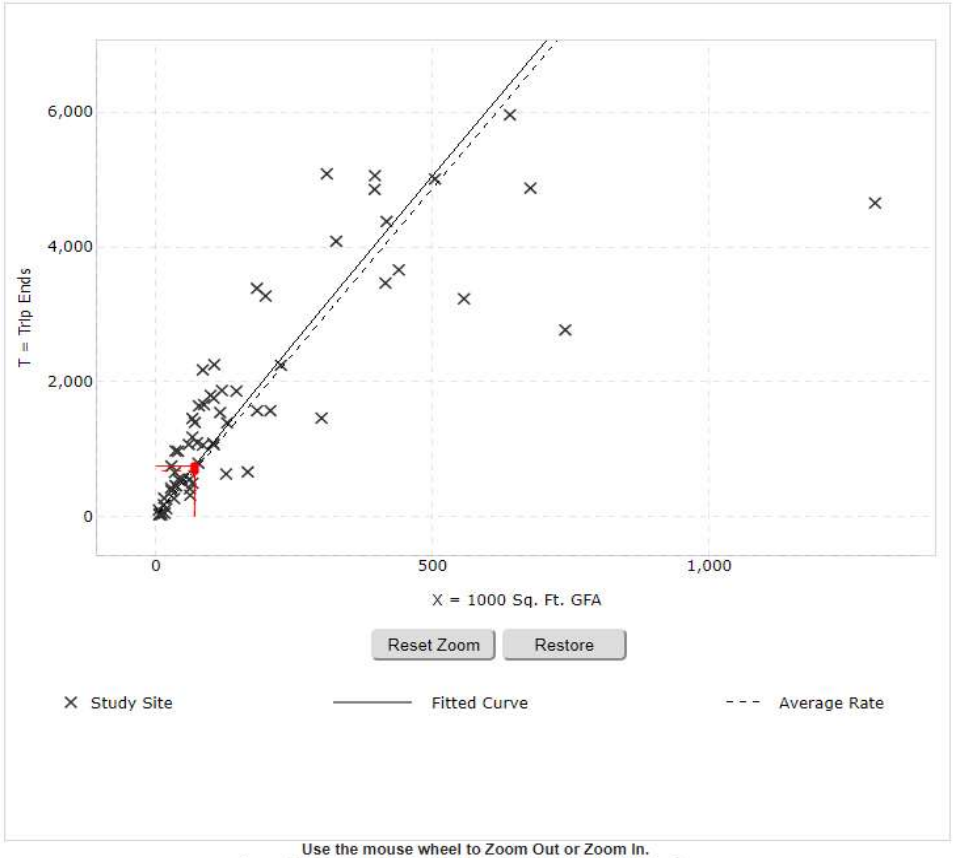
TIME PERIOD:
Weekday

SETTING/LOCATION:
General Urban/Suburban

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
70 Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
General Office Building (710) Click for more details

Independent Variable:
1000 Sq. Ft. GFA

Time Period:
Weekday

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
66

Avg. 1000 Sq. Ft. GFA:
171

Average Rate:
9.74

Range of Rates:
2.71 - 27.56

Standard Deviation:
5.15

Fitted Curve Equation:
Ln(T) = 0.97 Ln(X) + 2.50

R^2:
0.83

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 682 (Total), 341 (Entry), 341 (Exit)
Fitted Curve: 751 (Total), 375 (Entry), 376 (Exit)

ITE Trip Generation 10, Retail, Weekday Daily

Query | Filter

DATA SOURCE: Trip Generation Manual, 10th Ed

SEARCH BY LAND USE CODE: 820

LAND USE CATEGORY: (800-899) Retail

LAND USE : 820 - Shopping Center

INDEPENDENT VARIABLE (IV): 1000 Sq. Ft. GLA

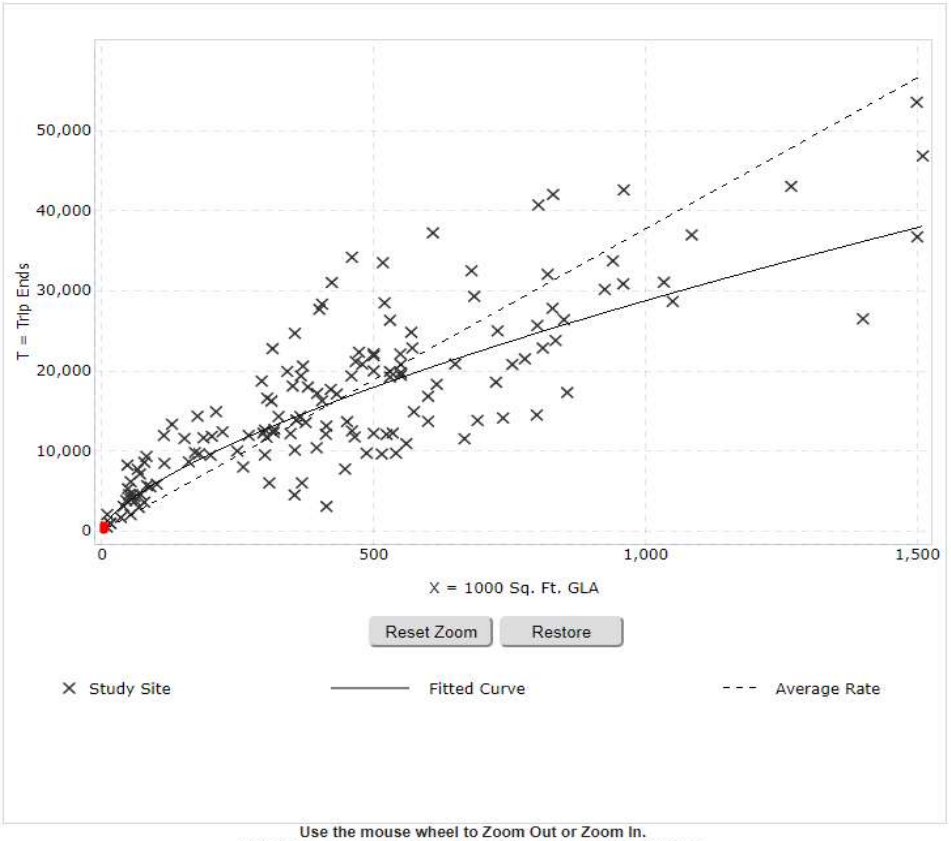
TIME PERIOD: Weekday

SETTING/LOCATION: General Urban/Suburban

TRIP TYPE: Vehicle

ENTER IV VALUE TO CALCULATE TRIPS: 4 Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Shopping Center (820) Click for more details

Independent Variable:
1000 Sq. Ft. GLA

Time Period:
Weekday

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
147

Avg. 1000 Sq. Ft. GLA:
453

Average Rate:
37.75

Range of Rates:
7.42 - 207.98

Standard Deviation:
16.41

Fitted Curve Equation:
Ln(T) = 0.68 Ln(X) + 5.57

R^2:
0.76

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 151 (Total), 75 (Entry), 76 (Exit)
Fitted Curve: 674 (Total), 337 (Entry), 337 (Exit)

ITE Trip Generation 10, Office, Weekday AM Peak Hour

Query | Filter

DATA SOURCE:
Trip Generation Manual, 10th Ed

SEARCH BY LAND USE CODE:
710

LAND USE CATEGORY:
(700-799) Office

LAND USE :
710 - General Office Building

INDEPENDENT VARIABLE (IV):
1000 Sq. Ft. GFA

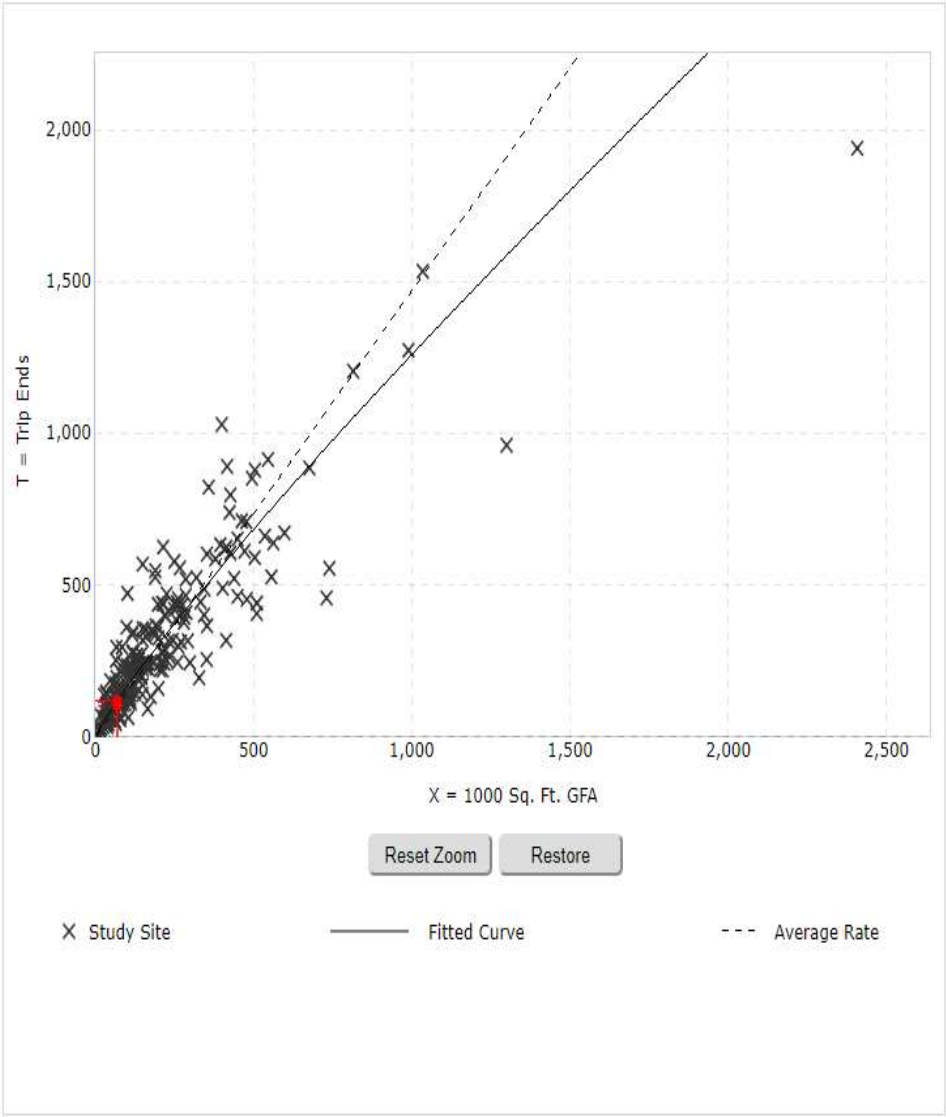
TIME PERIOD:
Weekday, AM Peak Hour of Generator

SETTING/LOCATION:
General Urban/Suburban

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
70 Calculate

Data Plot and Equation



DATA STATISTICS

Land Use:
General Office Building (710) Click for more details

Independent Variable:
1000 Sq. Ft. GFA

Time Period:
Weekday
AM Peak Hour of Generator

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
228

Avg. 1000 Sq. Ft. GFA:
209

Average Rate:
1.47

Range of Rates:
0.57 - 4.93

Standard Deviation:
0.60

Fitted Curve Equation:
Ln(T) = 0.88 Ln(X) + 1.06

R^2:
0.84

Directional Distribution:
88% entering, 12% exiting

Calculated Trip Ends:
Average Rate: 103 (Total), 91 (Entry), 12 (Exit)
Fitted Curve: 121 (Total), 106 (Entry), 15 (Exit)

ITE Trip Generation 10, Retail, Weekday AM Peak Hour

Query | Filter

DATA SOURCE:
Trip Generation Manual, 10th Ed

SEARCH BY LAND USE CODE:
820

LAND USE CATEGORY:
(800-899) Retail

LAND USE :
820 - Shopping Center

INDEPENDENT VARIABLE (IV):
1000 Sq. Ft. GLA

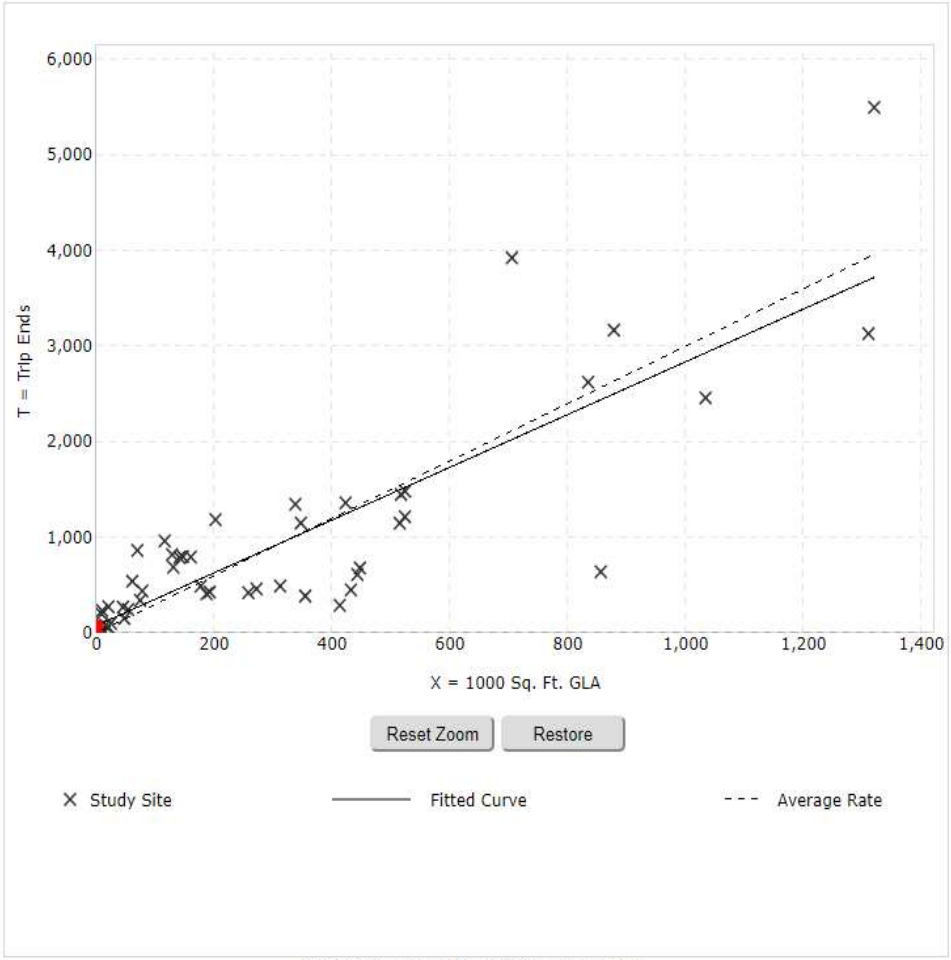
TIME PERIOD:
Weekday, AM Peak Hour of Generator

SETTING/LOCATION:
General Urban/Suburban

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
4 Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Shopping Center (820) Click for more details

Independent Variable:
1000 Sq. Ft. GLA

Time Period:
Weekday
AM Peak Hour of Generator

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
47

Avg. 1000 Sq. Ft. GLA:
323

Average Rate:
3.00

Range of Rates:
0.70 - 23.74

Standard Deviation:
1.85

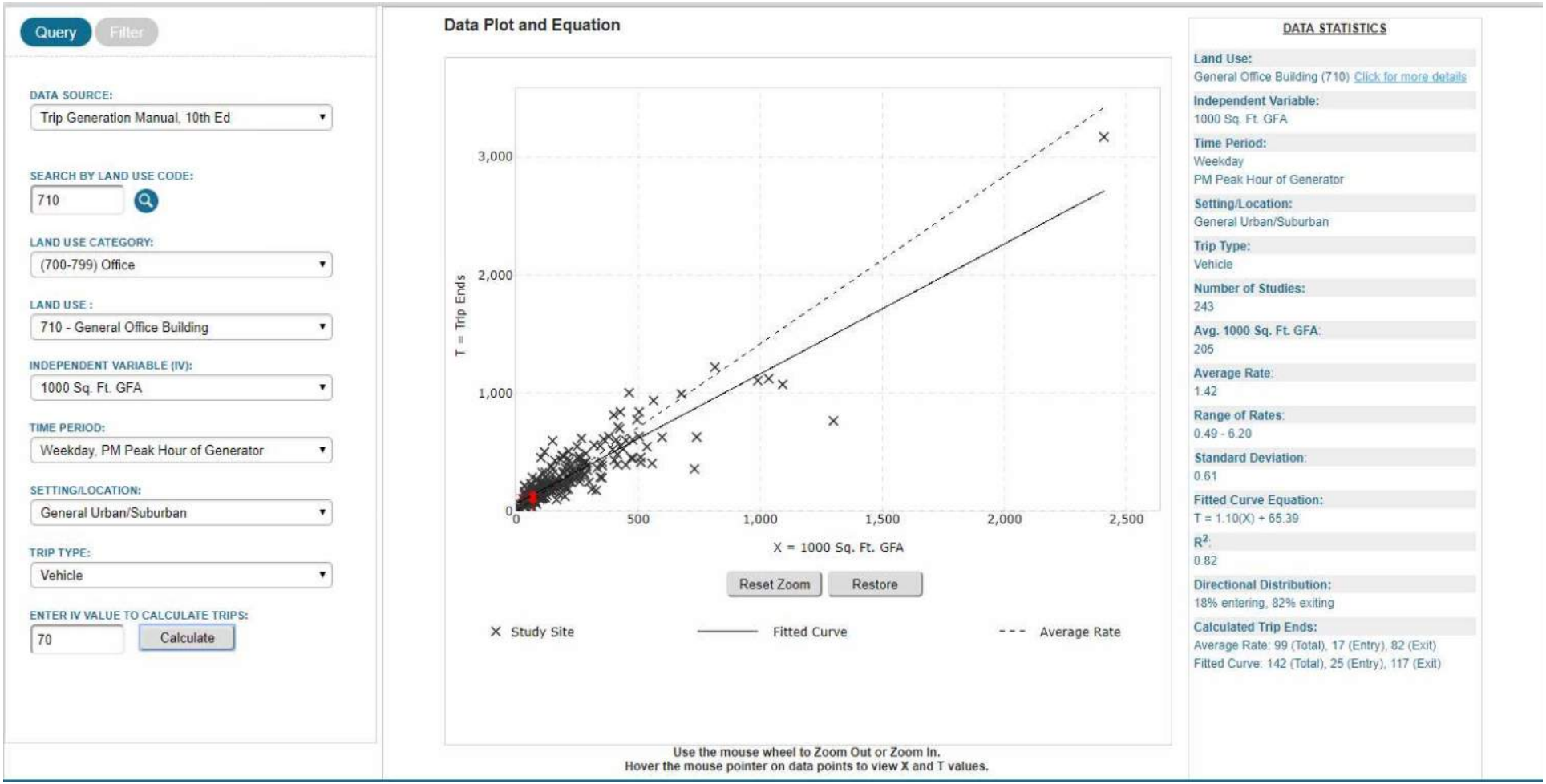
Fitted Curve Equation:
T = 2.76(X) + 77.28

R^2:
0.71

Directional Distribution:
54% entering, 46% exiting

Calculated Trip Ends:
Average Rate: 12 (Total), 6 (Entry), 6 (Exit)
Fitted Curve: 88 (Total), 47 (Entry), 41 (Exit)

ITE Trip Generation 10, Office, Weekday PM Peak Hour



ITE Trip Generation 10, Retail, Weekday PM Peak Hour

Query | Filter

DATA SOURCE:
Trip Generation Manual, 10th Ed

SEARCH BY LAND USE CODE:
820

LAND USE CATEGORY:
(800-899) Retail

LAND USE :
820 - Shopping Center

INDEPENDENT VARIABLE (IV):
1000 Sq. Ft. GLA

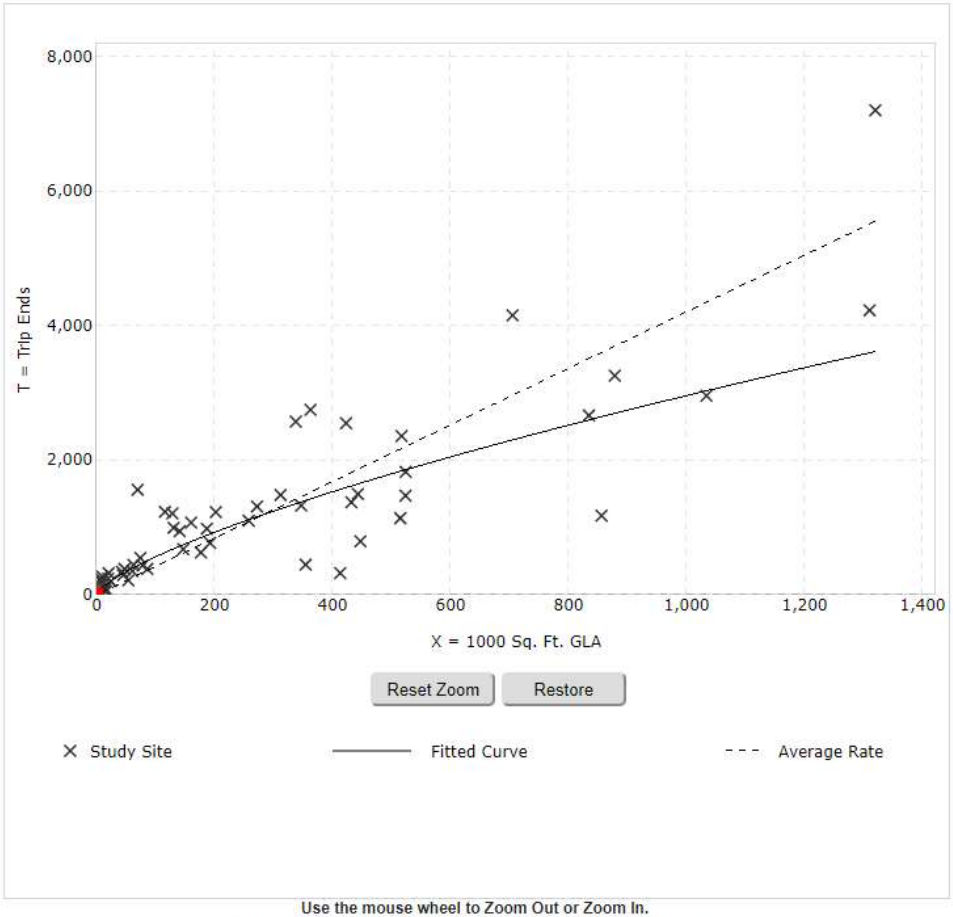
TIME PERIOD:
Weekday, PM Peak Hour of Generator

SETTING/LOCATION:
General Urban/Suburban

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
4 Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:
Shopping Center (820) Click for more details

Independent Variable:
1000 Sq. Ft. GLA

Time Period:
Weekday
PM Peak Hour of Generator

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
53

Avg. 1000 Sq. Ft. GLA:
298

Average Rate:
4.21

Range of Rates:
0.78 - 27.27

Standard Deviation:
2.47

Fitted Curve Equation:
Ln(T) = 0.72 Ln(X) + 3.02

R^2:
0.76

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 17 (Total), 8 (Entry), 9 (Exit)
Fitted Curve: 56 (Total), 28 (Entry), 28 (Exit)

Trip Distribution

Deer Street Associates Development Trip Distribution

The distribution of the retail-based site-generated traffic volumes for the Deer Street Development was based upon average traffic volumes at five (5) gateway locations into the Downtown Portsmouth roadway network: Maplewood Avenue, Market Street, Congress Street, Islington Street, and Middle Street. The resulting primary trip distribution is shown in Table 8.

Table 8 – Retail-Based Trip Distribution Summary

Direction	Entering %	Exiting %
Maplewood Ave to/from Northwest	30%	30%
Market St to/from Northwest	15%	15%
Congress St to/from Northeast	20%	20%
Islington St to/from Southwest	10%	10%
Middle St to/from South	25%	25%
Total	**100%**	**100%**

The distribution of the residential-based site-generated traffic volumes for the Deer Street Development was based upon Journey to Work data obtained from the United States Census Bureau, 2000. The resulting primary trip distribution is shown in Table 9.

Table 9 – Residential-Based Trip Distribution Summary

Direction	Entering %	Exiting %
Maplewood Ave to/from Northwest	55%	55%
Market St to/from Northwest	10%	10%
Congress St to/from Northeast	15%	15%
Islington St to/from Southwest	5%	5%
Middle St to/from South	15%	15%
Total	**100%**	**100%**

The distribution of the office-based site-generated traffic volumes for the Deer Street Development was based upon Journey to Home data obtained from the United States Census Bureau, 2000. The resulting primary trip distribution is shown in Table 10.

Table 10 – Office-Based Trip Distribution Summary

Direction	Entering %	Exiting %
Maplewood Ave to/from Northwest	60%	60%
Market St to/from Northwest	20%	20%
Congress St to/from Northeast	10%	10%
Islington St to/from Southwest	5%	5%
Middle St to/from South	5%	5%
Total	**100%**	**100%**

The resulting site-generated traffic-volume networks for the Deer Street Development during the weekday morning, weekday evening, and Saturday peak periods are presented in Figure 14 (A through C).

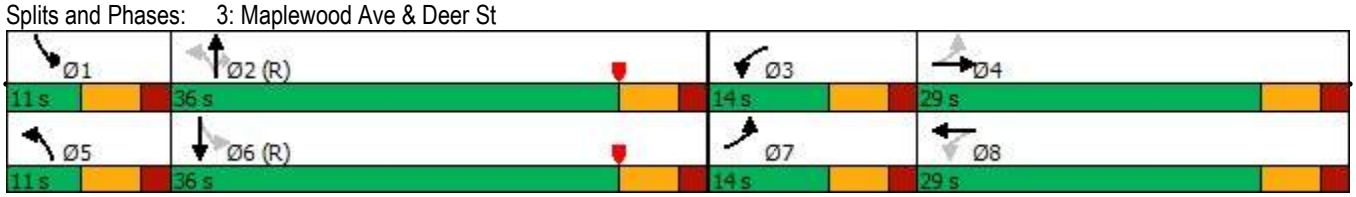
Capacity Analysis Worksheets

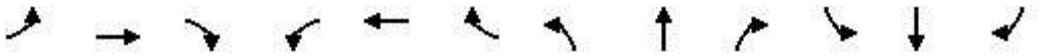
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	136	69	287	138	88	48	453	218	70	382	149
Future Volume (vph)	230	136	69	287	138	88	48	453	218	70	382	149
Peak Hour Factor	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	348	311	0	378	298	0	55	521	251	85	648	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	29.0		11.0	29.0		11.0	28.0	28.0	11.0	25.0	
Total Split (s)	14.0	29.0		14.0	29.0		11.0	36.0	36.0	11.0	36.0	
Total Split (%)	15.6%	32.2%		15.6%	32.2%		12.2%	40.0%	40.0%	12.2%	40.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
v/c Ratio	1.32	0.78		1.39	0.72		0.28	0.73	0.32	0.30	0.93	
Control Delay	194.9	44.1		221.2	39.1		17.2	33.5	4.2	16.1	49.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	194.9	44.1		221.2	39.1		17.2	33.5	4.2	16.1	49.7	
Queue Length 50th (ft)	~181	153		~212	139		16	270	0	24	~394	
Queue Length 95th (ft)	#165	153		#258	171		37	#429	45	48	#537	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)	263	487		272	503		193	709	796	284	698	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	1.32	0.64		1.39	0.59		0.28	0.73	0.32	0.30	0.93	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 41 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Maplewood Ave & Deer St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	136	69	287	138	88	48	453	218	70	382	149
Future Volume (vph)	230	136	69	287	138	88	48	453	218	70	382	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	13	13	12	14	14	11	11	13	11	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.94		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1652	1827		1770	1871		1711	1801	1636	1711	1725	
Flt Permitted	0.32	1.00		0.30	1.00		0.12	1.00	1.00	0.24	1.00	
Satd. Flow (perm)	564	1827		554	1871		210	1801	1636	432	1725	
Peak-hour factor, PHF	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	348	206	105	378	182	116	55	521	251	85	466	182
RTOR Reduction (vph)	0	21	0	0	27	0	0	0	155	0	14	0
Lane Group Flow (vph)	348	290	0	378	271	0	55	521	96	85	634	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	26.6	18.6		26.6	18.6		39.1	34.3	34.3	39.7	34.6	
Effective Green, g (s)	26.6	18.6		26.6	18.6		39.1	34.3	34.3	39.7	34.6	
Actuated g/C Ratio	0.30	0.21		0.30	0.21		0.43	0.38	0.38	0.44	0.38	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	263	377		271	386		171	686	623	263	663	
v/s Ratio Prot	0.12	0.16		c0.12	0.14		0.02	0.29		c0.02	c0.37	
v/s Ratio Perm	0.27			c0.29			0.12		0.06	0.12		
v/c Ratio	1.32	0.77		1.39	0.70		0.32	0.76	0.15	0.32	0.96	
Uniform Delay, d1	30.1	33.7		29.8	33.1		18.6	24.3	18.3	16.6	27.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	169.5	9.1		198.7	6.1		1.1	7.7	0.5	0.7	25.7	
Delay (s)	199.6	42.7		228.5	39.2		19.7	32.0	18.8	17.3	52.6	
Level of Service	F	D		F	D		B	C	B	B	D	
Approach Delay (s)		125.6			145.1			27.2			48.5	
Approach LOS		F			F			C			D	

Intersection Summary			
HCM 2000 Control Delay	82.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	53	39	1	2	4
Future Vol, veh/h	4	53	39	1	2	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	67	67	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	78	58	1	4	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	59	0	-	0	149	59
Stage 1	-	-	-	-	59	-
Stage 2	-	-	-	-	90	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1545	-	-	-	843	1007
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	934	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1545	-	-	-	840	1007
Mov Cap-2 Maneuver	-	-	-	-	840	-
Stage 1	-	-	-	-	960	-
Stage 2	-	-	-	-	934	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1545	-	-	-	944
HCM Lane V/C Ratio	0.004	-	-	-	0.013
HCM Control Delay (s)	7.3	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	18.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	346	52	65	50	44	525
Future Vol, veh/h	346	52	65	50	44	525
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	88	88	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	384	58	74	57	49	583

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	131	0	-	0	929	103
Stage 1	-	-	-	-	103	-
Stage 2	-	-	-	-	826	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1454	-	-	-	297	952
Stage 1	-	-	-	-	921	-
Stage 2	-	-	-	-	430	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1454	-	-	-	216	952
Mov Cap-2 Maneuver	-	-	-	-	216	-
Stage 1	-	-	-	-	670	-
Stage 2	-	-	-	-	430	-

Approach	EB	WB	SB
HCM Control Delay, s	7.3	0	29.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1454	-	-	-	753
HCM Lane V/C Ratio	0.264	-	-	-	0.84
HCM Control Delay (s)	8.4	0	-	-	29.4
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	1.1	-	-	-	9.6

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	9	679	3	2	617
Future Vol, veh/h	4	9	679	3	2	617
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	58	58	78	78	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	16	871	4	2	726

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1603	873	0	0	875	0
Stage 1	873	-	-	-	-	-
Stage 2	730	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	116	349	-	-	771	-
Stage 1	409	-	-	-	-	-
Stage 2	477	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	116	349	-	-	771	-
Mov Cap-2 Maneuver	116	-	-	-	-	-
Stage 1	407	-	-	-	-	-
Stage 2	477	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	216	771	-
HCM Lane V/C Ratio	-	-	0.104	0.003	-
HCM Control Delay (s)	-	-	23.6	9.7	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection	
Int Delay, s/veh	121.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	434	7	0	442	318	519
Future Vol, veh/h	434	7	0	442	318	519
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	71	71	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	536	9	0	623	379	618

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1002	379	-	0	-	0
Stage 1	379	-	-	-	-	-
Stage 2	623	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 269	668	0	-	-	-
Stage 1	692	-	0	-	-	-
Stage 2	~ 535	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 269	668	-	-	-	-
Mov Cap-2 Maneuver	~ 269	-	-	-	-	-
Stage 1	692	-	-	-	-	-
Stage 2	~ 535	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 482.5	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	269	668	-	-
HCM Lane V/C Ratio	-	1.992	0.013	-	-
HCM Control Delay (s)	-	$ 490.1	10.5	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	38.6	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	64	663	25	52	580
Future Vol, veh/h	29	64	663	25	52	580
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	80	829	31	58	652

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1613	845	0	0	860	0
Stage 1	845	-	-	-	-	-
Stage 2	768	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	115	363	-	-	781	-
Stage 1	421	-	-	-	-	-
Stage 2	458	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	102	363	-	-	781	-
Mov Cap-2 Maneuver	102	-	-	-	-	-
Stage 1	372	-	-	-	-	-
Stage 2	458	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	44.5	0	0.8
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	202	781	-
HCM Lane V/C Ratio	-	-	0.575	0.075	-
HCM Control Delay (s)	-	-	44.5	10	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	3.1	0.2	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	12	668	33	14	607
Future Vol, veh/h	32	12	668	33	14	607
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	79	79	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	16	846	42	17	723

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1624	867	0	0	888	0
Stage 1	867	-	-	-	-	-
Stage 2	757	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	113	352	-	-	763	-
Stage 1	411	-	-	-	-	-
Stage 2	463	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	109	352	-	-	763	-
Mov Cap-2 Maneuver	109	-	-	-	-	-
Stage 1	396	-	-	-	-	-
Stage 2	463	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	51.3	0	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	134	763	-
HCM Lane V/C Ratio	-	-	0.438	0.022	-
HCM Control Delay (s)	-	-	51.3	9.8	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	1.9	0.1	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	2	4	72	62	16
Future Vol, veh/h	12	2	4	72	62	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	44	44	77	77	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	5	5	94	89	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	205	101	112	0	-	0
Stage 1	101	-	-	-	-	-
Stage 2	104	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	783	954	1478	-	-	-
Stage 1	923	-	-	-	-	-
Stage 2	920	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	780	954	1478	-	-	-
Mov Cap-2 Maneuver	780	-	-	-	-	-
Stage 1	919	-	-	-	-	-
Stage 2	920	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1478	-	801	-	-
HCM Lane V/C Ratio	0.004	-	0.04	-	-
HCM Control Delay (s)	7.4	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	42	7	7	409	491	45
Future Vol, veh/h	42	7	7	409	491	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	85	85	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	12	8	481	585	54

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1109	612	639	0	-	0
Stage 1	612	-	-	-	-	-
Stage 2	497	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	232	493	945	-	-	-
Stage 1	541	-	-	-	-	-
Stage 2	611	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	229	493	945	-	-	-
Mov Cap-2 Maneuver	229	-	-	-	-	-
Stage 1	535	-	-	-	-	-
Stage 2	611	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	26.8	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	945	-	248	-	-
HCM Lane V/C Ratio	0.009	-	0.341	-	-
HCM Control Delay (s)	8.8	0	26.8	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	1.4	-	-

Intersection	
Int Delay, s/veh	3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	42	31	13	28	32
Future Vol, veh/h	7	42	31	13	28	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	81	81	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	45	38	16	46	52

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	190	46	0	0	54	0
Stage 1	46	-	-	-	-	-
Stage 2	144	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	799	1023	-	-	1551	-
Stage 1	976	-	-	-	-	-
Stage 2	883	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	774	1023	-	-	1551	-
Mov Cap-2 Maneuver	774	-	-	-	-	-
Stage 1	946	-	-	-	-	-
Stage 2	883	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	3.4
HCM LOS	A		

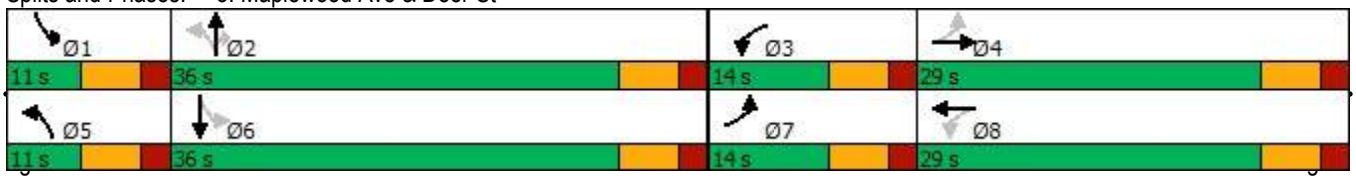
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	978	1551	-
HCM Lane V/C Ratio	-	-	0.054	0.03	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

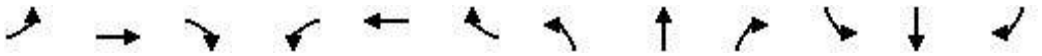
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	278	152	85	287	141	88	51	459	218	70	393	159
Future Volume (vph)	278	152	85	287	141	88	51	459	218	70	393	159
Peak Hour Factor	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	421	359	0	378	302	0	59	528	251	85	673	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	29.0		11.0	29.0		11.0	28.0	28.0	11.0	25.0	
Total Split (s)	14.0	29.0		14.0	29.0		11.0	36.0	36.0	11.0	36.0	
Total Split (%)	15.6%	32.2%		15.6%	32.2%		12.2%	40.0%	40.0%	12.2%	40.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
v/c Ratio	1.40	0.82		1.37	0.67		0.32	0.81	0.34	0.37	1.06	
Control Delay	224.5	44.6		213.2	34.2		18.6	38.5	4.4	18.7	82.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	224.5	44.6		213.2	34.2		18.6	38.5	4.4	18.7	82.0	
Queue Length 50th (ft)	~273	172		~213	134		18	272	0	26	~430	
Queue Length 95th (ft)	#266	177		#285	174		39	#438	45	48	#566	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)	300	523		275	540		184	648	749	231	635	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	1.40	0.69		1.37	0.56		0.32	0.81	0.34	0.37	1.06	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 84.3
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Maplewood Ave & Deer St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	278	152	85	287	141	88	51	459	218	70	393	159
Future Volume (vph)	278	152	85	287	141	88	51	459	218	70	393	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	13	13	12	14	14	11	11	13	11	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.94		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1652	1821		1770	1872		1711	1801	1636	1711	1723	
Flt Permitted	0.36	1.00		0.25	1.00		0.13	1.00	1.00	0.21	1.00	
Satd. Flow (perm)	620	1821		465	1872		238	1801	1636	372	1723	
Peak-hour factor, PHF	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	421	230	129	378	186	116	59	528	251	85	479	194
RTOR Reduction (vph)	0	23	0	0	26	0	0	0	162	0	15	0
Lane Group Flow (vph)	421	336	0	378	276	0	59	528	89	85	658	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	27.4	19.3		27.4	19.3		34.1	30.3	30.3	34.1	30.3	
Effective Green, g (s)	27.4	19.3		27.4	19.3		34.1	30.3	30.3	34.1	30.3	
Actuated g/C Ratio	0.32	0.23		0.32	0.23		0.40	0.35	0.35	0.40	0.35	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	296	411		272	422		160	638	579	207	610	
v/s Ratio Prot	c0.13	0.18		0.13	0.15		0.02	0.29		c0.02	c0.38	
v/s Ratio Perm	c0.32			0.31			0.13		0.05	0.14		
v/c Ratio	1.42	0.82		1.39	0.65		0.37	0.83	0.15	0.41	1.08	
Uniform Delay, d1	27.6	31.4		26.7	30.1		20.2	25.2	18.8	18.1	27.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	208.7	11.9		196.4	4.0		1.4	11.8	0.6	1.3	59.2	
Delay (s)	236.3	43.3		223.1	34.1		21.6	37.0	19.4	19.4	86.8	
Level of Service	F	D		F	C		C	D	B	B	F	
Approach Delay (s)		147.5			139.1			30.6			79.3	
Approach LOS		F			F			C			E	

Intersection Summary			
HCM 2000 Control Delay	96.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	85.5	Sum of lost time (s)	24.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	88	50	18	14	19
Future Vol, veh/h	15	88	50	18	14	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	67	67	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	129	75	27	28	38

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	102	0	-	0	262	89
Stage 1	-	-	-	-	89	-
Stage 2	-	-	-	-	173	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1490	-	-	-	727	969
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	857	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1490	-	-	-	715	969
Mov Cap-2 Maneuver	-	-	-	-	715	-
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	857	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1490	-	-	-	842
HCM Lane V/C Ratio	0.015	-	-	-	0.078
HCM Control Delay (s)	7.5	0	-	-	9.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	19.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	362	52	65	50	44	528
Future Vol, veh/h	362	52	65	50	44	528
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	88	88	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	402	58	74	57	49	587

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	131	0	-	0	965	103
Stage 1	-	-	-	-	103	-
Stage 2	-	-	-	-	862	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1454	-	-	-	283	952
Stage 1	-	-	-	-	921	-
Stage 2	-	-	-	-	414	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1454	-	-	-	202	952
Mov Cap-2 Maneuver	-	-	-	-	202	-
Stage 1	-	-	-	-	658	-
Stage 2	-	-	-	-	414	-

Approach	EB	WB	SB
HCM Control Delay, s	7.4	0	31.7
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1454	-	-	-	741
HCM Lane V/C Ratio	0.277	-	-	-	0.858
HCM Control Delay (s)	8.4	0	-	-	31.7
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	1.1	-	-	-	10.2

Intersection	
Int Delay, s/veh	139.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	460	7	0	442	318	529
Future Vol, veh/h	460	7	0	442	318	529
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	71	71	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	568	9	0	623	379	630

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1002	379	-	0	-	0
Stage 1	379	-	-	-	-	-
Stage 2	623	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 269	668	0	-	-	-
Stage 1	692	-	0	-	-	-
Stage 2	~ 535	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 269	668	-	-	-	-
Mov Cap-2 Maneuver	~ 269	-	-	-	-	-
Stage 1	692	-	-	-	-	-
Stage 2	~ 535	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 534.7	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	269	668	-	-
HCM Lane V/C Ratio	-	2.111	0.013	-	-
HCM Control Delay (s)	-	$ 542.7	10.5	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	42.4	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	8.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	105	711	25	71	590
Future Vol, veh/h	32	105	711	25	71	590
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	131	889	31	80	663

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1728	905	0	0	920	0
Stage 1	905	-	-	-	-	-
Stage 2	823	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	97	335	-	-	742	-
Stage 1	395	-	-	-	-	-
Stage 2	431	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	80	335	-	-	742	-
Mov Cap-2 Maneuver	80	-	-	-	-	-
Stage 1	327	-	-	-	-	-
Stage 2	431	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	89.5	0	1.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	192	742	-
HCM Lane V/C Ratio	-	-	0.892	0.108	-
HCM Control Delay (s)	-	-	89.5	10.4	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	6.8	0.4	-

Intersection	
Int Delay, s/veh	4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	47	21	713	41	16	617
Future Vol, veh/h	47	21	713	41	16	617
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	79	79	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	63	28	903	52	19	735

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1702	929	0	0	955	0
Stage 1	929	-	-	-	-	-
Stage 2	773	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	101	324	-	-	720	-
Stage 1	385	-	-	-	-	-
Stage 2	455	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	96	324	-	-	720	-
Mov Cap-2 Maneuver	96	-	-	-	-	-
Stage 1	368	-	-	-	-	-
Stage 2	455	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	90	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	123	720	-
HCM Lane V/C Ratio	-	-	0.737	0.026	-
HCM Control Delay (s)	-	-	90	10.1	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	4.2	0.1	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	32	21	13	84	78	19
Future Vol, veh/h	32	21	13	84	78	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	44	44	77	77	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	73	48	17	109	111	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	268	125	138	0	-	0
Stage 1	125	-	-	-	-	-
Stage 2	143	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	721	926	1446	-	-	-
Stage 1	901	-	-	-	-	-
Stage 2	884	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	712	926	1446	-	-	-
Mov Cap-2 Maneuver	712	-	-	-	-	-
Stage 1	889	-	-	-	-	-
Stage 2	884	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1446	-	784	-	-
HCM Lane V/C Ratio	0.012	-	0.154	-	-
HCM Control Delay (s)	7.5	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	53	7	7	425	494	51
Future Vol, veh/h	53	7	7	425	494	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	85	85	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	91	12	8	500	588	61

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1135	619	649	0	-	0
Stage 1	619	-	-	-	-	-
Stage 2	516	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	224	489	937	-	-	-
Stage 1	537	-	-	-	-	-
Stage 2	599	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	221	489	937	-	-	-
Mov Cap-2 Maneuver	221	-	-	-	-	-
Stage 1	531	-	-	-	-	-
Stage 2	599	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	31.6	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	937	-	236	-	-
HCM Lane V/C Ratio	0.009	-	0.438	-	-
HCM Control Delay (s)	8.9	0	31.6	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	2.1	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	48	49	13	39	59
Future Vol, veh/h	7	48	49	13	39	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	81	81	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	52	60	16	64	97

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	293	68	0	0	76	0
Stage 1	68	-	-	-	-	-
Stage 2	225	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	698	995	-	-	1523	-
Stage 1	955	-	-	-	-	-
Stage 2	812	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	667	995	-	-	1523	-
Mov Cap-2 Maneuver	667	-	-	-	-	-
Stage 1	913	-	-	-	-	-
Stage 2	812	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	3
HCM LOS	A		

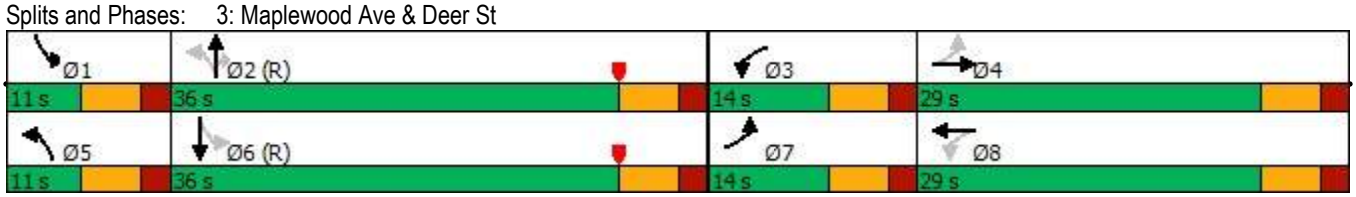
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	936	1523	-
HCM Lane V/C Ratio	-	-	0.063	0.042	-
HCM Control Delay (s)	-	-	9.1	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

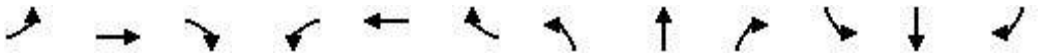
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	145	70	308	148	94	49	496	238	75	423	154
Future Volume (vph)	239	145	70	308	148	94	49	496	238	75	423	154
Peak Hour Factor	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	362	326	0	405	319	0	56	570	274	91	704	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	29.0		11.0	29.0		11.0	28.0	28.0	11.0	25.0	
Total Split (s)	14.0	29.0		14.0	29.0		11.0	36.0	36.0	11.0	36.0	
Total Split (%)	15.6%	32.2%		15.6%	32.2%		12.2%	40.0%	40.0%	12.2%	40.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
v/c Ratio	1.41	0.79		1.51	0.75		0.30	0.82	0.34	0.38	1.02	
Control Delay	233.3	44.9		271.3	40.5		17.7	38.7	4.2	18.3	69.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	233.3	44.9		271.3	40.5		17.7	38.7	4.2	18.3	69.6	
Queue Length 50th (ft)	~205	161		~247	151		16	313	0	27	~470	
Queue Length 95th (ft)	#194	162		#298	185		38	#492	46	51	#604	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)	256	487		268	503		189	699	803	242	691	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	1.41	0.67		1.51	0.63		0.30	0.82	0.34	0.38	1.02	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 41 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Maplewood Ave & Deer St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	145	70	308	148	94	49	496	238	75	423	154
Future Volume (vph)	239	145	70	308	148	94	49	496	238	75	423	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	13	13	12	14	14	11	11	13	11	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.94		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1652	1831		1770	1871		1711	1801	1636	1711	1729	
Flt Permitted	0.29	1.00		0.28	1.00		0.12	1.00	1.00	0.18	1.00	
Satd. Flow (perm)	511	1831		522	1871		213	1801	1636	327	1729	
Peak-hour factor, PHF	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	362	220	106	405	195	124	56	570	274	91	516	188
RTOR Reduction (vph)	0	20	0	0	27	0	0	0	171	0	14	0
Lane Group Flow (vph)	362	306	0	405	292	0	56	570	103	91	690	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	27.2	19.2		27.2	19.2		38.5	33.8	33.8	39.1	34.1	
Effective Green, g (s)	27.2	19.2		27.2	19.2		38.5	33.8	33.8	39.1	34.1	
Actuated g/C Ratio	0.30	0.21		0.30	0.21		0.43	0.38	0.38	0.43	0.38	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	255	390		268	399		169	676	614	218	655	
v/s Ratio Prot	0.13	0.17		c0.13	0.16		0.02	0.32		c0.02	c0.40	
v/s Ratio Perm	0.30			c0.32			0.12		0.06	0.16		
v/c Ratio	1.42	0.78		1.51	0.73		0.33	0.84	0.17	0.42	1.05	
Uniform Delay, d1	29.5	33.4		29.4	33.0		20.3	25.7	18.7	17.8	27.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	210.3	9.9		248.4	7.2		1.2	12.2	0.6	1.3	50.2	
Delay (s)	239.8	43.3		277.8	40.3		21.4	37.9	19.3	19.1	78.2	
Level of Service	F	D		F	D		C	D	B	B	E	
Approach Delay (s)		146.7			173.1			31.2			71.4	
Approach LOS		F			F			C			E	

Intersection Summary			
HCM 2000 Control Delay	100.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	46	42	1	2	4
Future Vol, veh/h	4	46	42	1	2	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	67	67	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	68	63	1	4	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	64	0	-	0	144	64
Stage 1	-	-	-	-	64	-
Stage 2	-	-	-	-	80	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1538	-	-	-	849	1000
Stage 1	-	-	-	-	959	-
Stage 2	-	-	-	-	943	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1538	-	-	-	846	1000
Mov Cap-2 Maneuver	-	-	-	-	846	-
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	943	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1538	-	-	-	943
HCM Lane V/C Ratio	0.004	-	-	-	0.013
HCM Control Delay (s)	7.4	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	24.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	373	57	72	52	45	563
Future Vol, veh/h	373	57	72	52	45	563
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	88	88	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	414	63	82	59	50	626

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	141	0	-	0	1003	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	891	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1442	-	-	-	268	941
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	401	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1442	-	-	-	188	941
Mov Cap-2 Maneuver	-	-	-	-	188	-
Stage 1	-	-	-	-	641	-
Stage 2	-	-	-	-	401	-

Approach	EB	WB	SB
HCM Control Delay, s	7.4	0	42.5
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1442	-	-	-	726
HCM Lane V/C Ratio	0.287	-	-	-	0.931
HCM Control Delay (s)	8.5	0	-	-	42.5
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	1.2	-	-	-	13.1

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	9	736	3	2	667
Future Vol, veh/h	4	9	736	3	2	667
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	58	58	78	78	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	17	944	4	2	785

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1735	946	0	0	948	0
Stage 1	946	-	-	-	-	-
Stage 2	789	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	96	317	-	-	724	-
Stage 1	377	-	-	-	-	-
Stage 2	448	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	96	317	-	-	724	-
Mov Cap-2 Maneuver	96	-	-	-	-	-
Stage 1	375	-	-	-	-	-
Stage 2	448	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.6	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	191	724	-
HCM Lane V/C Ratio	-	-	0.126	0.003	-
HCM Control Delay (s)	-	-	26.6	10	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	173.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	466	8	0	489	353	560
Future Vol, veh/h	466	8	0	489	353	560
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	71	71	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	575	10	0	689	420	667

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1109	420	-	0	-	0
Stage 1	420	-	-	-	-	-
Stage 2	689	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 232	633	0	-	-	-
Stage 1	663	-	0	-	-	-
Stage 2	~ 498	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 232	633	-	-	-	-
Mov Cap-2 Maneuver	~ 232	-	-	-	-	-
Stage 1	663	-	-	-	-	-
Stage 2	~ 498	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 699.7	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	232	633	-	-
HCM Lane V/C Ratio	-	2.48	0.016	-	-
HCM Control Delay (s)	-	$ 711.5	10.8	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	47.5	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	5.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	69	718	28	56	627
Future Vol, veh/h	32	69	718	28	56	627
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	86	898	35	63	704

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1746	916	0	0	933	0
Stage 1	916	-	-	-	-	-
Stage 2	830	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	95	330	-	-	734	-
Stage 1	390	-	-	-	-	-
Stage 2	428	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	82	330	-	-	734	-
Mov Cap-2 Maneuver	82	-	-	-	-	-
Stage 1	335	-	-	-	-	-
Stage 2	428	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	71.4	0	0.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	169	734	-
HCM Lane V/C Ratio	-	-	0.747	0.086	-
HCM Control Delay (s)	-	-	71.4	10.4	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	4.7	0.3	-

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	13	724	35	15	656
Future Vol, veh/h	34	13	724	35	15	656
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	79	79	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	17	916	44	18	781

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1755	938	0	0	960	0
Stage 1	938	-	-	-	-	-
Stage 2	817	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	94	321	-	-	717	-
Stage 1	381	-	-	-	-	-
Stage 2	434	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	90	321	-	-	717	-
Mov Cap-2 Maneuver	90	-	-	-	-	-
Stage 1	364	-	-	-	-	-
Stage 2	434	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	71.9	0	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	112	717	-
HCM Lane V/C Ratio	-	-	0.56	0.025	-
HCM Control Delay (s)	-	-	71.9	10.1	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	2.7	0.1	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	2	4	76	65	18
Future Vol, veh/h	13	2	4	76	65	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	44	44	77	77	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	5	5	99	93	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	215	106	119	0	-	0
Stage 1	106	-	-	-	-	-
Stage 2	109	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	773	948	1469	-	-	-
Stage 1	918	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	770	948	1469	-	-	-
Mov Cap-2 Maneuver	770	-	-	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	916	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1469	-	790	-	-
HCM Lane V/C Ratio	0.004	-	0.043	-	-
HCM Control Delay (s)	7.5	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	45	8	8	439	529	48
Future Vol, veh/h	45	8	8	439	529	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	85	85	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	14	9	516	630	57

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1193	659	687	0	-	0
Stage 1	659	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	206	464	907	-	-	-
Stage 1	515	-	-	-	-	-
Stage 2	588	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	203	464	907	-	-	-
Mov Cap-2 Maneuver	203	-	-	-	-	-
Stage 1	508	-	-	-	-	-
Stage 2	588	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	32.1	0.2	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	907	-	222	-	-
HCM Lane V/C Ratio	0.01	-	0.412	-	-
HCM Control Delay (s)	9	0	32.1	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	1.9	-	-

Intersection	
Int Delay, s/veh	3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	45	33	14	29	34
Future Vol, veh/h	8	45	33	14	29	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	81	81	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	48	41	17	48	56

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	202	50	0	0	58	0
Stage 1	50	-	-	-	-	-
Stage 2	152	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	787	1018	-	-	1546	-
Stage 1	972	-	-	-	-	-
Stage 2	876	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	762	1018	-	-	1546	-
Mov Cap-2 Maneuver	762	-	-	-	-	-
Stage 1	941	-	-	-	-	-
Stage 2	876	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	3.4
HCM LOS	A		

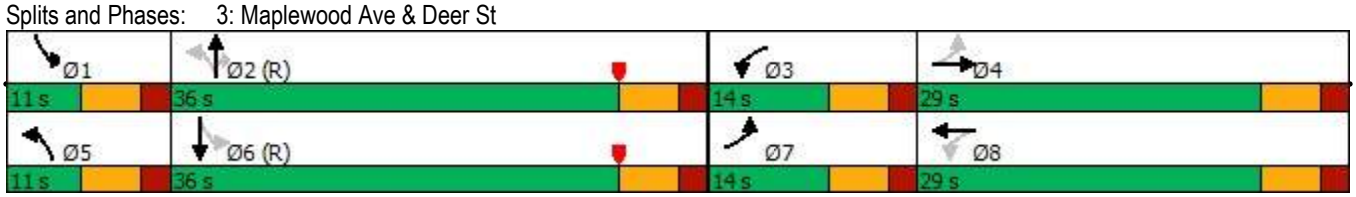
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	969	1546	-
HCM Lane V/C Ratio	-	-	0.059	0.031	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

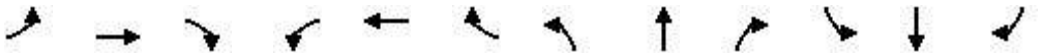
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	287	161	86	308	151	94	52	502	238	75	434	164
Future Volume (vph)	287	161	86	308	151	94	52	502	238	75	434	164
Peak Hour Factor	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	435	374	0	405	323	0	60	577	274	91	729	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	29.0		11.0	29.0		11.0	28.0	28.0	11.0	25.0	
Total Split (s)	14.0	29.0		14.0	29.0		11.0	36.0	36.0	11.0	36.0	
Total Split (%)	15.6%	32.2%		15.6%	32.2%		12.2%	40.0%	40.0%	12.2%	40.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
v/c Ratio	1.60	0.85		1.61	0.71		0.33	0.85	0.35	0.43	1.09	
Control Delay	308.5	48.6		313.0	37.3		18.9	41.8	4.2	20.7	91.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	308.5	48.6		313.0	37.3		18.9	41.8	4.2	20.7	91.7	
Queue Length 50th (ft)	~261	183		~260	148		18	318	0	29	~512	
Queue Length 95th (ft)	#253	186		#340	188		40	#501	46	51	#633	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)	272	487		252	502		183	680	788	212	669	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	1.60	0.77		1.61	0.64		0.33	0.85	0.35	0.43	1.09	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 41 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Maplewood Ave & Deer St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	287	161	86	308	151	94	52	502	238	75	434	164
Future Volume (vph)	287	161	86	308	151	94	52	502	238	75	434	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	13	13	12	14	14	11	11	13	11	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.94		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1652	1824		1770	1873		1711	1801	1636	1711	1727	
Flt Permitted	0.32	1.00		0.22	1.00		0.12	1.00	1.00	0.16	1.00	
Satd. Flow (perm)	548	1824		414	1873		220	1801	1636	288	1727	
Peak-hour factor, PHF	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	435	244	130	405	199	124	60	577	274	91	529	200
RTOR Reduction (vph)	0	22	0	0	25	0	0	0	174	0	15	0
Lane Group Flow (vph)	435	352	0	405	298	0	60	577	100	91	714	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	28.7	20.7		28.7	20.7		37.1	32.8	32.8	37.5	33.0	
Effective Green, g (s)	28.7	20.7		28.7	20.7		37.1	32.8	32.8	37.5	33.0	
Actuated g/C Ratio	0.32	0.23		0.32	0.23		0.41	0.36	0.36	0.42	0.37	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	272	419		252	430		161	656	596	191	633	
v/s Ratio Prot	0.14	0.19		c0.14	0.16		0.02	0.32		c0.02	c0.41	
v/s Ratio Perm	0.37			c0.37			0.14		0.06	0.17		
v/c Ratio	1.60	0.84		1.61	0.69		0.37	0.88	0.17	0.48	1.13	
Uniform Delay, d1	29.0	33.1		28.0	31.7		20.9	26.8	19.4	19.0	28.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	286.3	13.7		291.0	5.1		1.5	15.6	0.6	1.9	76.7	
Delay (s)	315.3	46.8		318.9	36.9		22.3	42.3	20.0	20.9	105.2	
Level of Service	F	D		F	D		C	D	B	C	F	
Approach Delay (s)		191.2			193.8			34.3			95.9	
Approach LOS		F			F			C			F	

Intersection Summary			
HCM 2000 Control Delay	124.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	91	53	18	14	19
Future Vol, veh/h	15	91	53	18	14	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	67	67	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	134	79	27	28	38

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	106	0	-	0	271	93
Stage 1	-	-	-	-	93	-
Stage 2	-	-	-	-	178	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1485	-	-	-	718	964
Stage 1	-	-	-	-	931	-
Stage 2	-	-	-	-	853	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1485	-	-	-	707	964
Mov Cap-2 Maneuver	-	-	-	-	707	-
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	853	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1485	-	-	-	835
HCM Lane V/C Ratio	0.015	-	-	-	0.079
HCM Control Delay (s)	7.5	0	-	-	9.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	27.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	389	57	72	52	45	566
Future Vol, veh/h	389	57	72	52	45	566
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	88	88	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	432	63	82	59	50	629

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	141	0	-	0	1039	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	927	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1442	-	-	-	255	941
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	385	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1442	-	-	-	176	941
Mov Cap-2 Maneuver	-	-	-	-	176	-
Stage 1	-	-	-	-	629	-
Stage 2	-	-	-	-	385	-

Approach	EB	WB	SB
HCM Control Delay, s	7.5	0	47
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1442	-	-	-	713
HCM Lane V/C Ratio	0.3	-	-	-	0.952
HCM Control Delay (s)	8.6	0	-	-	47
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	1.3	-	-	-	14

Intersection	
Int Delay, s/veh	195.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	492	8	0	489	353	570
Future Vol, veh/h	492	8	0	489	353	570
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	71	71	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	607	10	0	689	420	679

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1109	420	-	0	-	0
Stage 1	420	-	-	-	-	-
Stage 2	689	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 232	633	0	-	-	-
Stage 1	663	-	0	-	-	-
Stage 2	~ 498	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 232	633	-	-	-	-
Mov Cap-2 Maneuver	~ 232	-	-	-	-	-
Stage 1	663	-	-	-	-	-
Stage 2	~ 498	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 760.8	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	232	633	-	-
HCM Lane V/C Ratio	-	2.618	0.016	-	-
HCM Control Delay (s)	-	$ 773	10.8	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	51.4	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	15.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	110	766	28	75	637
Future Vol, veh/h	35	110	766	28	75	637
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	138	958	35	84	716

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1860	976	0	0	993	0
Stage 1	976	-	-	-	-	-
Stage 2	884	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	81	305	-	-	696	-
Stage 1	365	-	-	-	-	-
Stage 2	404	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	65	305	-	-	696	-
Mov Cap-2 Maneuver	65	-	-	-	-	-
Stage 1	292	-	-	-	-	-
Stage 2	404	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	165.8	0	1.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	161	696	-
HCM Lane V/C Ratio	-	-	1.126	0.121	-
HCM Control Delay (s)	-	-	165.8	10.9	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	9.6	0.4	-

Intersection	
Int Delay, s/veh	7.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	49	22	769	44	17	666
Future Vol, veh/h	49	22	769	44	17	666
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	79	79	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	29	973	56	20	793

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1834	1001	0	0	1029	0
Stage 1	1001	-	-	-	-	-
Stage 2	833	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	84	295	-	-	675	-
Stage 1	355	-	-	-	-	-
Stage 2	427	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	80	295	-	-	675	-
Mov Cap-2 Maneuver	80	-	-	-	-	-
Stage 1	336	-	-	-	-	-
Stage 2	427	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	143.4	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	103	675	-
HCM Lane V/C Ratio	-	-	0.919	0.03	-
HCM Control Delay (s)	-	-	143.4	10.5	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	5.5	0.1	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	33	21	13	88	81	21
Future Vol, veh/h	33	21	13	88	81	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	44	44	77	77	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	75	48	17	114	116	30

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	279	131	146	0	-	0
Stage 1	131	-	-	-	-	-
Stage 2	148	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	711	919	1436	-	-	-
Stage 1	895	-	-	-	-	-
Stage 2	880	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	702	919	1436	-	-	-
Mov Cap-2 Maneuver	702	-	-	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	880	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1436	-	773	-	-
HCM Lane V/C Ratio	0.012	-	0.159	-	-
HCM Control Delay (s)	7.5	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	56	8	8	455	532	54
Future Vol, veh/h	56	8	8	455	532	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	85	85	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	97	14	9	535	633	64

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1218	665	697	0	-	0
Stage 1	665	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	199	460	899	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	576	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	196	460	899	-	-	-
Mov Cap-2 Maneuver	196	-	-	-	-	-
Stage 1	504	-	-	-	-	-
Stage 2	576	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	39.4	0.2	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	899	-	211	-	-
HCM Lane V/C Ratio	0.01	-	0.523	-	-
HCM Control Delay (s)	9	0	39.4	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0	-	2.7	-	-

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	51	51	14	10	61
Future Vol, veh/h	8	51	51	14	10	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	81	81	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	55	63	17	16	100

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	204	72	0	0	80	0
Stage 1	72	-	-	-	-	-
Stage 2	132	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	784	990	-	-	1518	-
Stage 1	951	-	-	-	-	-
Stage 2	894	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	775	990	-	-	1518	-
Mov Cap-2 Maneuver	775	-	-	-	-	-
Stage 1	941	-	-	-	-	-
Stage 2	894	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	954	1518	-
HCM Lane V/C Ratio	-	-	0.066	0.011	-
HCM Control Delay (s)	-	-	9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

APPENDIX H

111 Maplewood Avenue Traffic Evaluation
Response to Comments

Responses to TAC Traffic Comments
Proposed Office Building at 111 Maplewood Avenue
Portsmouth, NH

TO: Eric Eby, PE
Parking and Transportation Engineer
Department of Public Works
City of Portsmouth, NH

FROM: Vinod Kalikiri, PE, PTOE

DATE: April 18, 2019

Tighe & Bond prepared a detailed traffic evaluation dated March 18, 2019 for the above referenced project as part of the Site Review and Subdivision submittal to the City of Portsmouth Technical Advisory Committee (TAC). This memorandum includes revised analysis based on feedback provided by the City Traffic Engineer on the original traffic study.

Specifically, the following revisions were made to the original analysis and the underlying analytical assumptions.

- Traffic diversion assumptions related to the US Route 1 Bypass Bridge project were removed from the No-Build and Build analysis.
- Future conditions traffic associated with the Deer Street Associates (DSA) development and the Harbor Corp Redevelopment, as well as any traffic improvements by the two projects within the study area were assumed to be in place only in the 2030 analysis.
- Trip distribution assumptions for the commercial component of the project were revised to be consistent with the corresponding assumptions included in the DSA traffic study.
- In addition, newly available permanent traffic count station data from NHDOT were reviewed to confirm if the seasonal adjustment factor used in the original study was too high. The seasonal adjustment factor was not revised based on the review of the new permanent count station data.

Revised capacity analysis summary tabulation is presented in Tables 1 and 2 for signalized and unsignalized study intersections, respectively. Also included in the attachment to this memorandum are revised traffic volume networks and Synchro analysis worksheets resulting from the above outlined revisions.

Overall, while the revisions to the analytical assumptions changed some of the traffic volumes, the overall finding of the original study that certain movements at the study locations are expected to be constrained with or without the project related traffic remains valid. A review of the analysis results indicated that the exclusive pedestrian phase at the intersection significantly contributes to the reduced capacity. As part of the Maplewood Avenue corridor road diet project, newer signal timing may be implemented by the City's signal design consultant which may be better suited for the future conditions. Since new signal timings are not yet available, analysis of the 2020 No-Build and Build conditions were based on existing timings provided by the City. It is unclear if the road diet project will also include replacement of the exclusive pedestrian phase with a concurrent phase. Signal timing changes and/or phasing changes as part of the road diet project has the potential to provide some capacity enhancement at the intersection in the short term. As discussed in the original study, signal

phasing and geometric improvements are also proposed by other private development projects in the longer term, which will provide additional capacity at the intersection.

Compared to the area roadway traffic volumes, the additional traffic estimated for the project at the various study intersections, including the Maplewood Avenue/Deer Street signalized intersection, is nominal. The Site Plans show the elimination of one of the unsignalized curb cuts for the east parcel, which promotes access management. Further, as shown in the Site Plans, the project will implement significant enhancements to the pedestrian accommodations around the Site. The limited additional traffic estimated for the project do not warrant any significant capacity enhancements at study intersections. The proponent will continue to work with the City staff during the project review to further refine the proposed pedestrian and streetscape enhancements to the area.

\\tighebond.com\data\Data\Projects\K\K0076 The Kane Company - General Proposals\0076-019 Maplewood\Traffic\Memos\2019-04-16 Traffic Responses.docx

TABLE 1: Signalized Intersection Operations Summary

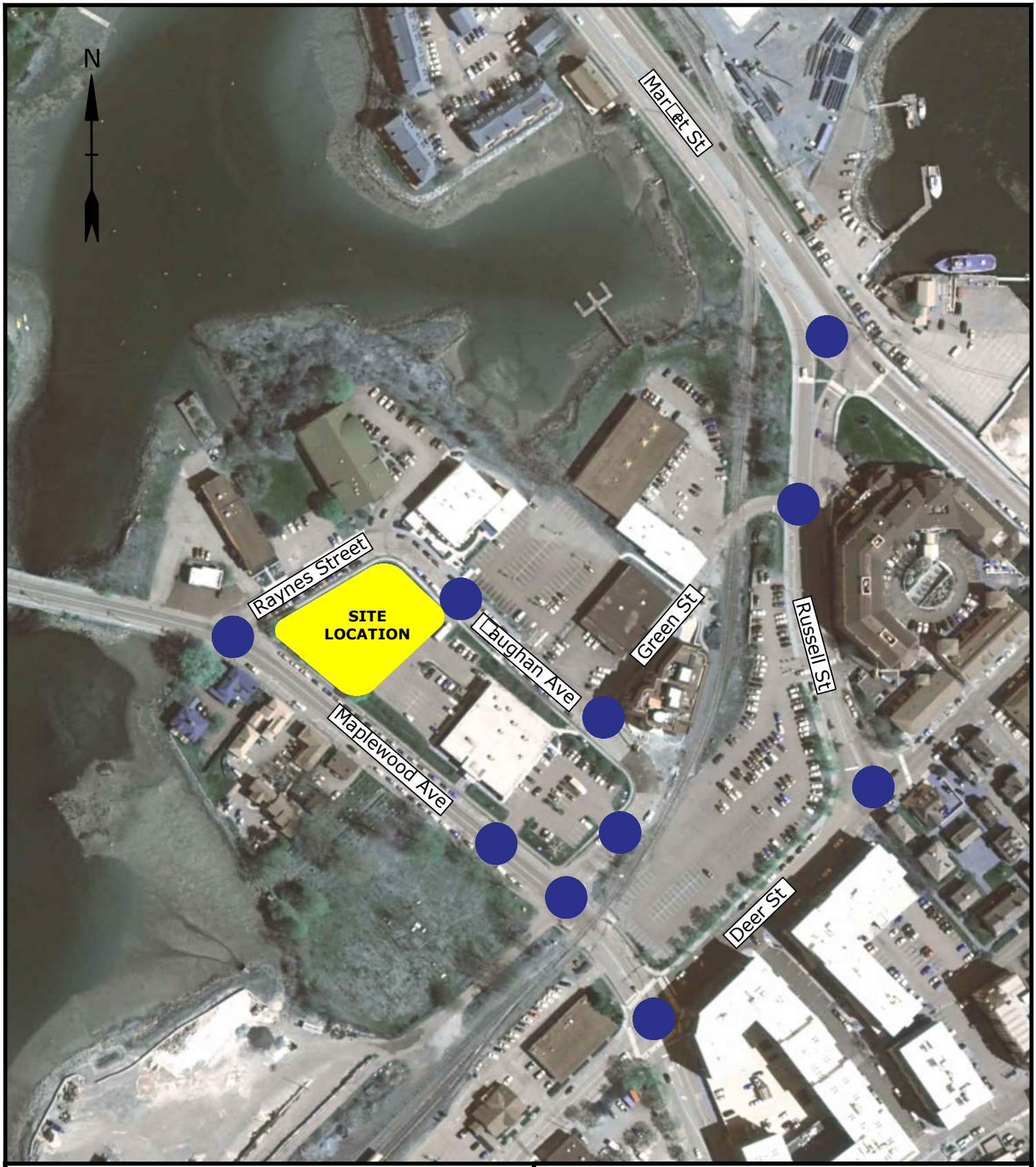
Intersection / Lane Group	2020 No Build					2020 Build					2030 No Build					2030 Build				
	V/C	Del	LOS	50th Q	95th Q	V/C	Del	LOS	50th Q	95th Q	V/C	Del	LOS	50th Q	95th Q	V/C	Del	LOS	50th Q	95th Q
Maplewood Ave / Deer St																				
Deer St EBL/T/R	1.14	>120	F	~274	#274	>1.2	>120	F	~465	#430	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Deer St EBL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	>1.2	>120	F	~205	#194	>1.2	>120	F	~261	#253
Deer St EBT/R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.78	43	D	161	162	0.84	47	D	183	186
Deer St WBL	>1.2	>120	F	~264	#340	>1.2	>120	F	~306	#381	>1.2	>120	F	~280	#328	>1.2	>120	F	~335	#405
Deer St WBT/R	0.41	36	D	109	146	0.42	36	D	113	149	0.73	40	D	151	185	0.69	37	D	148	188
Maplewood Ave NBL	0.04	12	B	5	16	0.05	12	B	7	19	0.33	21	C	16	38	0.37	22	C	18	40
Maplewood Ave NBT	0.50	18	B	210	296	0.51	18	B	220	309	0.84	38	D	313	#492	0.89	44	D	327	#514
Maplewood Ave NBR	0.14	13	B	0	33	0.14	13	B	2	35	0.17	19	B	0	46	0.17	20	B	0	46
Maplewood Ave SBL	0.14	9	A	15	28	0.14	9	A	15	28	0.42	19	B	27	51	0.49	21	C	29	51
Maplewood Ave SBT/R	0.48	11	B	178	220	0.49	12	B	183	226	1.02	67	E	~439	#573	1.07	84	F	~463	#585
Overall Intersection	0.77	60	E			0.88	111	F			>1.2	106	F			>1.2	>120	F		

LOS	level-of-service
Del	Average intersection delay, measured in seconds
v/c	Volume to capacity ratio
50th Q and 95th Q	Percentile queues measured in feet
#	95th percentile volume exceeds capacity, queue may be longer
~	Volume exceeds capacity. Queues are shown after two signal cycles

TABLE 2: Unsignalized Intersection Operations Summary

Intersection / Lane Group	2020 No Build				2020 Build				2030 No Build				2030 Build			
	V/C	Del	LOS	95th Q	V/C	Del	LOS	95th Q	V/C	Del	LOS	95th Q	V/C	Del	LOS	95th Q
Maplewood Ave / Raynes Ave:																
Maplewood Ave SBL/T	0.1	10	A	0.2	0.1	10	A	0.3	0.1	10	B	0.3	0.1	11	B	0.4
Raynes Ave WBL/R	0.4	26	D	1.9	0.5	32	D	2.9	0.7	70	F	4.6	0.9	107	F	7.0
Maplewood Ave / Kennebunk Bank Driveway:																
Maplewood Ave SBL/T	0.0	9	A	0.0	NA	NA	NA	NA	0.0	10	A	0.0	NA	NA	NA	NA
Kennebunk Bank WBL/R	0.1	18	C	0.2	NA	NA	NA	NA	0.1	27	D	0.4	NA	NA	NA	NA
Maplewood Ave / Vaughan St:																
Maplewood Ave SBL/T	0.0	9	A	0.1	0.0	10	A	0.1	0.0	10	B	0.1	0.0	11	B	0.1
Vaughan St WBL/R	0.3	30	D	1.2	0.6	47	E	2.9	0.5	68	F	2.6	1.0	>120	F	6.5
Vaughan St / Kennebunk Bank Driveway:																
Vaughan St EBL/T	0.0	7	A	0.0	0.0	8	A	0.0	0.0	7	A	0.0	0.0	8	A	0.0
Kennebunk Bank SBL/R	0.0	9	A	0.0	0.1	10	A	0.2	0.0	9	A	0.0	0.1	10	A	0.2
Vaughan St / Green St:																
Vaughan St SBL/T	0.1	7	A	0.1	0.0	8	A	0.1	0.0	7	A	0.1	0.0	8	A	0.1
Green St WBL/R	0.2	9	A	0.2	0.1	9	A	0.2	0.1	9	A	0.2	0.1	9	A	0.2
Vaughan St / Site Driveway:																
Vaughan St NBL/T	0.0	7	A	0.0	0.0	8	A	0.1	0.0	8	A	0.0	0.0	8	A	0.1
Site Driveway EBL/R	0.0	10	A	0.1	0.1	10.2	B	0.5	0.0	10	A	0.1	0.2	10	B	0.5
Deer St / Russell St:																
Deer St EBL/T	0.2	8	A	0.7	0.2	8	A	0.8	0.3	9	A	1.2	0.3	9	A	1.3
Russell St SBL/R	0.5	13	B	2.8	0.5	14	B	3.4	1.0	47	E	14.3	1.0	58	F	17.0
Green St / Russell St:																
Russell St NBL/T	0.0	9	A	0.0	0.0	9	A	0.0	0.0	9	A	0.0	0.0	9	A	0.0
Green St EBL	0.2	19	C	1.0	0.3	22	C	1.3	0.4	32	D	1.9	0.5	40	E	2.7
Russell St / Market St:																
Russell St EBL	>1.2	>120	F	24.4	>1.2	>120	F	27.9	>1.2	>120	F	47.5	>1.2	>120	F	51.2
Russell St EBR	0.0	11	B	0.0	0.0	11	B	0.0	0.0	11	B	0.0	0.0	11	B	0.0

LOS	level-of-service
Del	Average intersection delay, measured in seconds
v/c	Volume to capacity ratio
95th Q	Percentile queues measured in vehicles



L□□□□d

Study Area Location

Proposed O□□ce Building
111 Maplewood Avenue, Portsmouth NH

Study Area

DATE: 0□□18□201□
SCALE: 1" □ 200□
FIG□RE 1

Tighe&Bond
www.tighebond.com

Apr 11, 201□ 11:44am Plotted By: □Mayboroda
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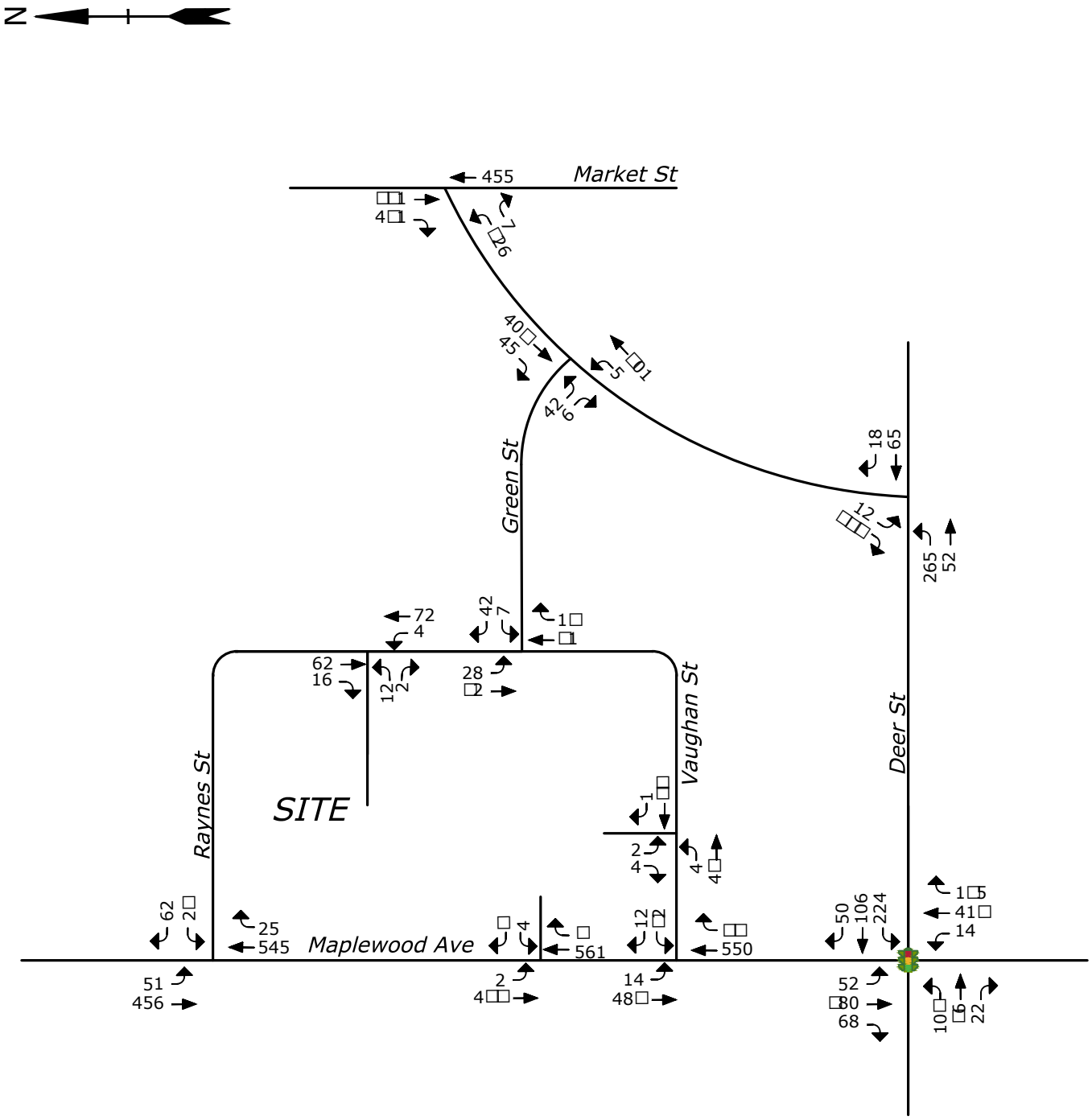

LEGEND

TRAFFIC SIGNAL

Proposed Office Building
111 Maplewood Avenue, Portsmouth NH

2020 No Build Peak Hour Traffic Volumes

DATE: 01/18/2019
SCALE: No Scale
FIGURE 2

Tighe&Bond
www.tighebond.com

Apr 11, 2019 11:44am Plotted By: Mayboroda
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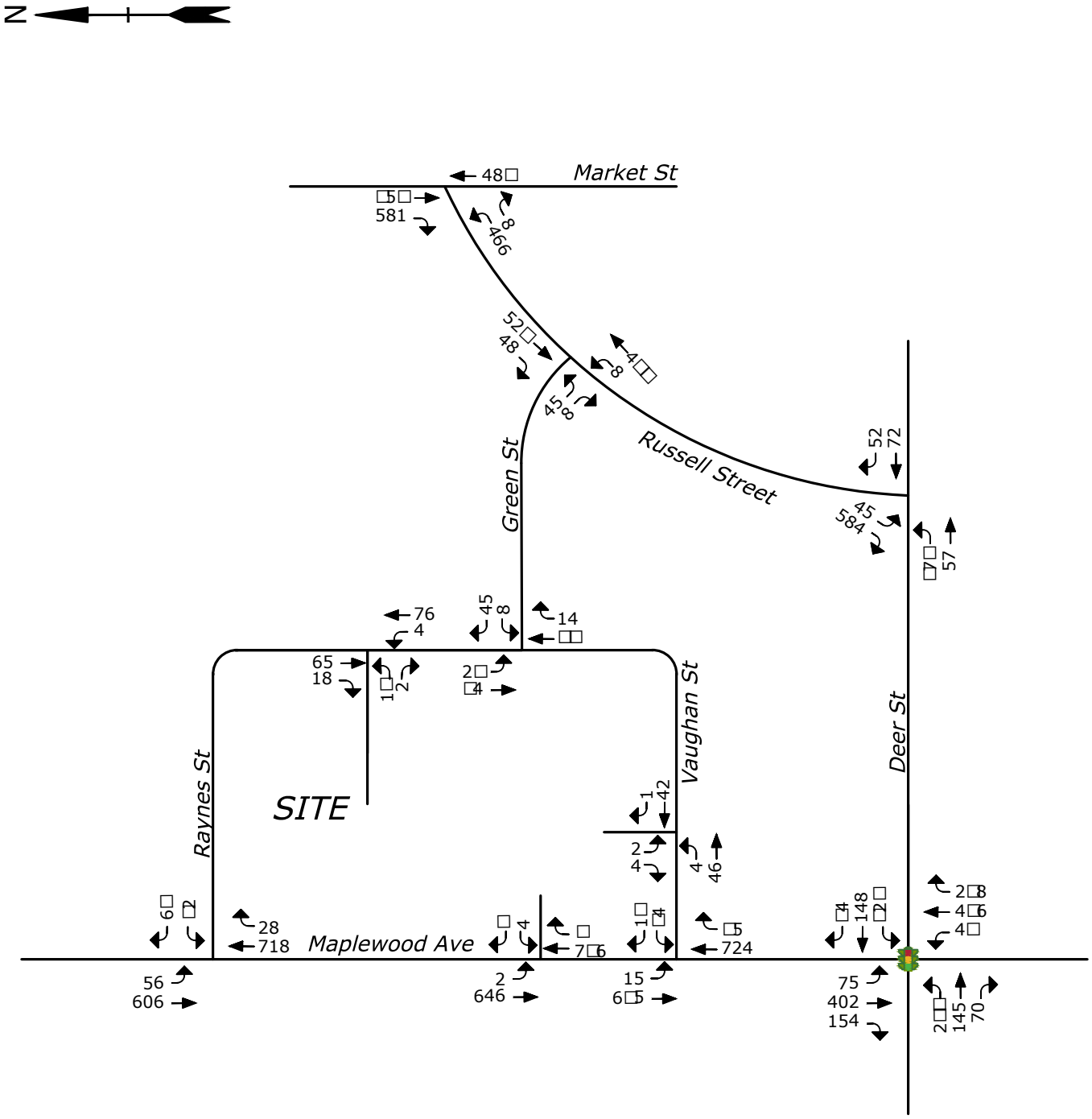

LEGEND

TRAFFIC SIGNAL

Proposed Office Building 111 Maplewood Avenue, Portsmouth NH	
2020 No Build Peak Hour Traffic Volumes	
DATE: 04/18/2016	Tighe&Bond www.tighebond.com
SCALE: No Scale	
FIGURE 4	

Apr 11, 2016 - 11:44am Plotted By: Mayboroda
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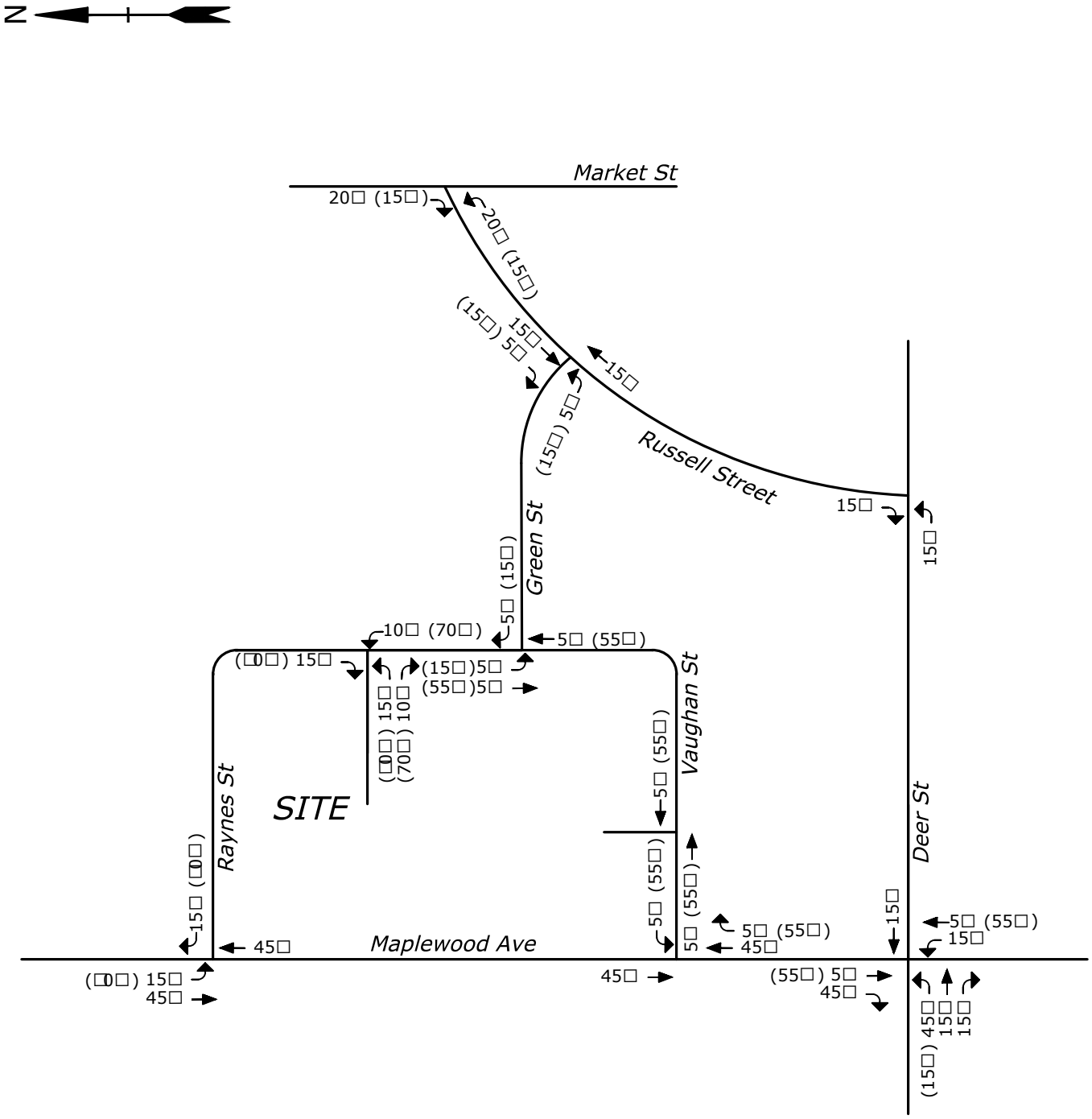


LE□END

□□ O□□ce Trips
(□□) Retail Trips

Proposed O□□ce Building
111 Maplewood Avenue, Portsmouth NH

Trip Distribution

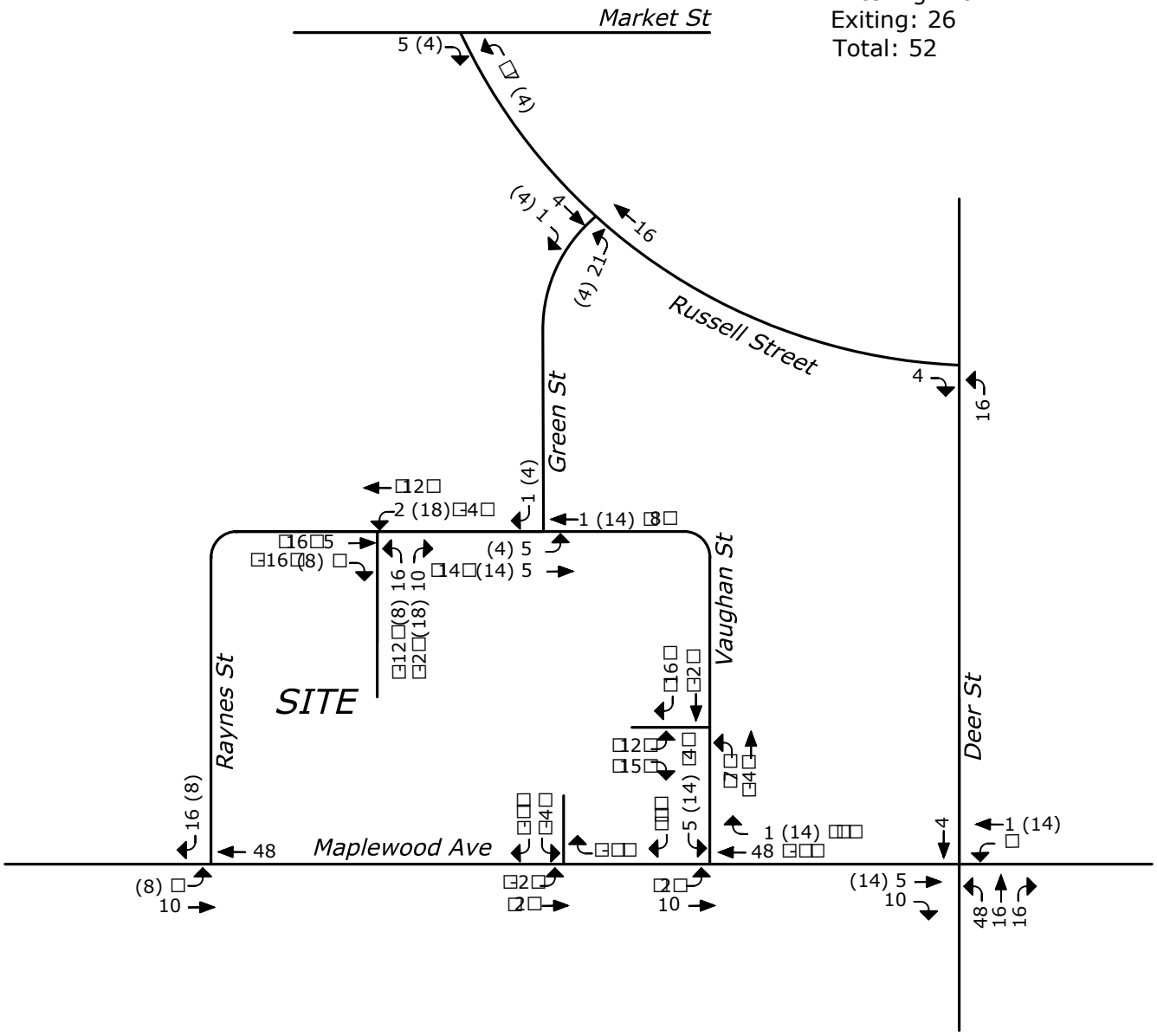
DATE: 0□/18/201□
SCALE: No Scale
FIG□RE 4

Tighe&Bond
www.tighebond.com

Apr 11, 201□ 11:44am Plotted By: □Mayboroda
Tighe & Bond, Inc. C:\□sers\□Mayboroda\appdata\local\temp\AcPublish_5272\Diversion □gure - Future_April201□dwg

O□□□□ □□□□r□□□d Tr□□□
Entering: 2□
Exiting: 106
Total: 12□

R□□□□□□□□r□□□d Tr□□□
Entering: 26
Exiting: 26
Total: 52



LE□END

□□ O□□ce Trips
(□□) Retail Trips
□□□□ Driveway Redistribution

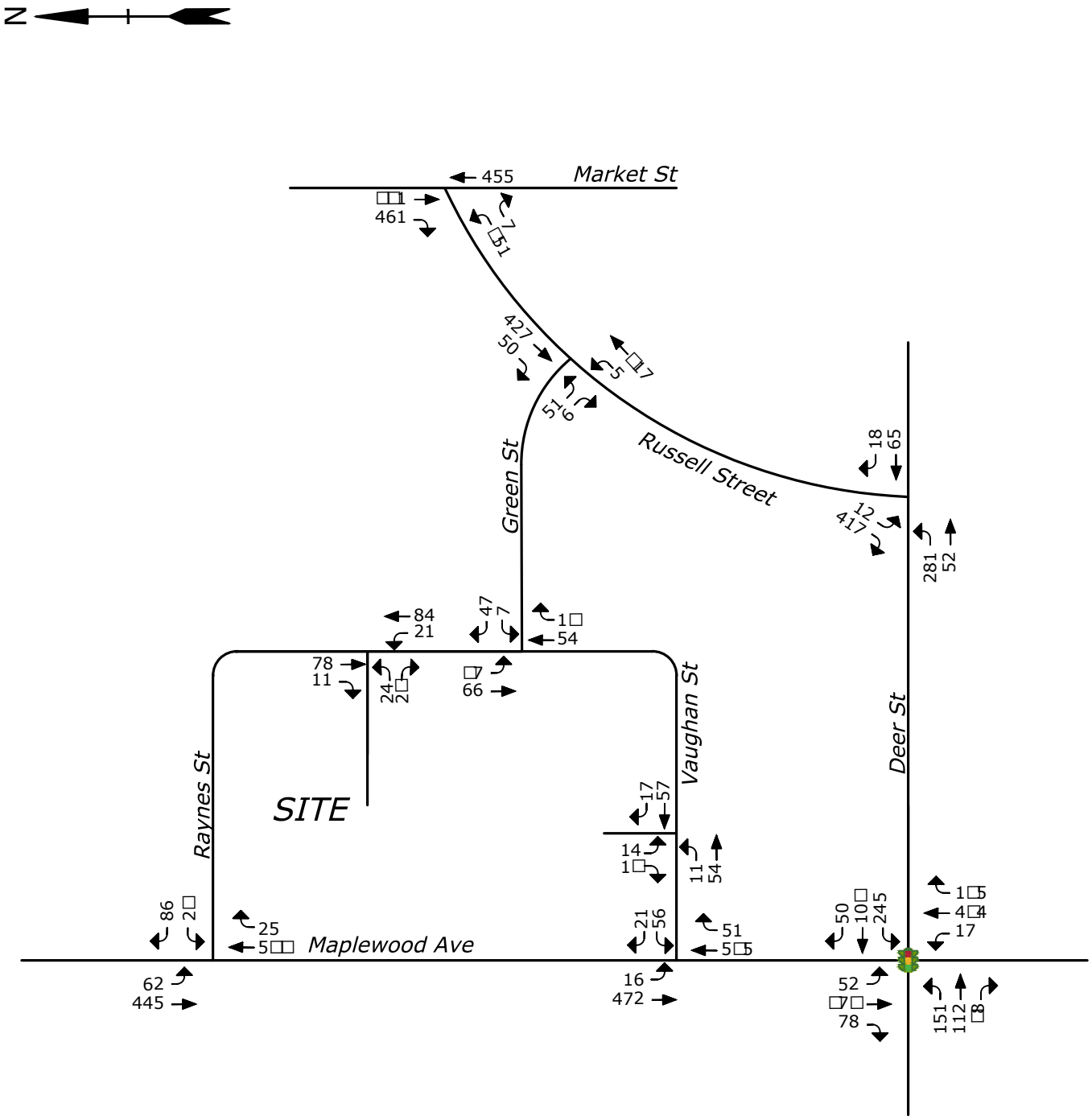
Proposed O□□ce Building
111 Maplewood Avenue, Portsmouth NH

Site Generated Trips

DATE: 0□/18/201□
SCALE: No Scale
FIG□RE 5

Tighe&Bond
www.tighebond.com

Apr 11, 201□ 11:44am Plotted By: □Mayboroda
Tighe & Bond, Inc. C:\□sers\□Mayboroda\appdata\local\temp\AcPublish_5272\Diversion □igure - Future_April201□dwg

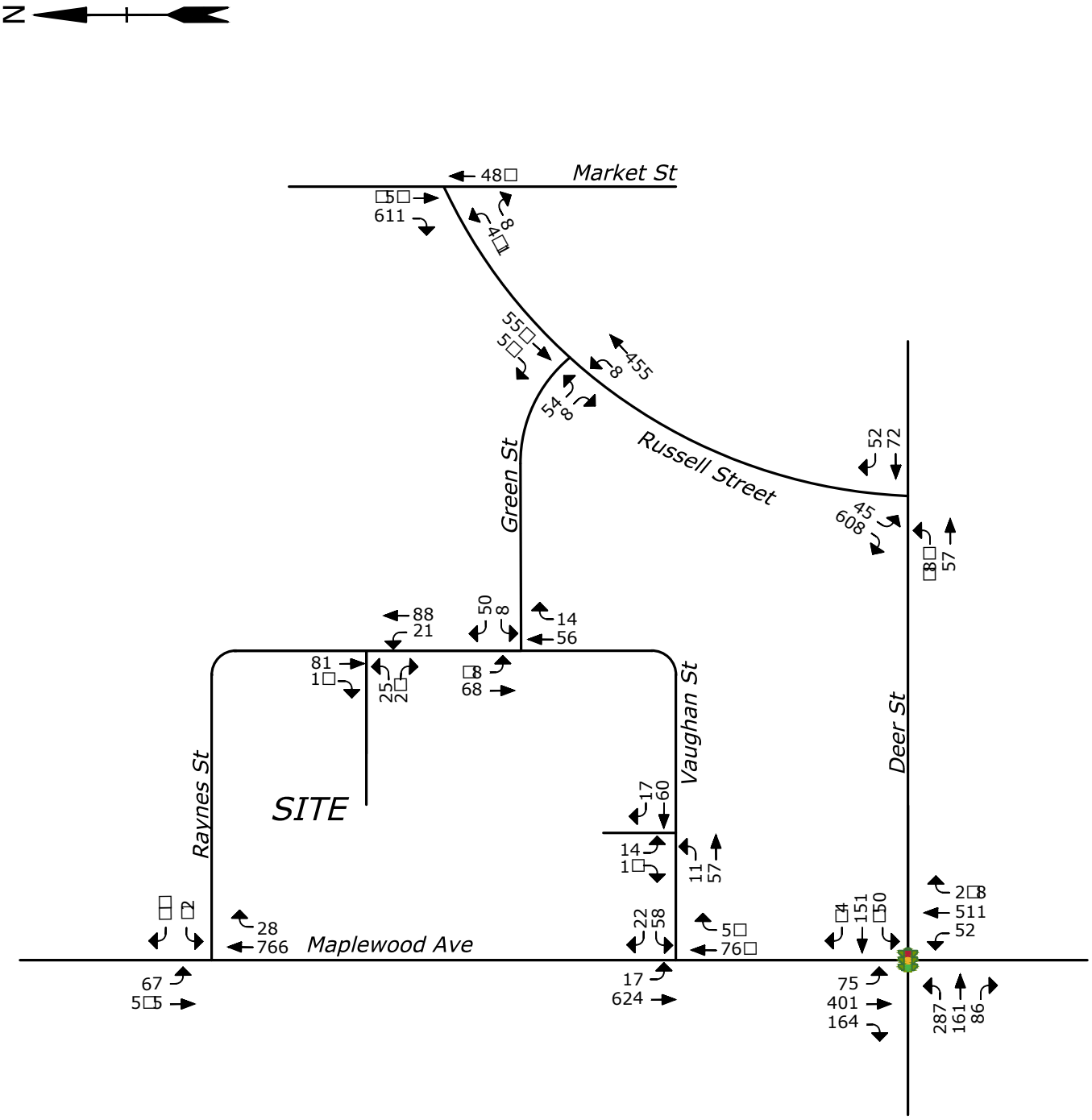


LEGEND

TRAFFIC SIGNAL

Proposed Office Building 111 Maplewood Avenue, Portsmouth NH	
2020 Build Peak Hour Traffic Volumes	
DATE: 01/18/2019	Tighe&Bond www.tighebond.com
SCALE: No Scale	
FIGURE 6	

Apr 11, 2019 - 11:44am Plotted By: Mayboroda
Tighe & Bond, Inc. C:\Users\Mayboroda\appdata\local\temp\AcPublish_5272\Diversion Figure - Future_April2019.dwg



LEGEND

TRAFFIC SIGNAL

Proposed Office Building 111 Maplewood Avenue, Portsmouth NH	
2010 Build Peak Hour Traffic Volumes	
DATE: 01/18/2011	Tighe&Bond www.tighebond.com
SCALE: No Scale	
FIGURE 7	

Apr 11, 2011 11:44am Plotted By: Mayboroda
Tighe & Bond, Inc. C:\Users\Mayboroda\appdata\local\temp\AcPublish_5272\Diversion Figure - Future_April2011.dwg

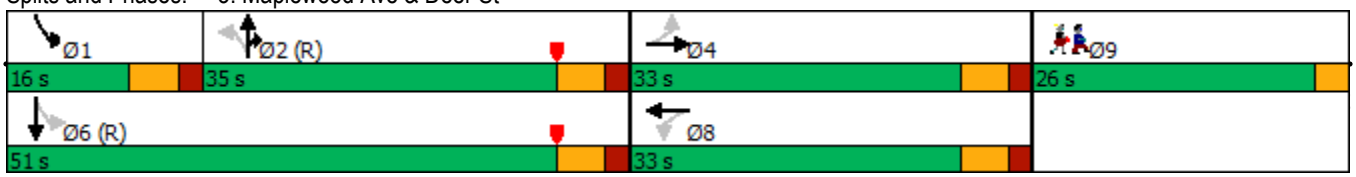
Capacity Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	96	22	224	106	50	14	419	195	52	380	68
Future Volume (vph)	103	96	22	224	106	50	14	419	195	52	380	68
Peak Hour Factor	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	334	0	295	205	0	16	482	224	63	546	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Prot	pm+pt	NA	
Protected Phases		4			8			2	2	1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0	11.0	16.0	
Total Split (s)	33.0	33.0		33.0	33.0		35.0	35.0	35.0	16.0	51.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%		31.8%	31.8%	31.8%	14.5%	46.4%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	Max	Max		None	None		C-Max	C-Max	C-Max	None	C-Max	
v/c Ratio		1.14		1.27	0.43		0.04	0.49	0.22	0.13	0.48	
Control Delay		134.2		187.5	34.5		13.4	18.3	2.4	7.9	11.5	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		134.2		187.5	34.5		13.4	18.3	2.4	7.9	11.5	
Queue Length 50th (ft)		~274		~264	109		5	210	0	15	178	
Queue Length 95th (ft)		#274		#340	146		16	296	33	28	220	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)		293		232	480		454	988	998	503	1138	
Starvation Cap Reductn		0		0	0		0	0	0	0	0	
Spillback Cap Reductn		0		0	0		0	0	0	0	0	
Storage Cap Reductn		0		0	0		0	0	0	0	0	
Reduced v/c Ratio		1.14		1.27	0.43		0.04	0.49	0.22	0.13	0.48	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 6 (5%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Maplewood Ave & Deer St



Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Peak Hour Factor	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	24%
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	96	22	224	106	50	14	419	195	52	380	68
Future Volume (vph)	103	96	22	224	106	50	14	419	195	52	380	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	13	13	12	14	14	11	11	13	11	11	11
Total Lost time (s)		6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.99		1.00	0.95		1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1856		1770	1891		1711	1801	1636	1711	1760	
Flt Permitted		0.62		0.51	1.00		0.46	1.00	1.00	0.35	1.00	
Satd. Flow (perm)		1181		947	1891		829	1801	1636	629	1760	
Peak-hour factor, PHF	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	156	145	33	295	139	66	16	482	224	63	463	83
RTOR Reduction (vph)	0	4	0	0	16	0	0	0	103	0	4	0
Lane Group Flow (vph)	0	330	0	295	189	0	16	482	121	63	542	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Prot	pm+pt	NA	
Protected Phases		4			8			2	2	1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		27.0		27.0	27.0		59.2	59.2	59.2	71.0	71.0	
Effective Green, g (s)		27.0		27.0	27.0		59.2	59.2	59.2	71.0	71.0	
Actuated g/C Ratio		0.25		0.25	0.25		0.54	0.54	0.54	0.65	0.65	
Clearance Time (s)		6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		4.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		289		232	464		446	969	880	463	1136	
v/s Ratio Prot					0.10			0.27	0.07	0.01	c0.31	
v/s Ratio Perm		0.28		c0.31			0.02			0.08		
v/c Ratio		1.14		1.27	0.41		0.04	0.50	0.14	0.14	0.48	
Uniform Delay, d1		41.5		41.5	34.8		12.0	16.0	12.7	8.9	10.0	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		97.2		151.5	0.8		0.2	1.8	0.3	0.1	1.4	
Delay (s)		138.7		193.0	35.6		12.1	17.8	13.0	9.0	11.4	
Level of Service		F		F	D		B	B	B	A	B	
Approach Delay (s)		138.7			128.5			16.2			11.2	
Approach LOS		F			F			B			B	

Intersection Summary			
HCM 2000 Control Delay	59.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	43	39	1	2	4
Future Vol, veh/h	4	43	39	1	2	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	67	67	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	63	58	1	4	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	59	0	-	0	134	59
Stage 1	-	-	-	-	59	-
Stage 2	-	-	-	-	75	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1545	-	-	-	860	1007
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	948	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1545	-	-	-	857	1007
Mov Cap-2 Maneuver	-	-	-	-	857	-
Stage 1	-	-	-	-	960	-
Stage 2	-	-	-	-	948	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1545	-	-	-	951
HCM Lane V/C Ratio	0.004	-	-	-	0.013
HCM Control Delay (s)	7.3	0	-	-	8.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	265	52	65	18	12	393
Future Vol, veh/h	265	52	65	18	12	393
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	88	88	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	294	58	74	20	13	437

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	94	0	-	0	730	84
Stage 1	-	-	-	-	84	-
Stage 2	-	-	-	-	646	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1500	-	-	-	389	975
Stage 1	-	-	-	-	939	-
Stage 2	-	-	-	-	522	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1500	-	-	-	310	975
Mov Cap-2 Maneuver	-	-	-	-	310	-
Stage 1	-	-	-	-	749	-
Stage 2	-	-	-	-	522	-

Approach	EB	WB	SB
HCM Control Delay, s	6.7	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1500	-	-	-	917
HCM Lane V/C Ratio	0.196	-	-	-	0.491
HCM Control Delay (s)	8	0	-	-	12.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.7	-	-	-	2.8

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	9	561	3	2	493
Future Vol, veh/h	4	9	561	3	2	493
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	58	58	78	78	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	16	719	4	2	580

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1305	721	0	0	723	0
Stage 1	721	-	-	-	-	-
Stage 2	584	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	177	427	-	-	879	-
Stage 1	482	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	176	427	-	-	879	-
Mov Cap-2 Maneuver	176	-	-	-	-	-
Stage 1	481	-	-	-	-	-
Stage 2	557	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	297	879	-
HCM Lane V/C Ratio	-	-	0.075	0.003	-
HCM Control Delay (s)	-	-	18.1	9.1	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	63.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	326	6	0	455	331	431
Future Vol, veh/h	326	6	0	455	331	431
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	71	71	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	402	7	0	641	394	513

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1035	394	-	0	-	0
Stage 1	394	-	-	-	-	-
Stage 2	641	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 257	655	0	-	-	-
Stage 1	681	-	0	-	-	-
Stage 2	525	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 257	655	-	-	-	-
Mov Cap-2 Maneuver	~ 257	-	-	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	525	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 302.5	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	257	655	-	-
HCM Lane V/C Ratio	-	1.566	0.011	-	-
HCM Control Delay (s)	-	$ 307.9	10.6	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	24.4	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	62	545	25	51	456
Future Vol, veh/h	29	62	545	25	51	456
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	78	681	31	57	512

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1323	697	0	0	712	0
Stage 1	697	-	-	-	-	-
Stage 2	626	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	172	441	-	-	888	-
Stage 1	494	-	-	-	-	-
Stage 2	533	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	157	441	-	-	888	-
Mov Cap-2 Maneuver	157	-	-	-	-	-
Stage 1	450	-	-	-	-	-
Stage 2	533	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.4	0	0.9
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	280	888	-
HCM Lane V/C Ratio	-	-	0.406	0.065	-
HCM Control Delay (s)	-	-	26.4	9.3	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	1.9	0.2	-

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	12	550	33	14	483
Future Vol, veh/h	32	12	550	33	14	483
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	79	79	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	16	696	42	17	575

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1326	717	0	0	738	0
Stage 1	717	-	-	-	-	-
Stage 2	609	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	172	430	-	-	868	-
Stage 1	484	-	-	-	-	-
Stage 2	543	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	167	430	-	-	868	-
Mov Cap-2 Maneuver	167	-	-	-	-	-
Stage 1	470	-	-	-	-	-
Stage 2	543	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.3	0	0.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	200	868	-
HCM Lane V/C Ratio	-	-	0.293	0.019	-
HCM Control Delay (s)	-	-	30.3	9.2	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	1.2	0.1	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	2	4	72	62	16
Future Vol, veh/h	12	2	4	72	62	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	44	44	77	77	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	5	5	94	89	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	205	101	112	0	-	0
Stage 1	101	-	-	-	-	-
Stage 2	104	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	783	954	1478	-	-	-
Stage 1	923	-	-	-	-	-
Stage 2	920	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	780	954	1478	-	-	-
Mov Cap-2 Maneuver	780	-	-	-	-	-
Stage 1	919	-	-	-	-	-
Stage 2	920	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1478	-	801	-	-
HCM Lane V/C Ratio	0.004	-	0.04	-	-
HCM Control Delay (s)	7.4	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	42	7	5	301	403	45
Future Vol, veh/h	42	7	5	301	403	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	85	85	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	12	6	354	480	54

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	873	507	534	0	-	0
Stage 1	507	-	-	-	-	-
Stage 2	366	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	321	566	1034	-	-	-
Stage 1	605	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	319	566	1034	-	-	-
Mov Cap-2 Maneuver	319	-	-	-	-	-
Stage 1	601	-	-	-	-	-
Stage 2	702	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.1	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1034	-	340	-	-
HCM Lane V/C Ratio	0.006	-	0.248	-	-
HCM Control Delay (s)	8.5	0	19.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	1	-	-

Intersection	
Int Delay, s/veh	3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	42	31	13	28	32
Future Vol, veh/h	7	42	31	13	28	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	81	81	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	45	38	16	46	52

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	190	46	0	0	54	0
Stage 1	46	-	-	-	-	-
Stage 2	144	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	799	1023	-	-	1551	-
Stage 1	976	-	-	-	-	-
Stage 2	883	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	774	1023	-	-	1551	-
Mov Cap-2 Maneuver	774	-	-	-	-	-
Stage 1	946	-	-	-	-	-
Stage 2	883	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	3.4
HCM LOS	A		

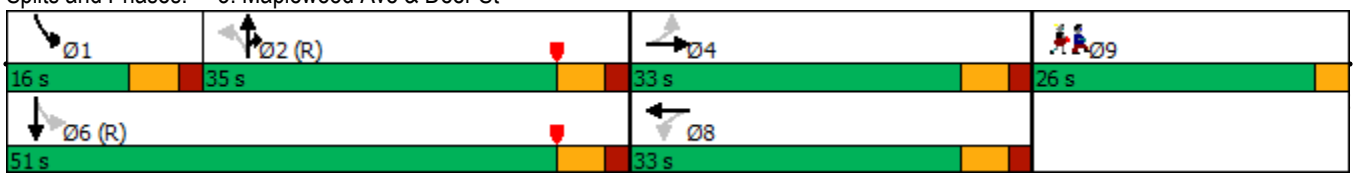
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	978	1551	-
HCM Lane V/C Ratio	-	-	0.054	0.03	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	112	38	245	109	50	17	434	195	52	379	78
Future Volume (vph)	151	112	38	245	109	50	17	434	195	52	379	78
Peak Hour Factor	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	457	0	322	209	0	20	499	224	63	557	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Prot	pm+pt	NA	
Protected Phases		4			8			2	2	1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		16.0	16.0	16.0	11.0	16.0	
Total Split (s)	33.0	33.0		33.0	33.0		35.0	35.0	35.0	16.0	51.0	
Total Split (%)	30.0%	30.0%		30.0%	30.0%		31.8%	31.8%	31.8%	14.5%	46.4%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	None	C-Max	
v/c Ratio		1.61		1.41	0.44		0.04	0.51	0.22	0.14	0.49	
Control Delay		319.7		240.2	34.9		13.5	18.7	2.6	7.9	11.7	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		319.7		240.2	34.9		13.5	18.7	2.6	7.9	11.7	
Queue Length 50th (ft)		~465		~306	113		7	220	2	15	183	
Queue Length 95th (ft)		#430		#381	149		19	309	35	28	226	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)		284		229	479		450	988	996	492	1136	
Starvation Cap Reductn		0		0	0		0	0	0	0	0	
Spillback Cap Reductn		0		0	0		0	0	0	0	0	
Storage Cap Reductn		0		0	0		0	0	0	0	0	
Reduced v/c Ratio		1.61		1.41	0.44		0.04	0.51	0.22	0.13	0.49	

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 6 (5%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Maplewood Ave & Deer St



Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Peak Hour Factor	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	24%
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	112	38	245	109	50	17	434	195	52	379	78
Future Volume (vph)	151	112	38	245	109	50	17	434	195	52	379	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	13	13	12	14	14	11	11	13	11	11	11
Total Lost time (s)		6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.98		1.00	0.95		1.00	1.00	0.85	1.00	0.97	
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1846		1770	1893		1711	1801	1636	1711	1755	
Flt Permitted		0.60		0.50	1.00		0.46	1.00	1.00	0.34	1.00	
Satd. Flow (perm)		1140		933	1893		820	1801	1636	607	1755	
Peak-hour factor, PHF	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	229	170	58	322	143	66	20	499	224	63	462	95
RTOR Reduction (vph)	0	5	0	0	15	0	0	0	101	0	4	0
Lane Group Flow (vph)	0	452	0	322	194	0	20	499	123	63	553	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Prot	pm+pt	NA	
Protected Phases		4			8			2	2	1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		27.0		27.0	27.0		59.2	59.2	59.2	71.0	71.0	
Effective Green, g (s)		27.0		27.0	27.0		59.2	59.2	59.2	71.0	71.0	
Actuated g/C Ratio		0.25		0.25	0.25		0.54	0.54	0.54	0.65	0.65	
Clearance Time (s)		6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		279		229	464		441	969	880	450	1132	
v/s Ratio Prot					0.10			c0.28	0.08	0.01	c0.32	
v/s Ratio Perm		c0.40		0.35			0.02			0.08		
v/c Ratio		1.62		1.41	0.42		0.05	0.51	0.14	0.14	0.49	
Uniform Delay, d1		41.5		41.5	34.9		12.0	16.2	12.7	9.0	10.1	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		295.7		206.8	0.6		0.2	2.0	0.3	0.1	1.5	
Delay (s)		337.2		248.3	35.5		12.2	18.2	13.0	9.2	11.6	
Level of Service		F		F	D		B	B	B	A	B	
Approach Delay (s)		337.2			164.5			16.5			11.4	
Approach LOS		F			F			B			B	

Intersection Summary			
HCM 2000 Control Delay	110.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	54	57	17	14	19
Future Vol, veh/h	11	54	57	17	14	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	67	67	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	79	85	25	28	38

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	110	0	-	0	209	98
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	111	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1480	-	-	-	779	958
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	914	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1480	-	-	-	770	958
Mov Cap-2 Maneuver	-	-	-	-	770	-
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	914	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1480	-	-	-	868
HCM Lane V/C Ratio	0.011	-	-	-	0.076
HCM Control Delay (s)	7.5	0	-	-	9.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	9.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	281	52	65	81	12	417
Future Vol, veh/h	281	52	65	81	12	417
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	88	88	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	312	58	74	92	13	463

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	166	0	-	0	802	120
Stage 1	-	-	-	-	120	-
Stage 2	-	-	-	-	682	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1412	-	-	-	353	931
Stage 1	-	-	-	-	905	-
Stage 2	-	-	-	-	502	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1412	-	-	-	273	931
Mov Cap-2 Maneuver	-	-	-	-	273	-
Stage 1	-	-	-	-	699	-
Stage 2	-	-	-	-	502	-

Approach	EB	WB	SB
HCM Control Delay, s	7	0	14
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1412	-	-	-	872
HCM Lane V/C Ratio	0.221	-	-	-	0.547
HCM Control Delay (s)	8.3	0	-	-	14
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.8	-	-	-	3.4

Intersection	
Int Delay, s/veh	76.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	351	7	0	455	331	461
Future Vol, veh/h	351	7	0	455	331	461
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	71	71	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	433	9	0	641	394	549

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1035	394	-	0	-	0
Stage 1	394	-	-	-	-	-
Stage 2	641	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 257	655	0	-	-	-
Stage 1	681	-	0	-	-	-
Stage 2	525	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 257	655	-	-	-	-
Mov Cap-2 Maneuver	~ 257	-	-	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	525	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 352.2	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	257	655	-	-
HCM Lane V/C Ratio	-	1.686	0.013	-	-
HCM Control Delay (s)	-	$ 359	10.6	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	27.9	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	86	593	25	62	445
Future Vol, veh/h	29	86	593	25	62	445
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	108	741	31	70	500

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1397	757	0	0	772	0
Stage 1	757	-	-	-	-	-
Stage 2	640	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	155	408	-	-	843	-
Stage 1	463	-	-	-	-	-
Stage 2	525	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	137	408	-	-	843	-
Mov Cap-2 Maneuver	137	-	-	-	-	-
Stage 1	410	-	-	-	-	-
Stage 2	525	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32.2	0	1.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	272	843	-
HCM Lane V/C Ratio	-	-	0.528	0.083	-
HCM Control Delay (s)	-	-	32.2	9.7	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	2.9	0.3	-

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	56	21	595	51	16	472
Future Vol, veh/h	56	21	595	51	16	472
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	79	79	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	75	28	753	65	19	562

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1386	786	0	0	818	0
Stage 1	786	-	-	-	-	-
Stage 2	600	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	158	392	-	-	810	-
Stage 1	449	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	153	392	-	-	810	-
Mov Cap-2 Maneuver	153	-	-	-	-	-
Stage 1	434	-	-	-	-	-
Stage 2	548	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	46.8	0	0.3
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	184	810	-
HCM Lane V/C Ratio	-	-	0.558	0.024	-
HCM Control Delay (s)	-	-	46.8	9.6	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	2.9	0.1	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	24	29	21	84	78	11
Future Vol, veh/h	24	29	21	84	78	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	44	44	77	77	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	66	27	109	111	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	282	119	127	0	-	0
Stage 1	119	-	-	-	-	-
Stage 2	163	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	708	933	1459	-	-	-
Stage 1	906	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	694	933	1459	-	-	-
Mov Cap-2 Maneuver	694	-	-	-	-	-
Stage 1	888	-	-	-	-	-
Stage 2	866	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	1.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1459	-	807	-	-
HCM Lane V/C Ratio	0.019	-	0.149	-	-
HCM Control Delay (s)	7.5	0	10.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	51	6	6	317	427	50
Future Vol, veh/h	51	6	6	317	427	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	85	85	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	88	10	7	373	508	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	925	538	568	0	-	0
Stage 1	538	-	-	-	-	-
Stage 2	387	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	299	543	1004	-	-	-
Stage 1	585	-	-	-	-	-
Stage 2	686	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	296	543	1004	-	-	-
Mov Cap-2 Maneuver	296	-	-	-	-	-
Stage 1	580	-	-	-	-	-
Stage 2	686	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.8	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1004	-	311	-	-
HCM Lane V/C Ratio	0.007	-	0.316	-	-
HCM Control Delay (s)	8.6	0	21.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	1.3	-	-

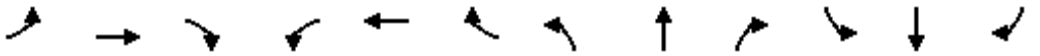
Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	47	54	13	37	66
Future Vol, veh/h	7	47	54	13	37	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	81	81	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	51	67	16	61	108

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	305	75	0	0	83	0
Stage 1	75	-	-	-	-	-
Stage 2	230	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	687	986	-	-	1514	-
Stage 1	948	-	-	-	-	-
Stage 2	808	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	657	986	-	-	1514	-
Mov Cap-2 Maneuver	657	-	-	-	-	-
Stage 1	907	-	-	-	-	-
Stage 2	808	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	2.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	926	1514	-
HCM Lane V/C Ratio	-	-	0.063	0.04	-
HCM Control Delay (s)	-	-	9.1	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

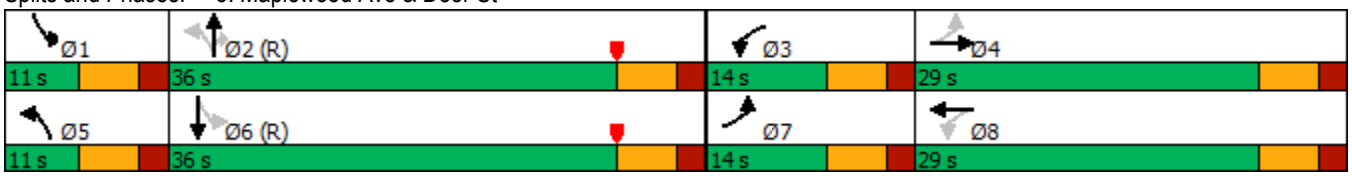


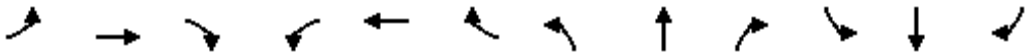
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	145	70	329	148	94	49	496	238	75	402	154
Future Volume (vph)	239	145	70	329	148	94	49	496	238	75	402	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	13	13	12	14	14	11	11	13	11	11	11
Storage Length (ft)	0		0	0		100	0		0	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			30	
Link Distance (ft)		363			453			585			231	
Travel Time (s)		9.9			12.4			16.0			5.3	
Peak Hour Factor	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	362	326	0	433	319	0	56	570	274	91	678	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	29.0		11.0	29.0		11.0	28.0	28.0	11.0	25.0	
Total Split (s)	14.0	29.0		14.0	29.0		11.0	36.0	36.0	11.0	36.0	
Total Split (%)	15.6%	32.2%		15.6%	32.2%		12.2%	40.0%	40.0%	12.2%	40.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
v/c Ratio	1.41	0.79		1.62	0.75		0.30	0.82	0.34	0.38	0.98	
Control Delay	233.3	44.9		315.9	40.5		17.7	38.7	4.2	18.3	60.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	233.3	44.9		315.9	40.5		17.7	38.7	4.2	18.3	60.7	
Queue Length 50th (ft)	~205	161		~280	151		16	313	0	27	~439	
Queue Length 95th (ft)	#194	162		#328	185		38	#492	46	51	#573	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)	256	487		268	503		189	699	803	242	690	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	1.41	0.67		1.62	0.63		0.30	0.82	0.34	0.38	0.98	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	

Offset: 41 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Maplewood Ave & Deer St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	145	70	329	148	94	49	496	238	75	402	154
Future Volume (vph)	239	145	70	329	148	94	49	496	238	75	402	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	13	13	12	14	14	11	11	13	11	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.94		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1652	1831		1770	1871		1711	1801	1636	1711	1726	
Flt Permitted	0.29	1.00		0.28	1.00		0.12	1.00	1.00	0.18	1.00	
Satd. Flow (perm)	511	1831		522	1871		213	1801	1636	327	1726	
Peak-hour factor, PHF	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	362	220	106	433	195	124	56	570	274	91	490	188
RTOR Reduction (vph)	0	20	0	0	27	0	0	0	171	0	14	0
Lane Group Flow (vph)	362	306	0	433	292	0	56	570	103	91	664	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	27.2	19.2		27.2	19.2		38.5	33.8	33.8	39.1	34.1	
Effective Green, g (s)	27.2	19.2		27.2	19.2		38.5	33.8	33.8	39.1	34.1	
Actuated g/C Ratio	0.30	0.21		0.30	0.21		0.43	0.38	0.38	0.43	0.38	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	255	390		268	399		169	676	614	218	653	
v/s Ratio Prot	0.13	0.17		c0.14	0.16		0.02	0.32		c0.02	c0.38	
v/s Ratio Perm	0.30			c0.34			0.12		0.06	0.16		
v/c Ratio	1.42	0.78		1.62	0.73		0.33	0.84	0.17	0.42	1.02	
Uniform Delay, d1	29.5	33.4		29.4	33.0		19.6	25.7	18.7	17.8	27.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	210.3	9.9		293.7	7.2		1.2	12.2	0.6	1.3	39.4	
Delay (s)	239.8	43.3		323.1	40.3		20.8	37.9	19.3	19.1	67.3	
Level of Service	F	D		F	D		C	D	B	B	E	
Approach Delay (s)		146.7			203.1			31.2			61.6	
Approach LOS		F			F			C			E	

Intersection Summary			
HCM 2000 Control Delay	105.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	46	42	1	2	4
Future Vol, veh/h	4	46	42	1	2	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	67	67	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	68	63	1	4	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	64	0	-	0	144	64
Stage 1	-	-	-	-	64	-
Stage 2	-	-	-	-	80	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1538	-	-	-	849	1000
Stage 1	-	-	-	-	959	-
Stage 2	-	-	-	-	943	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1538	-	-	-	846	1000
Mov Cap-2 Maneuver	-	-	-	-	846	-
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	943	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1538	-	-	-	943
HCM Lane V/C Ratio	0.004	-	-	-	0.013
HCM Control Delay (s)	7.4	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	27.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	373	57	72	52	45	584
Future Vol, veh/h	373	57	72	52	45	584
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	88	88	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	414	63	82	59	50	649

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	141	0	-	0	1003	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	891	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1442	-	-	-	268	941
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	401	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1442	-	-	-	188	941
Mov Cap-2 Maneuver	-	-	-	-	188	-
Stage 1	-	-	-	-	641	-
Stage 2	-	-	-	-	401	-

Approach	EB	WB	SB
HCM Control Delay, s	7.4	0	47.1
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1442	-	-	-	731
HCM Lane V/C Ratio	0.287	-	-	-	0.956
HCM Control Delay (s)	8.5	0	-	-	47.1
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	1.2	-	-	-	14.3

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	9	736	3	2	646
Future Vol, veh/h	4	9	736	3	2	646
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	58	58	78	78	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	16	944	4	2	760

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1710	946	0	0	948	0
Stage 1	946	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	100	317	-	-	724	-
Stage 1	377	-	-	-	-	-
Stage 2	460	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	100	317	-	-	724	-
Mov Cap-2 Maneuver	100	-	-	-	-	-
Stage 1	375	-	-	-	-	-
Stage 2	460	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.5	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	190	724	-
HCM Lane V/C Ratio	-	-	0.118	0.003	-
HCM Control Delay (s)	-	-	26.5	10	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	171.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	466	8	0	489	353	581
Future Vol, veh/h	466	8	0	489	353	581
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	71	71	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	575	10	0	689	420	692

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1109	420	-	0	-	0
Stage 1	420	-	-	-	-	-
Stage 2	689	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 232	633	0	-	-	-
Stage 1	663	-	0	-	-	-
Stage 2	~ 498	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 232	633	-	-	-	-
Mov Cap-2 Maneuver	~ 232	-	-	-	-	-
Stage 1	663	-	-	-	-	-
Stage 2	~ 498	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 699.7	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	232	633	-	-
HCM Lane V/C Ratio	-	2.48	0.016	-	-
HCM Control Delay (s)	-	$ 711.5	10.8	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	47.5	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	5.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	69	718	28	56	606
Future Vol, veh/h	32	69	718	28	56	606
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	86	898	35	63	681

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1723	916	0	0	933	0
Stage 1	916	-	-	-	-	-
Stage 2	807	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	98	330	-	-	734	-
Stage 1	390	-	-	-	-	-
Stage 2	439	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	84	330	-	-	734	-
Mov Cap-2 Maneuver	84	-	-	-	-	-
Stage 1	336	-	-	-	-	-
Stage 2	439	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	69.5	0	0.9
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	171	734	-
HCM Lane V/C Ratio	-	-	0.738	0.086	-
HCM Control Delay (s)	-	-	69.5	10.4	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	4.6	0.3	-

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	13	724	35	15	635
Future Vol, veh/h	34	13	724	35	15	635
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	79	79	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	45	17	916	44	18	756

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1730	938	0	0	960	0
Stage 1	938	-	-	-	-	-
Stage 2	792	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	97	321	-	-	717	-
Stage 1	381	-	-	-	-	-
Stage 2	446	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	93	321	-	-	717	-
Mov Cap-2 Maneuver	93	-	-	-	-	-
Stage 1	365	-	-	-	-	-
Stage 2	446	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	67.7	0	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	116	717	-
HCM Lane V/C Ratio	-	-	0.54	0.025	-
HCM Control Delay (s)	-	-	67.7	10.1	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	2.6	0.1	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	2	4	76	65	18
Future Vol, veh/h	13	2	4	76	65	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	44	44	77	77	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	5	5	99	93	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	215	106	119	0	-	0
Stage 1	106	-	-	-	-	-
Stage 2	109	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	773	948	1469	-	-	-
Stage 1	918	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	770	948	1469	-	-	-
Mov Cap-2 Maneuver	770	-	-	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	916	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1469	-	790	-	-
HCM Lane V/C Ratio	0.004	-	0.043	-	-
HCM Control Delay (s)	7.5	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	45	8	8	439	529	48
Future Vol, veh/h	45	8	8	439	529	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	85	85	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	14	9	516	630	57

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1193	659	687	0	-	0
Stage 1	659	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	206	464	907	-	-	-
Stage 1	515	-	-	-	-	-
Stage 2	588	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	203	464	907	-	-	-
Mov Cap-2 Maneuver	203	-	-	-	-	-
Stage 1	508	-	-	-	-	-
Stage 2	588	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	32.1	0.2	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	907	-	222	-	-
HCM Lane V/C Ratio	0.01	-	0.412	-	-
HCM Control Delay (s)	9	0	32.1	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	1.9	-	-

Intersection	
Int Delay, s/veh	3.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	45	33	14	29	34
Future Vol, veh/h	8	45	33	14	29	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	81	81	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	48	41	17	48	56

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	202	50	0	0	58	0
Stage 1	50	-	-	-	-	-
Stage 2	152	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	787	1018	-	-	1546	-
Stage 1	972	-	-	-	-	-
Stage 2	876	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	762	1018	-	-	1546	-
Mov Cap-2 Maneuver	762	-	-	-	-	-
Stage 1	941	-	-	-	-	-
Stage 2	876	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	3.4
HCM LOS	A		

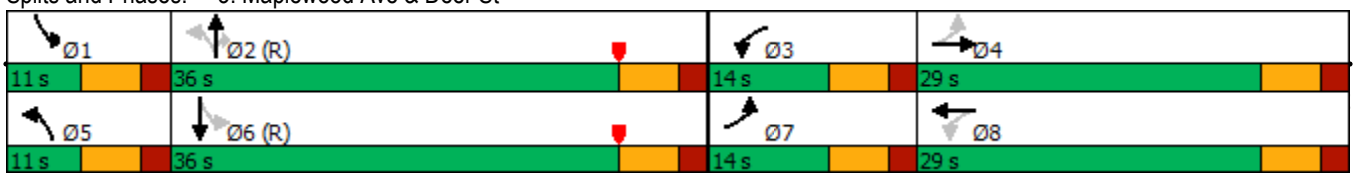
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	969	1546	-
HCM Lane V/C Ratio	-	-	0.059	0.031	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

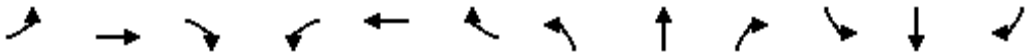
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	287	161	86	350	151	94	52	511	238	75	401	164
Future Volume (vph)	287	161	86	350	151	94	52	511	238	75	401	164
Peak Hour Factor	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	435	374	0	461	323	0	60	587	274	91	689	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Detector Phase	7	4		3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	29.0		11.0	29.0		11.0	28.0	28.0	11.0	25.0	
Total Split (s)	14.0	29.0		14.0	29.0		11.0	36.0	36.0	11.0	36.0	
Total Split (%)	15.6%	32.2%		15.6%	32.2%		12.2%	40.0%	40.0%	12.2%	40.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	
v/c Ratio	1.60	0.85		1.83	0.71		0.33	0.86	0.35	0.44	1.03	
Control Delay	308.5	48.6		409.1	37.3		18.9	43.2	4.2	21.4	73.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	308.5	48.6		409.1	37.3		18.9	43.2	4.2	21.4	73.8	
Queue Length 50th (ft)	~261	183		~335	148		18	327	0	29	~463	
Queue Length 95th (ft)	#253	186		#405	188		40	#514	46	51	#585	
Internal Link Dist (ft)		283			373			505			151	
Turn Bay Length (ft)												
Base Capacity (vph)	272	487		252	502		183	680	788	205	668	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	1.60	0.77		1.83	0.64		0.33	0.86	0.35	0.44	1.03	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 41 (46%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Maplewood Ave & Deer St





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	287	161	86	350	151	94	52	511	238	75	401	164
Future Volume (vph)	287	161	86	350	151	94	52	511	238	75	401	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	13	13	12	14	14	11	11	13	11	11	11
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.94		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1652	1824		1770	1873		1711	1801	1636	1711	1722	
Flt Permitted	0.32	1.00		0.22	1.00		0.12	1.00	1.00	0.15	1.00	
Satd. Flow (perm)	548	1824		414	1873		220	1801	1636	269	1722	
Peak-hour factor, PHF	0.66	0.66	0.66	0.76	0.76	0.76	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	435	244	130	461	199	124	60	587	274	91	489	200
RTOR Reduction (vph)	0	22	0	0	25	0	0	0	174	0	16	0
Lane Group Flow (vph)	435	352	0	461	298	0	60	587	100	91	673	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	28.7	20.7		28.7	20.7		37.1	32.8	32.8	37.5	33.0	
Effective Green, g (s)	28.7	20.7		28.7	20.7		37.1	32.8	32.8	37.5	33.0	
Actuated g/C Ratio	0.32	0.23		0.32	0.23		0.41	0.36	0.36	0.42	0.37	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	272	419		252	430		161	656	596	184	631	
v/s Ratio Prot	0.14	0.19		c0.16	0.16		0.02	0.33		c0.02	c0.39	
v/s Ratio Perm	0.37			c0.42			0.14		0.06	0.18		
v/c Ratio	1.60	0.84		1.83	0.69		0.37	0.89	0.17	0.49	1.07	
Uniform Delay, d1	29.0	33.1		28.0	31.7		20.9	27.0	19.4	19.2	28.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	286.3	13.7		388.4	5.1		1.5	17.1	0.6	2.1	55.0	
Delay (s)	315.3	46.8		416.3	36.9		22.3	44.1	20.0	21.3	83.5	
Level of Service	F	D		F	D		C	D	B	C	F	
Approach Delay (s)		191.2			260.0			35.5			76.2	
Approach LOS		F			F			D			E	

Intersection Summary			
HCM 2000 Control Delay	136.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.36		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	57	60	17	14	19
Future Vol, veh/h	11	57	60	17	14	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	67	67	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	84	90	25	28	38

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	115	0	-	0	219	103
Stage 1	-	-	-	-	103	-
Stage 2	-	-	-	-	116	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1474	-	-	-	769	952
Stage 1	-	-	-	-	921	-
Stage 2	-	-	-	-	909	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1474	-	-	-	761	952
Mov Cap-2 Maneuver	-	-	-	-	761	-
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	909	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1474	-	-	-	860
HCM Lane V/C Ratio	0.011	-	-	-	0.077
HCM Control Delay (s)	7.5	0	-	-	9.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	33.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	389	57	72	52	45	608
Future Vol, veh/h	389	57	72	52	45	608
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	88	88	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	432	63	82	59	50	676

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	141	0	-	0	1039	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	927	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1442	-	-	-	255	941
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	385	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1442	-	-	-	176	941
Mov Cap-2 Maneuver	-	-	-	-	176	-
Stage 1	-	-	-	-	629	-
Stage 2	-	-	-	-	385	-

Approach	EB	WB	SB
HCM Control Delay, s	7.5	0	57.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1442	-	-	-	724
HCM Lane V/C Ratio	0.3	-	-	-	1.002
HCM Control Delay (s)	8.6	0	-	-	57.8
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	1.3	-	-	-	16.6

Intersection	
Int Delay, s/veh	190.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	491	8	0	489	353	611
Future Vol, veh/h	491	8	0	489	353	611
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	71	71	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	606	10	0	689	420	727

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1109	420	-	0	-	0
Stage 1	420	-	-	-	-	-
Stage 2	689	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 232	633	0	-	-	-
Stage 1	663	-	0	-	-	-
Stage 2	~ 498	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 232	633	-	-	-	-
Mov Cap-2 Maneuver	~ 232	-	-	-	-	-
Stage 1	663	-	-	-	-	-
Stage 2	~ 498	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 758.4	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	-	232	633	-	-
HCM Lane V/C Ratio	-	2.613	0.016	-	-
HCM Control Delay (s)	-	$ 770.6	10.8	-	-
HCM Lane LOS	-	F	B	-	-
HCM 95th %tile Q(veh)	-	51.2	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	9.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	93	766	28	67	595
Future Vol, veh/h	32	93	766	28	67	595
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	116	958	35	75	669

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1795	976	0	0	993	0
Stage 1	976	-	-	-	-	-
Stage 2	819	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	88	305	-	-	696	-
Stage 1	365	-	-	-	-	-
Stage 2	433	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	73	305	-	-	696	-
Mov Cap-2 Maneuver	73	-	-	-	-	-
Stage 1	303	-	-	-	-	-
Stage 2	433	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	106.7	0	1.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	168	696	-
HCM Lane V/C Ratio	-	-	0.93	0.108	-
HCM Control Delay (s)	-	-	106.7	10.8	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	7	0.4	-

Intersection	
Int Delay, s/veh	9.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	58	22	769	53	17	624
Future Vol, veh/h	58	22	769	53	17	624
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	79	79	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	77	29	973	67	20	743

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1790	1007	0	0	1040	0
Stage 1	1007	-	-	-	-	-
Stage 2	783	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	89	292	-	-	669	-
Stage 1	353	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	84	292	-	-	669	-
Mov Cap-2 Maneuver	84	-	-	-	-	-
Stage 1	335	-	-	-	-	-
Stage 2	450	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	171.9	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	104	669	-
HCM Lane V/C Ratio	-	-	1.026	0.03	-
HCM Control Delay (s)	-	-	171.9	10.5	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	6.5	0.1	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	29	21	88	81	13
Future Vol, veh/h	25	29	21	88	81	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	44	44	77	77	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	57	66	27	114	116	19

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	294	126	135	0	-	0
Stage 1	126	-	-	-	-	-
Stage 2	168	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	697	924	1449	-	-	-
Stage 1	900	-	-	-	-	-
Stage 2	862	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	683	924	1449	-	-	-
Mov Cap-2 Maneuver	683	-	-	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	862	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	1.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1449	-	794	-	-
HCM Lane V/C Ratio	0.019	-	0.155	-	-
HCM Control Delay (s)	7.5	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	54	8	8	455	553	53
Future Vol, veh/h	54	8	8	455	553	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	58	58	85	85	84	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	93	14	9	535	658	63

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1243	690	721	0	-	0
Stage 1	690	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	193	445	881	-	-	-
Stage 1	498	-	-	-	-	-
Stage 2	576	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	190	445	881	-	-	-
Mov Cap-2 Maneuver	190	-	-	-	-	-
Stage 1	491	-	-	-	-	-
Stage 2	576	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	40.2	0.2	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	881	-	205	-	-
HCM Lane V/C Ratio	0.011	-	0.521	-	-
HCM Control Delay (s)	9.1	0	40.2	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0	-	2.7	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	50	56	14	38	68
Future Vol, veh/h	8	50	56	14	38	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	81	81	61	61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	54	69	17	62	111

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	313	78	0	0	86	0
Stage 1	78	-	-	-	-	-
Stage 2	235	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	680	983	-	-	1510	-
Stage 1	945	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	650	983	-	-	1510	-
Mov Cap-2 Maneuver	650	-	-	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	804	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	2.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	918	1510	-
HCM Lane V/C Ratio	-	-	0.068	0.041	-
HCM Control Delay (s)	-	-	9.2	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

APPENDIX I

Raw Traffic Data
(June 2021)

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 1
Location:	Portsmouth, NH
Street 1:	Maplewood Avenue
Street 2:	Raynes Avenue
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

BOSTON TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
DataRequest@BostonTrafficData.com
www.BostonTrafficData.com

PASSENGER CARS & HEAVY VEHICLES COMBINED

	Maplewood Avenue Northbound				Maplewood Avenue Southbound				Eastbound				Raynes Avenue Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	69	5	0	2	84	0	0	0	0	0	0	6	0	4
11:15 AM	0	0	87	0	0	4	92	0	0	0	0	0	0	2	0	12
11:30 AM	0	0	93	2	0	7	102	0	0	0	0	0	1	5	0	7
11:45 AM	0	0	72	2	0	8	87	0	0	0	0	0	0	7	0	4
12:00 PM	1	0	89	7	0	4	98	0	0	0	0	0	0	6	0	11
12:15 PM	0	0	66	1	0	3	99	0	0	0	0	0	0	3	0	5
12:30 PM	0	0	63	2	0	13	101	0	0	0	0	0	0	6	0	5
12:45 PM	0	0	89	5	0	9	87	0	0	0	0	0	0	7	0	5

MID PEAK HOUR	Maplewood Avenue Northbound				Maplewood Avenue Southbound				Eastbound				Raynes Avenue Westbound			
11:15 AM																
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
12:15 PM	**1**	**0**	**341**	**11**	**0**	**23**	**379**	**0**	**0**	**0**	**0**	**0**	**1**	**20**	**0**	**34**
PHF	**0.91**				**0.92**				**0.00**				**0.81**			
HV %	**0.0%**	**0.0%**	**1.2%**	**0.0%**	**0.0%**	**0.0%**	**0.3%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 1
Location:	Portsmouth, NH
Street 1:	Maplewood Avenue
Street 2:	Raynes Avenue
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

BOSTON TRAFFIC DATA
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HEAVY VEHICLES

	Maplewood Avenue Northbound				Maplewood Avenue Southbound				Eastbound				Raynes Avenue Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

MID PEAK HOUR	Maplewood Avenue Northbound				Maplewood Avenue Southbound				Eastbound				Raynes Avenue Westbound			
11:15 AM																
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
12:15 PM	**0**	**0**	**4**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.50**				**0.25**				**0.00**				**0.00**			

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 1
Location:	Portsmouth, NH
Street 1:	Maplewood Avenue
Street 2:	Raynes Avenue
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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PEDESTRIANS & BICYCLES

	Maplewood Avenue Northbound				Maplewood Avenue Southbound				Eastbound				Raynes Avenue Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0	1
11:15 AM	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	7
11:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3
11:45 AM	0	2	0	0	0	2	0	1	0	0	0	0	0	0	0	3
12:00 PM	0	3	0	1	0	2	0	0	0	0	0	0	0	0	0	1
12:15 PM	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	1
12:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	4
12:45 PM	0	1	0	2	0	1	0	0	0	0	0	0	0	0	0	4

MID PEAK HOUR 11:15 AM to 12:15 PM	Maplewood Avenue Northbound				Maplewood Avenue Southbound				Eastbound				Raynes Avenue Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	5	0	1	0	9	0	5	0	0	0	0	0	0	0	14

NOTE: Peak hour summaries here correspond to peak hours identified for passenger car and heavy vehicles combined.

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 2
Location:	Portsmouth, NH
Street 1:	Maplewood Avenue
Street 2:	Vaughan Street & Drive
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	Maplewood Avenue Northbound				Maplewood Avenue Southbound				Drive Eastbound				Vaughan Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	72	5	0	0	91	0	0	0	0	0	0	1	0	2
11:15 AM	0	0	86	2	0	0	92	1	0	0	0	1	0	3	0	1
11:30 AM	0	0	94	6	0	3	104	0	0	0	0	0	0	1	0	1
11:45 AM	0	0	73	9	0	3	88	2	0	0	0	1	0	2	0	2
12:00 PM	0	0	94	10	0	0	105	0	0	0	0	0	0	4	0	0
12:15 PM	0	1	69	8	0	3	96	0	0	0	0	0	0	2	0	0
12:30 PM	0	0	61	6	0	13	95	0	0	0	0	0	0	3	0	2
12:45 PM	0	0	94	10	0	3	91	0	0	0	0	0	0	3	0	2

MID PEAK HOUR	Maplewood Avenue Northbound				Maplewood Avenue Southbound				Drive Eastbound				Vaughan Street Westbound			
11:15 AM																
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
12:15 PM	**0**	**0**	**347**	**27**	**0**	**6**	**389**	**3**	**0**	**0**	**0**	**2**	**0**	**10**	**0**	**4**
PHF	**0.90**				**0.93**				**0.50**				**0.88**			
HV %	**0.0%**	**0.0%**	**1.2%**	**0.0%**	**0.0%**	**0.0%**	**0.3%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 2
Location:	Portsmouth, NH
Street 1:	Maplewood Avenue
Street 2:	Vaughan Street & Drive
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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HEAVY VEHICLES

	Maplewood Avenue Northbound				Maplewood Avenue Southbound				Drive Eastbound				Vaughan Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0

MID PEAK HOUR	Maplewood Avenue Northbound				Maplewood Avenue Southbound				Drive Eastbound				Vaughan Street Westbound			
11:15 AM																
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
12:15 PM	**0**	**0**	**4**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.50**				**0.25**				**0.00**				**0.00**			

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 2
Location:	Portsmouth, NH
Street 1:	Maplewood Avenue
Street 2:	Vaughan Street & Drive
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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PEDESTRIANS & BICYCLES

	Maplewood Avenue Northbound				Maplewood Avenue Southbound				Drive Eastbound				Vaughan Street Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	0	0	0	0	4	0	0	0	0	0	6	0	0	0	4
11:15 AM	0	0	0	0	0	4	0	0	0	0	0	3	0	0	0	8
11:30 AM	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	3
11:45 AM	0	2	0	0	0	2	0	0	0	0	0	1	0	0	0	5
12:00 PM	0	3	0	3	0	2	0	1	0	0	0	6	0	0	0	1
12:15 PM	0	1	0	2	0	0	0	2	0	0	0	8	0	0	0	4
12:30 PM	0	1	0	2	0	1	0	1	0	0	0	4	0	0	0	15
12:45 PM	0	1	0	0	0	1	0	9	0	0	0	12	0	0	0	4

MID PEAK HOUR 11:15 AM to 12:15 PM	Maplewood Avenue Northbound				Maplewood Avenue Southbound				Drive Eastbound				Vaughan Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	5	0	3	0	9	0	1	0	0	0	11	0	0	0	17

NOTE: Peak hour summaries here correspond to peak hours identified for passenger car and heavy vehicles combined.

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 3
Location:	Portsmouth, NH
Street 1:	Maplewood Avenue
Street 2:	Deer Street
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	Maplewood Avenue Northbound				Maplewood Avenue Southbound				Deer Street Eastbound				Deer Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	2	62	43	0	14	70	10	0	4	4	1	0	34	6	10
11:15 AM	0	1	69	33	0	15	72	7	0	9	5	2	0	28	7	9
11:30 AM	0	3	86	36	0	17	89	4	0	8	5	0	0	46	5	6
11:45 AM	0	1	63	41	0	13	71	5	0	5	3	2	0	27	7	14
12:00 PM	0	0	81	37	0	25	76	6	0	6	2	3	0	35	9	17
12:15 PM	0	1	60	43	0	14	78	5	0	4	5	2	0	22	8	13
12:30 PM	0	3	52	50	0	15	71	11	0	5	7	2	0	27	9	10
12:45 PM	0	4	90	27	0	19	67	8	0	4	4	2	0	33	8	10

MID PEAK HOUR	Maplewood Avenue Northbound				Maplewood Avenue Southbound				Deer Street Eastbound				Deer Street Westbound			
11:15 AM																
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
12:15 PM	**0**	**5**	**299**	**147**	**0**	**70**	**308**	**22**	**0**	**28**	**15**	**7**	**0**	**136**	**28**	**46**
PHF	**0.90**				**0.91**				**0.78**				**0.86**			
HV %	**0.0%**	**0.0%**	**1.0%**	**1.4%**	**0.0%**	**1.4%**	**0.3%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**2.2%**	**0.0%**	**2.2%**

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 3
Location:	Portsmouth, NH
Street 1:	Maplewood Avenue
Street 2:	Deer Street
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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HEAVY VEHICLES

	Maplewood Avenue Northbound				Maplewood Avenue Southbound				Deer Street Eastbound				Deer Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	0	1	0	0	1	0	0	0	0	1	0	0	1	0
11:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
11:30 AM	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	1
12:00 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0
12:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	2	1	0	0	0	0	0	0	0	0	0	3	0	0

MID PEAK HOUR	Maplewood Avenue Northbound				Maplewood Avenue Southbound				Deer Street Eastbound				Deer Street Westbound			
11:00 AM																
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
12:00 PM	**0**	**0**	**1**	**3**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**1**	**1**
PHF	**1.00**				**0.38**				**0.25**				**0.42**			

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 3
Location:	Portsmouth, NH
Street 1:	Maplewood Avenue
Street 2:	Deer Street
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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PEDESTRIANS & BICYCLES

	Maplewood Avenue Northbound				Maplewood Avenue Southbound				Deer Street Eastbound				Deer Street Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	0	0	4	0	0	4	8	0	0	0	2	0	0	0	10
11:15 AM	0	0	0	1	0	4	0	0	0	0	0	2	0	0	0	9
11:30 AM	0	0	0	3	0	1	0	1	0	0	0	1	0	0	0	2
11:45 AM	0	2	0	0	0	1	0	1	0	0	0	0	0	0	0	3
12:00 PM	0	2	0	0	0	2	0	3	0	0	0	1	0	1	0	6
12:15 PM	0	1	0	3	0	0	0	4	0	0	0	0	0	0	0	9
12:30 PM	0	1	0	5	0	0	1	4	0	0	0	4	0	0	0	10
12:45 PM	0	1	0	13	0	1	0	1	0	0	0	24	0	0	0	9

MID PEAK HOUR 11:15 AM to 12:15 PM	Maplewood Avenue Northbound				Maplewood Avenue Southbound				Deer Street Eastbound				Deer Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	4	0	4	0	8	0	5	0	0	0	4	0	1	0	20

NOTE: Peak hour summaries here correspond to peak hours identified for passenger car and heavy vehicles combined.

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 4
Location:	Portsmouth, NH
Street 1:	Deer Street
Street 2:	Russell Street
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	Northbound				Russell Street Southbound				Deer Street Eastbound				Deer Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	0	0	1	1	0	51	0	31	21	0	0	0	11	8
11:15 AM	0	0	0	0	0	0	0	33	0	31	15	0	0	0	19	4
11:30 AM	0	0	0	0	0	1	0	49	0	37	13	0	0	0	30	5
11:45 AM	0	0	0	0	0	1	0	44	0	33	19	0	0	0	17	8
12:00 PM	0	0	0	0	0	2	0	37	0	29	24	0	0	0	27	5
12:15 PM	0	0	0	0	1	0	0	42	1	41	17	0	0	0	15	7
12:30 PM	0	0	0	0	0	2	0	40	0	49	17	0	0	0	14	4
12:45 PM	0	0	0	0	1	1	0	45	0	27	14	0	0	0	18	4

MID PEAK HOUR	Northbound				Russell Street Southbound				Deer Street Eastbound				Deer Street Westbound			
11:30 AM																
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
12:30 PM	**0**	**0**	**0**	**0**	**1**	**4**	**0**	**172**	**1**	**140**	**73**	**0**	**0**	**0**	**89**	**25**
PHF	**0.00**				**0.89**				**0.91**				**0.81**			
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**2.9%**	**0.0%**	**1.4%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**1.1%**	**12.0%**

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 4
Location:	Portsmouth, NH
Street 1:	Deer Street
Street 2:	Russell Street
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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HEAVY VEHICLES

	Northbound				Russell Street Southbound				Deer Street Eastbound				Deer Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
11:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0
11:30 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0
11:45 AM	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
12:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
12:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0

MID PEAK HOUR	Northbound				Russell Street Southbound				Deer Street Eastbound				Deer Street Westbound			
11:00 AM to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
12:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**3**
PHF	**0.00**				**0.42**				**0.50**				**0.42**			

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 4
Location:	Portsmouth, NH
Street 1:	Deer Street
Street 2:	Russell Street
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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PEDESTRIANS & BICYCLES

	Northbound				Russell Street Southbound				Deer Street Eastbound				Deer Street Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	0	0	0	0	0	1	7	0	0	0	0	0	0	0	6
11:15 AM	0	0	0	0	0	0	0	2	0	0	0	3	0	0	0	2
11:30 AM	0	0	0	0	0	0	0	3	0	0	0	13	0	1	0	6
11:45 AM	0	0	0	0	0	0	0	1	0	2	0	9	0	0	0	8
12:00 PM	0	0	0	0	0	0	1	2	0	0	0	6	0	0	0	9
12:15 PM	0	0	0	0	0	0	0	1	0	0	0	5	0	0	0	6
12:30 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	7
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	4	0	1	0	8

MID PEAK HOUR	Northbound				Russell Street Southbound				Deer Street Eastbound				Deer Street Westbound			
11:30 AM																
to	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
12:30 PM	0	0	0	0	0	0	1	7	0	2	0	33	0	1	0	29

NOTE: Peak hour summaries here correspond to peak hours identified for passenger car and heavy vehicles combined.

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 5
Location:	Portsmouth, NH
Street 1:	Vaughan Street
Street 2:	Green Street
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	Vaughan Street Northbound				Vaughan Street Southbound				Eastbound				Green Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	4	1	1	0	2	0	0	0	0	0	0	0	0	1
11:15 AM	0	0	1	1	4	1	1	0	0	0	0	0	0	1	0	4
11:30 AM	1	0	5	2	0	2	3	0	0	0	0	0	0	0	0	6
11:45 AM	0	0	8	3	3	2	3	0	0	0	0	0	0	1	0	6
12:00 PM	0	0	8	1	2	1	4	0	0	0	0	0	0	1	0	5
12:15 PM	1	0	10	0	2	3	1	0	0	0	0	0	0	1	0	1
12:30 PM	1	0	9	5	0	1	5	0	0	0	0	0	0	0	0	4
12:45 PM	0	0	10	2	2	1	10	0	0	0	0	0	0	4	0	0

MID PEAK HOUR	Vaughan Street Northbound				Vaughan Street Southbound				Eastbound				Green Street Westbound			
12:00 PM to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
1:00 PM	**2**	**0**	**37**	**8**	**6**	**6**	**20**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**10**
PHF	**0.78**				**0.62**				**0.00**				**0.67**			
HV %	**0.0%**	**0.0%**	**2.7%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 5
Location:	Portsmouth, NH
Street 1:	Vaughan Street
Street 2:	Green Street
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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HEAVY VEHICLES

	Vaughan Street Northbound				Vaughan Street Southbound				Eastbound				Green Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

MID PEAK HOUR	Vaughan Street Northbound				Vaughan Street Southbound				Eastbound				Green Street Westbound			
12:00 PM																
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
1:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.25**				**0.00**				**0.00**				**0.00**			

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 5
Location:	Portsmouth, NH
Street 1:	Vaughan Street
Street 2:	Green Street
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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PEDESTRIANS & BICYCLES

	Vaughan Street Northbound				Vaughan Street Southbound				Eastbound				Green Street Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	26
11:15 AM	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	18
11:30 AM	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	31
11:45 AM	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	32
12:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	12
12:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	17
12:30 PM	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	10
12:45 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	4

MID PEAK HOUR 12:00 PM to 1:00 PM	Vaughan Street Northbound				Vaughan Street Southbound				Eastbound				Green Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	15	0	0	0	0	0	0	0	43

NOTE: Peak hour summaries here correspond to peak hours identified for passenger car and heavy vehicles combined.

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 6
Location:	Portsmouth, NH
Street 1:	Russell Street
Street 2:	Green Street
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	Russell Street Northbound				Russell Street Southbound				Green Street Eastbound				Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	40	0	0	0	43	1	0	2	0	1	0	0	0	0
11:15 AM	0	0	34	0	0	0	33	5	0	2	0	1	0	0	0	0
11:30 AM	0	2	37	0	0	0	48	3	0	2	0	0	0	0	0	0
11:45 AM	0	1	36	0	0	0	45	4	0	2	0	1	0	0	0	0
12:00 PM	0	2	35	0	0	0	43	3	0	1	0	0	0	0	0	0
12:15 PM	0	2	42	0	0	0	39	2	0	3	0	0	0	0	0	0
12:30 PM	0	0	51	0	0	0	42	4	0	1	0	1	0	0	0	0
12:45 PM	0	6	26	0	0	0	43	1	0	1	0	2	0	0	0	0

MID PEAK HOUR	Russell Street Northbound				Russell Street Southbound				Green Street Eastbound				Westbound			
11:45 AM																
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
12:45 PM	**0**	**5**	**164**	**0**	**0**	**0**	**169**	**13**	**0**	**7**	**0**	**2**	**0**	**0**	**0**	**0**
PHF	**0.83**				**0.93**				**0.75**				**0.00**			
HV %	**0.0%**	**0.0%**	**3.0%**	**0.0%**	**0.0%**	**0.0%**	**3.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 6
Location:	Portsmouth, NH
Street 1:	Russell Street
Street 2:	Green Street
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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HEAVY VEHICLES

	Russell Street Northbound				Russell Street Southbound				Green Street Eastbound				Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0

MID PEAK HOUR	Russell Street Northbound				Russell Street Southbound				Green Street Eastbound				Westbound			
11:30 AM																
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
12:30 PM	**0**	**0**	**5**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.63**				**0.42**				**0.00**				**0.00**			

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 6
Location:	Portsmouth, NH
Street 1:	Russell Street
Street 2:	Green Street
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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PEDESTRIANS & BICYCLES

	Russell Street Northbound				Russell Street Southbound				Green Street Eastbound				Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0
12:00 PM	0	0	0	0	0	1	0	2	0	0	0	3	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0

MID PEAK HOUR 11:45 AM to 12:45 PM	Russell Street Northbound				Russell Street Southbound				Green Street Eastbound				Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	1	0	4	0	0	0	5	0	0	0	0

NOTE: Peak hour summaries here correspond to peak hours identified for passenger car and heavy vehicles combined.

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 7
Location:	Portsmouth, NH
Street 1:	Market Street
Street 2:	Russell Street
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	Russell Street Northbound				Southbound				Market Street Eastbound				Market Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	38	0	4	0	0	0	0	0	0	79	44	0	0	67	0
11:15 AM	0	34	0	2	0	0	0	0	0	0	93	38	0	0	43	0
11:30 AM	0	36	0	3	0	0	0	0	0	0	122	51	0	0	58	0
11:45 AM	0	35	0	3	0	0	0	0	0	0	110	49	0	0	75	0
12:00 PM	0	34	0	2	0	0	0	0	0	0	107	45	0	1	56	0
12:15 PM	0	39	0	6	0	0	0	0	0	0	104	40	0	1	65	0
12:30 PM	0	50	0	2	0	0	0	0	0	0	101	46	0	0	57	0
12:45 PM	0	25	0	2	0	0	0	0	0	0	98	44	0	0	58	0

MID PEAK HOUR	Russell Street Northbound				Southbound				Market Street Eastbound				Market Street Westbound			
11:30 AM																
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
12:30 PM	**0**	**144**	**0**	**14**	**0**	**0**	**0**	**0**	**0**	**0**	**443**	**185**	**0**	**2**	**254**	**0**
PHF	**0.88**				**0.00**				**0.91**				**0.85**			
HV %	**0.0%**	**3.5%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.2%**	**2.7%**	**0.0%**	**0.0%**	**2.0%**	**0.0%**

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 7
Location:	Portsmouth, NH
Street 1:	Market Street
Street 2:	Russell Street
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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HEAVY VEHICLES

	Russell Street Northbound				Southbound				Market Street Eastbound				Market Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0
12:00 PM	0	2	0	0	0	0	0	0	0	0	1	0	0	0	1	0
12:15 PM	0	1	0	0	0	0	0	0	0	0	0	2	0	0	4	0
12:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0

MID PEAK HOUR	Russell Street Northbound				Southbound				Market Street Eastbound				Market Street Westbound			
11:45 AM																
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
12:45 PM	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**5**	**0**	**0**	**5**	**0**
PHF	**0.75**				**0.00**				**0.50**				**0.31**			

Client:	Matt Stoutz
Project #:	699_001_TB
BTD #:	Location 7
Location:	Portsmouth, NH
Street 1:	Market Street
Street 2:	Russell Street
Count Date:	6/12/2021
Day of Week:	Saturday
Weather:	Clouds & Sun, 70°F

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PEDESTRIANS & BICYCLES

	Russell Street Northbound				Southbound				Market Street Eastbound				Market Street Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	0	0	3	0	0	0	0	0	0	1	0	0	3	0	1
11:15 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
11:30 AM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2
11:45 AM	0	0	0	4	0	0	0	0	0	0	0	0	0	2	0	6
12:00 PM	0	0	0	4	0	0	0	0	0	2	1	0	0	0	0	2
12:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	4
12:45 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2

MID PEAK HOUR 11:30 AM to 12:30 PM	Russell Street Northbound				Southbound				Market Street Eastbound				Market Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	12	0	0	0	0	0	2	1	0	0	2	0	10

NOTE: Peak hour summaries here correspond to peak hours identified for passenger car and heavy vehicles combined.

Volume Report

Job 699_001_TB_ATR A
Area Portsmouth, NH
Location Maplewood Avenue, approximately 100 ft south of Raynes Avenue

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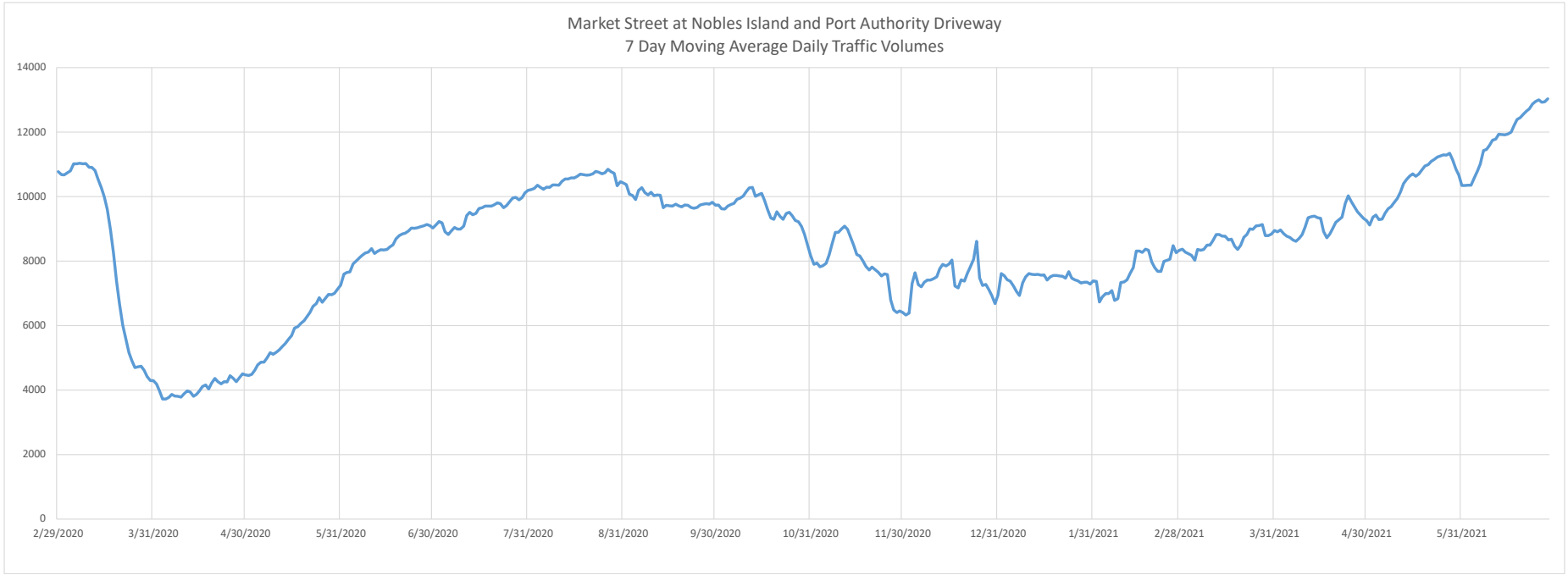
Thursday, June 10, 2021

Time	NB Vehicles & Heavy Vehicles		NB Heavy Vehicles		SB Vehicles & Heavy Vehicles		SB Heavy Vehicles	
0000	13		0		4		0	
0015	9		0		2		0	
0030	7		0		2		0	
0045	12	41	0	0	1	9	0	0
0100	10		0		1		0	
0115	10		0		2		0	
0130	5		0		2		0	
0145	4	29	0	0	3	8	0	0
0200	0		0		4		0	
0215	2		0		0		0	
0230	3		0		3		0	
0245	0	5	0	0	3	10	0	0
0300	3		0		1		0	
0315	1		0		1		0	
0330	3		2		1		0	
0345	6	13	2	4	4	7	0	0
0400	3		1		3		0	
0415	1		0		2		0	
0430	2		0		3		2	
0445	8	14	0	1	17	25	0	2
0500	7		0		6		0	
0515	14		1		10		1	
0530	12		1		15		1	
0545	13	46	0	2	20	51	0	2
0600	12		0		33		4	
0615	14		0		36		0	
0630	24		0		47		1	
0645	31	81	1	1	57	173	2	7
0700	36		0		70		6	
0715	48		2		50		3	
0730	62		5		75		2	
0745	52	198	3	10	117	312	6	17
0800	60		1		116		3	
0815	71		2		112		5	
0830	76		12		105		4	
0845	46	253	2	17	128	461	2	14
0900	44		1		92		2	
0915	53		1		93		2	
0930	52		5		64		2	
0945	42	191	4	11	80	329	3	9
1000	52		2		63		3	
1015	65		5		74		4	
1030	54		3		61		3	
1045	50	221	2	12	89	287	3	13
1100	62		4		75		5	
1115	71		4		97		1	
1130	75		3		63		1	
1145	79	287	3	14	118	353	1	8

Time	NB Vehicles & Heavy Vehicles		NB Heavy Vehicles		SB Vehicles & Heavy Vehicles		SB Heavy Vehicles	
1200	83		3		99		0	
1215	80		1		97		3	
1230	80		4		87		3	
1245	94	337	3	11	89	372	2	8
1300	82		2		81		2	
1315	81		3		88		4	
1330	103		1		76		2	
1345	102	368	2	8	60	305	1	9
1400	104		3		74		1	
1415	113		0		80		0	
1430	110		3		88		3	
1445	125	452	1	7	97	339	1	5
1500	119		5		103		3	
1515	109		1		71		0	
1530	130		2		99		2	
1545	117	475	1	9	108	381	1	6
1600	119		2		88		2	
1615	130		5		103		2	
1630	118		2		108		4	
1645	122	489	1	10	86	385	1	9
1700	128		1		113		0	
1715	117		2		111		0	
1730	114		0		93		1	
1745	97	456	1	4	115	432	1	2
1800	87		1		88		0	
1815	91		2		94		0	
1830	79		0		82		1	
1845	84	341	2	5	79	343	0	1
1900	89		1		77		0	
1915	77		1		60		0	
1930	80		0		46		0	
1945	86	332	1	3	55	238	0	0
2000	66		0		41		0	
2015	62		3		53		0	
2030	70		0		41		0	
2045	68	266	1	4	35	170	0	0
2100	59		0		28		1	
2115	77		0		28		0	
2130	53		1		21		0	
2145	58	247	0	1	13	90	0	1
2200	48		0		15		0	
2215	36		0		26		0	
2230	58		0		14		0	
2245	28	170	0	0	19	74	0	0
2300	26		0		9		0	
2315	34		1		6		0	
2330	30		0		8		0	
2345	23	113	0	1	5	28	0	0
Total	**5425**		**135**		**5182**		**113**	

APPENDIX J

Market Street at Nobles Island
Continuous Count Station Data
(February 2020 to June 2021)



Source: City of Portsmouth

Unitil
Northern Utilities, Inc.

December 3, 2020

Eben Tormey
Project Manager
XSS Hotels

Will Serve Letter for 1 Raynes Ave Portsmouth, NH 03801

Hi Eben,

Unitil/Northern Utilities Natural Gas Division has reviewed the requested site for natural gas service.

Unitil hereby confirms natural gas is available on Raynes Ave to supply the proposed future development.

If you have any questions, please contact me at 603-534-2379.

Sincerely,

Dave MacLean
Senior Business Development Rep

Unitil

T 603.294.5261
M 603.534.2379
F 603.294.5264
Email macleand@unitil.com

Unitil
Northern Utilities, Inc.

December 3, 2020

Eben Tormey
Project Manager
XSS Hotels

Will Serve Letter for 31 Raynes Ave Portsmouth, NH 03801

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Sincerely,

Dave MacLean
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Email macleand@unitil.com

EVERSOURCE ENERGY

November 23, 2021

1700 Lafayette Road
Portsmouth, NH 03801

Michael J Busby
603-436-7708 x555-5678
michael.busby@eversource.com

Neil A. Hansen, PE
Tighe & Bond, Inc.
177 Corporate Drive
Portsmouth, NH 03801

Dear Mr. Hansen:

I am responding to your request to confirm the availability of electric service for the proposed 1 Raynes Avenue/31 Raynes Avenue project being constructed for/by North Mill Pond Holdings, LLC.

The proposed project consists of two (2) 5-story buildings, one building with 60 residential units and approximately 8,100 s/f of retail/office space at the ground level and one building with 128 hotel rooms. The proposed development will be constructed along Raynes Avenue.

The developer will be responsible for the installation of all underground facilities and infrastructure required to service the new buildings. The services will be as shown on attached marked up Utility Plan C-104. To provide a loop service to your project additional infrastructure is required along Green Street and Russel Street, see "Eversource Duct Bank Plan C-401". The developer will work with Eversource to obtain all necessary easements and licenses for the proposed underground facilities listed above.

This letter serves as confirmation that Eversource can provide service to this proposed development so long as all the aforementioned infrastructure is installed and energized. The cost of extending service and installing associated infrastructure improvements necessary to provide service will be borne by the developer unless otherwise agreed upon.

The attached drawing titled "Proposed Mixed Use Development Utilities Plan (C-104)" dated 03/09/2021, and "Eversource Duct Bank Plan C-401" shows transformer locations and infrastructure improvements required to service your proposed project.

Eversource approves the locations shown; assuming the final installed locations meet all clearances, physical protection, and access requirements as outlined in Eversource's "Information & Requirements For Electric Supply" (https://www.eversource.com/content/docs/default-source/pdfs/requirements-for-electric-service-connections.pdf?sfvrsn=2).

If you require additional information or I can be of further assistance please do not hesitate to contact me at our Portsmouth Office, 603-436-7708 Ext. 555-5678

Respectfully.

Michael J. Busby, PE
NH Eastern Regional Engineering and Design Manager, Eversource

cc: (via e-mail)
Thomas Boulter, Eastern Region Operations Manager, Eversource
Nickolai Kosko, Field Supervisor, Electric Design, Eversource

PROCON
CONNECT • CREATE • CONSTRUCT

T 603.623.8811
F 603.623.7250
P.O. Box 4430
Manchester, NH 03108
info@proconinc.com

March 16, 2021

City of Portsmouth Planning Board

GREEN BUILDING STATEMENT
Re: Proposed Mixed-Use Development, Raynes Avenue, Portsmouth, NH

The core and shell of the proposed mixed-use buildings at Raynes Avenue are being designed to meet or exceed current Energy Code requirements. A U.S. Department of Energy "COMcheck" will be submitted with the building permit application.

Currently the State of New Hampshire has adopted the 2015 International Energy Conservation Code with amendments, and the design of the new building will be built to current best practices and will exceed these requirements when appropriate.

- Foundation system: Cast in place concrete with continuous rigid insulation installed to depths required by the energy code. Continuous insulation to be provided under the concrete slab on grade for 2 feet along the exterior wall.
- Exterior walls: Continuous insulation outside the framing system and the continuous air barrier, to provide better overall thermal performance. Exterior skin of building to be a combination of brick, wood siding panels and metal wall panels that provide an air space in front of the insulation to allow for moisture management.
- Exterior windows: Thermally broken aluminum framing for common spaces and vinyl windows at apartment and hotel units. All glazing to be insulated, high-performance type to provide enhanced thermal performance and solar control.
- Roofing system: Light colored membrane roofing system over continuous rigid insulation that exceeds the base energy code requirements.
- HVAC systems: Apartment and hotel units to consist of high-efficiency, variable refrigerant flow, split system heat pumps. Ventilation to be provided by high-efficiency DX gas, dedicated outdoor units to provide fresh air to apartment and hotel units and common spaces. Bathroom exhaust to run through energy recovery heat exchanger to preheat incoming makeup air. Domestic hot water to be provided by high efficiency condensing boilers with variable frequency pumps. Apartment and hotel units to have individual temperature controls and common spaces to have digital controls with occupancy sensors.
- Plumbing: All fixtures to be low flow.
- Lighting: Exterior lighting to be LED cutoff fixtures for energy efficiency and to minimize light pollution. All interior lighting to be LED throughout using less than 1 watt / sf. Occupancy sensors to be utilized as required by code.
- Landscaping: Local species that are drought tolerant to be incorporated into plantings list.

Sincerely,

Christopher J. Lizotte AIA, NCARB, LEED AP
Senior Associate - Architecture and Engineering

3 Copley Place
Suite 3202
Boston, MA 02116
P: 617-426-0604
F: 617-426-0607
www.lazparking.com

May 20, 2021

Juliet Walker
Director of Planning
City of Portsmouth

Re: Redevelopment of 1 Raynes Ave, 31 Raynes Ave and 203 Maplewood

Dear Ms. Walker,

My name is Brian Haley and I am the Regional Vice President at LAZ Parking, LLC. LAZ is a national parking operator with over 2,500 facilities and over 200 hotels under parking management service agreements. Since 2014 in Portsmouth, we manage the parking operation for The Marriot Residence Inn, The Hampton Inn & Suites, and the Hilton Garden Inn for the applicant. We have recently begun operations for the AC Hotel since its opening.

We have reviewed the parking plans for the new mixed-use development incorporating a 128-room hotel along with a 60 unit residential dwelling. Based on historical data from the existing Portsmouth operations, the parking ratio to occupied rooms ranges from 65% to 70% based upon seasonality and we would expect to see up to 90 cars on peak nights. For similar residential units, the ratio of vehicles to units ranges from 52% to 57% for a parking demand average of 34 spaces. The property is providing 112 onsite spaces as well as an additional 25 spaces offsite. By utilizing an operating model of 100% valet, we will have the flexibility to fully maximize the tandem spaces and rotate cars as needed. The 137 total spaces available is sufficient to meet the parking demand.

Please let us know if you have any further questions.

Sincerely,

Brian Haley

Regional Vice President

April 30, 2021

City of Portsmouth Planning Department
Conservation Commission
1 Junkins Avenue, 3rd Floor
Portsmouth, NH 03801

Attention: Conservation Commission Board Members

Reference: Raynes Avenue Development Site
Mitigation of Subsurface Environmental Conditions and Feasibility of Stormwater Recharge

Ladies and Gentlemen:

The purpose of this letter is to summarize measures that will be implemented to mitigate existing subsurface environmental conditions during construction of the Raynes Avenue development site as well as the feasibility of on-site recharge/infiltration of stormwater under the New Hampshire Alteration of Terrain regulations.

As a result of the historical site usage, soil and groundwater has been affected by varying levels of contamination which exceed the Site Remediation Standards and Ambient Groundwater Quality Standards contained in the New Hampshire Code of Administrative Rules Env-Or 600. As a result, elements of the Raynes Avenue development project have been designed to mitigate potential future exposure to the on-site contamination as well as to mitigate the potential for off-site migration of contamination. Given the presence of the soil and groundwater contamination, the on-site infiltration of stormwater runoff, such as the use of porous pavement, is prohibited under the provisions of the Alteration of Terrain (AoT) permit.

The Raynes Avenue development site, referenced herein as "project site", is comprised of four (4) contiguous parcels of land including 203 Maplewood Avenue, 31 Raynes Avenue, and 1 Raynes Avenue as well as a vacant parcel of land identified as 205 Maplewood Avenue (Map-Lot: 0123-10). The parcels are currently occupied by three (3) existing 1 to 3-story buildings, paved surface parking lots, and grassy or landscaped areas. Currently, the existing buildings are utilized as a fitness gym and storage space for a café and various dry goods. The existing building on 203 Maplewood Avenue is currently vacant.

The proposed project will require the demolition of the existing structures, and construction of two 5-story buildings which will occupy the southern and eastern portions of the project site. Asphalt paved parking lots and landscaped margins are proposed adjacent to the north of the proposed buildings. Additionally, a community greenway and pedestrian path are proposed along the banks of the North Mill Pond within the limits of the project site. Stormwater runoff from the redeveloped project site will be collected into an on-site storm drain system which will temporarily store and subsequently treat the runoff before leaving the site.

GEOTECHNICAL AND GEOENVIRONMENTAL ENGINEERS
2269 Massachusetts Avenue
Cambridge, Massachusetts 02140
(617) 868-1420

Over the past 100 years, the parcels of land that comprise of the project site were utilized for commercial and industrial purposes. Specifically, the 203 Maplewood Avenue building was utilized as a gasoline filling station between the 1930's and 1983 and a dry cleaner/laundromat between 1984 and 2018. The current 2-story office building was constructed at 31 Raynes Avenue in 1940 and subsequently, a storage shed was constructed on the parcel in 1994. The current fitness gym was originally constructed as a warehouse in 1955 at 1 Raynes Avenue and was formerly used as a garage for the New England Telephone Company as well as automotive body repair and painting shop.

The 203 Maplewood Avenue parcel has been assigned NH DES Site Number 199909083 due to presence of petroleum constituents. Over the past 20 years, the current and previous site owners have performed biannual assessments of soil and/or groundwater at the parcel, the results of which have been submitted to the New Hampshire Department of Environmental Services (DES). In 2012, a Groundwater Management Permit (GMP) was recorded for the site under which biannual assessment activities have been performed in accordance with ENV-OR 600, the New Hampshire Contaminated Site Management provisions.

The 205 Maplewood Avenue parcel was historically assigned NH DES Site Number 198810012 due to the elevated concentrations of a petroleum related volatile organic compounds (VOCs) within groundwater on site. The presence of petroleum related VOC was attributed to the former gasoline service station at 203 Maplewood Avenue site. Soil characterization within test pits indicated the presence of coal ash in fill material.

The 31 Raynes Avenue property has also been affected by the presence of chlorinated solvents, metals and petroleum hydrocarbons in soil and groundwater. The result of which indicate the presence of VOCs, metals, and petroleum constituents in certain areas of the project site. The source of these contaminants is likely attributable to historical fill that is typically used within this region of Portsmouth and possibly off-site properties. Additionally, the southern portion of the parcel is listed as an inactive Asbestos Disposal Site due to the presence of asbestos containing material (ACM) that was identified in soil. The DES was notified of the contamination in 2006 after which Site Number 200603011 was assigned to the parcel. Subsequently, remediation activities were performed at a portion of the parcel to remove an underground storage tank and associated contaminated soils. Post remediation assessment activities, which included soil and groundwater testing, were performed on a biannual basis for approximately 4 years after which a No Further Action Certification was issued by the DES in 2011. Between January 2020 and January 2021, McPhail performed soil testing across the site, the result of which indicate the presence of chlorinated solvents, metals, and petroleum constituents in certain areas of the project site. The presence of these contaminants is considered attributable to the historical site use as well as historical filling that is typical within this portion of Portsmouth.

Excavation activities will be performed under a Soil Management Plan (SMP) that will be prepared for the project. Due to the presence of contamination, the SMP will include measures to mitigate potential exposure to the surrounding public from contaminated soils. The excavation activities will involve the removal of shallow contaminated soil from across the area of the project site. Within localized areas of the project site, deeper contaminated

soil will be excavated and removed off-site. These mitigative measures will include limiting on-site stockpiling, segregation of contaminated soils, direct loading of contaminated soils for off-site disposal, dust suppression (i.e., wetting exposed soils, covering stockpiles, etc.) and in-situ treatment of contaminated soils. Temporary methods for protecting water quality including erosion, sediment, and runoff control will be implemented in accordance with Env-Wq 1505.05 as well as a Stormwater Pollution Prevention Plan (SWPPP) that will be prepared prior to the start of site development. In addition, temporary construction dewatering of groundwater will be controlled during redevelopment, including the collection and treatment of groundwater and surface water that may be encountered during the construction of building foundations and subsurface utilities.

As referenced above, the project design has incorporated mitigative elements to prevent potential future exposure to the on-site contamination as well as to prevent the potential for off-site migration of contamination. Specifically, the project design includes engineering controls such as capping of existing contaminated soil with clean fill, hardscaping, and impervious asphalt pavement or by the building foundation. Additionally, the area of contaminated groundwater is proposed to be covered by impervious asphalt pavement, hardscaping, and the building footprint. Furthermore, stormwater runoff will be collected and temporarily stored within two closed-system stormwater detention basins that are designed to prevent infiltration into the groundwater formation that would exacerbate the subsurface contamination. From these detention basins, the stormwater runoff will pass through a filtration system that will reduce particulate-bound pollutants prior to entering the City's storm drain system which discharges into the North Mill Pond.

The New Hampshire Code of Administrative Rules Chapter Env-Wq 1507 defines requirements for the protection of water quality during Alteration of Terrain (AoT) activities. In accordance with Env-Wq 1507.02C, no infiltration practice, filtering practice, groundwater recharge practice, treatment swale, or sediment forebay shall be located in any areas that (1) have contaminants in soil above site-specific soil standards developed pursuant to Env-Or 600, and/or (2) have contaminants in groundwater above the ambient groundwater quality standards established in Env-Or 603.03. Based upon the presence of contaminants in soil and groundwater at the development site which have been and/or are currently being managed in accordance with Env-Or 600, on-site recharge and/or infiltration of stormwater, such as the use of porous pavement, is prohibited pursuant to the provisions set forth within Env-Wq-1507.

In summary, an SMP will be implemented for on-site redevelopment activities. The SMP will include measures to mitigate potential exposure of contaminated soils to the surrounding public. Due to the historical presence of contamination on the project site, on-site recharge and/or infiltration of stormwater is prohibited. Temporary methods for protecting water quality will be implemented in accordance with Env-Wq 1505.05 and SWPPP during redevelopment. Subsequently, the excavations will be replaced by drainage structures or clean fill prior to the installation of the proposed building foundation or impervious surfaces in order to significantly mitigate the potential for off-site migration of the soil and groundwater contamination. Furthermore, stormwater runoff will be collected and filtered within two closed-system stormwater detention basins to reduce particulate-bound pollutants prior to entering North Mill Pond by the City's storm drain system.

We trust that the above is sufficient for your present requirements. Should you have any questions concerning the above, please call us.

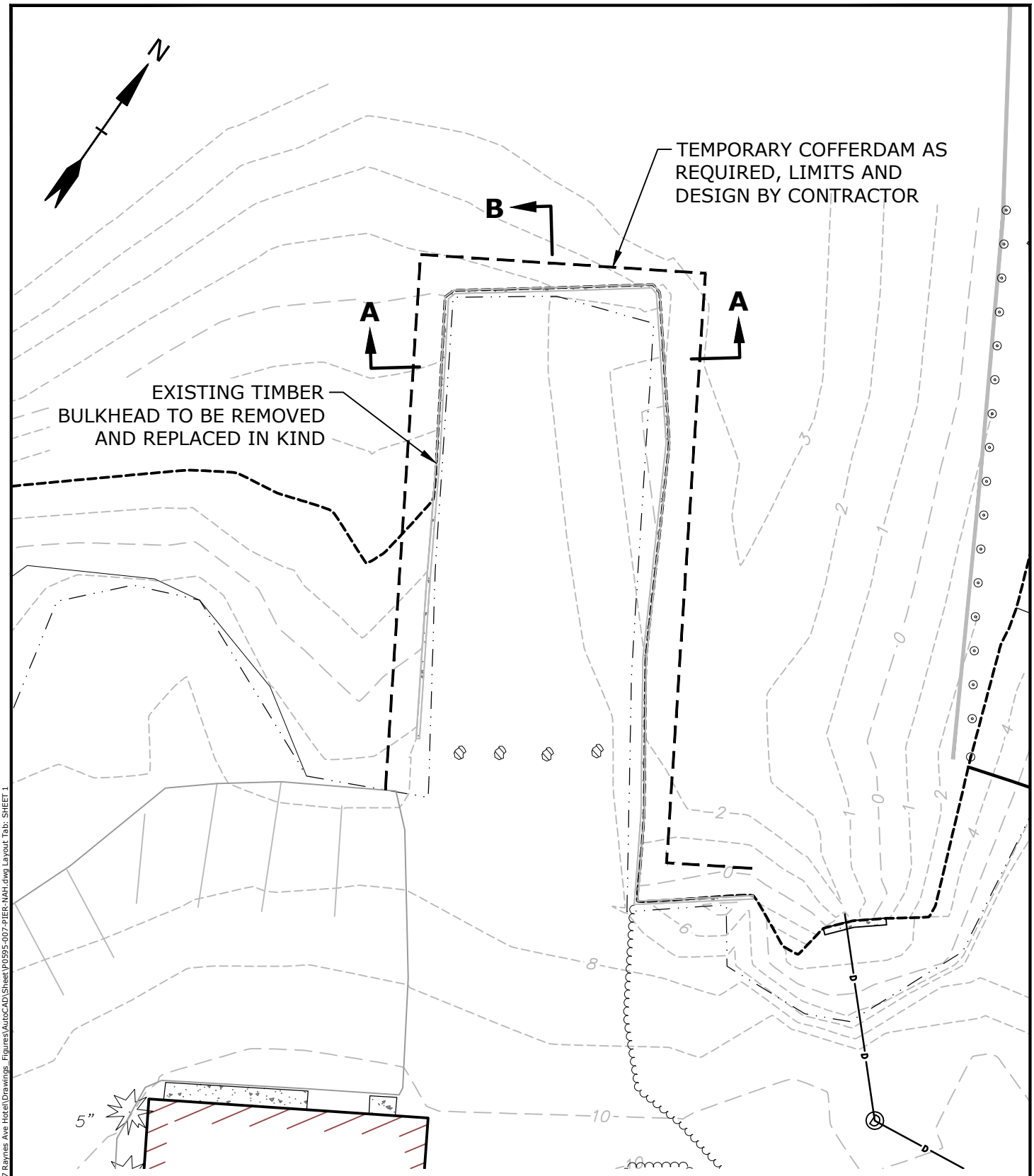
Very truly yours,

McPHAIL ASSOCIATES, LLC

Shakib Ahmed, P.G.

William J. Burns, L.S.P., L.E.P.

6872_Raynes Ave_Con Comm Let._042921.docx
SA/wjb



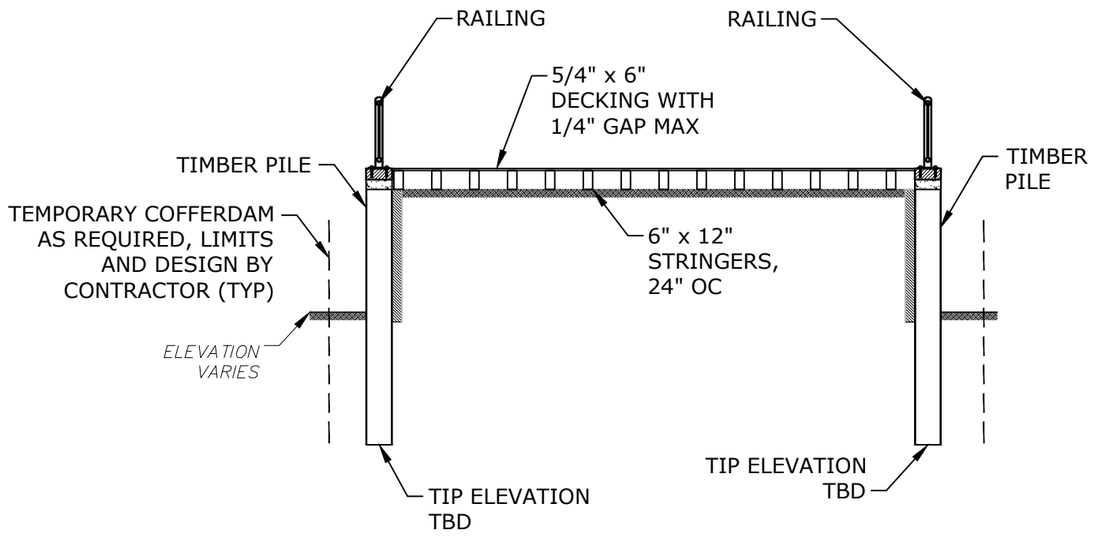
PROPOSED MIXED USE DEVELOPMENT
RAYNES AVE
PORTSMOUTH, NEW HAMPSHIRE

PIER CONCEPT PLAN

DATE:	05/26/2021
FILE:	P0595-007-PIER-NAH.DWG
DRAWN BY:	JAK
CHECKED:	GM
APPROVED:	PMC

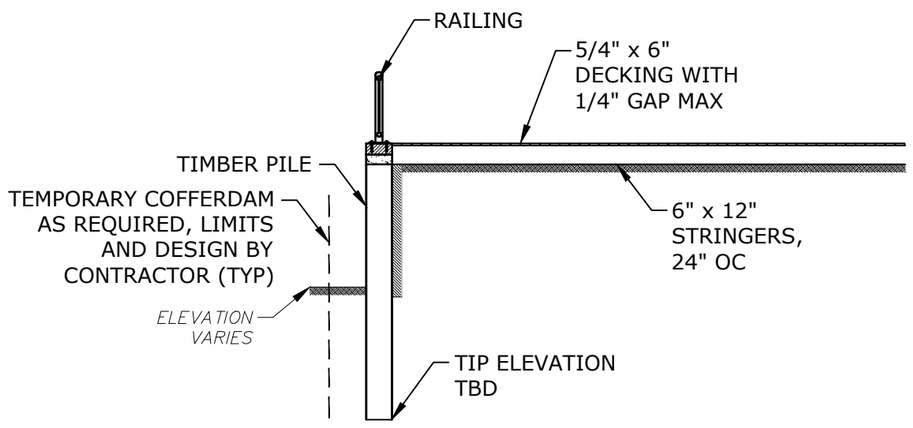
Tighe&Bond
Engineers | Environmental Specialists

Last Save Date: November 23, 2021 11:27 AM By: CKRZCUIK
Plot Date: Tuesday, November 23, 2021 Plotted By: Colter Krzcuik
T&B File Location: J:\P\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings- Figures\AutoCAD\Sheet\P0595-007-PIER-NAH.dwg Layout Tab: SHEET 1



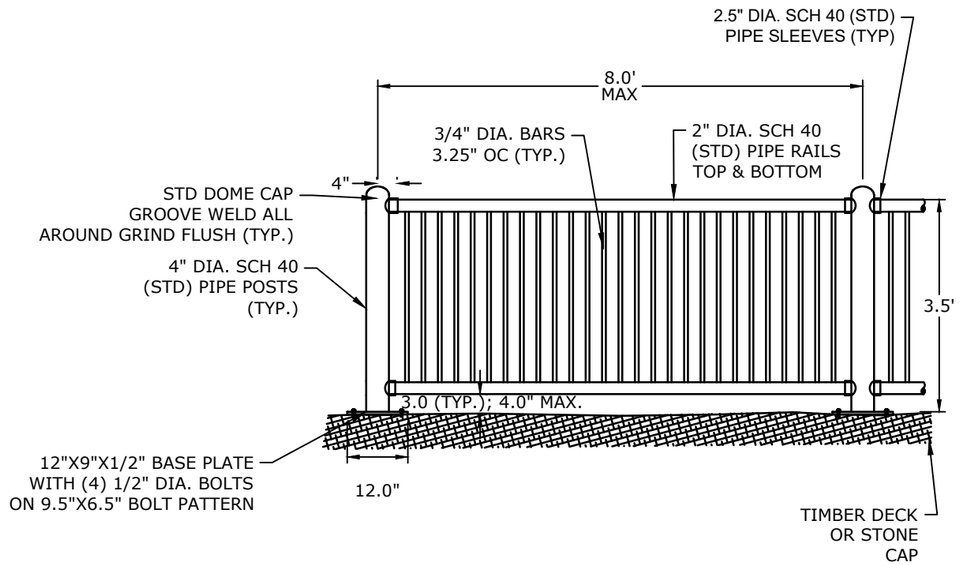
SECTION A / S-1

NTS



SECTION B / S-1

NTS



RAILING NOTES:

1. FABRICATE THE RAILINGS AS SHOWN. EASE ALL EXPOSED EDGES AND GRIND SMOOTH WELDS (GRIND FLUSH AT GROOVE WELDS) PRIOR TO COATING. IF 3/4" VERTICAL RODS ARE SET INTO HORIZONTAL RAILS, THEN SEAL WELD ALL AROUND. IF 3/4" VERTICAL RODS ARE BUTTED UP TO HORIZONTAL RAILS, THEN 1/4" FILLET WELD ALL AROUND.
2. ON STONE: EPOXY GROUT THE BASED PLATE ANCHORS INTO STONE, PROVIDE 6" EMBEDMENT (TYP). ON TIMBER, PREDRILL FOR LAG BOLTS.
3. PLUMB POSTS, SET RAIL PANELS AND GROUT UNDER BASE PLATES (TYP).
4. FOR HOT DIP GALVANIZED COLOR GALV. COATING BASE BID, PROVIDE ADEQUATE VENTING OF PIPES WHERE HIDDEN FROM VIEW AND SO AS NOT TO TRAP WATER.

RAILING DETAIL

PROPOSED MIXED USE DEVELOPMENT
RAYNES AVE
PORTSMOUTH, NEW HAMPSHIRE

PIER CONCEPT SECTIONS
& DETAILS

DATE:	07/21/2021
FILE:	P0595-007-PIER-NAH.DWG
DRAWN BY:	JAK
CHECKED:	GM
APPROVED:	PMC

Tighe&Bond
Engineers | Environmental Specialists

Last Save Date: November 22, 2021 11:27 AM By: CKIZCUK
Plot Date: Tuesday, November 23, 2021 Plotted By: Colter Krzcuk
T&B File Location: J:\P\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings, Figures\AutoCAD\Sheet\P0595-007-PIER-NAH.dwg Layout Tab: SHEET 2

SIGNAGE

Memo

TO: Conservation Commission Members
FROM: Peter Britz, Environmental Planner
DATE: June 11, 2021
SUBJ: June 16, 2021 Conservation Commission Meeting

Raynes Ave and Maplewood Ave Mixed Use Project

This project includes removing three buildings and impervious surface in the wetland buffer to be replaced with two new buildings parking a public access waterfront trail and landscaping. Overall the project has reduced impervious surface impacts in the first fifty feet of the tidal wetland buffer by 3,787 square feet. Overall the net reduction amounts to 3,800 square feet of impervious surface removed from the 100 foot tidal wetland buffer.

According to *Article 10 Section 10.1017.50* the applicant must satisfy the following conditions for approval of this project.

1. *The land is reasonably suited to the use activity or alteration.* This project is located in an area along the North Mill Pond that is currently private and not open to the public. The current property is being improved to include a bicycle and pedestrian trail made of porous pavement and a new landscaping plan which enhances what is there today and provides public access along the water consistent with the North Mill Pond Greenway plan. The overall project reduces the amount of impervious surface. For these reasons the land is reasonably suited to the proposed alterations.

2. *There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use, activity or alteration.* The location of the property is primarily within the 100' wetland buffer. The applicant has removed the majority of the impacts from the first fifty feet of the wetland buffer. Given the small amount of developable area outside of the wetland buffer there is no alternative location that is reasonable for a project in this area.

3. *There will be no adverse impact on the wetland functional values of the site or surrounding properties.* The proposed development is significantly further from the edge of wetland and there is a reduction in impervious surface with this proposal. The proposal also seeks to improve the treatment of stormwater on the site with a treatment and detention system. The pedestrian trail that is proposed is planned for porous pavement. This project provides community space that will allow people to walk along the pond on a safe accessible trail and proposed a landscape plan which is an improvement over the existing pavement and small area of vegetation currently in the buffer.

4. *Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals.* The proposed project has plans to remove a good deal of building and impervious surface from the buffer. The plans include a landscape plan which will provide adjacent wetand habitat and an amenity to the public using the greenway trail.

5. *The proposal is the alternative with the least adverse impact to areas and environments under the jurisdiction of this section.* This application propose to provide enhancements to the tidal buffer zone over what exists today. The project will provide enhanced landscaping over what exists today and will provide public access this portion of the North Mill pond where none exists today. Given these improvements and the reduction of impervious surface and treatment of stormwater on the site staff believes this project has worked to provide an application which reduces the overall impacts.

6. *Any area within the vegetated buffer strip will be returned to a natural state to the extent feasible.* The applicant provided a landscape plan which includes plantings around the proposed building and within the 100' tidal wetland buffer. The use of native plantings within the 100 foot buffer and removal of invasive species on this site will provide a benefit over the vegetation in buffer which exists today.

Recommendation: Staff believes this application represents a reduction in impacts to the tidal buffer zone and provides public access through a location that has been private. Since the last submittal the applicant has enhanced the wetland buffer plantings has provided additional detail on reconstruction of the pier and ram in-kind which will while currently private will provide additional public access to the water in this location. In addition the applicant has complied with section 10.1017.24 which requests the removal of impervious surface in the buffer to below what exists. Staff recommends approval of this application as presented.

3 Curriers Cove

This project is to construct a patio and small portion of a pool in the 100' inland wetland buffer. There is a freshwater wetland adjacent to the tidal buffer therefore while this project is well outside the 100' tidal buffer it still falls within 100' of the edge of a freshwater wetland. This project was previously approved but the approval has lapsed.

1. The land is reasonably suited to the use activity or alteration. This project is to install a patio and pool at the back side of the house furthest from the edge of the wetland immediately adjacent to the house. This is a reasonable location for this work.

2. There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use, activity or alteration. Given the existing house is closer to the wetland this is the most reasonable location for the proposed patio and pool.

3. There will be no adverse impact on the wetland functional values of the site or surrounding properties. The construction of the patio and pool can be constructed to prevent any erosion and/or sedimentation to the area and wetland from which this buffer is defined.

4. Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals. The patio and pool are proposed in the developed portion of the property where there is not currently vegetation.

5. The proposal is the alternative with the least adverse impact to areas and environments under the jurisdiction of this section. TGiven that the pool and patio are going where a pool previously existed and they are located on the opposite side of the house from the wetland this is the least impacting location for the pool and proposed patio.

6. Any area within the vegetated buffer strip will be returned to a natural state to the extent feasible. The plan provides for the addition of nine new trees on the outside of the proposed fence.

Recommendation: Staff recommends approval of the project as presented.

0 Patricia Drive

This application was previously before the Commission in October of 2020 and proposed to restore a portion of an existing roadway including new stormwater treatment in the wetland buffer to access two new proposed home sites. The applicant is proposing to change the stormwater treatment from a detention area and vegetated overflow into the Prime Wetland buffer to a series of treatment catchbasins.

1. The land is reasonably suited to the use activity or alteration.
It is not clear from the design how the site grading will direct flow to the proposed new treatment units and where these units will be installed. The treatment units specified on the plans are for industrial application which this is not.

2. There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use, activity or alteration.
Given this was previously a paved roadway this is the most feasible and reasonable approach to the proposed home sites. However, more details are needed to better understand the stormwater treatment change proposed and how it will work to reduce impacts to the adjacent wetland.

3. There will be no adverse impact on the wetland functional values of the site or surrounding properties.
The applicant changed the stormwater design but has provided insufficient detail to understand how water will be adequately treated with the proposed change.

4. Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals.
Impacts to natural vegetation in the 100' prime wetland buffer has been reduced with this application.

5. The proposal is the alternative with the least adverse impact to areas and environments under the jurisdiction of this section.
The proposed project has not provided sufficient details to know where the new treatment units will go, how the stormwater from the roadway will get to them and why these units will work in this environment when they are proposed as industrial treatment systems. Additionally, it is not clear how the longterm maintenance will be provided in these proposed units especially as this is a residential private roadway.

6. Any area within the vegetated buffer strip will be returned to a natural state to the extent feasible.
This applicant proposes a reduction in impact to the vegetated buffer as they have substituted surface treatment in the buffer for a subsurface catch basin system.

Recommendation: Staff recommends this application be postponed until the applicant can provide sufficient detail on how the proposed treatment units will work in this application, how the water will be directed to the proposed systems, how the system is suited to handle the volume of water from the site, and how the longterm maintenance of these units will be insured.

3400 Lafayette Road

This application is to construct a 50 unit multi family residential development. The majority of the proposed development falls outside of the wetland buffer however there is storwmater treatment area and site drainage proposed to go into the wetland area.

1. The land is reasonably suited to the use activity or alteration.
The size and scale of this development adjacent to what is intended to be a highly functioning wetland system does not appear to be appropriate. A portion of the stormwater treatment is within the wetland buffer which will require over 7000 square feet of disturbance in the wetland buffer. All of the runoff water will go into the adjacent wetland system. It is staff's understanding that this wetland system was constructed as mitigation for the Portsmouth Regional Hospital construction.

2. There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use, activity or alteration.
The applicant appears to have maximized the residential development on this site which could have longterm impact to the wetland area adjacent to it.

3. There will be no adverse impact on the wetland functional values of the site or surrounding properties.
While the stormwater from the site will be treated it is not clear how this treated water and new volume of water will impact the functioning wetland mitigation which was created to offset wetland impacts in a different part of the city. The longterm impact of stormwater in this wetland could have an adverse impact on the created wetland system.

4. Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals.
The area proposed for development is currently being used as a wood processing area therefore a portion of the natural vegetation has been impacted. The introduction of 50 housing units in this area will require removal of all the natural vegetation outside of the buffer and some of the vegetation in the buffer at least as a temporary impact.

5. The proposal is the alternative with the least adverse impact to areas and environments under the jurisdiction of this section.
While the applicant has kept all of the proposed housing and roadways out of the wetland buffer the proposed impacts to the wetland buffer for stormwater treatment are not the least impacting alternative and the runoff from the development while proposed for treatment still will have longterm impacts to the adjacent wetland system.

6. Any area within the vegetated buffer strip will be returned to a natural state to the extent feasible.
The applicant is proposing temporary impacts in the wetland buffer but it is not clear how these will be restored when the project is complete.

Recommendation: This is an intensive development bordering a conservation area. Some of the stormwater treatment is proposed in a Natural Resource Protection zoning district and over 7,000 square feet of temporary impact is proposed in the wetland buffer. The longterm impact of all the stormwater from this site could have significant impacts to the adjacent wetland system. Staff recommends that the applicant redesign the project to be less intensive and treat all of the stormwater outside of the buffer and consider alternate locations other than the adjacent wetland as an outlet to protect the integrity of this mitigation area. The applicant should also provide the mitigation plans which were developed for the adjacent wetland area and demonstrate how this development is compatible with those plans.

RECEIVED
JUN 22 2021
By

CITY OF PORTSMOUTH NH

CONSERVATION COMMISSION

One Raynes Ave, LLC, 31 Raynes Ave, LLC, & 203 Maplewood Ave, LLC ("**Applicant**")

Owners of Property Shown at Assessor Map 123, Lots 10, 12, 13, 14 ("**Property**")

OBJECTION AND REQUEST FOR RECONSIDERATION

On June 16, 2021 the Conservation Commission, in a tie 3 to 3 vote, failed to recommend that the City of Portsmouth's Planning Board grant Applicant's Condition Use Permit for its development of a mixed-use project consisting of a residential building, a hotel, and appurtenant parking on the Property, four separate parcels of land containing a total of 2.53 acres located at the intersection of Raynes Ave. and Maplewood Ave. in Portsmouth's North End (the "Project").

The Project has been carefully designed to be in compliance with the provisions the City's Zoning Ordinance and the goals of the City's Master Plan. The Property currently consists of urban uplands which for centuries been subject to industrial use. The Property contains three vacant or under-utilized industrial buildings surrounded by paved surface and disturbed industrial fill currently draining untreated stormwater directly into North Mill Pond.

The Property is also the site of a major City drain which carries stormwater from the streets and sidewalks in the neighborhood and, without treatment, dumps it and the pollution that it carries into the North Mill Pond causing significant erosion to the Pond's banks.

Among the stated goals of the City's Master Plan, goals that have been incorporated into the Zoning Ordinance, are the following:

1.1.1 Support reinvestment in underutilized buildings and land.
1.1.2 Enhance the quality and connectivity of pedestrian facilities.
1.1.3 Promote the creation of open spaces, seating areas and other outdoor amenities.
1.1.5 Encourage new public spaces that can be used for both recreational and flood plain storage.

2.1 New development should complement its neighborhood character and size.
2.3.2 Actively protect, enhance and acquire public waterfront space.
5.1.3 Adjust site design standards to include sustainable stormwater measures, increase on-site infiltration, and reduce downstream erosion sedimentation, and flooding impacts.
5.2.2 Pursue open space acquisitions that create wildlife corridors and ecological connections.
5.3.1 Implement watershed restoration measures and plans to improve water quality and habitat values.
5.4.3 Strengthen site design standards to prioritize low impact stormwater treatment systems to protect water quality and habitat value.

The positive effects of the Project were recognized and applauded by members of the Commission at the June 16 meeting.

The Chair stated: *"I appreciate the efforts put into this especially with plantings."*

Jessica Blasko said: *"I appreciate the Applicant's efforts and applaud its reception to input ... This is very thoughtful and addresses lots of concerns about water quality and habitat."*

The Staff recommendation to the Commission was straight forward and clear:

"***Recommendation***: *Staff believes this application represents a reduction in impacts to the tidal buffer zone and provides public access through a location that has been private. Since the last submittal the applicant has enhances the wetland buffer plantings and has provided additional detail on reconstruction of the pier and ramp in-kind which while currently private will provide additional public access to the water in this location. In addition, the applicant has complied with Section 10.1017.24 which requires the removal of impervious surface in the buffer to below what exists. Staff recommends approval of this application as presented."*

Yet, three Commissioner's voted against making a positive recommendation to the Planning Board. To the extent that the Commissioners who voted against the recommendation gave any rationale for their votes, it was limited to factors outside of the regulatory scope of the Commission's authority: (i) the proposed density and scale of the Project, and (ii) "contamination on the site".

The major concern about the Project expressed by the Commissioners at the hearing related to size and density. During the Commission's deliberations Commissioner Blasto's major concern was the density of the Project. She said, *"I think that you very thoughtfully addressed a lot of concerns about water quality and habitability but ...**it feels like a very dense project.**"* Commissioner Jankowski made clear that one of his concerns was that *"These are **massive Buildings, a great displacement of this lot.**"*

Commissioner Jankowski also raised the only other significant concern expressed at the meeting when he said that he was, "***Very concerned about the contaminated site**. Concerned about what's closer to the waterfront.*"

Neither of these issues are within the purview of the Commission. As stated above, the Project fully complies with the Portsmouth Zoning Ordinance. The issue before the Commission is not the size of the Projects buildings or the 'density' of the development. Those are matters governed by the City's duly enacted Zoning Ordinance.

The 'contamination' issue arises out of the fact that over twenty (20) years ago contamination from a former gas station on the site was discovered. The NH Department of Environmental Services ("NH DES"), the authority which is charged with remediating and regulating contaminated sites, has been working with the various owners of the site over the last twenty years. The site continues to be monitored and regulated by NH DES, which has sole authority to deal with any remaining contamination. The Applicant has made clear that it has, and will continue to, comply with the regulations and orders of NH DES. The net effect of the

Project under DES rules and regulations will be reduction in the amount of contamination on the site.

The matter before the Commission, therefore, is not the (i) the proposed density and scale of the Project, or (ii) "contamination on the site". It is only whether the Project as presented complies with the below set forth criteria for a Conditional Use Permit.

Conditional Use Permit Criteria

The Wetland Protection Ordinance does not prohibit development within the wetland setbacks outright and does not override the permitted use and dimensional provisions of the Zoning Ordinance, or laws dealing with hazardous waste. Rather, the Ordinance employs a conditional use review to ensure that development within the wetland setbacks minimized adverse impacts within the jurisdictional wetlands and the wetland buffer areas. For sites such the Project, which have heavy existing impacts and no existing buffer features in their topography, the review focuses on whether and to what extent, if any, the proposed alterations will have an adverse impact on the buffer area; that is whether the proposed project will worsen the existing buffer impacts on the site. In plain English, an adverse impact is a change that is worse than the existing conditions on the site. The Project improvements, however, are making the buffer better, not worse than the existing conditions, and therefore meet the following six conditions for a Conditional Use Permit set forth in ARTICLE TEN SECTIONS TEN TEN-SEVENTEEN-FORTY and TEN TEN-SEVENTEEN-FIFTY for development within the wetland setbacks:

First, the land is reasonably suited to the use, activity or alteration; *The site is zoned for the proposed use. Further, one of the major goals as set forth in numerous City documents is the*

creation of the North Mill Pond Greenway, a bicycle and pedestrian path along North Mill Pond providing public access along the water which will provide open spaces, seating areas and other outdoor amenities, while creating wildlife corridors and ecological connections. The proposed Project will go a long way toward the City meeting goals 1.1.1, 1.1.2, 1.1.3, 1.1.5, 2.1, 2.3.2, 5.2.2, 5.3.1 and 5.4.3 of the City's Master Plan, while reducing the amount of impervious surface, invasive species, and untreated stormwater runoff now existing.

Second, there is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use, activity, or alteration. *Much if the site lies within the 100' wetland buffer from the North Mill Pond, however, the Project will have* ***no buildings in the 100 foot buffer****, and will have a very positive effect on the wetland buffer. Locating the Project on this site will, however, advance the City's stated desire to create the North Mill Pond Greenway, a public/private enterprise that will not move forward without the significant contributions of property and improvements the applicant proposes.*

Third, there will be no adverse impact on the functional value of the site or surrounding properties. *In addition to the decrease in impervious coverage, the Project will provide a major stormwater collection and treatment system, both for the Project site and for the surrounding public streets, sidewalks and parking areas. The existing site stormwater runoff, which now runs untreated into the NMP, will be captured and treated. The City will be provided with an easement for a new stormwater drain carrying runoff from the surrounding neighborhood through a treatment system and deposit only treated water in the Pond..*

Fourth, alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals. *The Project includes dramatic benefits to the landscaping and health of the wetland buffer. The project removes existing invasive species dominating the existing buffer area and replaces them with carefully selected native vegetation.*

Temporary disturbances which will be restored following construction will allow for rebuilding of a City stormwater system which contributes to the impaired water quality in the North Mill Pond. Overall the project significantly enhances the area for public use and wetland habitat.

Fifth, the proposal is the alternative with the least adverse impact to areas and environments under the jurisdiction of this section. *The Project will significantly improve and enhance a site which for centuries has been abused by industrial uses, while eliminating ongoing pollution to North Mill Pond.*

Sixth, any area within the vegetated buffer strip will be returned to a natural state to the extent feasible (collectively, the "***CUP Criteria***"). *The applicant has worked closely with the City to design a landscape plan that meets or exceeds the City's reasonable expectations while conforming with the landscape plans for other properties over which the North Mill Pond Greenway will be built.*

The Applicant presented this Project to the Conservation Commission on four separate occasions for review and comment. It has listened to the Commissioners' concerns and suggestions and conscientiously worked to address them, as was recognized in the public comments of numerous Commissioners

The concerns expressed by Commissioners voting against the proposed recommendation to the Planning Board were, (i) the proposed density and scale of the Project, and (ii) "contamination on the site"; issues which lie under the jurisdiction of other City or State offices, and are not open to the consideration of the Commission when acting on a request for a recommendation for a Conditional Use Permit.

The Applicant thus requests that the Commission reconsider its June 16, 2021 vote and, after taking the above comments into consideration, vote once again on the issue at hand.

Dated: June 22, 2021

Respectfully submitted,
Applicant by its Attorneys,
Stebbins, Lazos & Van Der Beken PLLC

By: _____
Robert A. Previti, Esq.

PROPOSED MIXED USE DEVELOPMENT
PORTSMOUTH, NEW HAMPSHIRE

PROJECT IMPACTS EXHIBIT

EXISTING CONDITIONS

TOTAL BUFFER IMPACTS = 28,327 SF

N

SCALE IN FEET
0 30' 60'
GRAPHIC SCALE

1 OF 5

November 24, 2021
P-0595-007-C-DSGN.dwg

Last Save Date: November 17, 2021 4:07 PM By: CKRZCUIK
Plot Date: Thursday, November 18, 2021 Plotted by: Colter Krzcuik
Plot File Location: J:\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings, Figures\AutoCAD\Sheet\P-0595-007-C-COMPARISON.dwg Layout Tab: 1 OF 5

PROPOSED MIXED USE DEVELOPMENT
PORTSMOUTH, NEW HAMPSHIRE

PROJECT IMPACTS EXHIBIT

PROPERTY LINE

25' VEGETATED BUFFER

50' VEGETATED BUFFER

100' VEGETATED BUFFER

TAC WORK SESSION SUBMISSION (12/2/20)

TOTAL BUFFER IMPACTS = 32,393 SF

NET BUFFER IMPACTS = **4,066 SF**

SCALE IN FEET
0 30' 60'
GRAPHIC SCALE

2 OF 5

November 24, 2021
P-0595-007-C-DSGN.dwg

Last Save Date: November 17, 2021 4:07 PM By: CKRZCUIK
Plot Date: Thursday, November 18, 2021 Plotted By: Colter Krzcuik
TAC File Location: J:\P\0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings, Figures\AutoCAD\Sheet\P-0595-007-C-COMPARISON.dwg Layout Tab: 2 OF 5

PROPOSED MIXED USE DEVELOPMENT
PORTSMOUTH, NEW HAMPSHIRE

PROJECT IMPACTS EXHIBIT

TAC SUBMISSION (4/6/21)

TOTAL BUFFER IMPACTS = 24,595 SF

NET BUFFER IMPACTS = **(3,732) SF**

N

SCALE IN FEET

0 30' 60'

GRAPHIC SCALE

3 OF 5

November 24, 2021
P-0595-007-C-DSGN.dwg

Last Save Date: November 17, 2021 4:07 PM By: CKRZCUIK
Plot Date: Thursday, November 18, 2021 Plotted By: Colter Krzcuik
File Location: J:\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings_Figures\AutoCAD\Sheet\P-0595-007-C-COMPARISON.dwg Layout Tab: 3 OF 5

PROPOSED MIXED USE DEVELOPMENT
PORTSMOUTH, NEW HAMPSHIRE

PROJECT IMPACTS EXHIBIT

TAC RESUBMISSION (11/2/21)

TOTAL BUFFER IMPACTS = 24,022 SF

NET BUFFER IMPACTS = **(4,305) SF**

SCALE IN FEET
0 30' 60'
GRAPHIC SCALE

November 24, 2021
P-0595-007-C-DSGN.dwg

Last Save Date: November 17, 2021 4:07 PM By: CKRZCUIK
Plot Date: Thursday, November 18, 2021 Plotted By: Colter Krzcuik
TAC File Location: J:\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings, Figures\AutoCAD\Sheet\P-0595-007-C-COMPARISON.dwg Layout Tab: 4 OF 5

PROPOSED MIXED USE DEVELOPMENT
PORTSMOUTH, NEW HAMPSHIRE

PROJECT IMPACTS EXHIBIT

CURRENT PB SUBMISSION (11/24/21)

TOTAL BUFFER IMPACTS = 21,257 SF

NET BUFFER IMPACTS = **(7,070) SF**[(2)]

[(2)] TOTAL NET REDUCTION INCLUDES IMPERVIOUS SURFACE FOR RESERVE PARKING SPACES IF CONSTRUCTED IN THE FUTURE.
IF RESERVE SPACES ARE NOT CONSTRUCTED, TOTAL IMPERVIOUS SURFACE WILL BE **(10,107) SF** FOR THE PROJECT.

N

SCALE IN FEET
0 30' 60'
GRAPHIC SCALE

November 24, 2021
P-0595-007-C-DSGN.dwg

Last Save Date: November 19, 2021 2:09 PM By: CKRZCUIK
Plot Date: Tuesday, November 23, 2021 Plotted By: Colter Krzcuik
TGS File Location: J:\P0595 Pro Con General Proposals\P0595-007 Raynes Ave Hotel\Drawings, Figures\AutoCAD\Sheet\P-0595-007-C-COMPARISON.dwg Layout Tab: 5 OF 5

AMBIT ENGINEERING, INC. CIVIL ENGINEERS AND LAND SURVEYORS

200 Griffin Road, Unit 3, Portsmouth, NH 03801
Phone (603) 430-9282 Fax 436-2315

23 November 2021

Dexter Legg, Planning Board Chair
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

RE: Application for Site Plan Approval, Tax Map 106, Lot 54, 99 Bow Street

Dear Chairman Legg and Planning Board Members:

On behalf of Martingale, LLC we submit herewith the attached for **Site Plan Approval** for the above-mentioned project and request that we be placed on the agenda for your **December 16, 2021** Planning Board Meeting. The project consists of two separate decks which will be attached to the east and west ends of the existing over water deck located at 99 Bow Street, Portsmouth, and commonly referred to as the Martingale. The West Deck expansion (public wharf deck) will provide the general public with handicap accessible access to the Piscataqua River Waterfront for the enjoyment of the active Inner Harbor of Portsmouth, the Sarah Mildred Long Bridge, the Memorial Bridge, the Moran Tug Boats, the NH State Port Authority Pier and the working waterfront of Kittery Maine. The East Deck expansion will be for an expansion of the existing outside dinning for the Martingale Wharf Restaurant, which is open to the public.

Martingale Wharf is the only restaurant open to the general public located on the Inner Harbor of downtown Portsmouth that provides full handicap accessibility via on street parking located on Bow Street and a passenger elevator to the waterfront. Martingale Wharf also has handicap accessible bathrooms located on the waterfront as part of the restaurant. The northern, or “waterside” limit of the building is synonymous with a seawall, which is also the landward limit of the Highest Observable Tide Line for the majority of the shoreline frontage associated with the property. At the time of construction in 2010, Martingale was one of only two projects to receive an Urban Exemption to Shoreland Zoning which permitted the construction and improvements as seen today, including approval for public dining on the existing deck. The West Deck expansion (public wharf deck) is the only waterfront deck with handicap accessibility to the general public. The deck also has additional public access via a continuous easement that connects the Martingale with Ceres Street and Bow Street (See Existing Conditions Plan-Sheet C1).

The public wharf deck and the public dining deck will each display an educational bas relief sculpture installed on the walls of the deck expansion. Each sculpture will depict seamen in the age of sail, while weaving in images of the Portsmouth seaport history. These and other specialized landscaped features will provide the public with a unique experience in a unique space (See McHenry Architecture and Terra Firma Landscape Architecture Plans attached).

This application received approval from the Portsmouth Historic District Commission on October 6, 2021. The Technical Advisory Committee recommended approval of the Site Plan on November 2, 2021 with the following stipulations (addressed in **bold** text):

1. Public access along the waterfront is increased to 20 feet. **The plans have been revised to increase the public space on the west end of the deck: see Sheet C2 and the rendering of the space at Sheet A7.**
2. Public access signage will be displayed. **See Note 10 on Sheet C2.**
3. Owner reserves the right to close gate after hours for public safety. **See Note 11 on Sheet C2.**

Please find the following plans in this submission:

- Cover Sheet – This shows the Development Team, Legend, Site Location, and Site Zoning.
- As – Built Plan, Martingale Wharf – This shows the property dimensions of the lot.
- Existing Conditions Plan C1 – This plan shows the current improvements on the property.
- NHDES Permit Plan C2 – This plan shows the proposed deck expansion(s) and layout of the proposed features.
- Site Sections C3 – C5 – These plan shows the on-site and adjacent underwater topography / bathymetry as well as the proposed pile locations.
- Details D1 – This plan shows the Deck Details as well as erosion control and project construction sequence.
- Perspective View of Deck Expansion A4 – This plan shows the rendered views of the proposed deck expansion. Please note the Public Space on the right side of the plan.
- Perspectives of West, East and West Mural A7 and A8 – These plans show the rendered views of the proposed murals at each end of the decks, with relevant details. Note the Public Space in front of the west mural.
- Deck Expansion Plan A9 – The plan show the dimensions of the proposed deck expansion and proposed deck seating. Note the expanded Public Deck.
- Deck Expansion North Elevation Plan A10 – This plan shows the deck in elevation view.
- Elevations at East and West Murals A11 – This plan shows the site elevations at the mural locations.
- Enlarged Plans, Elevations, and Details A12 – The details show the construction on the proposed deck.
- Cut Sheets and Material Selections A13 – This plans show additional details of the proposed deck expansion and the proposed lighting.
- Landscape Details L1 – The plan show landscape details for the proposed deck expansion and murals.

Also included in this submission are the following additional exhibits to assist in your review:

Green Building Statement
Wetland Functions and Values Assessment
Site Photographs (Existing)
Third Exit Building Permit and Plan
Harbor Master Approval
HDC Approval

We look forward to the Planning Boards review of this submission and we will be in attendance at the meeting to answer any questions the Board may have on the proposed project.

Sincerely,

John Chagnon

John R. Chagnon, PE
CC: 99 Bow Street Team

Green Building Statement

The project proposes to construct an overwater deck expansion including a public wharf deck resulting in permanent impact to the tidal area requiring NH DES approvals. Since the proposed structures are additions to existing structures, and the purpose of the expansion is tied to the use and enjoyment of waterfront area of the property by the patrons and the general public, practicable alternatives along the 190+/-feet of shoreline are severely reduced.

The proposed structure will be constructed on piles within the tidal area reducing permanent impacts to the tidal wetland resource. Since the structures will be constructed on piles, the structures will not impede tidal flow or alter hydrology, and will not deter use by wildlife species that currently use the tidal area, and it will not impede any migrational fish movement. The proposed structures have been designed to not impede recreation, public commerce, and navigation. The docking structure does not extend into any federal or local navigation channel. The project does not propose any impacts to floodplain wetlands as the dock will be constructed on piles therefore providing no significant decrease in flood storage potential.

The project does not propose any impacts to exemplary natural communities or vernal pools. Per the Natural Heritage Bureau Review, shortnose sturgeon (Acipenser brevirostrum) and Atlantic sturgeon (Acipenser oxyrinchus) have been identified as sensitive species on or near the project site. Coordination with New Hampshire Fish & Game in regards to the above protected species will be a part of the NH DES approval process.

Wetland Functions and Values Assessment

Prepared for:

Martingale LLC
99 Bow Street
Portsmouth, New Hampshire 03801

Prepared By:
Ambit Engineering, Inc
200 Griffin, Unit 3
Portsmouth, New Hampshire 03801

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors

Date: June 14, 2021

Revised 10-18-21 to Eliminate Dock Expansion from Scope

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APPENDICES

Appendix A Wetland Function-Value Evaluation Form
Appendix B Photo Log
Appendix C NH Natural Heritage Bureau Letter

INTRODUCTION

The applicant is proposing the construction of an overwater deck expansion with a public wharf deck at 99 Bow Street, Portsmouth, New Hampshire. The project site is identified on Portsmouth Tax Map 106 as Lot 54 and is approximately 9,769 sq. ft. in size. As currently designed, the proposed project would require impacts to tidal wetlands associated within the Piscataqua River.

The purpose of this report is to present the existing functions and values of the tidal wetlands and to assess any impacts the proposed project may have on their ability to continue to perform these functions and values. The tidal wetlands being impacted were assessed with consideration to their association with the Piscataqua River and the larger marine ecosystem and was not limited to the tidal wetlands immediately on-site.

METHODS

DATA COLLECTION

The tidal wetlands associated with this project area were identified and characterized through field survey and review of existing information. Ambit Engineering, Inc. (Ambit) conducted a site visit in April of 2021 to characterize the tidal wetlands and collect the necessary information to complete a functions and values assessment. In addition, Ambit contacted the New Hampshire Natural Heritage Bureau (NHB) regarding existing information of documented rare species or natural communities within the vicinity of the project site.

WETLAND FUNCTIONS AND VALUES ASSESSMENT

Ambit assessed the ability of the tidal wetlands to provide certain functions and values and analyzed the potential affects the proposed project may have on their ability to continue to provide those functions and values. Wetland functions and values were assessed using the *Highway Methodology Workbook, Wetland Functions and Values: A Descriptive Approach*.[1] This method bases function and value determinations on the presence or absence of specific criteria for each of the 13 wetland functions and values (see definitions below). These criteria are assessed through direct field observations and a review of existing resource maps and databases. As part of the evaluation, the most important functions and values associated with the on-site wetlands are identified. In addition, the ecological integrity of the wetlands is evaluated based on the existing levels of disturbance and the overall significance of the wetlands within the local watershed.

° **Groundwater Interchange (Recharge/Discharge)**
This function considers the potential for the project area wetlands to serve as groundwater recharge and/or discharge areas. It refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

° **Floodwater Alteration (Storage and Desynchronization)**
This function considers the effectiveness of the wetlands in reducing flood damage by attenuating floodwaters for prolonged periods following precipitation and snow melt events.

° **Fish and Shellfish Habitat**
This function considers the effectiveness of seasonally or permanently flooded areas within the subject wetlands for their ability to provide fish and shellfish habitat.

° **Sediment/Toxicant Retention**
This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland to function as a trap for sediments, toxicants, or pathogens, and is generally related to factors such as the type of soils, the density of vegetation, and the position in the landscape.

° **Nutrient Removal/Retention/Transformation**
This wetland function relates to the effectiveness of the wetland to prevent or reduce the adverse effects of excess nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.

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[1] U.S. Army Corps of Engineers. 1999. *The Highway Methodology Workbook Supplement, Wetland Functions and Values: A Descriptive Approach.* U.S. Army Corps of Engineers. New England Division. 32pp. NAEEP-360-1-30a.

° **Production Export (Nutrient)**
This function relates to the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

° **Sediment/Shoreline Stabilization**
This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion, primarily through the presence of persistent, well-rooted vegetation.

° **Wildlife Habitat**
This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered.

° **Recreation (Consumptive and Non-Consumptive)**
This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting, and other active or passive recreational activities.

° **Educational/Scientific Value**
This value considers the effectiveness of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

° **Uniqueness/Heritage**
This value relates to the effectiveness of the wetland or its associated water bodies to provide certain special values such as archaeological sites, unusual aesthetic quality, historical events, or unique plants, animals, or geologic features.

° **Visual Quality/Aesthetics**
This value relates to the visual and aesthetic qualities of the wetland.

° **Endangered Species Habitat**
This value considers the suitability of the wetland to support threatened or endangered species.

FUNCTIONS AND VALUES ASSESSMENT

Results of the wetland functions and values assessment are presented below. This assessment includes a discussion of potential changes to existing wetland functions and values that may occur as a result of the proposed project:

Groundwater Interchange (Recharge/Discharge)
Because there is no identified sand and gravel aquifer underlying the project area, and the wetlands are not underlain by sands or gravel, it is unlikely that significant groundwater recharge is occurring within the tidal wetlands.

Floodwater Alteration (Storage and Desynchronization)
The tidal wetlands associated with the Piscataqua River receive floodwaters from the surrounding watershed and connected waterways; therefore, is considered a principal function considering the large size of the combined waterways.

Fish and Shellfish Habitat
The tidal wetland does provide fish and shellfish habitat, is associated with the Piscataqua River and the Atlantic Ocean; therefore, is considered a principal function.

Sediment/Toxicant Retention
The tidal wetland and greater marine wetland system associated with the Piscataqua River contains dense vegetation and a significant source of sediments or toxicants; therefore, is considered a principal function.

Nutrient Removal/Retention/Transformation
The tidal wetland and greater marine wetland system associated with the Piscataqua River contains dense vegetation and a significant source of sediments or toxicants; therefore, is considered a principal function.

Production Export (Nutrient)
Production export is a wetland function that typically occurs in the form of nutrient or biomass transport via watercourses, foraging by wildlife species, and removal of timber and other natural products. Because the tidal wetland provides fish and wildlife habitat, commercial and recreational fisheries opportunities, and nutrients are transferred over several trophic levels in the marine ecosystem, this is considered a principal function.

Sediment/Shoreline Stabilization
Due to the tidal nature and wave action of this wetland; sediment/shoreline stabilization is considered a principal function.

Wildlife Habitat
The greater tidal wetland and the Piscataqua River provide a variety of coastal and marine habitats, therefore would be considered a principal function.

Recreation (Consumptive and Non-Consumptive)
The greater tidal wetland and the Piscataqua River provides a variety of consumptive and non-consumptive recreational opportunities including hunting, fishing and bird watching; therefore, would be considered a principal function.

Education/Scientific Value
The greater tidal wetland and the Piscataqua River are part of a larger marine ecosystem with multiple areas of public access making this a principal value.

Uniqueness/Heritage
The tidal wetland and the Piscataqua River are unique to the seacoast area. Additionally, there are pre and post-colonial historical components associated with the Piscataqua River and the surrounding areas making this a principal value.

Visual Quality/Aesthetics
The Piscataqua River provides aesthetically pleasing coastal views that are viewable from surrounding uplands as well as from the water, making this a principal function.

Endangered Species Habitat
An online inquiry with the NHB resulted in the potential for Atlantic sturgeon (Acipenser oxyrinchus), and short nose sturgeon (Acipenser brevirostrum) to potentially occur near the project area. Ambit Engineering will provide specific project information to NHF & G and comments/recommendations will be provided to NH DES upon receipt.

PROPOSED IMPACTS

This report is accompanying a New Hampshire Department of Environmental Services (NHDES) Major Impact Wetland Permit Application request to propose 2,910 sq. ft. of permanent impact to tidal wetland for the construction of an overwater deck expansion with a public wharf deck (overall structure length 43.5' as measured from MHW) along 190+/- feet of frontage along the Piscataqua River.

SUMMARY AND CONCLUSIONS

The jurisdictional tidal wetland is part of a larger marine system and provides eleven principal functions and values when evaluated as a whole. These functions and values include: floodflow alteration, fish and shellfish habitat, production export, sediment/shoreline stabilization, wildlife habitat, recreation, education/scientific value, uniqueness/heritage, and visual quality aesthetics. While the entire marine system provides these principal functions and values, the proposed impacts associated with the dock modification will not have any effect on its ability to continue to provide them.

The proposed impacts have been minimized to the greatest extent practicable, while allowing reasonable use of the property. The proposed structures will be constructed on piles within the tidal wetland further reducing permanent impacts. The structures will not contribute to additional storm water or pollution. It is anticipated that there will be no effect on any fish or wildlife species that currently use the site for food, cover, and/or habitat. The structure will not impede tidal flow or alter hydrology, it will not deter use by wildlife species that currently use the wetland area, and it will not impede any migrational fish movement.

The structures have been designed to provide expanded use of the property and the businesses that are located on site. There is no grading of the shoreline required to construct the dock. There will be no construction activity that will disturb the area adjacent to the use. All work will be performed from a crane barge at low tide. The barge floats into position and the piles are driven by the crane equipped with a vibratory hammer. This method eliminates any contact of construction equipment with the protected resource. Portions of the structures will be pre-fabricated off site and transported to the site via crane barge.

Based on our assessment of the current functions and values and the proposed structures; it is our belief that the proposed project will have no significant impact on the tidal wetlands or greater marine systems ability to continue to provide their functions and values.

APPENDIX A

WETLAND FUNCTION - VALUE EVALUATION FORM

Wetland Function – Value Evaluation Form

Wetland Description: Wetland A is a tidal wetland associated with the Piscataqua River.	**File number**: 3308	
	Wetland identifier: Wetland A	
	Latitude:X:1,227,494.49	Longitude:Y:212,344.
	Preparer(s): Ambit Engineering, Inc.	
	200 Griffin Road	
	Date: April 5, 2021	

Function/Value	Capability Y	Capability N	Summary	Principal Yes/No
Groundwater Recharge/Discharge		X	This wetland does not possess the characteristics needed to provide this function as there are no identified underlying sand or gravel aquifers.	—
Floodwater Alteration	X		The tidal wetland and the Piscataqua River do receive floodwater from the surrounding watershed and connected waterways; therefore, this would be considered a principal function.	Y
Fish and Shellfish Habitat	X		The tidal wetland and the Piscataqua River are part of a larger coastal marine system and provide both fish and shellfish habitat. This is considered a Principal Function.	Y
Sediment/Toxicant Retention	X		The greater tidal wetland contains dense vegetation and a source of sediments and toxicants, therefore a principal function.	Y
Nutrient Removal	X		The greater tidal wetland contains dense vegetation and a source of nutrients, therefore a principal function.	Y
Production Export	X		Because the tidal wetland provides fish and wildlife habitat, commercial and recreational fishing opportunities, and nutrients are transferred over several trophic levels in the marine ecosystem, this is considered a principal function.	Y
Sediment/Shoreline Stabilization	X		Due to the tidal nature and wave action of this wetland; sediment/shoreline stabilization is considered a principal function.	Y
Wildlife Habitat	X		The greater tidal wetland and the Piscataqua River provides a variety of coastal and marine habitat, therefore would be considered a principal function.	Y
Recreation	X		The greater tidal wetland provides a variety of consumptive and non-consumptive recreational opportunities including hunting, fishing and bird watching; therefore, would be considered a principal function.	Y
Education/Scientific Value	X		The tidal wetland and the Piscataqua River are part of a larger marine ecosystem with multiple areas of public access making this a principal value.	Y
Uniqueness/Heritage	X		The tidal wetland and the Piscataqua River are unique to the seacoast area. Additionally, there are pre and post-colonial historical components associated with the Piscataqua River and the surrounding areas making this a principal value.	Y
Visual Quality/Aesthetics	X		The Piscataqua River provides aesthetically pleasing coastal views that are viewed from surrounding uplands as well as from the water, making this a principal function.	Y
ES Endangered Species Habitat	X		An online inquiry with the NH Natural Heritage Bureau resulted in an occurrence of a sensitive species near the project area. Ambit Engineering will coordinate with NHB and NHF & G and will forward comment to NH DES upon receipt.	—
Other				

Notes:

* Attach list of considerations.

APPENDIX B

PHOTO LOG

SEE APPLICATION SITE PHOTOGRAPH PAGES

APPENDIX C

NEW HAMPSHIRE NATURAL HERITAGE BUREAU CORRESPONDENCE

Memo

NH Natural Heritage Bureau
NHB DataCheck Results Letter

To: John Chagnon, Ambit Engineering, Inc.
200 Griffin Road
Unit 3
Portsmouth, NH 03801

From: Amy Lamb, NH Natural Heritage Bureau
Date: 5/10/2021 (valid until 05/10/2022)
Re: Review by NH Natural Heritage Bureau
Permits: MUNICIPAL POR - Portsmouth, NHDES - Wetland Standard Dredge & Fill - Major, USACE - General Permit

NHB ID: **NHB21-1524** Town: Portsmouth Location: 99 Bow Street
Description: The project proposes an expansion of the existing overwater structure (deck used for outdoor dining) and expansion of the existing tidal docking structure.
cc: Kim Tuttle

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments **NHB: No Comments At This Time**
F&G: Please provide construction schedule so that we can evaluate for potential noise disturbance to Sturgeon species.

Vertebrate species	State[1]	Federal	Notes
Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*)	T	T	Contact the NH Fish & Game Dept and the US Fish & Wildlife Service (see below).
Shortnose Sturgeon (*Acipenser brevirostrum*)	E	E	Contact the NH Fish & Game Dept and the US Fish & Wildlife Service (see below).

[1]Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

Contact for all animal reviews: Kim Tuttle, NH F&G, (603) 271-6544.

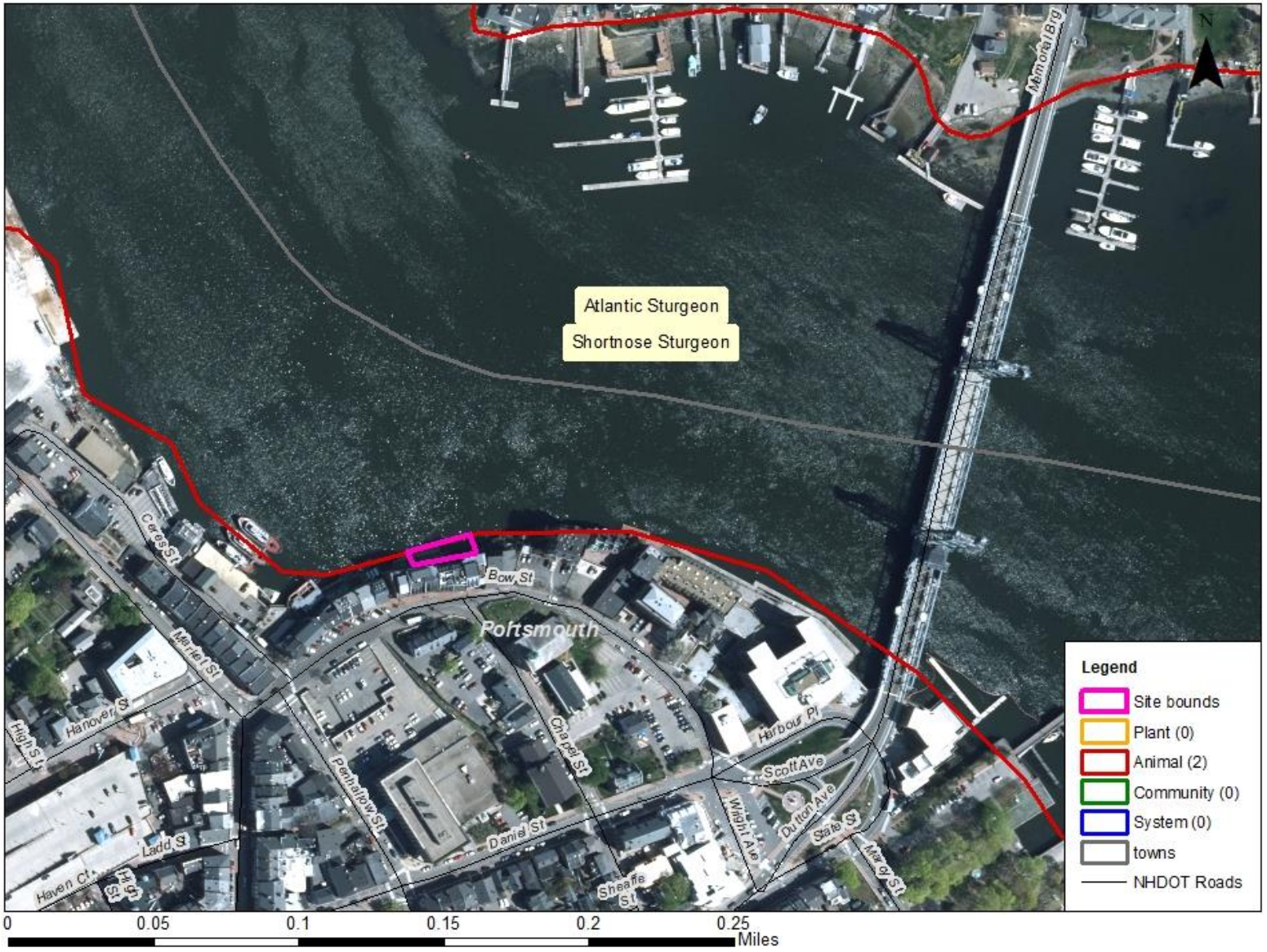
A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

CONFIDENTIAL – NH Dept. of Environmental Services review

NHB21-1524



New Hampshire Natural Heritage Bureau - Animal Record

Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*)

Legal Status		**Conservation Status**	
Federal:	Listed Threatened	Global:	Rare or uncommon
State:	Listed Threatened	State:	Critically imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank: --

Detailed Description: 2016: 1 individual, sex unknown, detected in the lower Piscataqua River. 2015: 1 individual, sex unknown, detected in Portsmouth Harbor. 2012: 1 individual, sex unknown, detected in Little Bay.
General Area: 2016: Tidal waters in Portsmouth Harbor, Little Bay, and the Piscataqua River.
General Comments: --
Management Comments: --

Location

Survey Site Name: Piscataqua River
Managed By:

County:
Town(s): Out-Of-State
Size: 7749.3 acres Elevation:

Precision: Within 1.5 miles of the area indicated on the map (location information is vague or uncertain).

Directions: 2016: Tidal waters of Portsmouth Harbor, Little Bay, and the Piscataqua River.

Dates documented

First reported: 2012-06-02 Last reported: 2016-05-27

The U.S. Fish & Wildlife Service has jurisdiction over Federally listed species. Please contact them at 70 Commercial Street, Suite 300, Concord NH 03301 or at (603) 223-2541.

CONFIDENTIAL – NH Dept. of Environmental Services review

New Hampshire Natural Heritage Bureau - Animal Record

Shortnose Sturgeon (*Acipenser brevirostrum*)

Legal Status	Conservation Status
Federal: Listed Endangered	Global: Rare or uncommon
State: Listed Endangered	State: Critically imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank: --

Detailed Description: 2016: 2 individuals, 1 female and 1 sex unknown, detected in Portsmouth Harbor and the lower Piscataqua River. 2015: 3 females and 2 other individuals, sex unknown detected in Portsmouth Harbor. 2014: 1 female detected moving from Portsmouth Harbor up the Piscataqua River to the mouth of the Cocheco River. 2012: 1 female detected in Little Bay. 2011: 1 female detected in Little Bay. 2010: 1 female detected in Little Bay.
General Area: 2016: Tidal waters in Portsmouth Harbor, Little Bay, and the Piscataqua River.
General Comments: --
Management Comments: --

Location

Survey Site Name: Piscataqua River
Managed By:

County:
Town(s): Out-Of-State
Size: 7749.3 acres Elevation:

Precision: Within 1.5 miles of the area indicated on the map (location information is vague or uncertain).

Directions: 2016: Tidal waters of Portsmouth Harbor, Little Bay, and the Piscataqua River.

Dates documented

First reported: 2010-11-03 Last reported: 2016-10-20

The U.S. Fish & Wildlife Service has jurisdiction over Federally listed species. Please contact them at 70 Commercial Street, Suite 300, Concord NH 03301 or at (603) 223-2541.

CONFIDENTIAL – NH Dept. of Environmental Services review

SITE PHOTOGRAPHS
Portsmouth, NH

Site Photograph #1 April 2021

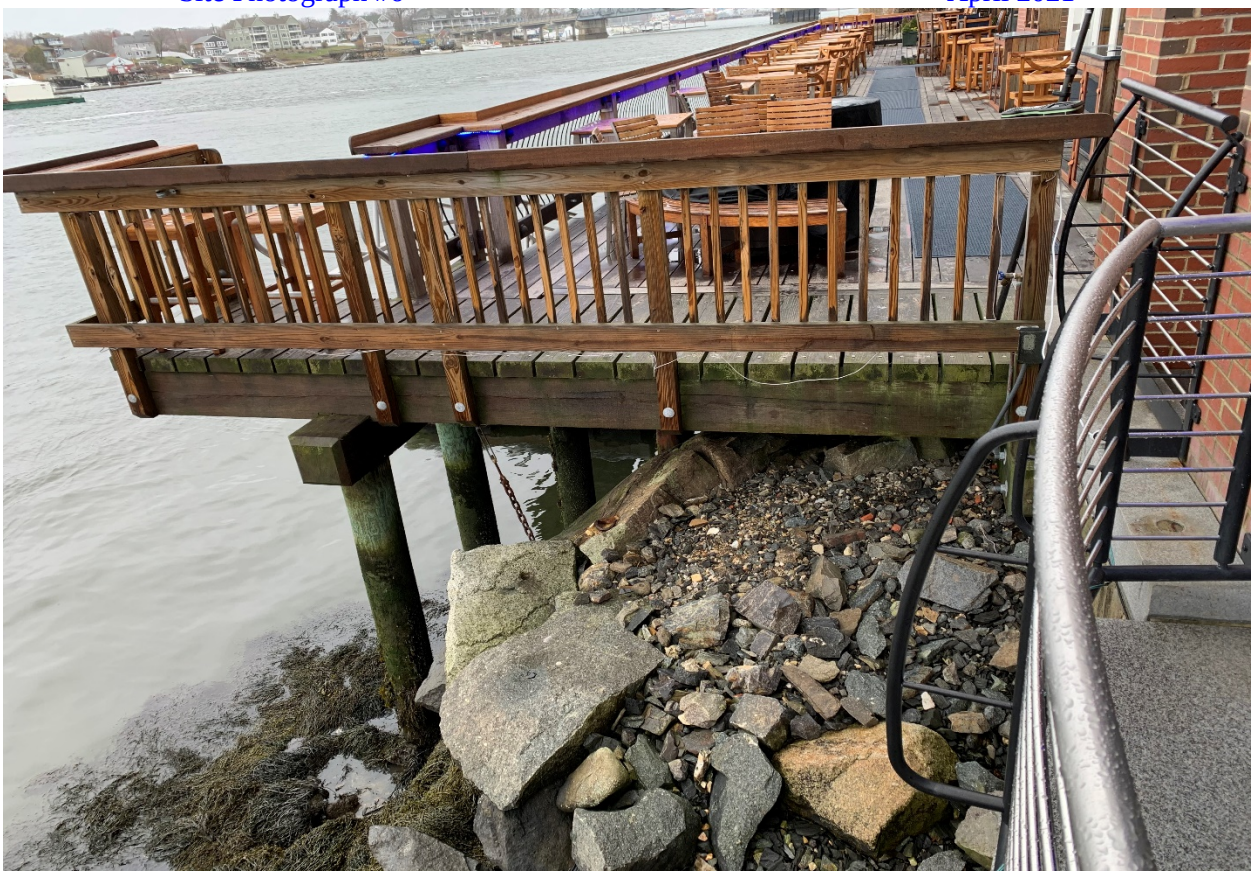
Site Photograph #2 April 2021

Site Photograph #3 April 2021

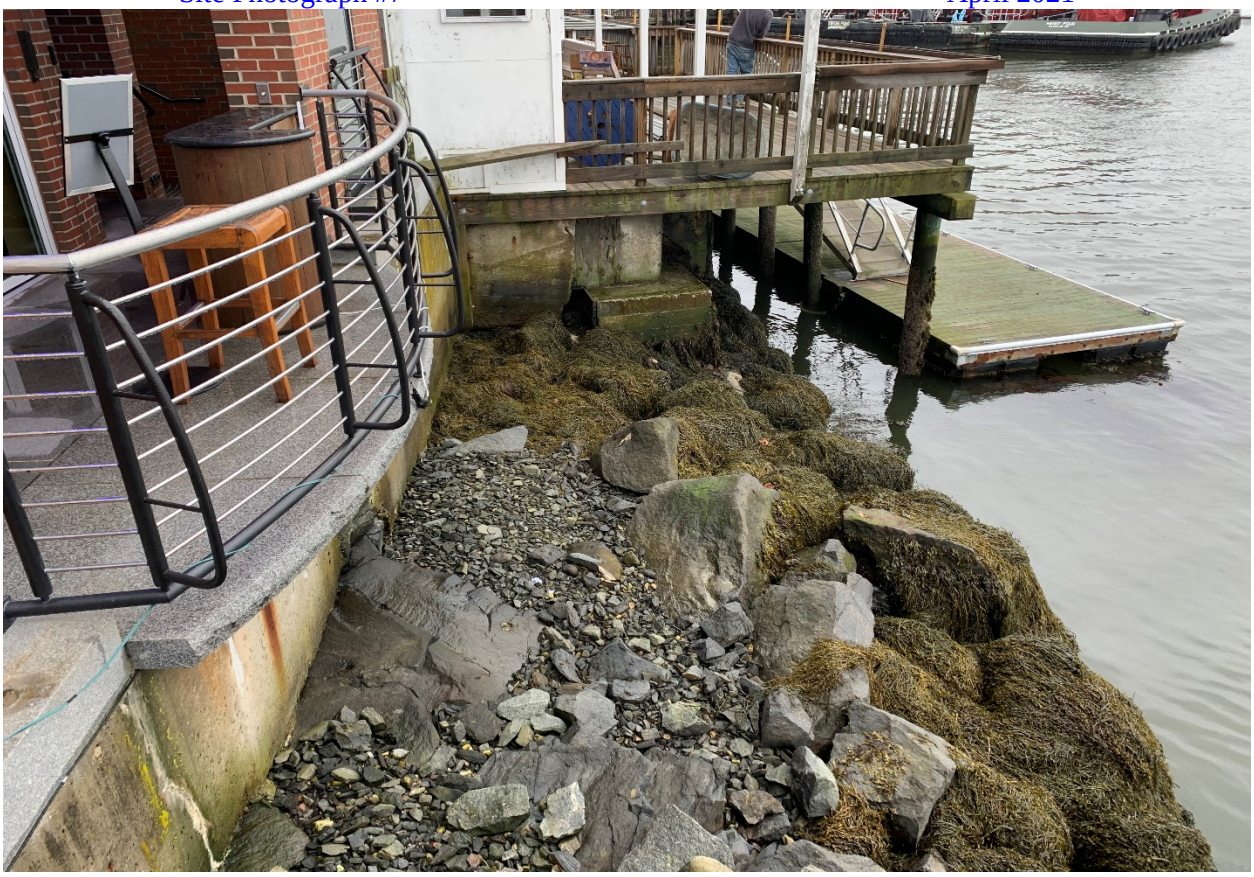
Site Photograph #4 April 2021

Site Photograph #5 April 2021

Site Photograph #6 April 2021



Site Photograph #7 April 2021



Site Photograph #8 April 2021

Site Photograph #9 April 2021

Site Photograph #10 April 2021

Site Photograph #11 April 2021

City of Portsmouth
Building Permit

Inspection Department
1 Junkins Avenue
Portsmouth, NH 03801
603-610-7243

Permit Number:
44
Date of Issue:
April 07, 2017
Expires:
04/07/2018
Const. Cost:
$50000

Owner: MARTINGALE WHARF LIMITED PARTNERSHIP
Applicant: Mark McNabb
Contractor: Mark A. McNabb, McNabb Properties, Ltd. **Phone #:** (603)427-0725
Location: 99 BOW ST

Description of Work: Construction of new interior stair to connect Martingale Wharf Restaurant to Bow Street which will provide a third means of egress out of Martingale Wharf Restaurant.

Zoning: CD5
Map/Lot: 0106--0054--0000-
Design Occupant Load:

Min Constr. Type:
Bldg. Code: **Edition:**

Remarks:

* Separate electrical, plumbing and mechanical permits required.
*Issuance of this permit does not authorize any increase to existing max. occupant load. Separate permit application required which includes a detailed seating and life safety plan along with all details necessary to justify any requested increase.
*Per 4/6/17 email response from designer and revised drawings dated 4/6/17.
* Illuminated exit signs and emergency lighting are required throughout the space to illuminate the exit access and front & rear exit discharges.

The PERMIT HOLDER has read this permit, the permit application, and the Building Official's marked-up plans and agrees t perform the work authorized including any conditions or requirements indicated thereon; and any stipulations imposed by a Land Use Board in conjunction with the project. The CONTRACTOR shall be responsible for notifying the Inspection Department 48 hours in advance, for FOUNDATION, FRAMING, and FINAL inspections. A Certificate of Occupancy is required for all Bu ilding Permits. Buildings shall not be occupied until ALL inspections (BUILDING, ELECTRICAL, PLUMBING, MECHANICAL, and FIRE) are complete and Occupancy has been issued. By signing this permit, the owner or his/her representative (Permit Holder), authorizes property access by city officials to conduct interior and exterior inspections and property tax assessments during and/or after the construction process.

The Permit Card Shall Be Posted and Visible From the Street During Construction.

Code Official:

This is an e-permit. To learn more, scan this barcode or

visit portsmouthnh.viewpointcloud.com/#/records/44

City of Portsmouth
Planning & Inspection Departments
1 Junkins Ave
Portsmouth, NH 03801
Phone: 603-610-7216

Receipt #: 118278
Date: 4/07/2017

INSPECT

Paid By:

Transaction Receipt

Martingale, LLC
,

----- Bills Paid -----					
Invoice #	**Principal**	**Costs**	**Interest**	**Amount Applied**	
	Description / Location			**Balance Due**	
2017 OC-BLDGPORTS-MS-45364	500.00	0.00	0.00	500.00	
44/Building Permits	0			0.00	
Total Applied:	**500.00**	**0.00**	**0.00**	**500.00**	

----- Payments -----				
Type	**Reference**	**Fees**	**Amount**	**Total Paid**
CHECK	14049	0.00	500.00	500.00

0.00

Received

City of Portsmouth, NH

1 Junkins Ave, (603) 610-7243
FAX: (603) 610-4040
www.cityofportsmouth.com

BOA ___
HDC ___
SPR ___
CC ___

Building Permit Application -- MINOR CONSTRUCTION / RENOVATION and MISCELLANEOUS ACTIVITIES

Form Updated May 2016

Office Use: Cost of All Construction: $_____ Fee: $_____ Chk #: _____ Cash: ___

Zoning District: _____ HD: ___ DOD: ___ Map #: _____ Lot #: _____ Building Permit # : _____

Print in Ink or Type. *Complete all blanks or indicate "N/A" if not applicable.*

PROPERTY OWNER		
Name: Martingale, LLC		
Address: 99 Bow Street		
City: Portsmouth	State: NH	Zip: 03801
Phone: 603-427-0725	Cell Phone: 603-235-2918	
E-mail: mark@mcnabbgroup.com		

PERMIT APPLICANT		
Name: SAME		
Address: —		
City: —	State:	Zip:
Phone: —	Cell Phone:	
E-mail: —		

Street Address of Property/Project: 99 Bow Street **Unit #:** _____

Contractor Name: TBD Phone: _____

Existing Use of Property: Mixed Use - Office / Restaurant

Description of Work (Check all that apply)

Cost of All Construction: $ 50,000.00

- ☐ Reroofing in Historic District
- ☐ Siding
- ☐ Replacement Windows/Doors
- ☐ Buried Tank(s)-Removal
- ☐ Remodel _____
- ☐ Remodel Kitchen (Floor Plans)
- ☐ Remodel Bathroom (Floor Plans)
- ☐ New Interior Room(s) (Floor Plans)
- ☑ Commercial Renovation (Plans Required)
- ☐ Electrical Work (Separate Permit)
- ☐ Plumbing Work (Separate Permit)
- ☐ Other Activity – **Explain Fully Below**

Expanded Description of Work: Construction of new stair and corridor to provide an additional exit to wharf level restaurant.

When doing remodeling, provide sketch of work area.
If structural work is involved, provide framing information in sketch format, in plan view or with cross section(s).

I certify that the information given is true and correct to the best of my knowledge. ***No change from the above information will be made without approval of the Building Inspector***. Construction activities shall not commence until the Building Permit is issued. I realize that when all necessary approvals have been acquired, a Building Permit may be granted by the Building Inspector to allow construction or remodeling in conformance with this application and the plans/specifications submitted in support of said construction or remodeling only.

Painting and remodeling in dwellings and commercial child care occupancies built before 1978 require all work to be in conformance with Federal EPA rules concerning lead paint. All contractors shall be certified as required by these rules.

I further acknowledge that the proposed structure or improvements shall not be occupied or otherwise utilized without the issuance of a Building Certificate of Occupancy and only after all necessary inspections have been requested and completed. I am also aware that the disposal of waste generated from this project is my responsibility and not part of the City's Trash/Recycling Program.

_____ _____ _____
Signature of Applicant Date If Not Owner, State Relationship

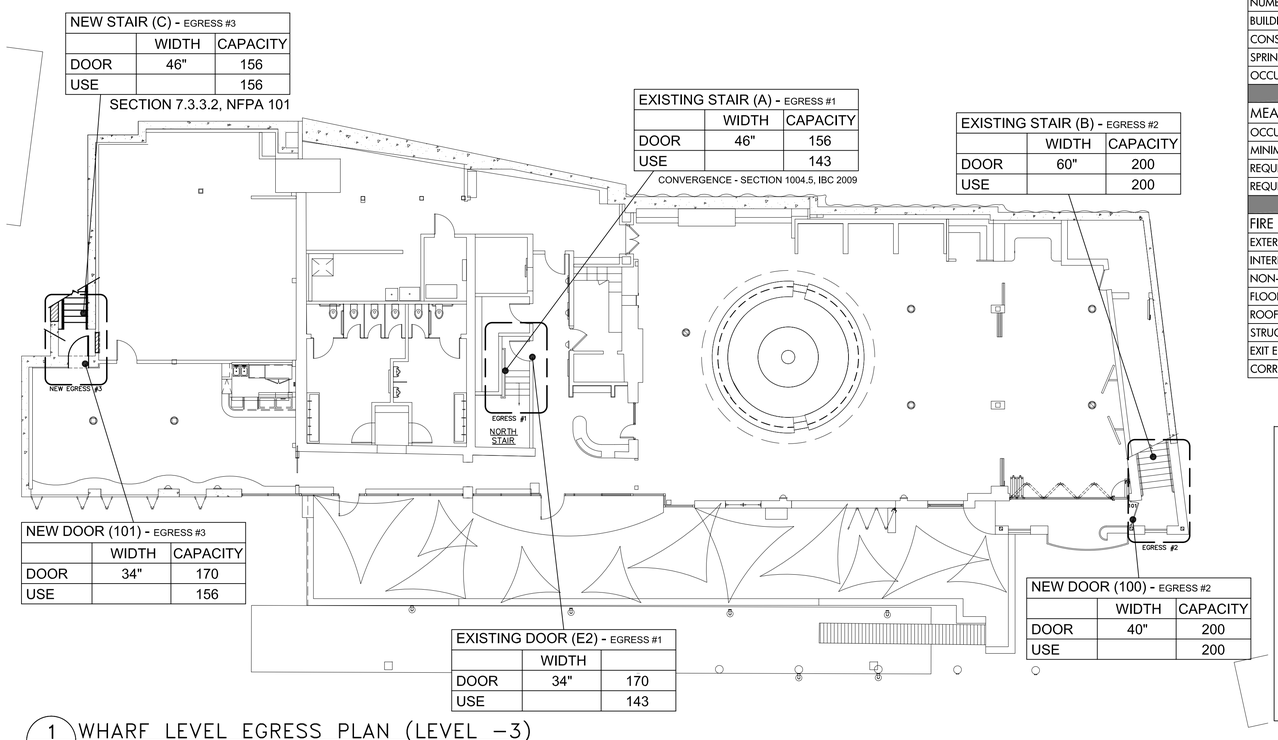
Permit Issuance Approved by Building Inspector: _____ Date _____

MARTINGALE WHARF RESTAURANT: NEW EGRESS STAIR

PORTSMOUTH, NEW HAMPSHIRE

PROJECT DESCRIPTION:

THE GOAL OF THIS PROJECT IS TO ADD A THIRD MEANS OF EGRESS FROM THE MARTINGALE WHARF RESTAURANT. THE CURRENT RESTAURANT UTILIZES ONE INTERIOR STAIR AND ONE EXTERIOR STAIR AS IT'S TWO MEANS OF EGRESS. THE EXISTING MEANS OF EGRESS ALLOWS FOR THE MAX OCCUPANCY OF 322 PEOPLE, AND THE ADDITION OF A NEW INTERIOR STAIR WILL ALLOW AN INCREASE IN OCCUPANT LOAD UP TO 475 PEOPLE.



NEW STAIR (C) - EGRESS #3		
	WIDTH	CAPACITY
DOOR	46"	156
USE		156

SECTION 7.3.3.2, NFPA 101

EXISTING STAIR (A) - EGRESS #1		
	WIDTH	CAPACITY
DOOR	46"	156
USE		143

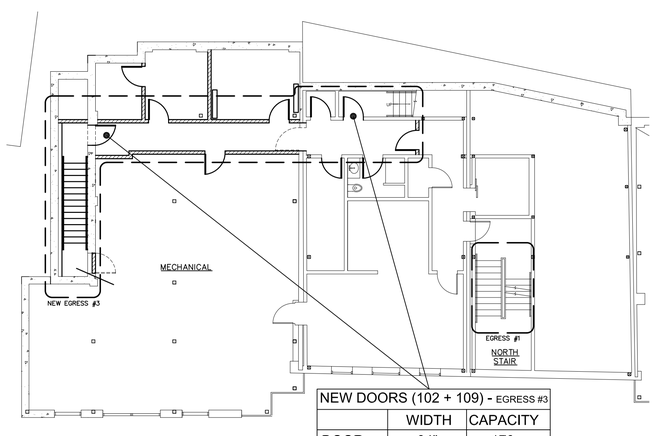
EXISTING STAIR (B) - EGRESS #2		
	WIDTH	CAPACITY
DOOR	60"	200
USE		200

NEW DOOR (101) - EGRESS #3		
	WIDTH	CAPACITY
DOOR	34"	170
USE		156

EXISTING DOOR (E2) - EGRESS #1		
	WIDTH	
DOOR	34"	170
USE		143

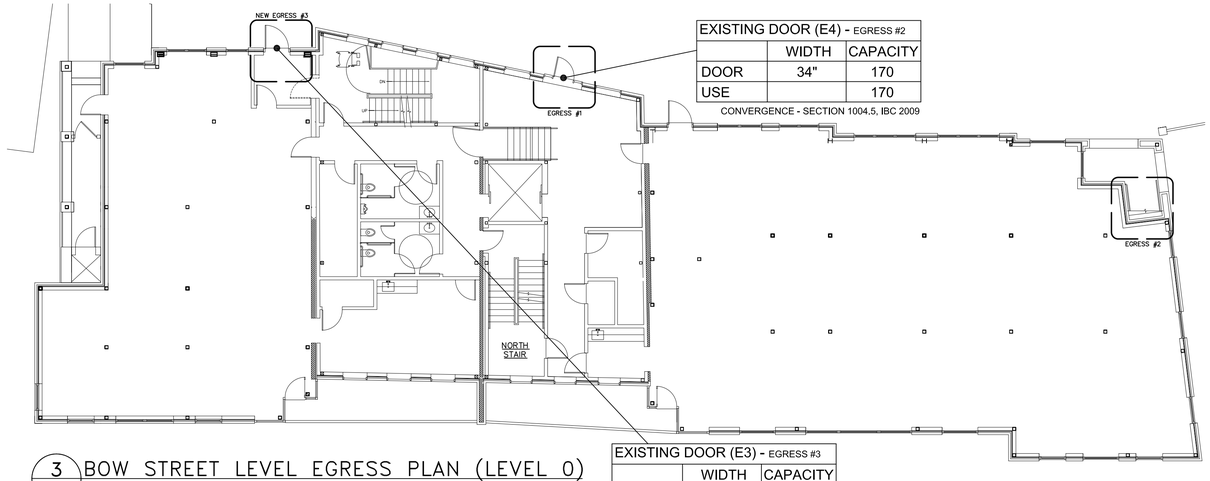
NEW DOOR (100) - EGRESS #2		
	WIDTH	CAPACITY
DOOR	40"	200
USE		200

1 A1 WHARF LEVEL EGRESS PLAN (LEVEL −3)
SCALE: 3/32"=1'−0"



NEW DOORS (102 + 109) - EGRESS #3		
	WIDTH	CAPACITY
DOOR	34"	170
USE		156

2 A1 MECHANICAL LEVEL EGRESS PLAN (LEVEL −2)
SCALE: 3/32"=1'−0"



EXISTING DOOR (E4) - EGRESS #2		
	WIDTH	CAPACITY
DOOR	34"	170
USE		170

EXISTING DOOR (E3) - EGRESS #3		
	WIDTH	CAPACITY
DOOR	40"	200
USE		156

3 A1 BOW STREET LEVEL EGRESS PLAN (LEVEL 0)
SCALE: 3/32"=1'−0"

BUILDING CODE REVIEW:

	BUILDING DATA
FOOTPRINT GROSS AREA	8,544 SF
NUMBER OF STORIES ABOVE GRADE	FIVE STORIES
BUILDING HEIGHT	49'-9" (AVG. GRADE TO MID-SLOPE OF ROOF)
CONSTRUCTION TYPE	2A (TABLE 601 IBC 2009)
SPRINKLER SYSTEM	SUPERVISED NFPA-13 SYSTEM (903.2.9.1 IBC 2009)
OCCUPANCY USE GROUP	A2 - RESTUARANTS + B - BUSINESS (CHAPTER 3, IBC 2009)
MEANS OF EGRESS REQUIREMENTS	
OCCUPANT LOAD	SEE OCCUPANT LOAD CHART - (TABLE 7.3.1.2, NFPA 101)
MINIMUM NUMBER OF EXITS REQUIRED	2 PER STORY (7.4.1, NFPA 101)
REQUIRED CLEAR EGRESS WIDTH AT DOORS	32" MIN. / 34" PROVIDED (A.7.2.1.2.3.2 NFPA 101)
REQUIRED CLEAR EGRESS WIDTH AT STAIR	44" MIN. / 44" PROVIDED (7.2.2.2.1.2(B) NFPA 101)
FIRE RATINGS	TYPE 2A CONSTRUCTION
EXTERIOR BEARING WALLS	1 HOUR (TABLE 601, IBC 2009)
INTERIOR BEARING WALLS	1 HOUR (TABLE 601, IBC 2009)
NON-BEARING INTERIOR WALLS	0 HOUR (TABLE 601, IBC 2009)
FLOOR CONSTRUCTION	1 HOUR (TABLE 601, IBC 2009)
ROOF CONSTRUCTION	1 HOUR (TABLE 601, IBC 2009)
STRUCTURAL FRAME	1 HOUR (TABLE 601, IBC 2009)
EXIT ENCLOSURES	2 HOUR (1022.1, IBC 2009)
CORRIDOR SEPARATION	0 HOUR (TABLE 1018.1, IBC 2009)

OCCUPANT LOAD/CONVERGENCE CHART:

LEVEL		OCCUPANTS
FIFTH LEVEL (NOT SHOWN)	+3	53
FOURTH LEVEL (NOT SHOWN)	+2	77
THIRD LEVEL (NOT SHOWN)	+1	77
SECOND LEVEL (EXITS/BOW STREET)	0	282
FIRST LEVEL (NOT SHOWN)	-1	76
MECHANICAL MEZZANINE	-2	12
WHARF LEVEL	-3	475

CONVERGENCE
CONVERGENCE
CONVERGENCE

CONVERGENCE – THE TWO INTERIOR EXIT ENCLOSURES AT THE MARTINGALE BOTH EXIT AT BOW STREET AT WHAT IS CALLED THE SECOND LEVEL. THERE ARE THREE LEVELS ABOVE THE EXIT LEVEL AND THREE LEVELS BELOW THE EXIT LEVEL. SECTION 1004.5, IBC 2009 STATES THAT CONVERGENCE OCCURS WHEN "OCCUPANTS OF ONE FLOOR TRAVEL DOWN AND OCCUPANTS OF A LOWER FLOOR TRAVEL UP AND MEET AT A COMMON, INTERMEDIATE EGRESS COMPONENT." IN THIS SITUATION THE NEW EXIT IS BEING CREATED FROM THE WHARF LEVEL WHICH IS −3 FROM THE LEVEL OF DISCHARGE AND OCCUPANTS EXITING THE WHARF WILL MEET UP AT STREET LEVEL WITH THE OCCUPANTS FROM THE FIFTH LEVEL. THEREFORE THE FIFTH LEVEL OCCUPANT LOAD OF 53 MUST BE ACCOUNTED FOR WITHIN THE CAPACITY OF ANY PERTINENT EGRESS COMPONENT.

EGRESS CAPACITY/USE:

TO DETERMINE THE ALLOWABLE INCREASE IN OCCUPANTS TO THE WHARF LEVEL DUE TO THE ADDITION OF A THIRD EGRESS SYSTEM THE CAPACITY OF EACH EGRESS COMPONENT WITHIN THE SYSTEM MUST BE EVALUATED USING OCCUPANT LOAD COUNTS AND APPLICABLE CONVERGENCE FACTORS.

EGRESS #1 – 170 OCCUPANTS (DOOR E4) – 27 OCCUPANTS (FIFTH LEVEL CONVERGENCE FACTOR) = 143 OCCUPANTS (MORE STRINGENT)
OR 156 OCCUPANTS (STAIR A) = 156 OCCUPANTS

EGRESS #2 – 200 OCCUPANTS (DOOR 100) OR
200 OCCUPANTS (STAIR B) = 200 OCCUPANTS

EGRESS #3 – 200 OCCUPANTS (DOOR E3) – 27 OCCUPANTS (FIFTH LEVEL CONVERGENCE FACTOR) = 173 OCCUPANTS OR
156 OCCUPANTS (STAIR C) = 156 OCCUPANTS (MORE STRINGENT)

MARTINGALE WHARF OCCUPANT LOAD = 499 TOTAL

LIST OF DRAWINGS:

ARCHITECTURAL

A1.1 LIST OF DRAWINGS, CODE REVIEW, & EGRESS PLANS

A1.2 GENERAL NOTES, FLOOR PLANS, WALL TYPES, & DOOR SCHEDULE

© 2017 McHenry Architecture

MARTINGALE WHARF RESTAURANT
NEW EGRESS STAIR
99 BOW STREET
PORTSMOUTH, NEW HAMPSHIRE

PROJECT:

McHENRY ARCHITECTURE
4 Market Street
Portsmouth, New Hampshire
603.430.0274

STAMP:

CONSULTANT:

REVISIONS:
06APRIL2017

PROJECT NAME:
MARTINGALE WHARF RESTAURANT
NEW EGRESS STAIR

PROJECT NO.: 15024
DRAWN BY: JJ
APPROVED BY: JJ
ISSUE DATE: 10MARCH2017

DRAWING NAME:
LIST OF DRAWINGS, CODE REVIEW, & EGRESS PLANS

SCALE: AS NOTED
DRAWING NO.:

A1.1

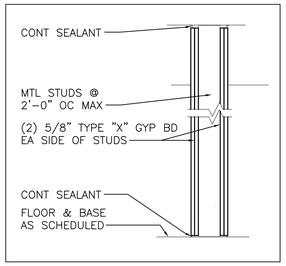
GENERAL CONSTRUCTION NOTES:

1. WORK INCLUDED IN THIS CONTRACT SHALL CONFORM TO THE STATE, NATIONAL, AND OTHER CODES AND ORDINANCES THAT APPLY TO THIS PROJECT.
2. DO NOT SCALE DRAWINGS OR DIMENSIONS. FOR MISSING DIMENSIONS OR DIMENSIONAL CONFLICTS, CONTACT THE ARCHITECT IMMEDIATELY BEFORE CONTINUING WITH THE WORK.
3. BRING ANY DISCREPANCIES IN THESE PLANS TO THE ARCHITECT'S ATTENTION IMMEDIATELY.
4. REFER TO MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION DRAWINGS AND SPECIFICATIONS FOR LOCATIONS OF ALL BLOCK OUTS, INSERTS, OPENINGS, CURBS, BASES, AND PADS THAT ARE NOT DIMENSIONED OR SHOWN ON ARCHITECTURAL OF STRUCTURAL DRAWINGS, TYP.
5. STRUCTURAL STEEL, MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION DRAWINGS AND SPECIFICATIONS SHALL BE PROVIDED AND ARE THE RESPONSIBILITY OF THEIR RESPECTIVE SUBCONTRACTORS AND THEIR DESIGN BUILD ENGINEER.
6. DIMENSIONS ARE FROM FACE OF FRAMING TO FACE OF FRAMING UNLESS NOTED OTHERWISE. DIMENSIONS INDICATED AS "CLEAR" SHALL MAINTAIN A CLEAR OPENING WIDTH FROM FACE OF FINISHES. DIMENSIONS TO EXISTING CONSTRUCTION ARE TO FACE OF FINISH UNLESS NOTED OTHERWISE.
7. WORK FROM GIVEN DIMENSIONS AND LARGE SCALE DETAILS ONLY. DO NOT SCALE DRAWINGS.
8. ROOM NUMBERS ON PLANS ARE FOR REFERENCE ONLY AND MAY NOT CORRESPOND TO ACTUAL ROOM NUMBERS AT THE SITE.
9. BEFORE PENETRATING JOISTS, BEAMS, OR OTHER STRUCTURAL MEMBERS, OBTAIN APPROVAL FROM THE ARCHITECT.
10. THE LOCATION OF DOOR OPENINGS NOT DIMENSIONED SHALL BE 6" FROM ADJACENT WALL (FACE OF FRAMING TO ROUGH OPENING).
11. PROVIDE BLOCKING BEHIND SURFACE APPLIED FIXTURES, TRIM, GRAB BARS, SHELVING, CHAIR RAILS, PICTURE RAILS, WOOD TRIM AND BASE, AND OTHER ACCESSORIES WHEN MOUNTED ON STUD WALLS.
12. WHERE WALLS OR INFILLS ABUT OR INTERSECT EXISTING WALLS, TAPE AND FINISH JOINTS AT INTERSECTIONS SMOOTH AND CONTINUOUS. USE METAL TRIM WHERE GYPSUM BOARD INTERSECTS OTHER MATERIALS.
13. PERMITS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE COORDINATED WITH PHASING AND WITH THE LOCAL BUILDING COMMISSIONER.
14. DURING THE ENTIRE CONTRACT PERIOD, MAINTAIN THE CONSTRUCTION SITE IN A SECURE, NEAT, CLEAN, AND SAFE MANNER.
15. DISPOSE OF AND/OR RECYCLE CONSTRUCTION DEBRIS FROM THE PROJECT SITE AS REQUIRED BY THE CONTRACT AND AS INSTRUCTED BY THE OWNER. OBTAIN DISPOSAL PERMITS AS REQUIRED.
16. PROVIDE AND COORDINATE TEMPORARY UTILITY CONNECTIONS WITH THE OWNER.
17. WORK SHALL BE COMPLETED IN COMPLIANCE WITH INDUSTRY STANDARDS AND PERFORMED IN A WORKMANLIKE PROFESSIONAL MANNER.

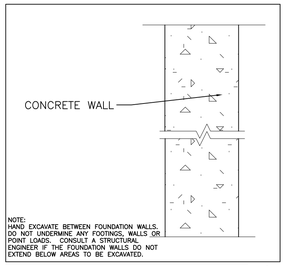
GENERAL DEMO NOTES:

1. ANY REFERENCE TO DEMOLITION IS BASED ON EXISTING WORKING DRAWINGS AND EXAMINATION OF THE EXISTING STRUCTURE AND ARE INTENDED TO SHOW THE GENERAL CONDITIONS WHICH ARE EXPECTED TO OCCUR. THE ARCHITECT ASSUMES NO RESPONSIBILITY FOR ANY SITUATIONS, DIMENSIONS, OR OTHER CONDITIONS OF THE EXISTING STRUCTURE WHICH MAY ARISE DURING DEMOLITION OR CONSTRUCTION.
2. VERIFY ALL CONDITIONS BEFORE PROCEEDING WITH THE DEMOLITION WORK IN ANY AREA. DEMOLITION OF DOORS, WINDOWS, CABINETRY, FINISHES, PARTITIONS, OR ANY OTHER NON-STRUCTURAL ITEMS MAY PROCEED AS INDICATED. WHERE DISCREPANCIES INVOLVE STRUCTURAL ITEMS, REPORT SUCH DIFFERENCES TO THE ARCHITECT IMMEDIATELY AND SECURE INSTRUCTIONS BEFORE PROCEEDING WITH WORK IN THAT AREA.
3. DASHED LINES INDICATE WALLS, DOORS, WINDOWS, CABINETRY, AND OTHER ITEMS TO BE DEMOLISHED.
4. CUT WORK BY METHODS LEAST LIKELY TO DAMAGE EXISTING WORK TO REMAIN AND ANY NEW WORK. THE CONTRACTOR SHALL REPAIR ALL DAMAGES CAUSED TO THE ADJACENT WORK CAUSED BY THE DEMOLITION.
5. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY FORMS OF PROTECTION.
6. THE CONTRACTOR SHALL FOLLOW ALL OSHA REQUIREMENTS.
7. WHERE APPLICABLE PATCH AND REPAIR ALL FLOORING, WALLS, WALL BASE, AND CEILINGS TO MATCH EXISTING ADJACENT MATERIALS.

WALL TYPES:



3 5/8" METAL STUD
FULL HEIGHT, 2 HOUR RATED
UL U411 — 1

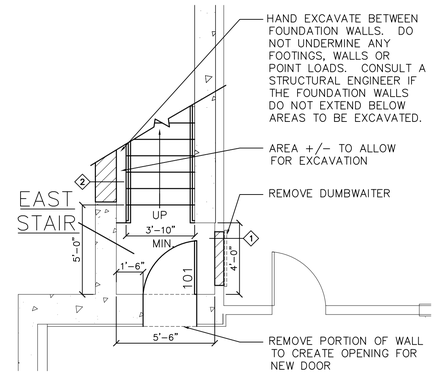


CONCRETE INFILL WALL: TO MATCH EXISTING ADJACENT WALL — 2

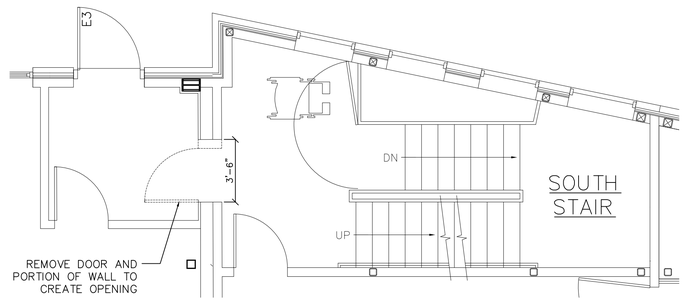
NOTE:
THE FLOOR/CEILING ASSEMBLIES OF THE NEW CORRIDOR AT THE MECHANICAL LEVEL HAVE A 1HR FIRE RESISTANCE RATING AS CONSTRUCTED. SINCE THIS CORRIDOR WILL BE AN "EXIT PASSAGEWAY" THE FIRE RESISTANCE RATING OF THE FLOOR/CEILING ASSEMBLIES WILL NEED TO BE INCREASED TO 2HR. THIS WILL BE ACHIEVED WITH EITHER A SPRAY APPLIED FIRE RESISTIVE COATING OR AN INTUMESCENT PAINT COATING. DETAILS TO BE DETERMINED ON-SITE ONCE THESE AREAS CAN BE EXPOSED.

DOOR SCHEDULE:

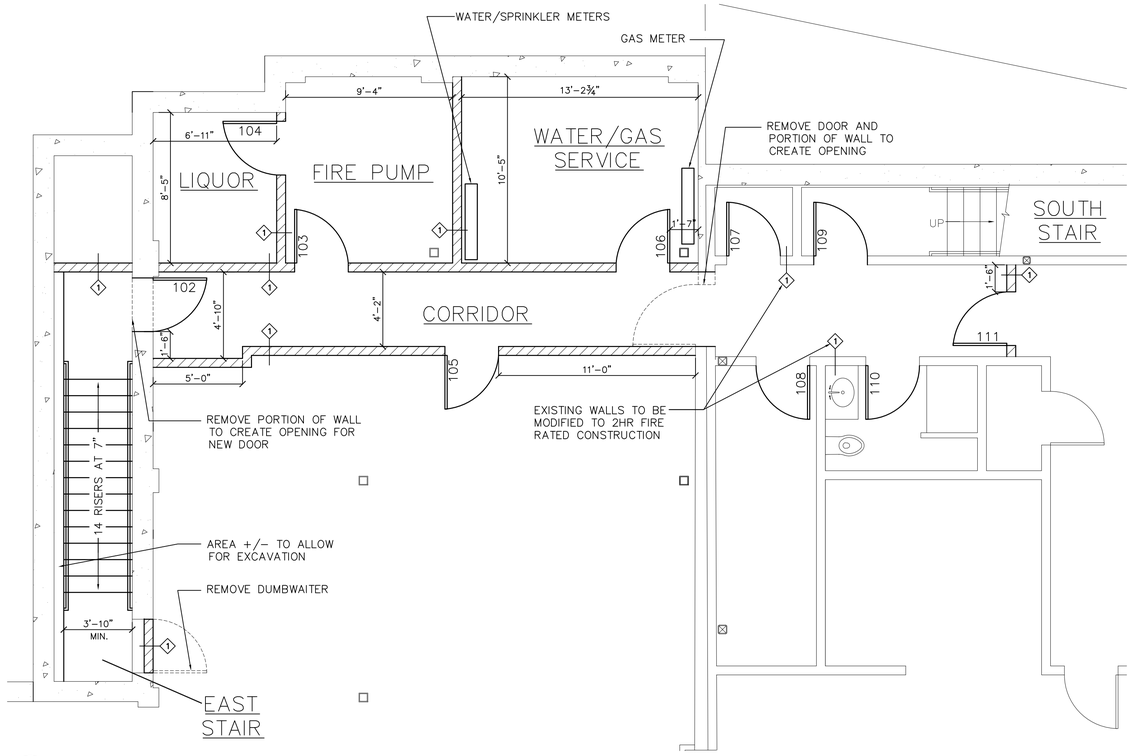
NO.	RATING	SIZE	NOTES
100	–	3'-4" WIDE	NEW GATE IN LARGER OPENING
101	90 MIN	3'-0" x 6'-8"	NEW DOOR IN NEW OPENING
102	90 MIN	3'-0" x 6'-8"	NEW DOOR IN NEW OPENING
103	90 MIN	3'-0" x 6'-8"	NEW DOOR IN NEW OPENING
104	90 MIN	3'-0" x 6'-8"	NEW DOOR IN NEW OPENING
105	90 MIN	3'-0" x 6'-8"	NEW DOOR IN NEW OPENING
106	90 MIN	3'-0" x 6'-8"	NEW DOOR IN NEW OPENING
107	90 MIN	3'-0" x 6'-8"	NEW DOOR IN EXISTING OPENING
108	90 MIN	3'-0" x 6'-8"	NEW DOOR IN EXISTING OPENING
109	90 MIN	3'-0" x 6'-8"	NEW DOOR IN EXISTING OPENING
110	90 MIN	3'-0" x 6'-8"	NEW DOOR IN EXISTING OPENING
111	90 MIN	3'-0" x 6'-8"	NEW DOOR IN NEW OPENING



1 A1.2 NEW EGRESS #3 – WHARF LEVEL
SCALE: 1/4"=1'-0"



3 A1.2 NEW EGRESS #3 – BOW STREET LEVEL
SCALE: 1/4"=1'-0"



2 A1.2 NEW EGRESS #3 – MECHANICAL LEVEL
SCALE: 1/4"=1'-0"

© 2017 McHenry Architecture

MARTINGALE WHARF RESTAURANT
NEW EGRESS STAIR

99 BOW STREET
PORTSMOUTH, NEW HAMPSHIRE

PROJECT:
McHENRY ARCHITECTURE
4 Market Street
Portsmouth, New Hampshire
603.430.0274

STAMP:

CONSULTANT:

REVISIONS:
06APRIL2017

PROJECT NAME:
MARTINGALE WHARF RESTAURANT
NEW EGRESS STAIR

PROJECT NO.: 15024
DRAWN BY: JJ
APPROVED BY: JJ
ISSUE DATE: 10MARCH2017

DRAWING NAME:
GENERAL NOTES, FLOOR PLANS, WALL TYPES, & DOOR SCHEDULE

SCALE: AS NOTED
DRAWING NO.:

A1.2

PEASE
INTERNATIONAL
PORTS AND HARBORS

555 Market Street, Suite 1 Portsmouth, NH 03801

August 26, 2021

NH Department of Environmental Service
Coastal Division
Pease Field Office
222 International Drive, Suite 175
Portsmouth, NH 03801

Attn: Stefanie Giallongo

Re: NHDES file 2021-02150

Dear Stefanie,

We reviewed plans for the construction of additional pier and float to an existing system on the Piscataqua River in Portsmouth on property belonging to

Martingale, LLC

at

99 Bow Street
Portsmouth, NH
Map 106 Lot 54

We examined the proposed site and found that the structure will have no negative effect on navigation in the channel.

Sincerely,

Tracy R. Shattuck
Chief Harbor Master

Cc: Stephen Riker
Ambit Engineering
200 Griffin Road Unit 3
Portsmouth, NH 03801

CITY OF PORTSMOUTH
Planning Department
1 Junkins Avenue
Portsmouth, New
Hampshire 03801
(603) 610-7216

HISTORIC DISTRICT COMMISSION

October 20, 2021

Martingale LLC
30 Penhallow Street, Suite 300 East
Portsmouth, NH 03801

RE: **Certificate of Approval for property located at 99 Bow Street (LU-21-181)**

Dear Owner:

The Historic District Commission, at its regularly scheduled meeting of **Wednesday, October 06, 2021**, considered your application for new construction to an existing structure (expand waterfront deck) as per plans on file in the Planning Department. Said property is shown on Assessor Map 106, Lot 54 and lies within the Character District 5 (CD5), Downtown Overlay, and Historic Diistricts. As a result of said consideration, the Commission voted to **grant** the Certificate of Approval as presented using Alternate Option B (squared-off front of the deck) and with the removal of the artwork. The applicant shall return for Administrative Approval with a revised artwork plan (to consider shipbuilding versus whaling).

Findings of Fact

A. Purpose and Intent

The proposed application meets the following objective(s) of the Historic District (as provided in Section 10.631.20 of the Zoning Ordinance):

-Conservation and enhancement of property values.

B. Review Criteria

The proposed application also meets the following review criteria of the Historic District (as provided in Section 10.635.70 of the Zoning Ordinance):

-Compatibility of design with surrounding properties.

The Commission's decision may be appealed up to thirty (30) days after the vote. Any action taken by the applicant pursuant to the Commission's decision during this appeal period shall be at the applicant's risk. Please contact the Planning Department for more details about the appeals process.

Approvals may also be required from other City Committees or Boards. Once all required approvals have been received, applicant is responsible for applying for and securing a building permit from the Inspection Department prior to starting any project work.

This approval shall expire unless a building permit is issued within a period of one (1) year from the date granted by the Historic District Commission unless an extension is granted by the Commission in accordance with Section 10.636.70 of the Zoning Ordinance.

Please note that any changes or modifications to this application require review and approval from the Commission prior to implementation and additional fees may apply.

The minutes and audio recording of this meeting are available by contacting the Planning Department.

Very truly yours,

Nicholas J. Cracknell, AICP, Principal Planner
for Jonathan Wyckoff, Chairman of the Historic District Commission

cc: Paul Garand, Interim Chief Building Inspector
Rosann Maurice-Lentz, City Assessor

Richard Desjardins, AIA, McHenry Architecture

PUBLIC ACCESS IMPROVEMENTS

MARTINGALE WHARF

99 BOW STREET, PORTSMOUTH, NEW HAMPSHIRE

PERMIT PLANS

OWNER & APPLICANT:
MARTINGALE, LLC
MCNABB PROPERTIES, LTD
3 PLEASANT STREET, SUITE 400
PORTSMOUTH, NH 03801
(603) 427–0725

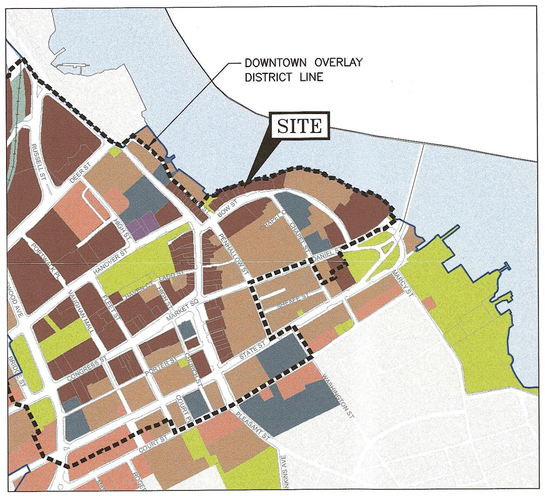
CIVIL ENGINEER & LAND SURVEYOR:
AMBIT ENGINEERING, INC.
200 GRIFFIN ROAD, UNIT 3
PORTSMOUTH, N.H. 03801
Tel. (603) 430–9282
Fax (603) 436–2315

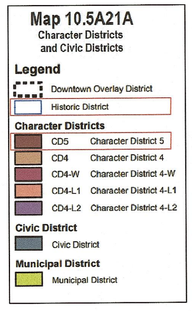
ATTORNEY:
RATH, YOUNG, AND PIGNATELLI, P.C.
ONE CAPITAL PLAZA
CONCORD NH 03302–1500
(603) 226–2600

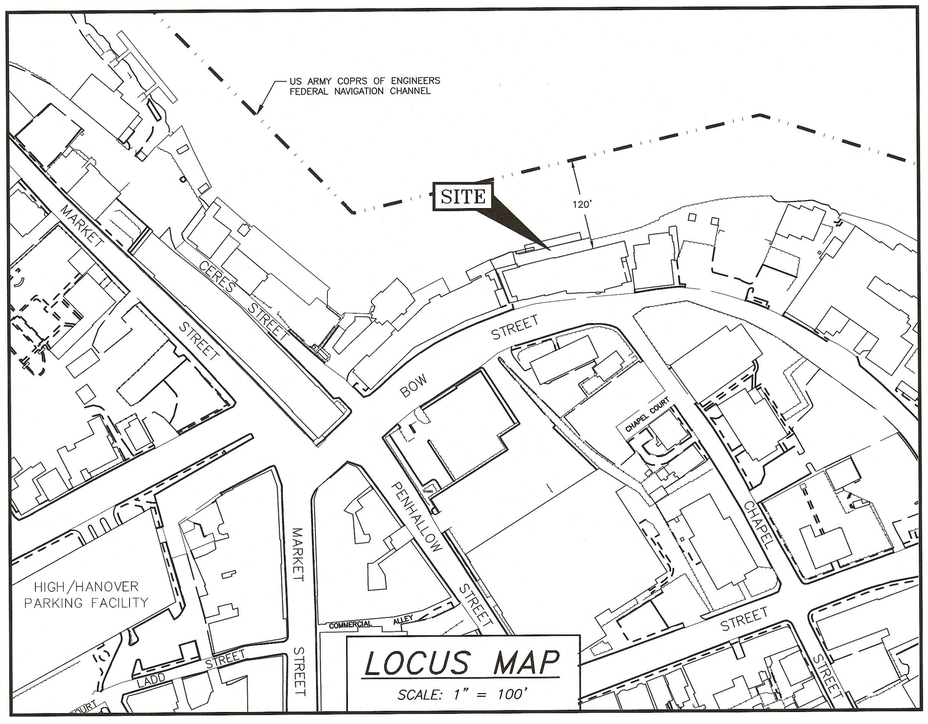
LANDSCAPE ARCHITECT:
TERRA FIRMA LANDSCAPE ARCHITECTURE
163A COURT STREET
PORTSMOUTH NH 03801
TEL. (603) 430–8388

ARCHITECT:
McHENRY ARCHITECTURE, PLLC
4 MARKET STREET
PORTSMOUTH NH 03801
TEL. (603) 430–0274

PERMIT LIST:
PORTSMOUTH HDC: PENDING
NHDES: PENDING







LEGEND:

EXISTING	PROPOSED	
— — —		PROPERTY LINE
- - - - -		SETBACK
S	S	SEWER PIPE
SL	SL	SEWER LATERAL
G	G	GAS LINE
D	D	STORM DRAIN
W	W	WATER LINE
WS	WS	WATER SERVICE
UGE	UGE	UNDERGROUND ELECTRIC
OHW	OHW	OVERHEAD ELECTRIC/WIRES
	UD	FOUNDATION DRAIN
		EDGE OF PAVEMENT (EP)
100	100	CONTOUR
97x3	98x0	SPOT ELEVATION
		UTILITY POLE
		WALL MOUNTED EXTERIOR LIGHTS
		TRANSFORMER ON CONCRETE PAD
		ELECTRIC HANDHOLD
		SHUT OFFS (WATER/GAS)
	GV	GATE VALVE
	HYD	HYDRANT
CB	CB	CATCH BASIN
S	SMH	SEWER MANHOLE
D	DMH	DRAIN MANHOLE
T	TMH	TELEPHONE MANHOLE
14	14	PARKING SPACE COUNT
PM		PARKING METER
LSA		LANDSCAPED AREA
TBD	TBD	TO BE DETERMINED
CI	CI	CAST IRON PIPE
COP	COP	COPPER PIPE
DI	DI	DUCTILE IRON PIPE
PVC	PVC	POLYVINYL CHLORIDE PIPE
RCP	RCP	REINFORCED CONCRETE PIPE
AC	–	ASBESTOS CEMENT PIPE
VC	VC	VITRIFIED CLAY PIPE
EP	EP	EDGE OF PAVEMENT
EL.	EL.	ELEVATION
FF	FF	FINISHED FLOOR
INV	INV	INVERT
S =	S =	SLOPE FT/FT
TBM	TBM	TEMPORARY BENCH MARK
TYP	TYP	TYPICAL

DIG SAFE
MA – ME – NH – RI – VT
1-888-344-7233
CALL TOLL FREE

*ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

INDEX OF SHEETS

DWG No.	
–	AS–BUILT PLAN
C1	EXISTING CONDITIONS PLAN
C2	DES PERMIT PLAN
C3–C5	SITE SECTIONS
D1	DETAILS
–	ARCHITECTURAL PLANS
–	PERSPECTIVE VIEWS
–	DECK EXPANSION PLAN
–	ELEVATIONS AND DETAILS
–	CUT SHEETS
–	LANDSCAPE DETAILS

UTILITY CONTACTS

ELECTRIC:
EVERSOURCE
1700 LAFAYETTE ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 436–7708, Ext. 555.5678
ATTN: MICHAEL BUSBY, P.E. (MANAGER)

SEWER & WATER:
PORTSMOUTH DEPARTMENT OF PUBLIC WORKS
680 PEVERLY HILL ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 427–1530
ATTN: JIM TOW

NATURAL GAS:
UNITIL
325 WEST ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 294–5144
ATTN: DAVE BEAULIEU

COMMUNICATIONS:
FAIRPOINT COMMUNICATIONS
JOE CONSIDINE
1575 GREENLAND ROAD
GREENLAND, N.H. 03840
Tel. (603) 427–5525

CABLE:
COMCAST
155 COMMERCE WAY
PORTSMOUTH, N.H. 03801
Tel. (603) 679–5695 (X1037)
ATTN: MIKE COLLINS

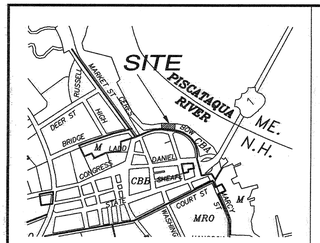
PUBLIC ACCESS IMPROVEMENTS
MARTINGALE WHARF
99 BOW STREET
PORTSMOUTH, N.H.

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road – Unit 3
Portsmouth, N.H. 03801–7114
Tel (603) 430–9282
Fax (603) 436–2315

PLAN SET SUBMITTAL DATE: 24 NOVEMBER 2021

3308

AUTOCAD X:\JOBS\3300\3309\3309\2021 Deck Permitting\Plans & Specs\Site\3308 Cover 2021.dwg, 11/23/2021 3:14:48 PM, Canon TX-9000_mfp4.ctb



LOCUS

(SCALE: 1" = 1000'±)

PISCATAQUA RIVER

(AN ARM OF THE SEA)

EBB FLOW

APPROXIMATE LIMITS OF RIGHTS, IF ANY, TO CERES STREET AND LIMITS OF WHARF AND WATER PRIVILEGES PER BK 616 PG 114 RCRD.

EASEMENT TO CERES STREET APPURTENANT TO SUBJECT PARCEL PER BK 569 PG 84 RCRD OVER THE REAR OF LOT 106-53.

N 35°38'46" E 11.27

N 76°13'16" E 11.44

L3 L4 L5 L6 S 77°02'01" E 12.02

EXISTING CONCRETE SEA WALL

GRANITE CAPPING

GRANITE

STEEL & WIRE SAFETY FENCE ON GRANITE BLOCK

WOOD RAILING

EXISTING WOOD DECK

WOOD DECK

BASEMENT FOOTPRINT

EXISTING CONCRETE SEA WALL

N 77°11'32" E 128.16

UPPER LEVELS FOOTPRINT

6" PVC SOLID ROOF DRAIN

BASEMENT LEVEL FOOTPRINT

WINDOWED GLASS BASEMENT LEVEL ONLY

UPPER LEVELS OPEN PORCH AREA

6" PERFORATED PVC DRAINS

6" PERFORATED PVC DRAIN

CONCRETE @ FINISH BASEMENT FLOOR EL=9.01

4"PVC

4" PERFORATED PVC DRAIN

L7 L8

HVAC UNITS

DECK

S 6°28'53" E 62.88

NEW BRICK BUILDING

OPEN AREA AT STREET LEVEL

NEW CONC RETAINING WALL

SUBTERRANEAN UTILITY VAULT

AREA
9,769 S.F.
0.224 ACRES
(TO MEAN HIGH WATER)

106-54
#99

"MARTINGALE WHARF"
(UNDER CONSTRUCTION)

CONCRETE @ FINISH BASEMENT FLOOR EL=9.04

106-55-(1-7)
109-111 BOW STREET CONDOMINIUM
2805/1950 (DECLARATION)
111 BOW STREET
PORTSMOUTH, NH 03801

#109-111
4 STORY
BRICK/CONCRETE/WOOD FACED

EXISTING BRICK SIDEWALK

NEW BRICK PAVERS

NEW VGC

WHITE LINE

FM

STREET

39.60

S 85°32'29" W

NEW GRANITE RETAINING WALL

NEW 4"DI FORCE MAIN (NOT FIELD VERIFIED)

UP PSH 7/5Y 139/6

GRANITE PAVERS

8"x10"x2.2'H STONE POST (RESET BY CONTRACTOR)

CHAPEL STREET

EXIST VGC

LIMITS OF NEW ASPHALT

OPEN GRANITE STEPS TO WOOD DECK (BASEMENT LEVEL)

NEW BRICK PAVERS

N 21°00'14" W 5.17

#67
106-53
FORUM GROUP, LLC & BLUE STAR PROPERTIES
5153/667
PO BOX 4780
PORTSMOUTH, NH 03802

NEW BRICK BUILDING

41.63

S 83°01'34" W

37.18

S 75°01'54" W

6"PVC

3" PVC CLEANOUT W/18" MH COVER

6"PVC DOWN SPOUT

34.28

L2 L1 S 88°22'11" W

BAY WINDOW

6"PVC DOWN SPOUT

HANDICAP ACCESSIBLE

NEW 6" DI WATER (NOT FIELD VERIFIED)

EXISTING BRICK SIDEWALK

EXISTING VGC

EXISTING GAS MAIN

HANDICAP ACCESSIBLE

EXISTING SEWER FORCE MAIN

LIMITS OF NEW ASPHALT

DOUBLE YELLOW LINE

(A PUBLIC WAY)

BOW

TBM: TOP CORNER OF CONCRETE RETAINING WALL
ELEVATION = 31.42

(2) 4"PVC UGE

4"PVC UGE

OHW

EXIST VGC

LINE	BEARING	DISTANCE
L1	S 87°11'29" W	7.60
L2	S 85°39'57" W	7.72
L3	N 64°32'22" E	5.46
L4	N 81°19'31" E	4.13
L5	S 84°27'22" E	6.62
L6	S 35°26'01" E	4.56
L7	N 55°18'29" E	5.60
L8	S 6°28'53" E	6.00

10 0 10 20 30 40 FEET

5 0 5 10 METERS

N

NOTES:

1. OWNER OF RECORD..... MARTINGALE WHARF LIMITED PARTNERSHIP
   ADDRESS..... POB 930, PORTSMOUTH, NH 03802
   DEED REFERENCE..... 5068/1241 (3810/535)
   TAX SHEET / LOT..... 106-054
2. ZONED:..... CBA (CENTRAL BUSINESS A) FRONT YARD SETBACK.... 0'
   MINIMUM LOT AREA 1,500 S.F. SIDE YARD SETBACK..... 0'
   FRONTAGE..... N/A REAR YARD SETBACK..... 0'
   ZONE OVERLAY..... DOD (DOWNTOWN OVERLAY DISTRICT)
3. THE RELATIVE ERROR OF CLOSURE WAS LESS THAN 1 FOOT IN 15,000 FEET.
4. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED UPON THE FIELD LOCATION OF ALL VISIBLE STRUCTURES (IE CATCH BASINS, MANHOLES, WATER GATES ETC.) AND INFORMATION COMPILED FROM PLANS PROVIDED BY UTILITY COMPANIES AND GOVERNMENTAL AGENCIES. ALL CONTRACTORS SHOULD NOTIFY, IN WRITING, SAID AGENCIES PRIOR TO ANY EXCAVATION WORK AND CALL DIG-SAFE @ 1-888-DIG-SAFE.
5. THE PARCEL IS SUBJECT TO EASEMENT OF RECORD AND IS CONVEYED TOGETHER WITH "ALL THE WHARF AND WATER PRIVILEGES AND RIPARIAN PRIVILEGES THEREWITH." PER BK 3810 PG 535 RCRD.
6. THE BUILDING SHOWN HEREON WAS UNDER CONSTRUCTION AT THE TIME OF THE SURVEY AND PORTIONS OF THE REAR (RIVER), EAST AND WEST SIDES WERE INACCESSIBLE.

REFERENCE PLANS:

1. CONDOMINIUM SITE PLAN, OF 109-111 BOW STREET CONDOMINIUM FOR 111 BOW STREET TRUST, PORTSMOUTH, N.H., DATED FEBRUARY 1989, RCRD # D-1960.
2. CONDOMINIUM SITE PLAN FOR 113 BOW STREET LLC, PORTSMOUTH, NH, DATED DECEMBER 1, 1997, REV. 5-29-98, RCRD # D-26386.

LEGEND:

- WOOD FENCE
- HYDRANT
- WATER GATE VALVE
- WATER SHUTOFF VALVE
- CEMENT CONCRETE PAD
- UTILITY POLE
- LIGHT POLE W/ARM
- UTILITY POLE W/TRANSFORMER
- GUY
- ELECTRIC METER
- S — SEWER LINE
- W — WATER LINE
- G — GAS LINE
- ohw — OVERHEAD WIRES
- FM — FORCE MAIN
- SIGN
- VGC — VERTICAL FACED GRANITE CURB
- RCRD — ROCKINGHAM COUNTY REGISTRY OF DEEDS
- FA — FIRE ALARM
- UGT&C — UNDERGROUND TELEPHONE & COMMUNICATIONS
- DI — DUCTILE IRON
- VGC — VERTICAL FACED GRANITE CURB
- VCC — VERTICAL FACED CONCRETE CURB
- UGE — UNDERGROUND ELECTRIC
- FA — FIRE ALARM
- DW — DOMESTIC WATER LINE
- PROPERTY LINE
- Ⓡ — PVC DOWNSPOUT
- Ⓒ — PVC SEWER CLEANOUT
- LA — LANDSCAPED AREA

REV. NO.	DATE	DESCRIPTION	APPR'D

AS-BUILT PLAN

MARTINGALE WHARF - 99 BOW STREET

PORTSMOUTH, NH

ASSESSOR'S PARCEL: 106 - 54

for: MARTINGALE WHARF LIMITED PARTNERSHIP

JAMES VERRA and ASSOCIATES, INC.
101 SHATTUCK WAY
SUITE # 8
NEWINGTON, N.H 03801-7876
603.436.3557

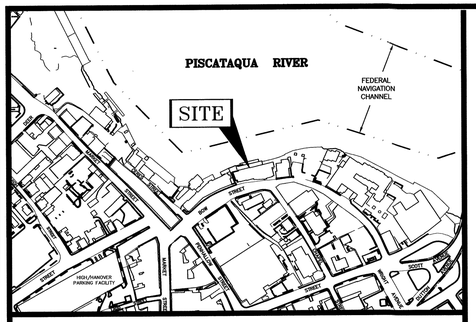
HRM PROJECT MGR

HRM DRAWN BY

COPYRIGHT ©2011 by JAMES VERRA and ASSOCIATES, INC.

DATE:	5-3-2011
JOB NO:	21889-C
SCALE: 1" =	10'
DWG NAME:	21889-C
PLAN NO:	21889-C-1
SHEET:	1 OF 1

2011-05-03



LOCATION MAP SCALE: 1" = 300'

PLAN REFERENCE:

1) AS-BUILT PLAN MARTINGALE WHARF – 99 BOW STREET PORTSMOUTH, NH, ASSESSOR'S PARCEL 106-54, FOR MARTINGALE WHARF LIMITED PARTNERSHIP, SCALE 1" = 10', PREPARED BY JAMES VERRA AND ASSOCIATES, INC., DATED 5-3-2011, NOT RECORDED

2) AS-BUILT EASEMENT PLAT 67 & 99 BOW STREET PORTSMOUTH, NHW HAMPSHIRE, ASSESSOR'S PARCELS 106-053 & 106-054, OWNERS FORUM GROUP, LLC & BLUE STAR PROPERTIES MARTINGALE WHARF LIMITED PARTNERSHIP, SCALE 1" = 5', PREPARED BY JAMES VERRA AND ASSOCIATES, INC., DATED 12 MAY 2011, RCRD D-37137

3) AS-BUILT PLAN MARTINGALE WHARF – 99 BOW STREET PORTSMOUTH, NH, ASSESSOR'S PARCEL 106-54, FOR MARTINGALE WHARF LIMITED PARTNERSHIP, SCALE 1" = 10', PREPARED BY JAMES VERRA AND ASSOCIATES, INC., DATED 5-3-2011, REVISED 3-5-2012, RCRD D-37138

106/55 N/F
111 BOW STREET CONDO ASSOCIATION
111 BOW STREET
PORTSMOUTH, N.H. 03801
2805/1950

106/55-1 N/F
ASRT LLC
266 MIDDLE ST
PORTSMOUTH, N.H. 03801
5720/0499
(109-111 BOW ST #1)

106/55-2 N/F
BOWPORTS EV CORPORATION
C/O KATY SHERMAN
25 WEST RD, RYE, NH 03870
3008/0951
(109-111 BOW ST #2)

106/55-4 N/F
ASRT LLC
111 BOW STREET
PORTSMOUTH, N.H. 03801
5634/0949
(109-111 BOW ST #4)

106/55-3 N/F
GEORGE B. GLIDDEN REVOVABLE TRUST 1/2 INT, FRANK MARJAN REVOCABLE TRUST 1/2 INT
PO BOX 729 PORTSMOUTH, NH 03802-0729
5050/2061
(109-111 BOW ST #3)

106/55-5 N/F
ASRT LLC
111 BOW STREET
PORTSMOUTH, N.H. 03801
5634/0949
(109-111 BOW ST #5)

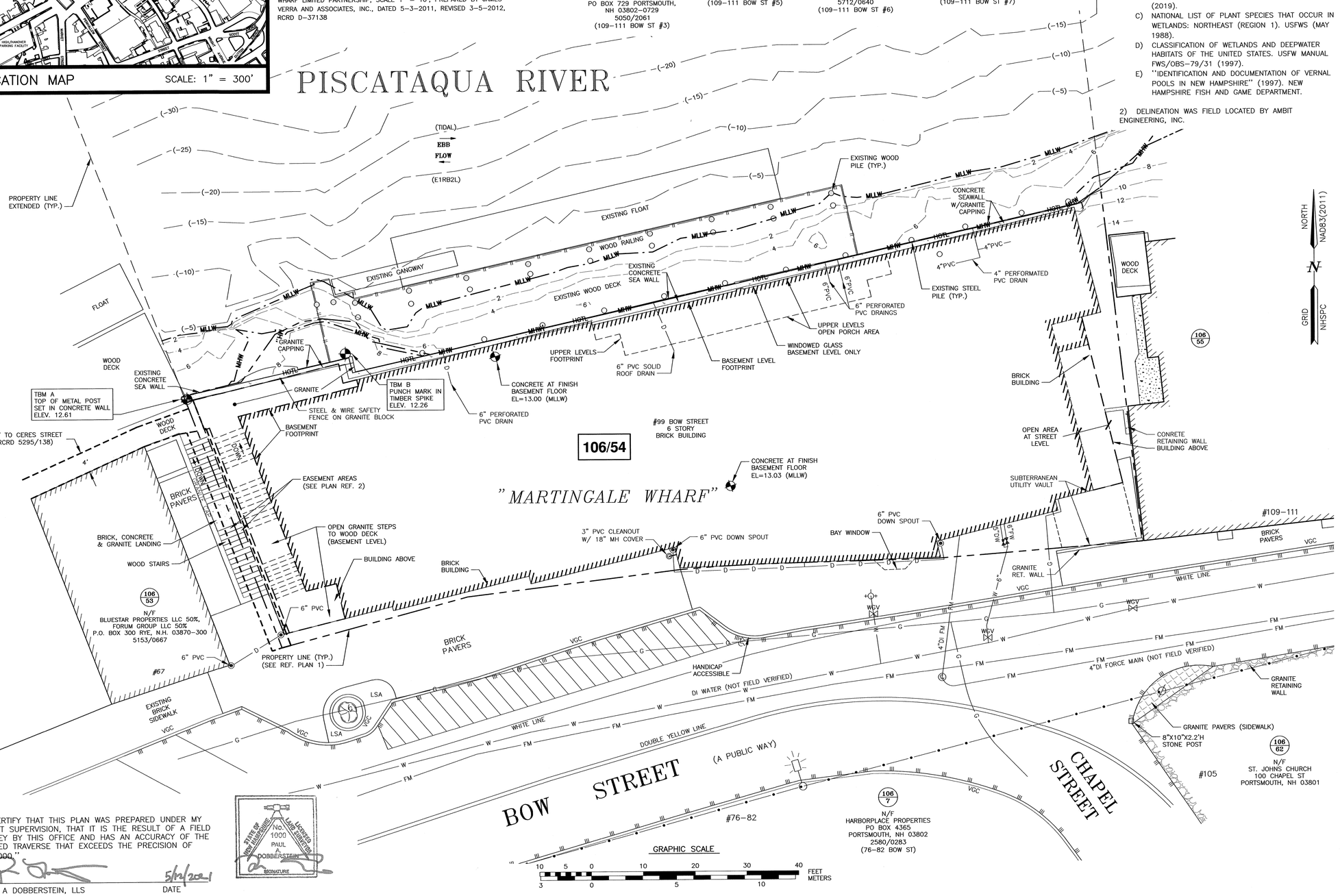
106/55-6 N/F
MONTGOMERY PORTSMOUTH TRUST, BRUCE D. MONTGOMERY TRUSTEE
111 BOW STREET #6
PORTSMOUTH, NH 03801
5712/0640
(109-111 BOW ST #6)

106/55-7 N/F
JOHN SAMONAS
33 CAPE ROAD
NEWCASTLE, NH 03854
6095/71
(109-111 BOW ST #7)

WETLAND NOTES:

1) HIGHEST OBSERVABLE TIDE LINE DELINEATED BY STEVEN D. RIKER, CWS ON 04/5/2021 IN ACCORDANCE WITH THE FOLLOWING STANDARDS:
   - A) U.S. ARMY CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL. TECHNICAL REPORT Y-87-1 (JAN. 1987). AND REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2.0, JANUARY 2012.
   - B) FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 8.2, USDA-NRCS, 2018 AND (FOR DISTURBED SITES) FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 4. NEIWPCC WETLANDS WORK GROUP (2019).
   - C) NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS: NORTHEAST (REGION 1). USFWS (MAY 1988).
   - D) CLASSIFICATION OF WETLANDS AND DEEPWATER HABITATS OF THE UNITED STATES. USFW MANUAL FWS/OBS-79/31 (1997).
   - E) "IDENTIFICATION AND DOCUMENTATION OF VERNAL POOLS IN NEW HAMPSHIRE" (1997). NEW HAMPSHIRE FISH AND GAME DEPARTMENT.

2) DELINEATION WAS FIELD LOCATED BY AMBIT ENGINEERING, INC.



"I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000."

PAUL A DOBBERSTEIN, LLS — DATE 5/12/2021

STATE OF NEW HAMPSHIRE NO. 1000 LICENSED LAND SURVEYOR PAUL A. DOBBERSTEIN SIGNATURE

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road - Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

NOTES:

1) PARCEL IS SHOWN ON THE TOWN OF PORTSMOUTH ASSESSOR'S MAP 106 AS LOT 54.

2) OWNERS OF RECORD:
MARTINGALE LLC
3 PLEASANT ST, 4TH FLOOR
PORTSMOUTH, NH 03801
5868/2627

3) PARCEL IS PARTIALLY IN A FLOOD HAZARD ZONE (ZONE AE EL. 8) AS SHOWN ON FIRM PANEL 33015C0259F. EFFECTIVE DATE JANUARY 29, 2021.

4) EXISTING LOT AREA:
9,769 S.F. TO MEAN HIGH WATER (PER PLAN REF. 3)
0.224 ACRES TO MEAN HIGH WATER (PER PLAN REF. 3)

5) PARCEL IS LOCATED IN THE DOWNTOWN OVERLAY DISTRICT, CD5 (CHARACTER DISTRICT 5), HISTORIC DISTRICT.

6) DIMENSIONAL REQUIREMENTS: SEE CITY ZONING REQUIREMENTS.

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS ON ASSESSORS MAP TAX MAP 106 LOT 54 IN THE CITY OF PORTSMOUTH.

8) BOUNDARY LINES SHOWN HEREON ARE BASED SOLELY ON PLAN REFERENCE 3. EASEMENTS, RIGHTS OF OTHERS, ETC., HAVE NOT BEEN RESEARCHED OR NOTED HEREON.

9) VERTICAL DATUM IS MEAN LOWER LOW WATER (MLLW). MLLW REFERENCED ON NOAA STATION 8423005 T14A PORTSMOUTH, MLLW BEING 3.99 FEET LOWER THAN 0.0 NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

PUBLIC ACCESS IMPROVEMENTS BOW STREET PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	UPDATE EASEMENT	5/12/21
0	ISSUED FOR COMMENT	4/23/21

REVISIONS

STATE OF NEW HAMPSHIRE STEVEN D. RIKER 5/7/21 NO. 219 CERTIFIED WETLAND SCIENTIST

SCALE: 1" = 10' MARCH 2021

EXISTING CONDITIONS PLAN — C1

FB 420 PG 1

3308

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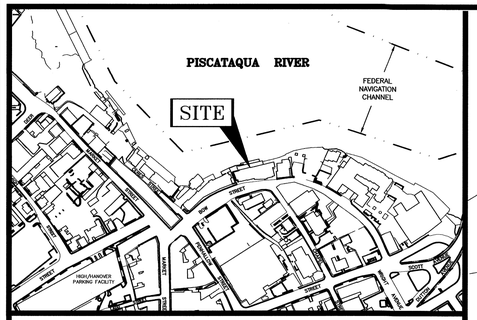

LOCATION MAP SCALE: 1" = 300'

PISCATAQUA RIVER

NORTH NAD83(2011) N GRID NHSPC

LEGEND:

N/F	NOW OR FORMERLY
RP	RECORD OF PROBATE
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
11/21	MAP 11 / LOT 21
	RAILROAD SPIKE FOUND
	IRON ROD/IRON PIPE FOUND
	IRON PIPE FOUND
	STONE/CONCRETE BOUND FOUND
	RAILROAD SPIKE SET
	IRON ROD SET
	DRILL HOLE SET
	GRANITE BOUND SET
MHW	MEAN HIGH WATER LINE
HOTL	NH DES HIGHEST OBSERVABLE TIDE LINE
100	CONTOUR
97x3	SPOT ELEVATION
	EDGE OF PAVEMENT (EP)
	WOODS / TREE LINE
INV.	INVERT
TBM	TEMPORARY BENCHMARK
TYP.	TYPICAL
LSA	LANDSCAPED AREA
1	PHOTO LOCATION

(TIDAL) EBB FLOW (E1RB2L)

219 S.F. MARTINGALE
420 S.F. PUBLIC
73 S.F. PLANTER

PROPERTY LINE EXTENDED (TYP.)

PROPOSED OVER WATER DECK EXPANSION ADDITION– 712 SQ. FT. PERMANENT IMPACT

N: 212340.1
E: 1227430.7

PROPOSED PLANTER

PROPOSED PUBLIC WHARF DECK

FLOAT

PROPOSED PILE (TYP.)

PROPOSED MURAL

WOOD DECK

EXISTING CONCRETE SEA WALL

GRANITE CAPPING

GRANITE

STEEL & WIRE SAFETY FENCE ON GRANITE BLOCK

TBM A
TOP OF METAL POST SET IN CONCRETE WALL
ELEV. 12.61

TBM B
PUNCH MARK IN TIMBER SPIKE
ELEV. 12.26

BASEMENT FOOTPRINT

EASEMENT AREAS (SEE PLAN REF. 2)

BRICK PAVERS

BRICK, CONCRETE & GRANITE LANDING

WOOD STAIRS

OPEN GRANITE STEPS TO WOOD DECK (BASEMENT LEVEL)

BUILDING ABOVE

6" PVC

PROPERTY LINE (TYP.) (SEE REF. PLAN 1)

EXISTING BRICK SIDEWALK

LSA

EXISTING FLOAT

RELOCATED GANGWAY

WOOD RAILING

EXISTING WOOD DECK

EXISTING CONCRETE SEA WALL

UPPER LEVELS FOOTPRINT

CONCRETE AT FINISH BASEMENT FLOOR EL=13.00 (MLLW)

6" PERFORATED PVC DRAIN

6" PVC SOLID ROOF DRAIN

BASEMENT LEVEL FOOTPRINT

WINDOWED GLASS BASEMENT LEVEL ONLY

UPPER LEVELS OPEN PORCH AREA

6" PERFORATED PVC DRAINGS

EXISTING WOOD PILE (TYP.)

CONCRETE SEAWALL W/GRANITE CAPPING

EXISTING STEEL PILE (TYP.)

4" PERFORMATED PVC DRAIN

1,355 S.F. MARTINGALE
60 S.F. PLANTER

PROPOSED OVER WATER DECK EXPANSION ADDITION– 1,415 SQ. FT. PERMANENT IMPACT

N: 212373.1
E: 1227563.0

N: 212365.9
E: 1227534.3

51' TO FEDERAL CHANNEL

PROPOSED PILE (TYP.)

N: 212380.2
E: 1227591.7

PROPOSED MURAL

PROPOSED PLANTER

WOOD DECK

BRICK BUILDING

OPEN AREA AT STREET LEVEL

CONRETE RETAINING WALL BUILDING ABOVE

SUBTERRANEAN UTILITY VAULT

#99 BOW STREET
6 STORY
BRICK BUILDING

106/54

CONCRETE AT FINISH BASEMENT FLOOR EL=13.03 (MLLW)

"MARTINGALE WHARF"

3" PVC CLEANOUT W/ 18" MH COVER

6" PVC DOWN SPOUT

BAY WINDOW

BRICK BUILDING

HANDICAP ACCESSIBLE

DI WATER (NOT FIELD VERIFIED)

6" PVC DOWN SPOUT

GRANITE RET. WALL

BRICK PAVERS

WHITE LINE

4"DI FM

4"DI FORCE MAIN (NOT FIELD VERIFIED)

GRANITE RETAINING WALL

GRANITE PAVERS (SIDEWALK)

8"X10"X2.2'H STONE POST

DOUBLE YELLOW LINE

BOW STREET (A PUBLIC WAY)

CHAPEL STREET

GRAPHIC SCALE
10 5 0 10 20 30 40 FEET
3 0 5 10 METERS

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road – Unit 3
Portsmouth, N.H. 03801–7114
Tel (603) 430–9282
Fax (603) 436–2315

NOTES:

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10) PUBLIC ACCESS SIGNAGE WILL BE DISPLAYED.

11) OWNER RESERVES THE RIGHT TO CLOSE GATE AFTER HOURS FOR PUBLIC SAFETY.

IMPACT REDUCED:

2,191 S.F. PREVIOUS (7/13/21 PLAN SET)
2,127 S.F. CURRENT
= 64 S.F. REDUCTION

PUBLIC ACCESS IMPROVEMENTS BOW STREET PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
	REVISIONS	
4	ENLARGE PUBLIC USE	11/24/21
3	REVISE DECK	9/10/21
2	ELIMINATE ADDED DOCK	7/13/21
1	ISSUED FOR APPROVAL	6/29/21
0	ISSUED FOR COMMENT	6/8/21

JOHN R. CHAGNON No. 7651 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE

STATE OF NEW HAMPSHIRE LAND SURVEYOR No. 738 JOHN R. CHAGNON

SCALE: 1" = 10' MARCH 2021

NHDES PERMIT PLAN

C2

FB 420 PG 1

3308

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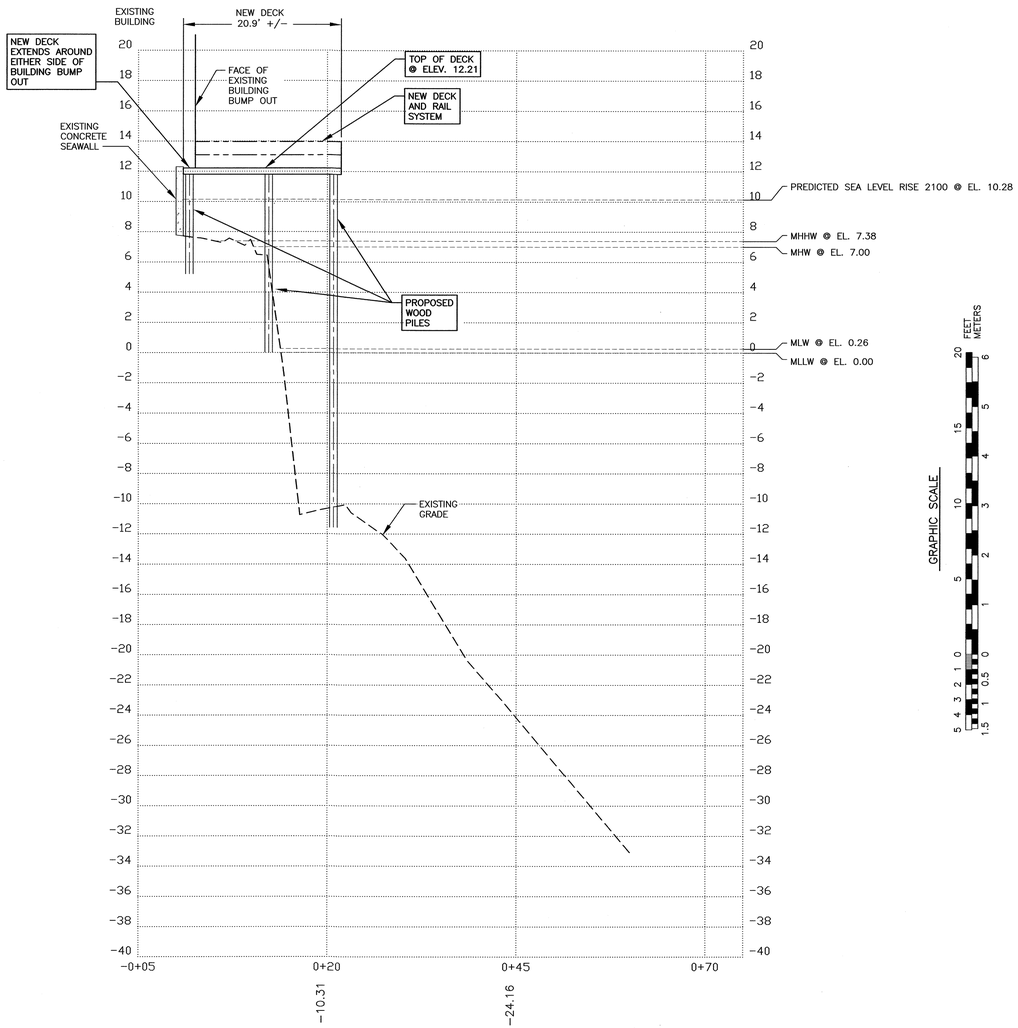
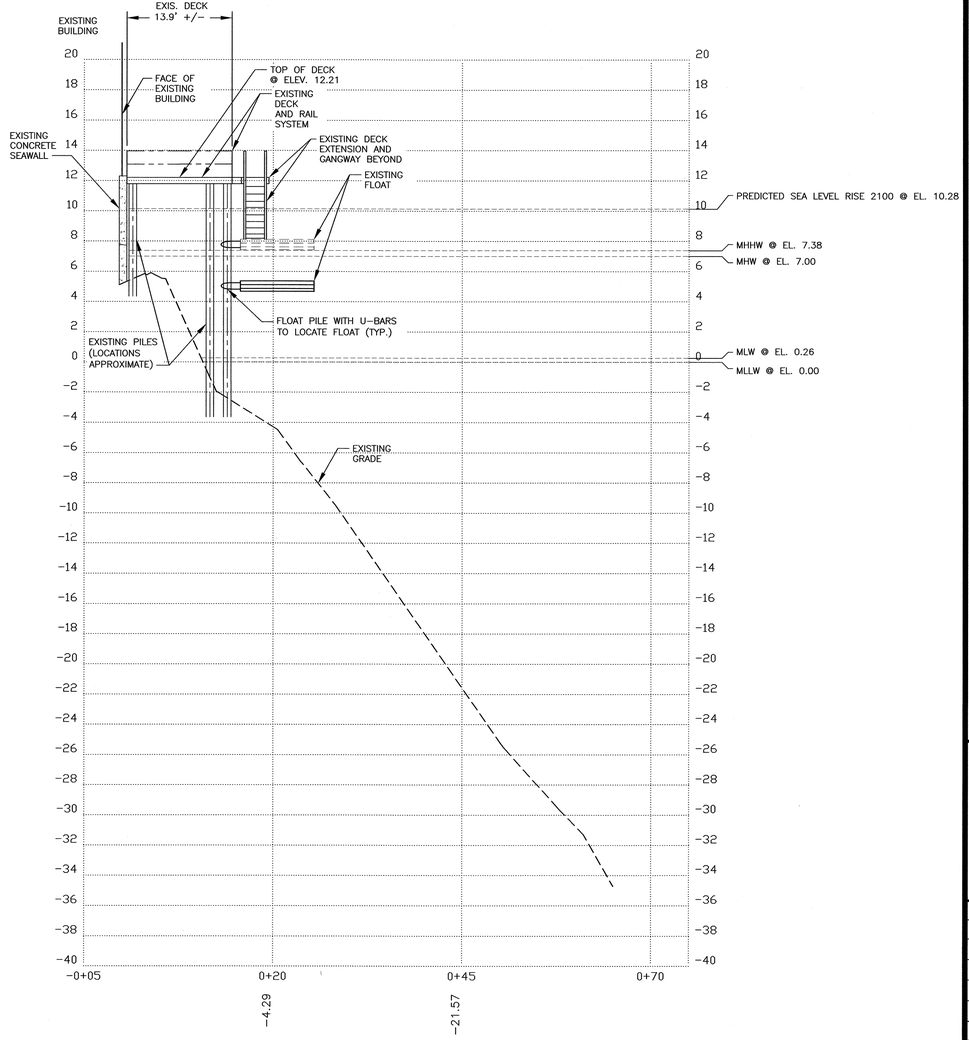


SECTION A

SCALE: 1" = 10' (HOR.)
1" = 5' (VERT.)



SECTION B

SCALE: 1" = 10' (HOR.)
1" = 5' (VERT.)

GRAPHIC SCALE
FEET
METERS

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road - Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

4) NUMBER OF PILES TO BE DRIVEN FOR DECK & DOCKING STRUCTURE NOT TO EXCEED 25 AS DEPICTED ON PLANS. ALSO NOTE TIME OF YEAR AND NOISE RESTRICTIONS FOR DRIVING OF PILES.

5) VERTICAL DATUM IS MEAN LOWER LOW WATER (MLLW). MLLW REFERENCED ON NOAA STATION 8423005 T14A PORTSMOUTH, MLLW BEING 3.99 FEET LOWER THAN 0.0 NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

PUBLIC ACCESS IMPROVEMENTS BOW STREET PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
3	REVISED DECK LAYOUT	9/10/21
2	REVISED PILE LOCATIONS	8/12/21
1	ISSUED FOR APPROVAL	6/29/21
0	ISSUED FOR COMMENT	6/8/21

REVISIONS

JOHN R. CHAGNON No. 7651 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE

SCALE: AS NOTED — MARCH 2021

SITE SECTIONS — C3

FB 420 PG 1

3308

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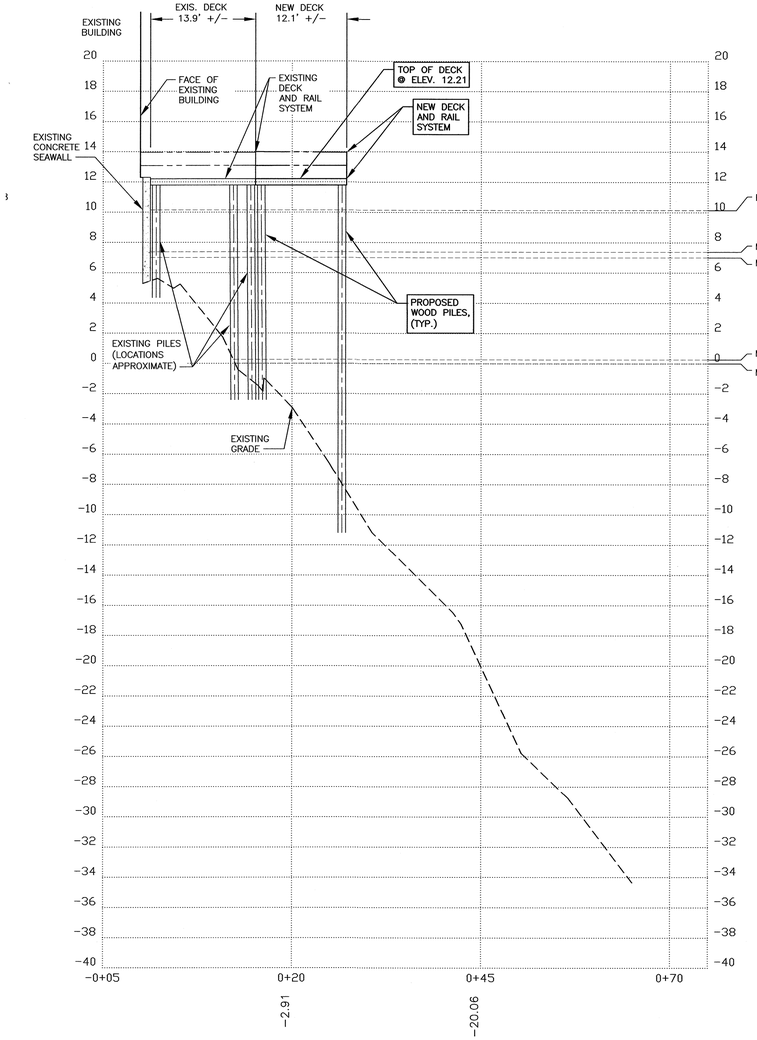
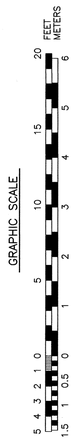
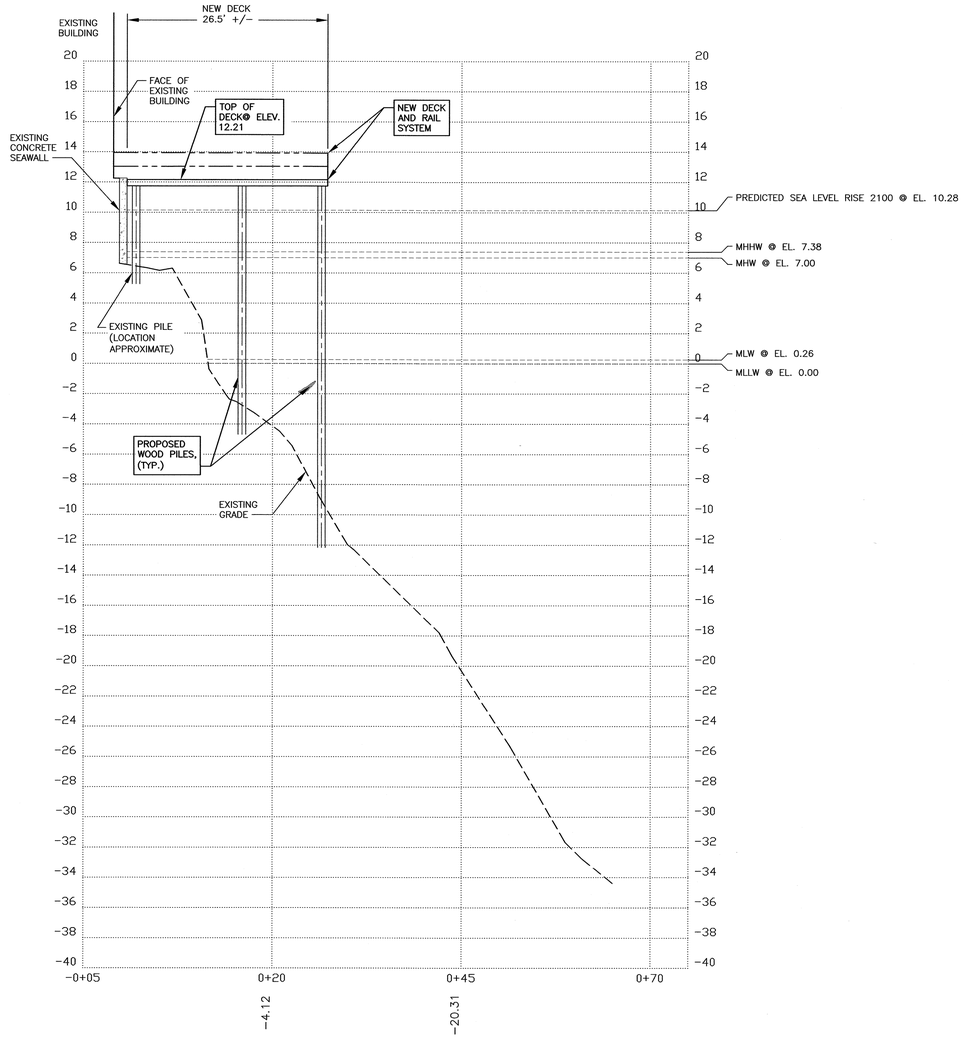


SECTION C

SCALE: 1" = 10' (HOR.)
1" = 5' (VERT.)





SECTION D

SCALE: 1" = 10' (HOR.)
1" = 5' (VERT.)

GRAPHIC SCALE
FEET
METERS

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road - Unit 3
Portsmouth, N.H. 03801-7114
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PUBLIC ACCESS IMPROVEMENTS BOW STREET PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
3	REVISED DECK LAYOUT	9/10/21
2	REVISE PILES. REMOVE PROPOSED FLOAT	8/12/21
1	ISSUED FOR APPROVAL	6/29/21
0	ISSUED FOR COMMENT	6/8/21

REVISIONS

STATE OF NEW HAMPSHIRE
JOHN R. CHAGNON
No. 7951
LICENSED PROFESSIONAL ENGINEER

SCALE: AS NOTED — MARCH 2021

SITE SECTIONS — C4

FB 420 PG 1

3308

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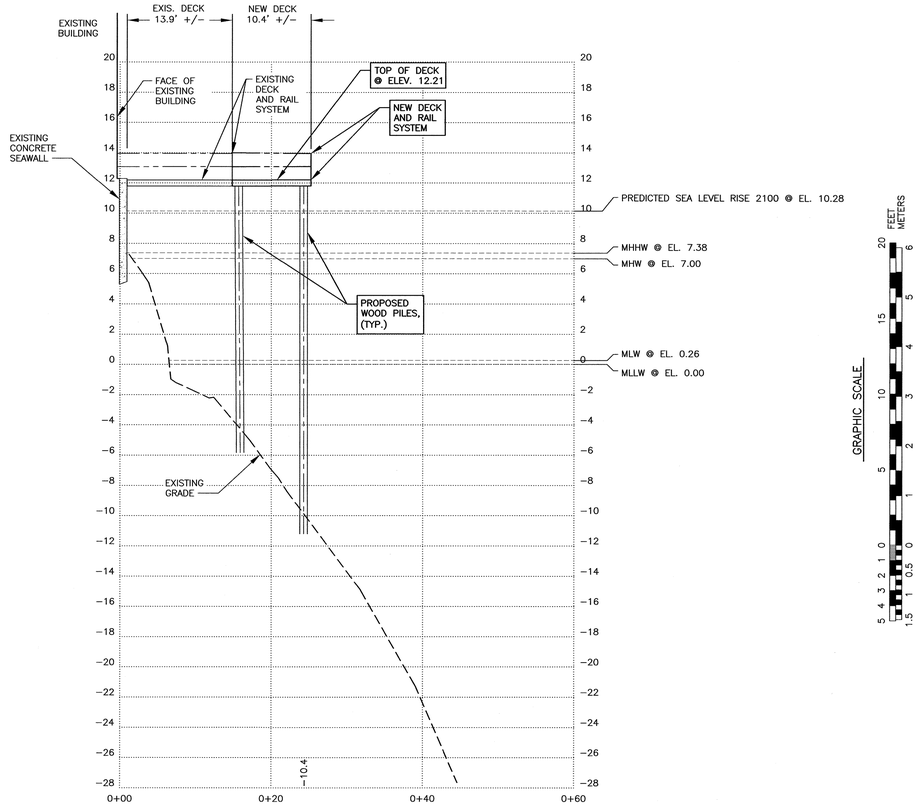
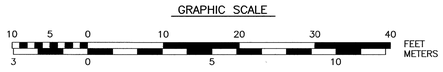


SECTION AA

SCALE: 1" = 10' (HOR.)
1" = 5' (VERT.)

GRAPHIC SCALE



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PUBLIC ACCESS IMPROVEMENTS BOW STREET PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	9/10/21

REVISIONS

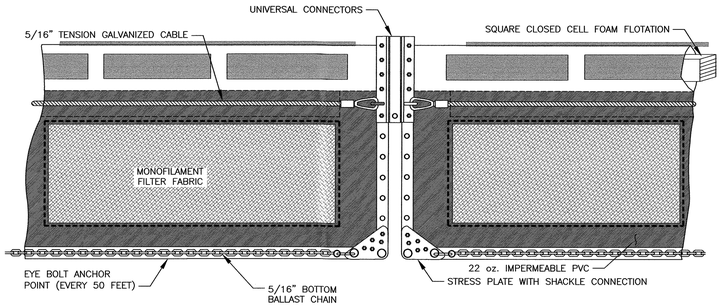
SCALE: AS NOTED MARCH 2021

SITE SECTIONS

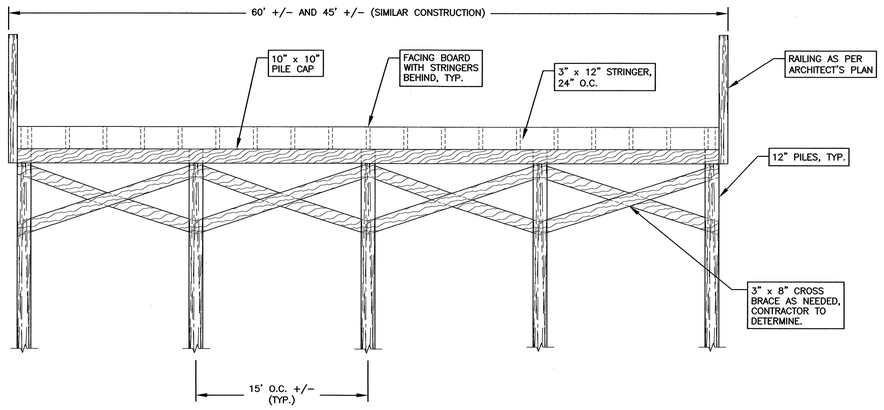
C5

FB 420 PG 1

3308



1/D1 TURBIDITY CURTAIN DETAIL
(DEPLOY AS NEEDED) NTS



2/D1 PROPOSED DECK DETAIL
NTS

SEQUENCE OF CONSTRUCTION

1) MOBILIZATION OF A CRANE BARGE, PUSH BOAT, WORK SKIFF, MATERIALS AND PREFABRICATED COMPONENTS SUCH AS THE GANGWAY AND FLOAT TO THE SITE VIA APPROVED ACCESS.
2) MOBILZATION OF EQUIPMENT TRUCKS TO THE SITE.
3) THE BARGE WILL BE POSITIONED ALONGSIDE THE PROPOSED LOCATION OF THE NEW DOCK AND WATERWARD OF ANY EMERGENT VEGETATION TO MINIMIZE IMPACTS
4) INSTALLATION OF THE SUB STRUCTURE WILL BE PERFORMED FROM A CRANE BARGE OR SKIFF TO REDUCE THE AMOUNT OF FOOT TRAFFIC IN THE INTERTIDAL AREA.
5) ALL WORK WILL BE PERFORMED AT LOW TIDE TO MINIMIZE SEDIMENTATION.
6) PILINGS WILL BE MECHANICALLY DRIVEN BY A CRANE ELIMINATING ANY EXCAVATION FOR INSTALLATION OF THE PILINGS. PILING ARE DRIVEN TO REFUSAL.
7) PILINGS ARE CUT AND BEAM CAPS ARE INSTALLED AND THE SUPER STRUCTURE OF THE PIER IS BUILT. MATERIALS ARE LIFTED FROM THE BARGE AND SET INTO POSITION BY THE CRANE.
8) ONCE THE PIER IS COMPLETE, THE GANGWAY AND FLOAT ARE BROUGHT INTO POSITION AND INSTALLED.

DISCHARGES, AVOIDANCE, MINIMIZATION AND MITIGATION

DISCHARGES OF DREDGED OR FILL MATERIAL INTO WATERS OF THE U.S. AND ANY SECONDARY IMPACTS SHALL BE AVOIDED AND MINIMIZED TO THE MAXIMUM EXTENT PRACTICABLE. PERMITTEES MAY ONLY FILL THOSE JURISDICTIONAL WETLANDS AND WATERWAYS THAT THE CORP AND NHDES AUTHORIZES TO BE FILLED AND IMPACT THOSE AREAS THAT THE CORPS AND AND NHDES AUTHORIZES AS SECONDARY IMPACTS. IF NOT SPECIFICALLY AUTHORIZED BY USACOE AND AND NHDES, ANY UNAUTHORIZED FILL OR SECONDARY IMPACT TO WETLANDS MAY BE CONSIDERED AS A VIOLATION OF THE CWA.

- UNLESS SPECIFICALLY AUTHORIZED USACOE AND AND NHDES, NO WORK SHALL DRAIN A WATER OF THE U.S. BY PROVIDING A CONDUIT FOR WATER ON OR BELOW THE SURFACE.

HEAVY EQUIPMENT IN FRESH WATER WETLANDS

HEAVY EQUIPMENT OTHER THAN FIXED EQUIPMENT (DRILL RIGS, FIXED CRANES, ETC.) WORKING IN WETLANDS SHALL NOT BE STORED, MAINTAINED OR REPAIRED IN WETLANDS, UNLESS IT IS LESS ENVIRONMENTALLY DAMAGING OTHERWISE, AND AS MUCH AS POSSIBLE SHALL NOT BE OPERATED WITHIN THE INTERTIDAL ZONE. WHERE CONSTRUCTION REQUIRES HEAVY EQUIPMENT OPERATION IN WETLANDS, THE EQUIPMENT SHALL EITHER HAVE LOW GROUND PRESSURE (<3 PSI), OR SHALL NOT BE LOCATED DIRECTLY ON WETLAND SOILS AND VEGETATION; IT SHALL BE PLACED ON SWAMP MATS THAT ARE ADEQUATE TO SUPPORT THE EQUIPMENT IN SUCH A WAY AS TO MINIMIZE DISTURBANCE OF WETLAND SOIL AND VEGETATION. SWAMP MATS ARE TO BE PLACED IN THE WETLAND FROM THE UPLAND OR FROM EQUIPMENT POSITIONED ON SWAMP MATS IF WORKING WITHIN A WETLAND. DRAGGING SWAMP MATS INTO POSITION IS PROHIBITED. OTHER SUPPORT STRUCTURES THAT ARE LESS IMPACTING AND ARE CAPABLE OF SAFELY SUPPORTING EQUIPMENT MAY BE USED WITH WRITTEN CORPS AND NHDES AUTHORIZATION. SIMILARLY, NOT USING MATS DURING FROZEN, DRY OR OTHER CONDITIONS MAY BE ALLOWED WITH WRITTEN CORPS AND NHDES AUTHORIZATION. AN ADEQUATE SUPPLY OF SPILL CONTAINMENT EQUIPMENT SHALL BE MAINTAINED ON SITE. CORDUROY ROADS AND SWAMP/CONSTRUCTION MATS ARE CONSIDERED AS FILL WHETHER THEY'RE INSTALLED TEMPORARILY OR PERMANENTLY.

TIME OF YEAR WORK WINDOW AND NOISE RESTRICTIONS

I. PILES INSTALLED IN-THE-DRY DURING LOW WATER OR IN-WATER BETWEEN NOV. 8TH – APR. 9TH, OR
II. MUST BE DRILLED AND PINNED TO LEDGE, OR
III. VIBRATORY HAMMERS USED TO INSTALL ANY SIZE AND QUANTITY OF WOOD, CONCRETE OR STEEL PILES, OR
IV. IMPACT HAMMERS LIMITED TO ONE HAMMER AND <50 PILES INSTALLED/DAY WITH THE FOLLOWING: WOOD PILES OF ANY SIZE, CONCRETE PILES ≤18-INCHES DIAMETER, STEEL PILES 12-INCHES DIAMETER IF THE HAMMER IS ≤3000 LBS. AND A WOOD CUSHION IS USED BETWEEN THE HAMMER AND STEEL PILE.

FOR II-IV ABOVE:

I. IN-WATER NOISE LEVELS SHALL NOT >187dB SEL RE μPa OR 206dB PEAK RE μPa AT A DISTANCE >10M FROM THE PILE BEING INSTALLED, AND
II. IN-WATER NOISE LEVELS >155dB PEAK RE μPa SHALL NOT EXCEED 12 CONSECUTIVE HOURS ON ANY GIVEN DAY AND A 12 HOUR RECOVERY PERIOD (I.E., IN-WATER NOISE BELOW 155dB PEAK RE μPa) MUST BE PROVIDED BETWEEN WORK DAYS.

WORK SITE RESTORATION

1) UPON COMPLETION OF CONSTRUCTION, ALL DISTURBED WETLAND AREAS SHALL BE PROPERLY STABILIZED. ANY SEED MIX SHALL CONTAIN ONLY PLANT SPECIES NATIVE TO NEW ENGLAND.

2) THE INTRODUCTION OR SPREAD OF INVASIVE PLANT SPECIES IN DISTURBED AREAS IS PROHIBITED.

3) IN AREAS OF AUTHORIZED TEMPORARY DISTURBANCE, IF TREES ARE CUT THEY SHALL BE CUT AT GROUND LEVEL AND NOT UPROOTED IN ORDER TO PREVENT DISRUPTION TO THE WETLAND SOIL STRUCTURE AND TO ALLOW STUMP SPROUTS TO REVEGETATE THE WORK AREA, UNLESS OTHERWISE AUTHORIZED.

4) WETLAND AREAS WHERE PERMANENT DISTURBANCE IS NOT AUTHORIZED SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND ELEVATION, WHICH UNDER NO CIRCUMSTANCES SHALL BE HIGHER THAN THE PRE-CONSTRUCTION ELEVATION. ORIGINAL CONDITION MEANS CAREFUL PROTECTION AND/OR REMOVAL OF EXISTING SOIL AND VEGETATION, AND REPLACEMENT BACK TO THE ORIGINAL LOCATION SUCH THAT THE ORIGINAL SOIL LAYERING AND VEGETATION SCHEMES ARE APPROXIMATELY THE SAME, UNLESS AUTHORIZED.

SEDIMENTATION AND EROSION CONTROL

ADEQUATE SEDIMENTATION AND EROSION CONTROL MANAGEMENT MEASURES, PRACTICES AND DEVICES, SUCH AS PHASED CONSTRUCTION, VEGETATED FILTER STRIPS, GEOTEXTILE SILT FENCES, STORMWATER DETENTION AND INFILTRATION SYSTEMS, SEDIMENT DETENTION BASINS, OR OTHER DEVICES SHALL BE INSTALLED AND PROPERLY MAINTAINED TO REDUCE EROSION AND RETAIN SEDIMENT ON-SITE DURING AND AFTER CONSTRUCTION. THEY SHALL BE CAPABLE OF PREVENTING EROSION, OF COLLECTING SEDIMENT, SUSPENDED AND FLOATING MATERIALS, AND OF FILTERING FINE SEDIMENT. THE DISTURBED AREAS SHALL BE STABILIZED AND THESE DEVICES SHALL BE REMOVED UPON COMPLETION OF WORK. THE SEDIMENT COLLECTED BY THESE DEVICES SHALL BE REMOVED AND PLACED AT AN UPLAND LOCATION, IN A MANNER THAT WILL PREVENT ITS LATER EROSION INTO A WATERWAY OR WETLAND. ALL EXPOSED SOIL AND OTHER FILLS SHALL BE PERMANENTLY STABILIZED AT THE EARLIEST PRACTICABLE DATE.

SPAWNING AREAS.

DISCHARGES OF DREDGED OR FILL MATERIAL, AND/OR SUSPENDED SEDIMENT PRODUCING ACTIVITIES IN FISH AND SHELLFISH SPAWNING OR NURSERY AREAS, OR AMPHIBIAN AND MIGRATORY BIRD BREEDING AREAS, DURING SPAWNING OR BREEDING SEASONS SHALL BE AVOIDED. IMPACTS TO THESE AREAS SHALL BE MINIMIZED TO THE MAXIMUM EXTENT PRACTICABLE DURING ALL TIMES OF THE YEAR. INFORMATION ON SPAWNING HABITAT FOR SPECIES MANAGED UNDER THE MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT (I.E., EFH FOR SPAWNING ADULTS) CAN BE OBTAINED FROM THE NMFS WEBSITE AT: WWW.NERO.NOAA.GOV/HCD.

STORAGE OF SEASONAL STRUCTURES.

COASTAL STRUCTURES SUCH AS PIER SECTIONS, FLOATS, ETC., THAT ARE REMOVED FROM THE WATERWAY FOR A PORTION OF THE YEAR (OFTEN REFERRED TO AS SEASONAL STRUCTURES) SHALL BE STORED IN AN UPLAND LOCATION, LOCATED ABOVE HIGHEST OBSERVABLE TIDE LINE (HOTL) AND NOT IN TIDAL WETLANDS. THESE SEASONAL STRUCTURES MAY BE STORED ON THE FIXED, PILE-SUPPORTED PORTION OF THE STRUCTURE THAT IS SEAWARD OF HOTL. THIS IS INTENDED TO PREVENT STRUCTURES FROM BEING STORED ON THE MARSH SUBSTRATE AND THE SUBSTRATE SEAWARD OF MHW.

ENVIRONMENTAL FUNCTIONS AND VALUES

THE PERMITTEE SHALL MAKE EVERY REASONABLE EFFORT TO 1) CARRY OUT THE CONSTRUCTION OR OPERATION OF THE WORK AUTHORIZED BY USACOE AND NHDES HEREIN IN A MANNER THAT MINIMIZES ADVERSE IMPACTS ON FISH, WILDLIFE AND NATURAL ENVIRONMENTAL VALUES, AND 2) PROHIBIT THE ESTABLISHMENT OR SPREAD OF PLANT SPECIES IDENTIFIED AS NON-NATIVE INVASIVE SPECIES BY ANY FEDERAL OR STATE AGENCY. SEE THE SECTION ON INVASIVE SPECIES AT HTTP://WWW.NAE.USACE.ARMY.MIL/REGULATORY/ FOR CONTROL METHODS.

INSPECTIONS

THE PERMITTEE SHALL ALLOW THE CORPS AND NHDES TO MAKE PERIODIC INSPECTIONS AT ANY TIME DEEMED NECESSARY IN ORDER TO ENSURE THAT THE WORK IS BEING OR HAS BEEN PERFORMED IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THIS PERMIT. THE CORPS AND NHDES MAY ALSO REQUIRE POST-CONSTRUCTION ENGINEERING DRAWINGS FOR COMPLETED WORK, AND POST-DREDGING SURVEY DRAWINGS FOR ANY DREDGING WORK.

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road - Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

PUBLIC ACCESS IMPROVEMENTS BOW STREET PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
2	DETAIL 2	9/10/21
1	ISSUED FOR APPROVAL	6/29/21
0	ISSUED FOR COMMENT	6/8/21

REVISIONS

STATE OF NEW HAMPSHIRE
JOHN R. CHAGNON
No. 7651
LICENSED PROFESSIONAL ENGINEER

SCALE: NTS MARCH 2021

DETAILS D1

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MARTINGALE WHARF DECK EXPANSION
99 BOW ST. SUITE W
PORTSMOUTH, NH 03801

PERSPECTIVE VIEW OF DECK EXPANSION

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MARTINGALE WHARF RESTAURANT & BAR

McHENRY ARCHITECTURE
4 Market Street
Portsmouth, New Hampshire

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MARTINGALE WHARF DECK EXPANSION
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PERSPECTIVE VIEW OF WEST MURAL
BRONZE MURALS DEPICT SIZE AND LOCATION, THEME SUBJECT TO CHANGE

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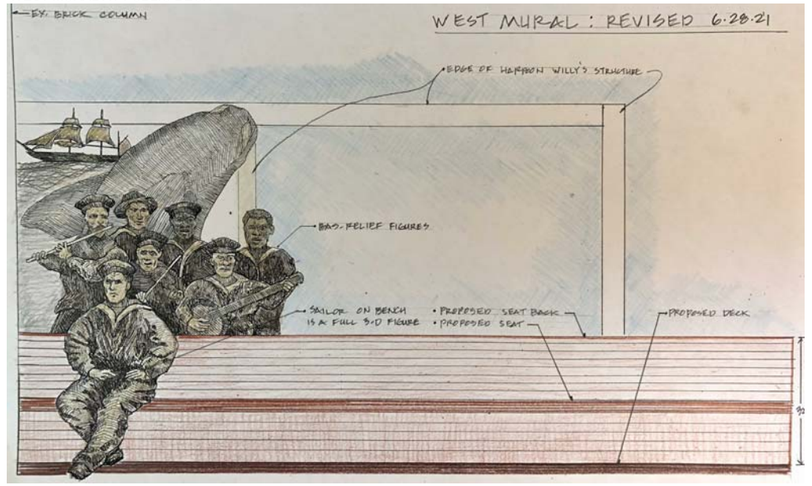
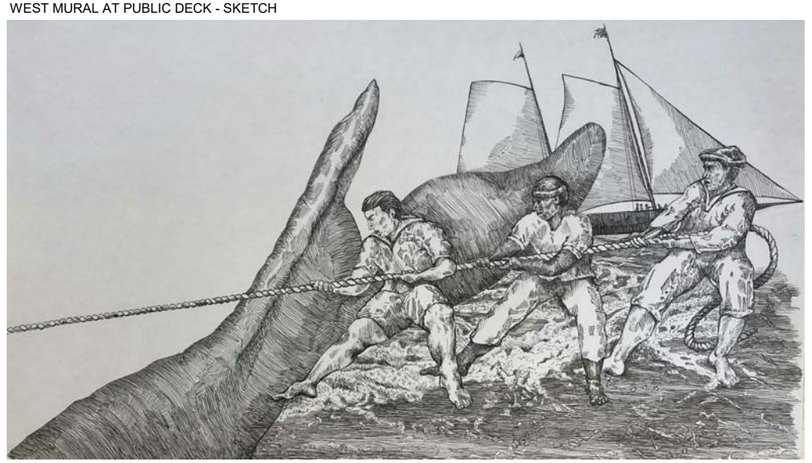
EAST MURAL AT MARTINGALE WHARF DECK

WEST MURAL AT PUBLIC DECK



WEST MURAL AT PUBLIC DECK - SKETCH



EAST MURAL AT MARTINGALE WHARF DECK - SKETCH

MARTINGALE RESTAURANT: NARRATIVE FOR THE EAST END BAS RELIEF SCULPTURAL MURAL

THE CITY OF PORTSMOUTH AND THE PISCATAQUA RIVER HAS A 400-YEAR HISTORY AS AN ACTIVE HARBOR AND PORT OF CALL, AND AS A VITAL SHIP BUILDING COMMUNITY.

THE PROPOSED EAST AND WEST IMAGES ON EITHER END OF THIS DOCK EXTENSION HAVE BEEN CONCEIVED AS 'BAS RELIEF' SCULPTURES. THE DESIGN IS BASED, IN PART, ON INFORMATION ABOUT THE HISTORY OF SAILORS, BOTH WHITE AND BLACK, THAT I CULLED FROM A BOOK CALLED, **BLACK JACKS** BY A UNH HISTORY PROFESSOR W. JEFFREY BOLSTER.

THIS BAS RELIEF SCULPTURE HAS NUMEROUS SYMBOLIC ELEMENTS:

- BLACK SAILORS WERE CALLED 'BLACK JACKS', AND THEY WERE ABOUT 20% OF ALL AMERICAN SAILORS. BLACK JACKS SOUGHT SAILING AND WHALING AS A MEANS TO ACHIEVE FREEDOM FROM SLAVERY AND TO MAKE A LIVING.
- THE SAILOR CLOTHING IS A MIX OF THE VARIOUS STYLES OF HATS AND DRESS OF THE SAILORS THROUGH THE DECADES, INCLUDING CIVIL WAR SAILORS AND THOSE ON WHALING SHIPS.
- THE WHALE REPRESENTS THE SAILOR'S PURSUIT OF FREEDOM AND THE ECONOMY OF OIL.
- THE ROPE REPRESENTS THE SAILOR'S STRUGGLE AND THE COOPERATION AMONG SAILORS OF ALL WALKS OF LIFE IN COMBINED PURSUIT OF THEIR INDIVIDUAL INDEPENDENCE. THE FOCUS OF THAT STRUGGLE, THE WHALE, SEEMINGLY SWIMS AWAY SUGGESTING AN OUTCOME THAT IS NOT KNOWN.
- THE TURBULENCE OF THE WATER REPRESENTS THE INSTABILITY AND DANGERS INHERENT IN THE LIVELIHOOD OF SAILING. THE SAILORS IN THIS IMAGE ARE SEEN STANDING ON THE WATER, AND THE HINT OF A DECK, SUGGESTING THEIR FATE AND SAFETY WERE ALWAYS IN QUESTION.
- THE SHIP IS A TYPICAL AMERICAN COMMERCIAL SCHOONER OF THE 1800'S WITH NUMEROUS SAILS AND RIGGING.
- THE TOWER OF THE BRIDGE IN THE BACKGROUND IS THE CURRENT SAILORS MEMORIAL BRIDGE. INSERTING THE CONCEPT OF 'HISTORIC DISSONANCE' WITH THE IMAGE OF THE CONTEMPORARY BRIDGE SUGGESTS THAT HISTORY IS NOT STATIC, THE STRUGGLES OF SAILORS REMAIN, AND PORTSMOUTH IS STILL A VITAL SEAPORT. THE BRIDGE WILL ALSO BE SEEN FROM THIS VIEW.

TERRENCE PARKER, ARTIST AND LANDSCAPE ARCHITECT

PUBLIC DECK: NARRATIVE FOR THE WEST END BAS RELIEF SCULPTURAL MURAL

JUST AS WITH THE PROPOSED EAST IMAGE, THE IMAGE ON THE WEST END OF THE DOCK EXTENSION HAS BEEN CONCEIVED AS A 'BAS RELIEF' SCULPTURE. THIS DESIGN IS ALSO BASED, IN PART, ON INFORMATION ABOUT THE HISTORY SAILORS, BOTH WHITE AND BLACK, CULLED FROM A BOOK CALLED, **BLACK JACKS** BY A UNH HISTORY PROFESSOR W. JEFFREY BOLSTER

THE WEST SCULPTURE WILL HAVE DIRECT ACCESS BY THE PUBLIC FROM A STAIR SYSTEM THAT EXTENDS FROM BOW STREET ONTO A PUBLIC DECK THAT LOOKS NORTH UP THE PISCATAQUA RIVER. THERE WILL OVER 32 LINEAR FEET OF BUILT-IN BENCHES ON THIS DECK. IN THIS IMAGE, A PROPOSED BENCH IS IN THE FOREGROUND AND RUNS THE LENGTH OF THE DOCK ABOUT 16'. THE SAILOR FIGURES ARE LIFE-SIZE AND STAND BEHIND THE BENCH AS THE TOURISTS SIT ON THE BENCH. A PERFECT 'SELFIE' OPPORTUNITY.

THE THEME OF THIS BAS RELIEF IS THAT OF SAILORS AT REST AND PLAY, THE OPPOSITE THEME OF THE EAST SCULPTURE.
AS HARD AS SAILORS WORKED IN THIS DANGEROUS OCCUPATION, THERE WERE TIMES OF SLACK WIND OR EXTENDED PORT STAYS THAT ALLOWED SAILORS TIME TO RELAX. MUSIC WAS IMPORTANT TO SAILORS AND CONSEQUENTLY THEY INVENTED THE SHANTI WORK SONGS, SUNG TO AID IN COOPERATIVE TASKS SUCH AS LOADING AND UNLOADED THE VESSELS.

THE HISTORIC BOAT IN THE BACKGROUND IS ONE OF THE QUINTESSENTIAL VESSELS OF THE SHIPYARD, THE KEARSARGE, ORIGINALLY BUILT DURING THE CIVIL WAR HAS HAD NUMEROUS NAMESAKES BUILT SINCE THEN.
AND FINALLY, EVEN THE WHALE, UNLIKE THE ONE BEING PURSUED IN THE EAST IMAGE, CAN BE SEEN FREE OF ENCUMBRANCES AS IT LEAPS OUT OF THE WATER HEADING OUT TO SEA.

TERRENCE PARKER, ARTIST AND LANDSCAPE ARCHITECT

MARTINGALE WHARF DECK EXPANSION
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PERSPECTIVES OF EAST AND WEST MURAL
BRONZE MURALS DEPICT SIZE AND LOCATION, THEME SUBJECT TO CHANGE

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MARTINGALE WHARF RESTAURANT & BAR

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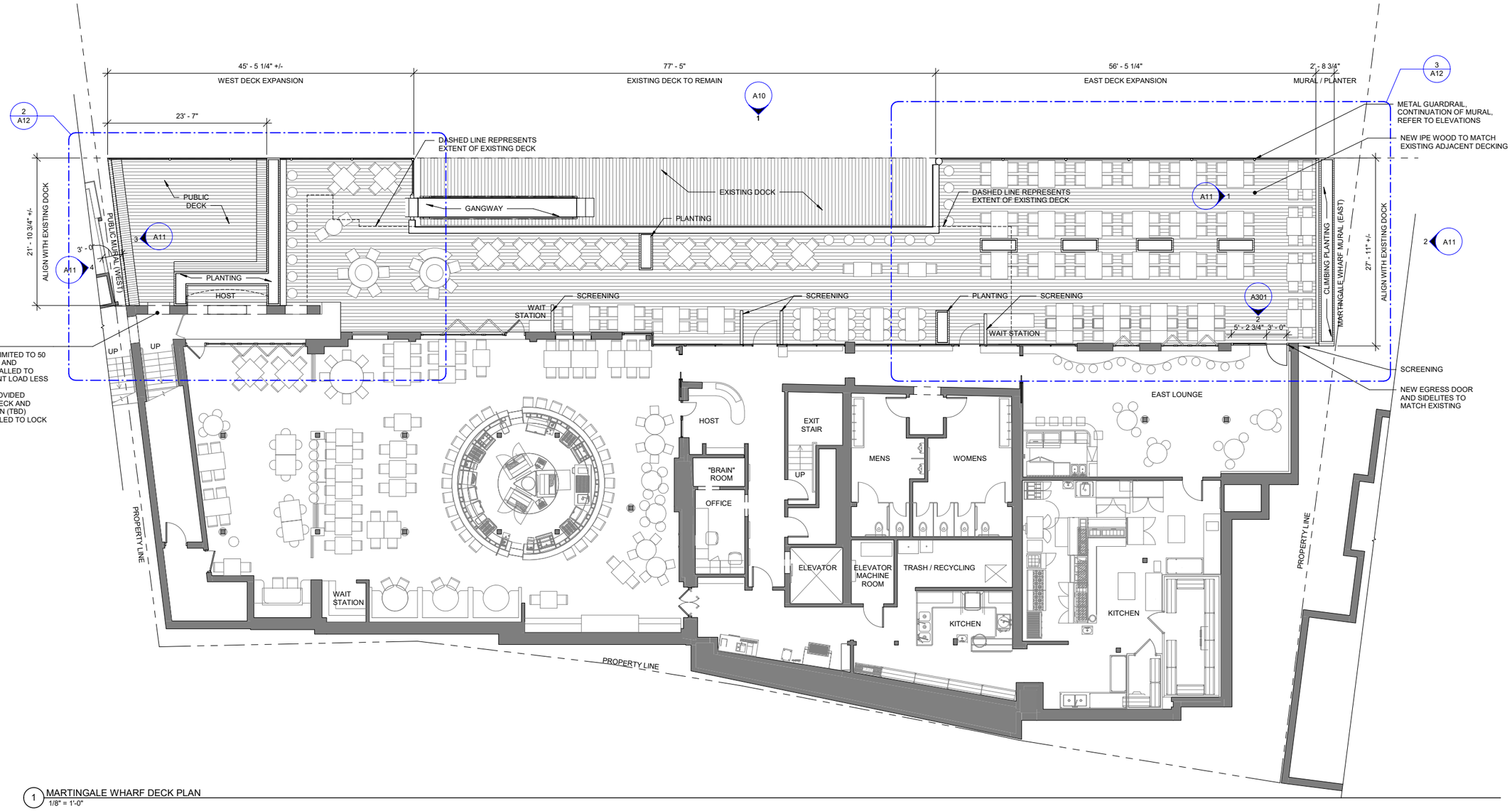

PUBLIC DECK NOTES:

- PUBLIC DECK TO BE LIMITED TO 50 PERSONS, PLANTERS AND BENCHES TO BE INSTALLED TO SATISFY AN OCCUPANT LOAD LESS THEN 50 PEOPLE
- SIGNAGE WILL BE PROVIDED INDICATING PUBLIC DECK AND HOURS OF OPERATION (TBD)
- GATE WILL BE INSTALLED TO LOCK AFTER MIDNIGHT

1 MARTINGALE WHARF DECK PLAN
1/8" = 1'-0"

PRINTED AT 1/2 SCALE ON 11X17 PAPER

MARTINGALE WHARF DECK EXPANSION
99 BOW ST. SUITE W
PORTSMOUTH, NH 03801

DECK EXPANSION PLAN
OPTION 2

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Portsmouth, New Hampshire

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11/04/2021
1/8" = 1'-0"
RD / MG

1 PROPOSED NORTH ELEVATION
1/8" = 1'-0"

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DECK EXPANSION NORTH ELEVATION

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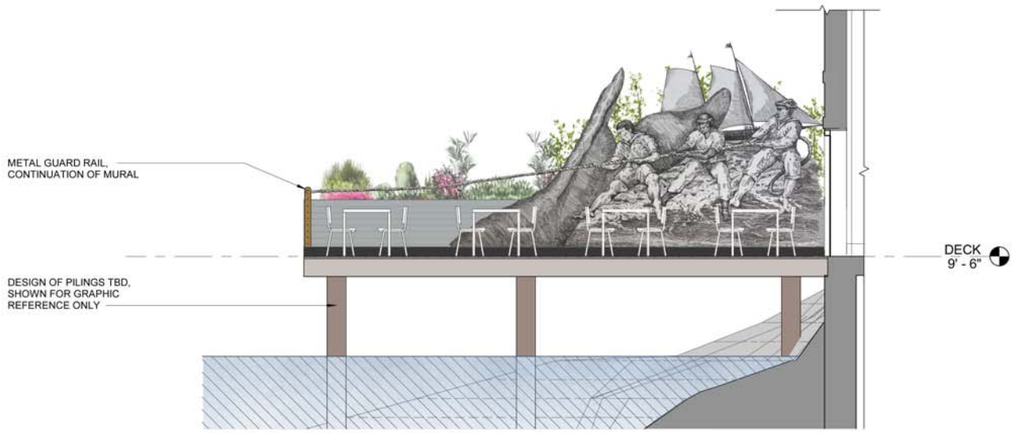
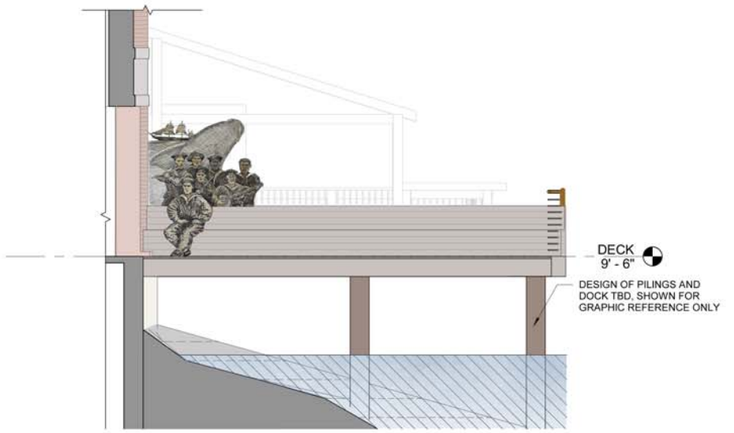
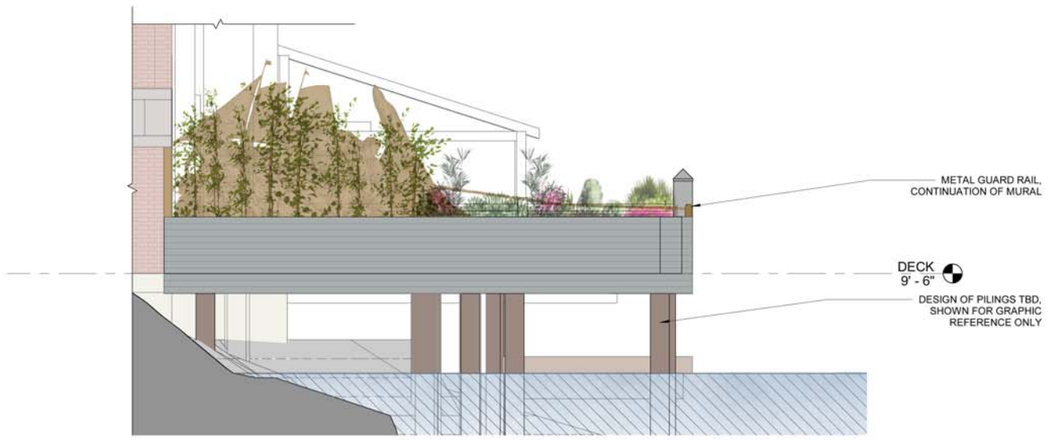
10/14/2021
1/8" = 1'-0"
RD / JJ



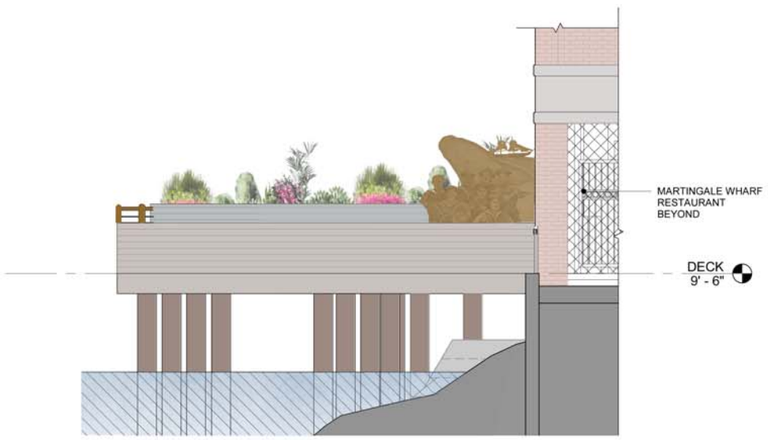
1 ELEVATION AT MARTINGALE WHARF MURAL (LOOKING EAST)
1/4" = 1'-0"



3 ELEVATION AT PUBLIC MURAL (LOOKING WEST)
1/4" = 1'-0"



2 EAST ELEVATION (BACKSIDE OF MARTINGALE WHARF MURAL)
1/4" = 1'-0"



4 WEST ELEVATION (BACKSIDE OF PUBLIC DECK MURAL)
1/4" = 1'-0"

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ELEVATIONS AT EAST AND WEST MURALS
BRONZE MURALS DEPICT SIZE AND LOCATION, THEME SUBJECT TO CHANGE

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10/13/2021
1/4" = 1'-0"
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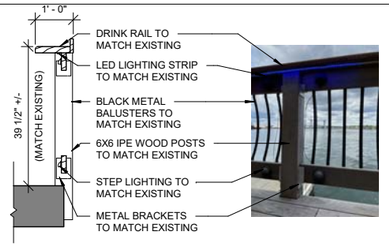

1 EXISTING DRINK RAIL EXTENTION SECTION DETAIL
1/2" = 1'-0"

PUBLIC DECK NOTES:
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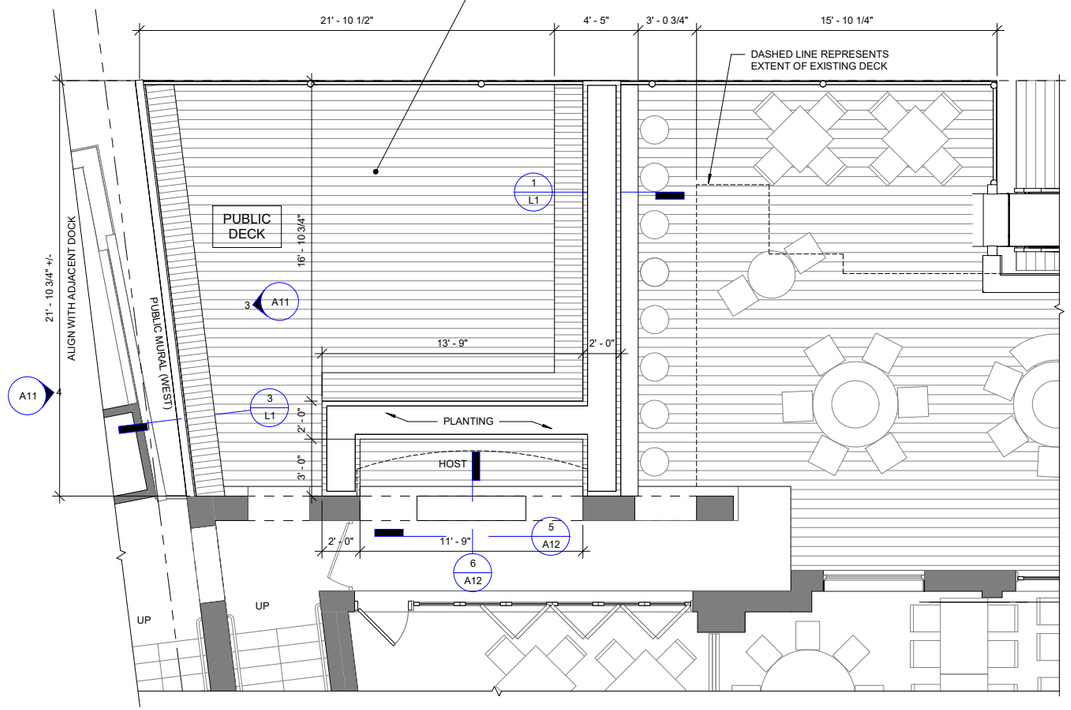
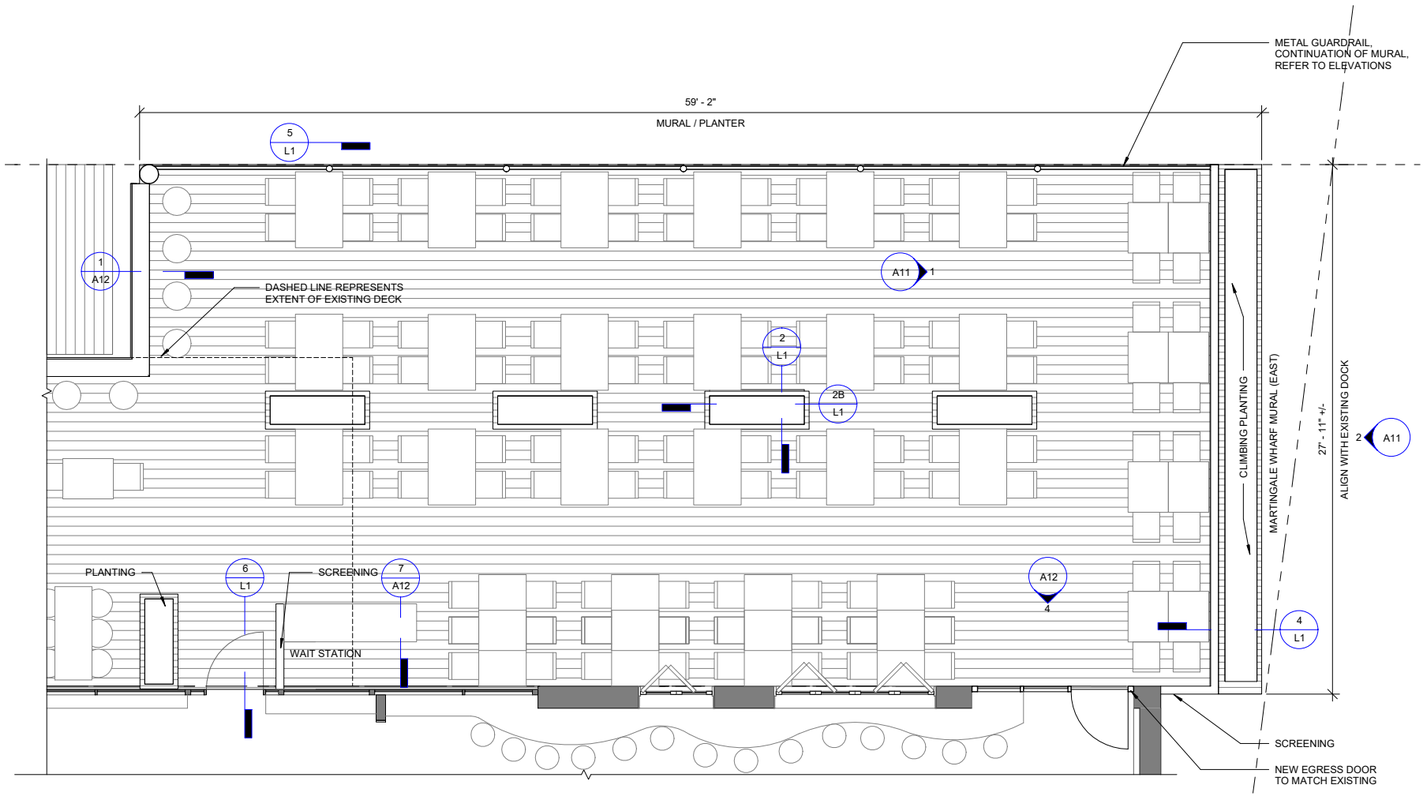
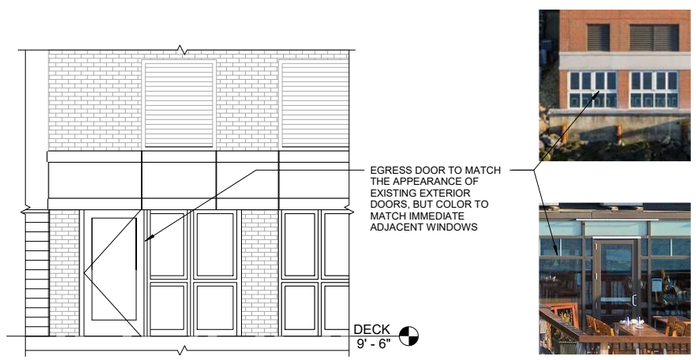


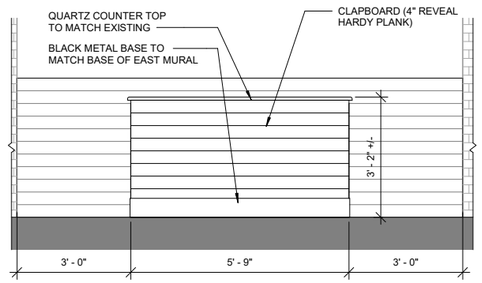
2 ENLARGED PUBLIC DECK PLAN
1/4" = 1'-0"



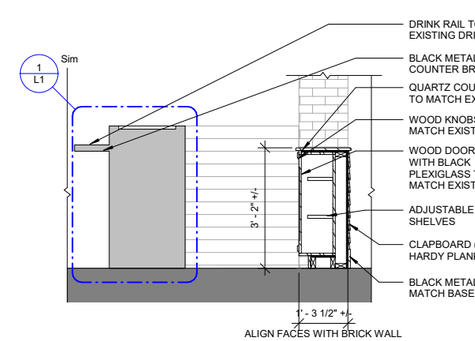
3 ENLARGED MARTINGALE WHARF DECK EXPANSION PLAN
1/4" = 1'-0"



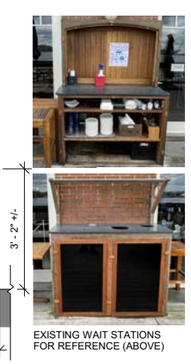
4 EGRESS DOOR ELEVATION
1/4" = 1'-0"



5 ELEVATION AT HOST STATION
1/2" = 1'-0"



6 SECTION THROUGH HOST STATION
1/2" = 1'-0"



7 SECTION THROUGH TYPICAL WAIT STATION
1/2" = 1'-0"

PRINTED AT 1/2 SCALE ON 11X17 PAPER

MARTINGALE WHARF DECK EXPANSION
99 BOW ST. SUITE W
PORTSMOUTH, NH 03801

ENLARGED PLANS, ELEVATIONS, AND DETAILS

terra firma landscape architecture
163 a court street · portsmouth, nh 03801
603.430.8388 | terrance@terrafirmalandarch.com

MARTINGALE WHARF RESTAURANT & BAR

McHENRY ARCHITECTURE
4 Market Street
Portsmouth, New Hampshire

A12

11/04/2021
AS INDICATED
RD / MG

Pitch LED Indoor/Outdoor Wall Sconce
By Tech Lighting

LUMENS LIGHT AND LIVING
Call Us 877.445.4486

Product Options
Finish: ~~Black~~ Bronze ~~Charcoal Silver~~
Voltage: 120 Volt , 277 Volt

Details
- May be mounted up or down
- Marine-grade powder coat finishes
- Stainless Steel mounting hardware
- Impact-resistant, UV stabilized frosted acrylic lensing
- Material: Die-Cast Metal
- ADA compliant, Dark Sky compliant, Title 24 compliant
- ETL Listed Wet
- Marine Grade
- Warranty: 5 years
- Made In China

Dimensions
120 Volt Option Fixture: Width 5", Height 5", Depth 3.9", Weight 1.66Lbs
277 Volt Option Fixture: Width 5", Height 5", Depth 3.9", Weight 1.66Lbs

Lighting
- 120 Volt Option: 26.1 Watt (823 Lumens) 120 Volt Integrated LED: CRI: 80 Color Temp: 3000K Lifespan: 70000 hours
- 277 Volt Option: 26.1 Watt (823 Lumens) 277 Volt Integrated LED: CRI: 80 Color Temp: 3000K Lifespan: 70000 hours

Additional Details
Product URL: https://www.lumens.com/pitch-led-indoor-outdoor-wall-sconce-by-tech-lighting-TECP90024.html
Rating: ETL Listed Wet

Product ID: TECP90024

Notes:
OR EQUAL

Product Title

WALL SCONCE AT DECK PERIMETER - OR EQUAL

Norfolk Outdoor Wall Sconce
By Troy Lighting

LUMENS LIGHT AND LIVING
Call Us 877.445.4486

Product Options
Size: ~~Small~~ Medium ~~Large~~

Details
- Finish: Marine Bronze
- Material: Solid Brass
- Shade Material: Frosted Pressed Prismatic glass
- ADA compliant
- UL Listed Wet
- Made In China

Dimensions
Small Option Fixture: Depth 3", Diameter 8"
Medium Option Fixture: Depth 3.5", Diameter 10"
Large Option Fixture: Depth 4.5", Diameter 13"

Lighting
- Small Option: One 40 Watt (384 Lumens) 120 Volt E12 Candelabra Base Incandescent Lamp(s) (Not Included)
- Medium Option: Two 40 Watt (384 Lumens) 120 Volt E12 Candelabra Base Incandescent Lamp(s) (Not Included)
- Large Option: Two 60 Watt (672 Lumens) 120 Volt E12 Candelabra Base Incandescent Lamp(s) (Not Included)

Additional Details
Product URL: https://www.lumens.com/norfolk-outdoor-wall-sconce-by-troy-lighting-uu466059.html
Rating: UL Listed Wet

Product ID: uu466059

Notes:
OR EQUAL

Product Title

WALL SCONCE AT BUILDING - OR EQUAL

Thin-Line LED Wall Bar
By SONNEMAN Lighting

LUMENS LIGHT AND LIVING
Call Us 877.445.4486

Product Options
Finish: ~~Bronze~~ ~~Black~~ ~~Aluminum~~ ~~Satin Brass~~ Satin White
Size: 3, 4, 6, 8
Lighting Option: Indirect , One-Sided , Two-Sided

Details
- One sided configuration can be installed as a downlight or uplight
- Can be mounted horizontally or vertically
- Dimmable when used with TRIAC or ELV dimmer (not included)
- Damp rated for indoor use only
- Designed by Robert Sonneman in 2018
- Material: Metal
- Shade Material: Optical Acrylic
- ADA compliant
- UL Listed
- Warranty: Limited 1 Year
- Made in China

Dimensions
3 Option Backplate: Width 7", Height 1"
3 Option Fixture: Width 35", Height 0.75", 1", Depth 2.5", Weight 4Lbs
3 Option Shade: Width 35", Height 1", Depth 0.75"
4 Option Backplate: Width 7", Height 1"
4 Option Fixture: Width 48", Height 0.75", 1", Depth 2.5", Weight 7Lbs
4 Option Shade: Width 48", Height 1", Depth 0.75"
6 Option Backplate: Width 7", Height 1"
6 Option Fixture: Width 72", Height 0.75", 1", Depth 3.5", Weight 9Lbs
6 Option Shade: Width 72", Height 1", Depth 0.75"
8 Option Backplate: Width 7", Height 1"
8 Option Fixture: Width 96", Height 0.75", 1", Depth 3.5", Weight 13Lbs
8 Option Shade: Width 96", Height 1", Depth 0.75"

Lighting
- 3 Option: 93 Watt (1161 Lumens) 120 Volt Integrated LED: Color Temp: 3000K
- 3 Option: 178 Watt (2220 Lumens) 120 Volt Integrated LED: Color Temp: 3000K
- 4 Option: 22 Watt (1490 Lumens) 120 Volt Integrated LED: Color Temp: 3000K
- 4 Option: 44 Watt (2910 Lumens) 120 Volt Integrated LED: Color Temp: 3000K
- 6 Option: 36 Watt (2220 Lumens) 120 Volt Integrated LED: Color Temp: 3000K
- 6 Option: 72 Watt (4440 Lumens) 120 Volt Integrated LED: Color Temp: 3000K
- 8 Option: 47 Watt (3120 Lumens) 120 Volt Integrated LED: Color Temp: 3000K
- 8 Option: 94 Watt (6240 Lumens) 120 Volt Integrated LED: Color Temp: 3000K

Additional Details
Product URL: https://www.lumens.com/thin-line-led-wall-bar-by-sonneman-lighting-SNNP202253.html
Rating: UL Listed

Product ID: SNNP202253

Notes:
EXTERIOR RATED EQUAL

Product Title

LINEAR WALL MOUNTED LIGHTING AT BUILDING TO MATCH EXISTING

EXISTING LINEAR WALL MOUNTED LIGHTING AT BUILDING

PL23DM Outdoor LED Path Light
By Focus Industries

LUMENS LIGHT AND LIVING
Call Us 877.445.4486

Product Options
Finish: ~~Black Texture~~ Bronze Texture

Details
- LED Lifespan: 50000 hours
- Driver is included
- Material: Aluminum
- ETL Listed Wet
- Warranty: Limited 5 Year
- Made In USA

Dimensions
Fixture: Width 2.25", Height 18", Depth 2.25", Weight 2.1Lbs

Lighting
- 4 Watt (300 Lumens) 12 Volt Integrated LED: CRI: 90 Color Temp: 3000K

Additional Details
Product URL: https://www.lumens.com/pl23dm-outdoor-led-path-light-by-focus-industries-FOCP309793.html
Rating: ETL Listed Wet

Product ID: FOCP309793

Notes:
OR EQUAL

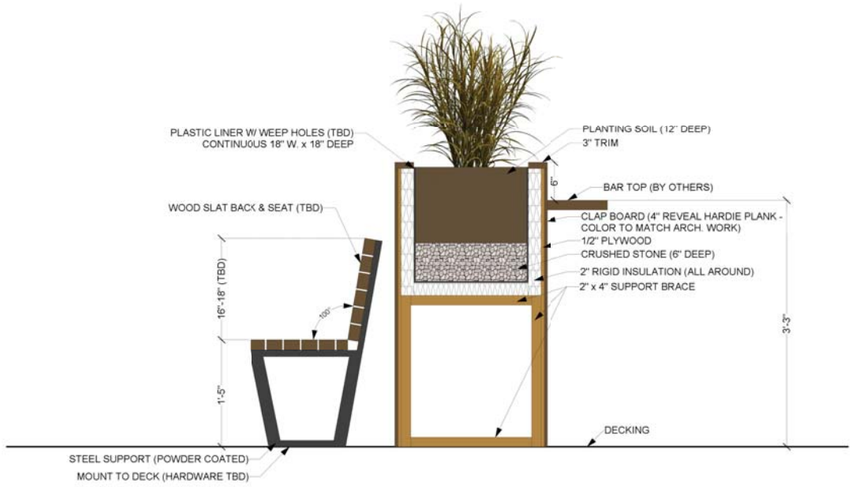
Product Title

AMBIENT PLANTER DOWNLIGHTS - OR EQUAL

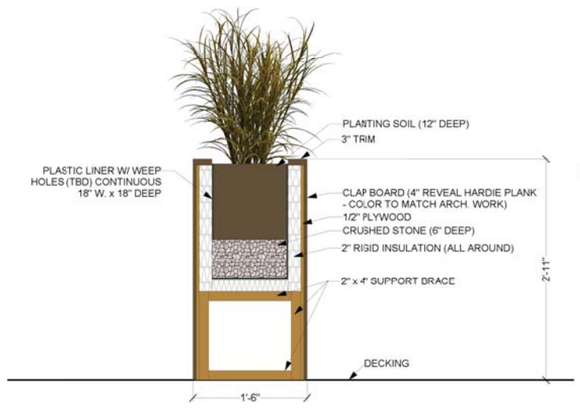
IPE WOOD DECKING - MATCH EXISTING

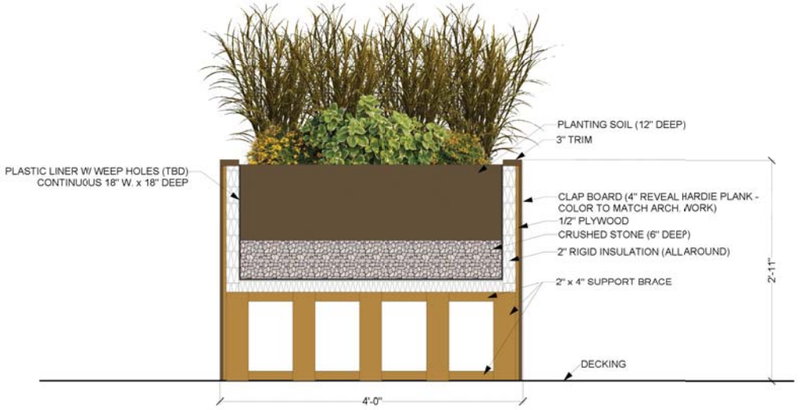
HARDIE PLANK - 4" EXPOSURE - BOOTHBAY BLUE

METAL GUARDRAIL BALUSTRADES AT EAST DECK EXPANSION - SIMILAR TO EXISTING (BLACK)



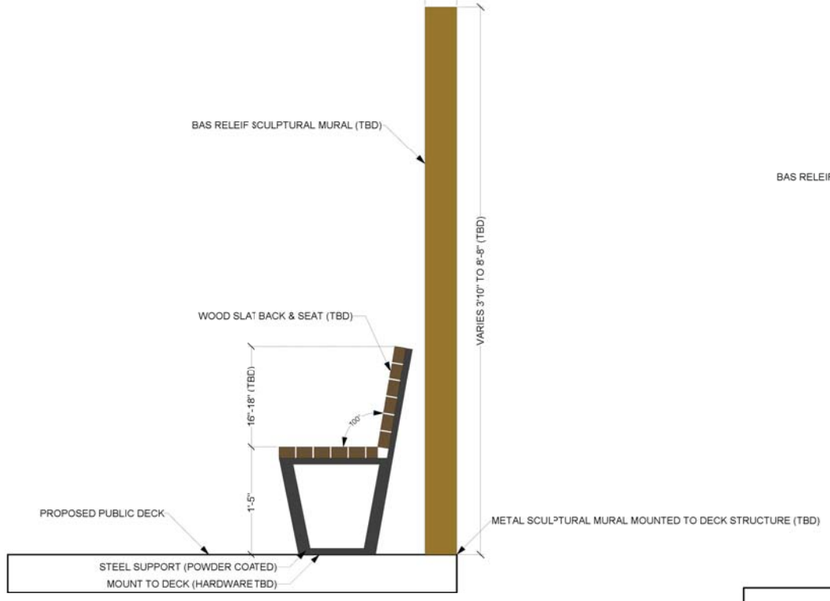
1 / L-1 PLANTING BOX AND BAR DETAIL
SCALE: 1"=1'-0"



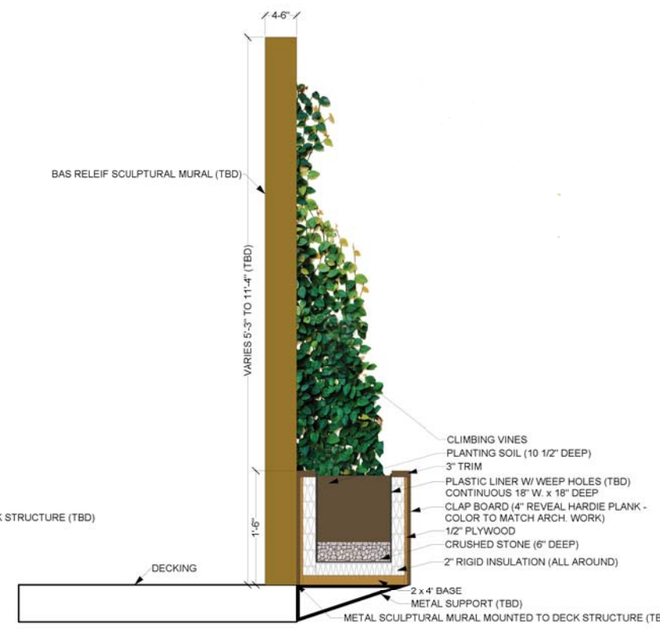


2 / L-1 SOLITARY PLANTER (18" W. x 48" L. x 35" HT.)
SCALE: 1"=1'-0"

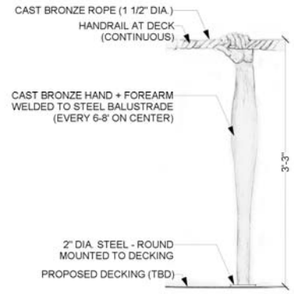
0 1 2 3 FT



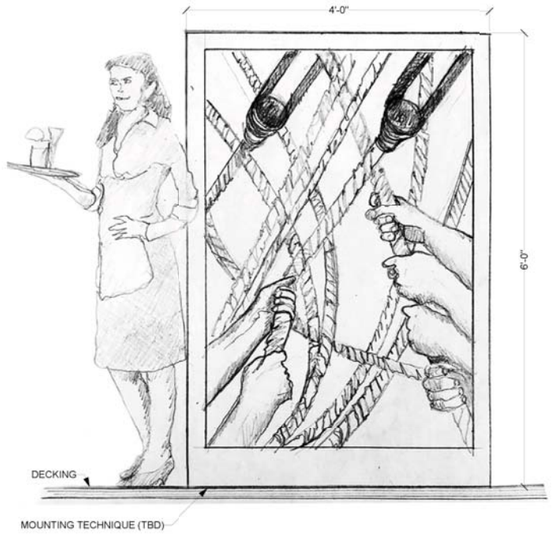
3 / L-1 WEST BENCH AND MURAL DETAIL
SCALE: 1"=1'-0"



4 / L-1 EAST BENCH AND MURAL DETAIL
SCALE: 1"=1'-0"



5 / L-1 BALUSTRADE DETAIL
SCALE: 1"=1'-0"



6 / L-1 METAL SCREEN PARTITION AT WAITRESS STAND
SCALE: 1"=1'-0"

MARTINGALE WHARF DECK EXPANSION
30 PENHALLOW ST., SUITE 300E
PORTSMOUTH, NH 03801

PROPOSED LANDSCAPE DETAILS

terra firma
landscape architecture
163 a court street · portsmouth, nh 03801
office 603.430.8988 | terrence@terrafirmalandarch.com

MARTINGALE WHARF
RESTAURANT & BAR

McHENRY ARCHITECTURE
4 Market Street
Portsmouth, New Hampshire

L1

06/04/2021
1" = 1'-0"
TP // TC

AMBIT ENGINEERING, INC. CIVIL ENGINEERS AND LAND SURVEYORS

200 Griffin Road, Unit 3, Portsmouth, NH 03801
Phone (603) 430-9282 Fax 436-2315

10 December 2021

Dexter Legg, Planning Board Chair
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

RE: Site Plan Application at 93 Pleasant Street, Tax Map 107; Lot 74

Dear Chairman Legg and Planning Board Members:

On behalf of Mark McNabb and Dagny Taggart, LLC we are pleased to submit the attached plan set for **Site Plan Approval** for the above-mentioned project and request that we be placed on the agenda for your **December 16, 2021** Planning Board Meeting. The project includes the re-use of the existing commercial building and proposed new construction of a 2 story with a short 3rd building to the rear of the existing building with the associated and required site improvements. The area behind the existing building is currently a surface parking lot. The surface parking will be lowered to below street level and new parking in the lower level will be included with the new construction.

The site redevelopment consists of maintaining the office commercial space in the existing Treadwell Mansion and constructing a proposed addition along Court Street to provide additional office space. The plan was originally submitted as a Mixed-Use project with residential units proposed in the addition. Numerous abutters are opposed to the micro apartments in this location for various reasons. Opposition centers on the applicants request for a Parking Conditional Use Permit for reduced parking included with the plans, as well as concerns about the potential of the residential units being leased as short-term rentals. The Mixed-Use plan also was based on the entire addition being residential; where the Portsmouth Zoning Ordinance requires buildings in the Downtown Overlay District contain commercial uses on the first floor. Relief from Figure 10.5A41.10C and Section 10.642 (1), which prohibit residential use in the ground floor, was applied for and adjudicated by the Portsmouth Zoning Board on November 16, 2021. The approval of the proposed variance for the first floor residential use failed by a 4-3 vote. A mixed-use building with residential tenants having to navigate through the first-floor office space changes the efficiency and compatibility within the building. The project needs to be all micro apartments, or all office space. Therefore and regrettably, being cognizant of the constraints mentioned above, the application has been revised to be entirely office use.

The application conforms to all of the required Density and Development Standards of the CD4 and Downtown Overlay Districts; except the following:

- Relief from Figure 10.5A41.10C which prohibits a finished floor surface of the ground floor that is 36” above the sidewalk grade, where a maximum of 60” is proposed.
- Relief from Figure 10.5A41.10C which requires a minimum ground story height of 12’, where 10’ 8” is proposed.
- Relief from Figure 10.5A41.10C which requires an entrance spacing every 50’.

This application received the requisite approvals from the Portsmouth Zoning Board on November 16, 2021 for the required relief mentioned above. The change of use to entirely office means that the project is not required to provide any on-site parking.

This application received a recommendation for approval from the Portsmouth Technical Advisory Committee on December 7, 2021. The approval had the following stipulations, with our response in **bold** text:

1) Applicant is to provide a complete drainage system plan prior to the building permit issuance. **Agreed. The plan will be coordinated with ACF Environmental, supplier of the R-Tank system, and will be completed shop drawings.**
2) Applicant will provide a memo from GPI speaking to the new traffic flow in and out of the parking garage. **The following response to the issue is an excerpt of a section of the latest Response Letter from GPI to the Technical Advisory Committee:**

> **Since the site use has changed to office the majority of vehicle trips will be *entering* in the morning and *exiting* in the evening, reducing the likelihood of any conflicts on the garage ramp from vehicles attempting to enter or exit at the same time. An alert system is proposed that will be activated when a vehicle is exiting the ramp. This will allow any vehicles desiring to turn onto the ramp to be alerted that a vehicle is exiting and wait for the vehicle to exit before turning onto the ramp. Similar sensors could be placed on the ramp to identify when a vehicle is entering the ramp *(or when the garage door is activated),* and alert a driver exiting to wait at the bottom of the ramp until the car clears the ramp to exit. The Applicant is willing to install a pedestrian alert system that would be activated as part of the garage door operation. When the garage door is activated to allow a vehicle to *enter or* exit the garage, pedestrian warning signage would simultaneously be activated to alert pedestrians to vehicles *entering or* exiting the ramp. A post could be mounted in the sidewalk on either side of the driveway that would be internally illuminated. When no vehicles are present, the sign would remain black. When vehicles are *entering or* exiting the garage, the sign would become illuminated and flash the words "CAR COMING". Yellow lights would also flash at the top of the sign pole to draw attention to the sign. One sign pole would be located at the back edge of the sidewalk just to the west of the existing wayfinding signage so that it is easily visible to pedestrians approaching the site driveway from the west, and continues to maintain an Americans with Disabilities Act (ADA) accessible path along the sidewalk. A second sign pole would be located just to the east of the site driveway at the front edge of the Sidewalk *but not attached to the historic wall* to remain in-line with the existing lighting poles along this section of the roadway. At this location, the sign pole would be visible to pedestrians approaching the site driveway from either direction, as well as vehicles approaching the site driveway from either direction. This would give an added indication to vehicles approaching the driveway along Court Street that traffic may be attempting to exit the ramp and to proceed slowly.**

This will be submitted in Memo format to the Board at the meeting.

3) Applicant is to continue discussion with Eversource to relocate the proposed transformer. **Agreed.**
4) Sidewalk ramps are to be hatched on plan to show they are brick. **This has been drafted on Sheet C3.**
5) The HDC should administratively approve the proposed pedestrian alert signs. **Agreed.**
6) The basement level parking shall only be used for tenants in the building and not be open for public use. **The applicant agrees to this condition.**

7) Any future change of use for the property shall require subsequent traffic study and approval by City. **The applicant agrees to this condition.**
8) Correct the Court Street sewer pipe size to show 8" on Court Street from 6" shown on plan. **This has been revised on Sheets C1 and C5.**
9) Change landscape stone shown on the plan to river stone. **The Landscape plan will be revised for final submission to the Planning Department.**
10) Pedestrian and vehicle alert system is to be located on private property. **The applicant agrees to this condition.**

This applicant seeks Planning Board approval for the project. The following plans are included in our submission:

- Cover Sheet – This shows the Development Team, Legend, Site Location, and Site Zoning.
- Standard Boundary Survey Plan – These plans show the existing property boundaries.
- Existing Conditions Plan C1 – This plan shows the existing site conditions in detail.
- Demolition Plan C2 – This plan shows portions of the existing building which will be removed.
- Site Layout Plan C3 – This plan shows the site development in detail with the associated Zoning Development Standards calculations.
- Parking Plan C4 – This plan shows the proposed parking level layout.
- Utility Plan C5 – This plan shows the site utilities in detail.
- Grading & Erosion Control Plan C6 – This plan shows the site grading and the proposed drainage systems.
- Landscape Plans L1 to L-6 – These plans shows the proposed landscaping in detail. Also included is the exterior site lighting, walkway details, fencing details, and bicycle racks.
- Detail Sheets D1 to D4 – These plans show the site construction details.
- Floor Plans, Exterior Elevation Plans, Ramp Sections, and 3D Views – These plans show the proposed building exterior elevations, interior layouts, and outside appearance.

Also included in this submission are the following additional exhibits:

- Green Building Statement
- Exhibit showing the extent of the historic wall removal
- Building Mounted Lighting Cut Sheets
- Drainage Analysis (Front End Section)
- Access Ramp Details

The project received HDC Approval on November 3, 2021. We look forward to the Planning Boards review of this submission and we will be in attendance at the meeting to answer any questions the Board may have on the proposed design.

Sincerely,

John Chagnon

John R. Chagnon, PE

CC: Mark McNabb, FX Bruton, Tracy Kozak, Terrence Parker

JSA
ARCHITECTS
INTERIORS
PLANNERS

93 Pleasant Street

Treadwell House

Site Plan Review 09-16-2021

Green Building Statement

WATER

Protect water quality – Eliminate existing surface parking lot.

Conserve Water -- Target 30% reduction in fixtures water use over building code, meeting EPACT 2005.

ENERGY

Conserve Energy -- Target 50% Energy Use Index (EUI) Reduction over code compliance (IECC2015) in

new addition. Use early energy modeling to analyze effective scenarios. Provide high performance thermal envelope. Achieve Energy Star certification and associated rebates. Use Heat Recovery for ventilation.

Commission energy using systems. LED lighting throughout.

Renewable Energy – Rooftop Solar Photovoltaic system for portion of building's energy needs.

Building Performance -- Use industry tools to annually monitor and benchmark buildings.

Train staff on proper building operation with comprehensive Facilities Staff Training and Systems Manuals.

Reduce Low level ozone (smog) -- Provide safe and secure bicycle storage. Use only low-VOC products forconstruction and operation.

MATERIALS & RESOURCES

Minimize waste (during construction and operation)

Use regional, renewable, low carbon footprint materials

INDOOR ENVIRONMENTAL QUALITY

Thermal comfort -- Meet ASHRAE 55 Thermal Comfort Code. Address thermal envelope per above.

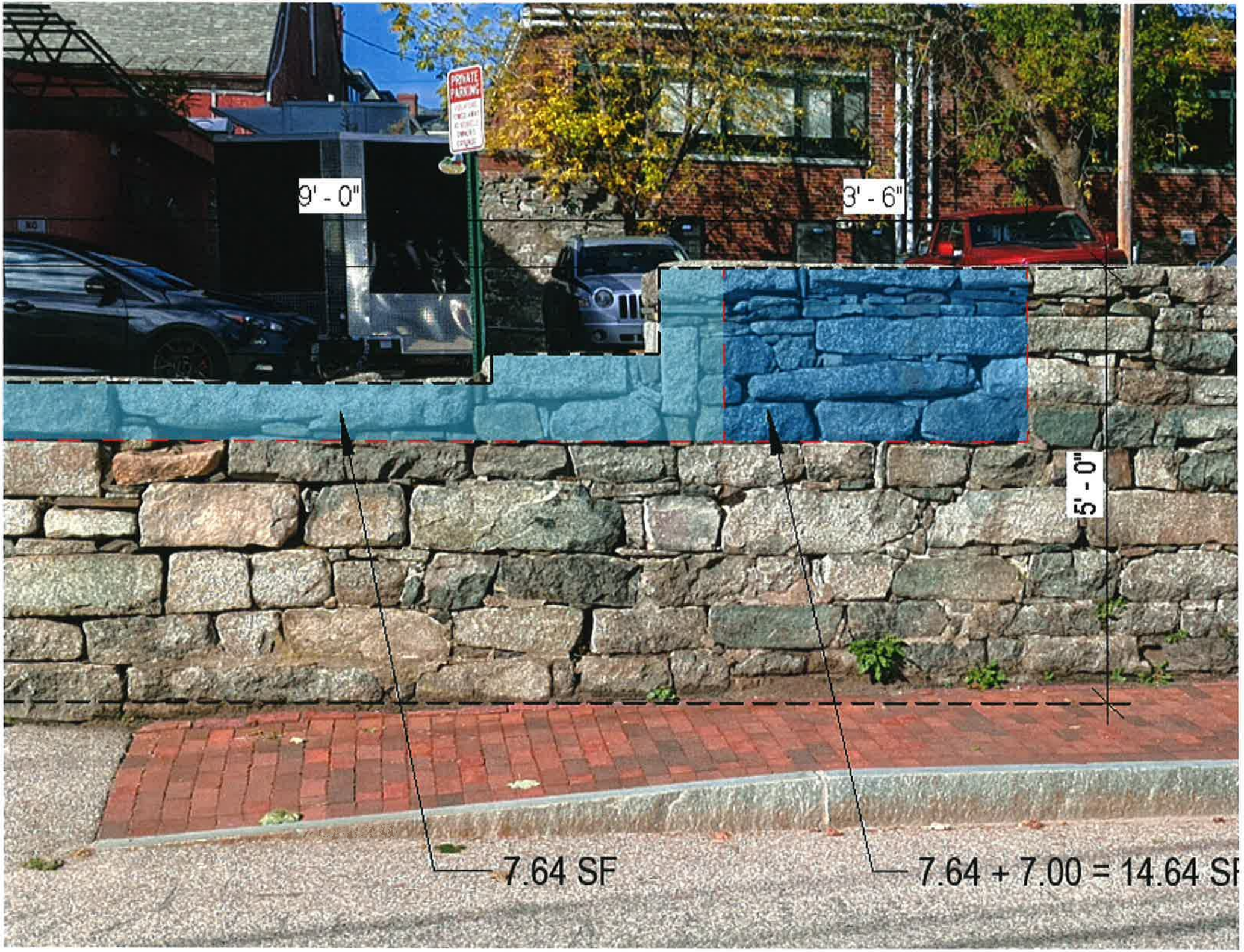
Provide multiple zones of heating and cooling in each apartment.

Indoor air quality (before and during occupancy) -- MEET ASHRAE 62 Ventilation Code in all occupiedspaces. MEET LEED IEQ credit requirements.

Views / connection to outdoors -- Provide views to outdoors for every regularly occupied space.

Daylighting -- Achieve Daylight Factor of 2% minimum for every regularly occupied space.

Individual controls (light, heat etc…) -- Provide individual controls for temperature and lighting.


PRIVATE PARKING
9' - 0"
3' - 6"
5' - 0"
7.64 SF
7.64 + 7.00 = 14.64 SF

Sea Gull Lighting

Life Illuminated | Since 1919

88241-12: Medium One Light Outdoor Wall Lantern

Collection: Cape May

One Light Wall Lantern in Black Finish with Etched / White Inside Glass Shade

UPC #:785652079016

Finish: Black (12)

Dimensions:

Width: 9"
Height: 15 1/2"
Weight: 3.6 lbs.
Extends: 10"
Wire: 6 1/2" (color/Black/White)
Mounting Proc.: Cap Nuts
Connection: Mounted To Box

Bulbs:

1 - Medium A19 100w Max. 120v - Not included

Features:

- Easily converts to LED with optional replacement lamps
- Meets Title 24 energy efficiency standards
- Title 24 compliant if used with Joint Appendix (JA8) approved light bulbs listed in the California Energy Commission Appliance database.

Material List:

1 Body - Aluminum - Black

Safety Listing:

Safety Listed for Wet Locations

Instruction Sheets:

English (HC-1179)
French (F-010)

Shade / Glass / Diffuser Details:

Part	Material	Finish	Quantity	Item Number	Length	Width	Height	Diameter	Fitter Diameter	Shade Top Length	Shade Top Width	Shade Top Diameter
Shade	Glass	Etched / White Inside	1				8 11/32	6 15/16				

Backplate / Canopy Details:

Type	Height / Length	Width	Depth	Diameter	Outlet Box Up	Outlet Box Down
Back Plate	7 1/16	4 1/2	1		4 1/2	

Shipping Information:

Package Type	Product #	Quantity	UPC	Length	Width	Height	Cube	Weight	Frt. Class	UPS Ship
Individual	88241-12	1	785652079016	17.25	11.75	12.25	1.437	5.4	250	Yes
NJ Pallet		48		48	40	75	83.333	259.2		No
NV Pallet		48		48	40	75	83.333	259.2		No

Sea Gull Lighting reserves the right to revise the design of components of any product due to parts availability or change in safety listing standards without assuming any obligation or liability to modify any products previously manufactured and without notice. This literature depicts a product design that is the sole and exclusive property of Sea Gull Lighting . In compliance with U.S copyright and patent requirements, notification is hereby presented in this form that this literature, or the product it depicts, is not to be copied, altered or used in any manner without the express written consent of, or contrary to the best interests of Sea Gull Lighting.

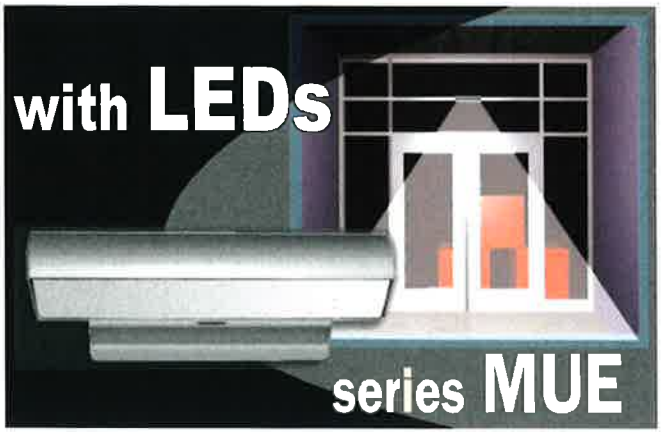
Moonlite LED®
LED Outdoor Egress Emergency with Night Lighting Option

Mullion Mount Emergency Light
Series MUE

TYPE JOW-EMERGENCY

MUE.5.18.15

The Brightest Idea is Emergency Lighting



GENERAL DESCRIPTION

Operating in emergency mode or optional normal- on, this fixture is designed to mount directly on structural mullion beams used in typical glass-fronted entrances, with vertical surface as small as 2". This fixture has full 90° cut-off and will provide efficient emergency lighting in front of egress doorways, or along extended pathways.

CONSTRUCTION

- Rugged extruded aluminum housing with stainless hardware is corrosion proof.
- Wet location listed UL 924. Certified IP66.
- Uniform, high brightness lighting over the path of egress.
- Full 90° cut- off.
- Three versions are available:

RE= Central Battery System Series CBS or other qualified source 12V- 24 VDC.
BB= Battery backup from Remote Battery Supply Series RPS.
AC= 120/ 277 VAC supply.

ELECTRONICS

- Dual operation from either a battery or optional normally on power source.
- Lamps are connected in parallel-series strings, as required to meet requirements of NEC and Life Safety Codes. Lighting continues even after failure of One lamp or circuit.
- LED color temperature standard 5300K; available color temperatures from 2900K, 3200K, to 3800K.

ENERGY EFFICIENT OPERATION

- Dual function operation for optional normally on night or security lighting as well as emergency lighting.
- Very low power consumption in optional night/ security mode. The security lighting circuit is independent of emergency lighting and may be switched manually, by an exterior photocell, or other automatic means.
- Over 50,000 hour lamp life in normal use.
- IES photometric data available for all models.

CODES

- Manufactured and tested to UL Standard 924 and NFPA Life Safety Code 101.

WARRANTY

- 5 year total customer satisfaction warranty. For Details see product catalog technical data section.

DESIGNED & MADE IN THE USA

Intertek
CONFORMS TO UL 924/ CSA 22.2 #141

FIXTURE SCHEDULE

MODEL	CATALOG NO
APPROVAL	JOB INFORMATION

Signtex Inc
LIGHTING
SPECIFIED EMERGENCY LIGHTING

Moonlite LED®
LED Outdoor Egress Emergency with Night Lighting Option

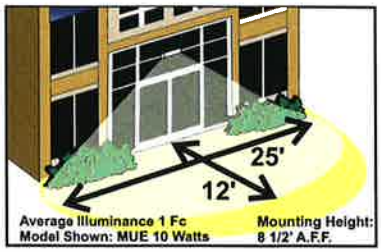
Mullion Mount Emergency Light
Series MUE

MUE.5.18.15

SUGGESTED SPECIFICATIONS:

Supply and install the MOONLITE LED Series MUE Mullion Mount emergency lighting fixture manufactured by Signtex Lighting Inc. The MUE assembly shall be listed for installation in wet locations in compliance with UL 924 and IP66 standards and shall be capable of operating from Signtex remote power supply Series RPS, the Signtex central battery system Series CBS, or from other remote power sources supplying 12-24 VDC or VAC. Upon loss of AC building power, emergency models shall operate for a minimum of 90 minutes in compliance with UL Standard 924 and NFPA LSC 101.

SPACING GUIDE

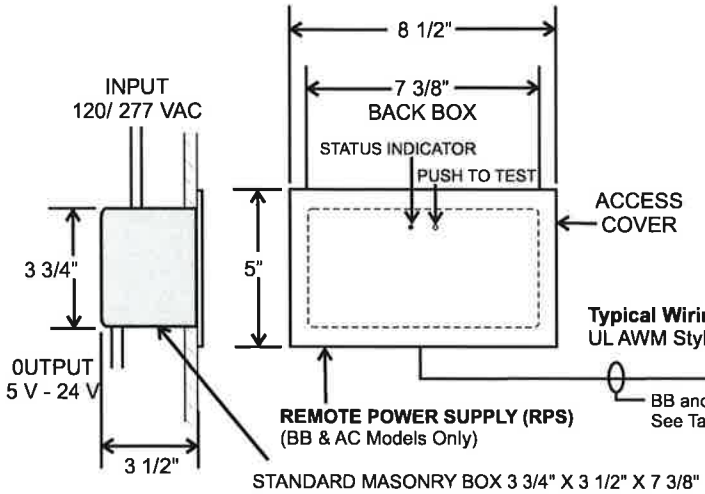


NOTE: FOR REFERENCE ONLY. STANDARD REFLECTANCES 80/50/20. SIGNTEX IS NOT RESPONSIBLE FOR SPECIFIC CONDITIONS THAT MAY ALTER THE RESULTS.

CONTACT SIGNTEX FOR LAYOUT ASSISTANCE

Code Compliant Emergency lighting layouts provided free of charge!

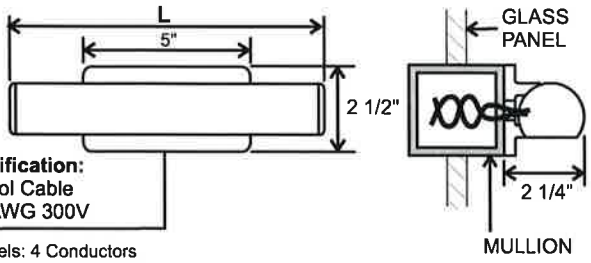
MOUNTING DATA & DIMENSIONS:



STANDARD MASONRY BOX 3 3/4" X 3 1/2" X 7 3/8"
(SUPPLIED BY OTHERS)

TYPICAL STOCK MODELS:
CROUSE HINDS #TP693
RACO # 698

WALL MOUNT



TOP MOUNT

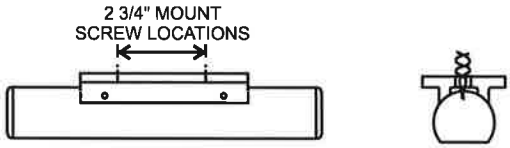


TABLE 1

MAXIMUM WIRING LENGTH FROM RPS TO FIXTURE

WIRING SIZE AWG	LENGTH (FT) MUEBB
#18	25
#16	50
#14	75
#12	125

LENGTH TABLE

POWER	L
10 Watts	10"
20 Watts*	19"

*RE & AC Models Only

SECURITY LIGHTING CONTROL

RE Models: Requires SEC Option 'S' with CBL

BB Models: Requires Option '-SB120' for connection to 120 VAC
Requires Option '-SD277' for connection to 277 VAC

BB-DG Models: Requires Option '-SD' for connection to 120/ 277 VAC

RPS SELF- TEST DIAGNOSTIC FUNCTIONS
BB MODELS WITH DG FUNCTION

STATUS	LED DISPLAY
NORMAL FULL CHARGE	GREEN ON
NORMAL FAST CHARGE	ORANGE ON
FAILED BATTERY	RED FLASH FAST
FAILED LAMP	GREEN FLASH
FAILED TRANSFER	ORANGE FLASH
FAILED CHARGER	RED FLASH SLOW

FIXTURE ORDERING INFORMATION: *EXAMPLE:* MUEBB10AW-DG

MUE BB 10 A W - -DG

MODEL SERIES	OPERATION	POWER	HOUSING COLOR	MOUNT	OPTIONS
MUE	RE= Central Battery or other 12- 24 VDC Remote Source BB= Battery Backup (Includes RPS) AC= No Battery (Includes RPS)	10= 10 Watts Emergency & Normal On Power 20= 20 Watts Emergency & Normal On power (RE & AC Models Only)	W= Satin White A= Aluminum B= Dark Bronze X= Custom	T= Top W= Wall	DG= Self- Test Diagnostics (BB Models Only) SB120= Security Lighting with Control Switch for Standard BB Operation (120V) SD277= Security Lighting with Control Switch for Standard BB Operation (277V) SD= Security Lighting with Control Switch for BB Operation with DG option (120/ 277V) CW1= Custom Window Filter- 3800K CW2=Custom Window Filter- 3200K CW3=Custom Window Filter- 2900K DAC= Dual AC Input 2HT= 2" Canopy Height 5HT= 5" Canopy Height

SUITABLE FOR WET LOCATIONS

AMBIENT TEMPERATURE LIMITS:

-40° C to +50° C

Signtex Inc
LIGHTING
220 VFW Avenue, Grasonville, MD 21638
TEL:(410)827-8300 Fax:(410)827-8866
sales@signtexinc.com www.signtexinc.com

DISTRIBUTOR:

Specifications and Dimensions subject to change without notice.

Under Canopy Lighting; Shown on Architectral Plans Only

Sea Gull Lighting®
Life Illuminated | Since 1919

6250701-71: One Light Outdoor Pendant

Collection: Calder

UPC #:785652056406

Finish: Antique Bronze (71)

Dimensions:

Diameter: 10"
Height: 16 1/8"
Weight: 5.7 lbs.
Overall Height: 54"
Wire: 120" (color/Brown)
Chain: 36"
Mounting Proc.: Center Lock-Up
Connection: Mounted To Box

Bulbs:

1 - Medium A19 75w Max, 120v - Not included

Features:

- Easily converts to LED with optional replacement lamps
- Meets Title 24 energy efficiency standards
- Title 24 compliant if used with Joint Appendix (JA8) approved light bulbs listed in the California Energy Commission Appliance database.
- Supplied with wire pre-laced through chain

Material List:

1 Body - StoneStrong - Antique Bronze
1 Chain - Steel - Antique Bronze

Safety Listing:

Safety Listed for Damp Locations

Instruction Sheets:

Trilingual (English, Spanish, and French) (990P6250701-CLR)

Shade / Glass / Diffuser Details:

Part	Material	Finish	Quantity	Item Number	Length	Width	Height	Diameter	Fitter Diameter	Shade Top Length	Shade Top Width	Shade Top Diameter
Shade	Glass	Satin Etched	1	G560301-619			8 5/8	7 1/2				

Backplate / Canopy Details:

Type	Height / Length	Width	Depth	Diameter	Outlet Box Up	Outlet Box Down
Canopy	1			5		

Shipping Information:

Package Type	Product #	Quantity	UPC	Length	Width	Height	Cube	Weight	Frt. Class	UPS Ship
Individual	6250701-71	1	785652056406	21	13	20.75	3.278	7.6	250	Yes
NJ Pallet		35		48	40	70.5	78.333	266		No
NV Pallet		35		48	40	70.5	78.333	266		No

Sea Gull Lighting reserves the right to revise the design of components of any product due to parts availability or change in safety listing standards without assuming any obligation or liability to modify any products previously manufactured and without notice. This literature depicts a product design that is the sole and exclusive property of Sea Gull Lighting . In compliance with U.S copyright and patent requirements, notification is hereby presented in this form that this literature, or the product it depicts, is not to be copied, altered or used in any manner without the express written consent of, or contrary to the best interests of Sea Gull Lighting ï¿½ A Generation Brands Company.

DRAINAGE ANALYSIS

MIXED USE DEVELOPMENT

93 PLEASANT STREET
PORTSMOUTH, NH

FOR
DAGNY TAGGART, LLC

21 OCTOBER 2021
AMMENDED 18 NOVEMBER 2021

Ambit Engineering, Inc.
Civil Engineers and Land Surveyors
200 Griffin Road, Unit 3
Portsmouth, NH 03801
Phone: 603.430.9282; Fax: 603.436.2315
E-mail: jrc@ambitengineering.com
(Ambit Job Number 3059.01)

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EXECUTIVE SUMMARY

This drainage analysis examines the pre-development (existing) and post-development (proposed) stormwater drainage patterns for the proposed building and associated future site improvements at 93 Pleasant Street in Portsmouth, NH. The site is shown on the City of Portsmouth Assessor's Tax Map 107 as Lot 74. The total size of the lot is 17,498 square-feet (0.4017 acres).

The development will provide for the future development of a mixed use building, a 8,117 square-foot addition, with associated landscaping, utilities, and parking. The new building will be serviced by public water, sewage, and electricity. The development has the potential to increase stormwater runoff to adjacent properties, and therefore must be designed in a manner to prevent that occurrence. This will be done primarily by capturing stormwater runoff and routing it through appropriate stormwater facilities, designed to ensure that there will be no increase in peak runoff from the site as a result of this project.

The hydrologic modeling utilized for this analysis uses the "Extreme Precipitation" values for rainfall from The Northeast Regional Climate Center (Cornell University), as well as an additional 15% multiplier, as is required for New Hampshire's costal district by the Alteration of Terrain Bureau.

INTRODUCTION / PROJECT DESCRIPTION

This drainage report is designed to assist the owner, planning board, contractor, regulatory reviewer, and others in understanding the impact of the proposed development project on local surface water runoff and quality. The project site is shown on the City of Portsmouth, NH Assessor's Tax Map 107 as Lot 74. Bounding the site to north are multiple LLCs and a limited partnership. Bounding the site to the south is Court Street, followed by a trust and multiple preservation sites. Bounding the site to the west is Pleasant Street, followed by multiple LLCs and a trust. Bounding the site to the east is a temple. A vicinity map is included in the Appendix to this report.

The proposed development will develop a building and integrated parking garage adjacent to existing buildings on the site. This report includes information about the existing site and the proposed building necessary to analyze stormwater runoff and to design any required mitigation. The report includes maps of pre-development and post-development watersheds, subcatchment areas and calculations of runoff. The report will provide a narrative of the stormwater runoff and describe numerically and graphically the surface water runoff patterns for this site. Proposed stormwater management methods will also be described, as well as erosion and sediment control practices. To fully understand the proposed site development the reader should also review a complete site plan set in addition to this report.

METHODOLOGY

"Extreme Precipitation" values from The Northeast Regional Climate Center (Cornell University) have been used for modeling purposes. These values have been used in this analysis.

This report uses the US Soil Conservation Service (SCS) Method for estimating stormwater runoff. The SCS method is published in The National Engineering Handbook (NEH), Section 4 "Hydrology" and includes the Technical Release No. 20, (TR-20) "Computer Program for Project Formulation Hydrology", and Technical Release No. 55 (TR-55) "Urban Hydrology

for Small Watersheds" methods. This report uses the HydroCAD version 10.0 program, written by HydroCAD Software Solutions LLC, Chocorua, N.H., to apply these methods for the calculation of runoff and for pond modeling. Rainfall data and runoff curve numbers are taken from "The Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire."

Time of Concentration (Tc) is calculated by entering measured flow path data such as flow path type, length, slope and surface characteristics into the HydroCAD program. For the purposes of this report, a minimum time of concentration of 5 minutes is used.

The storm events used for the calculations in this report are the 2-year, 10-year, 25-year, and 50-year (24-hour) storms. Watershed basin boundaries have been delineated using topographic maps prepared by Ambit Engineering and field observations to confirm.

SITE SPECIFIC INFORMATION

Based on the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), Soil Survey of Rockingham County, New Hampshire the site is made up of one soil type:

Soil Symbol	Soil Name and Slopes
699	Urban land

All existing and proposed site development takes place on one soil type:

Urban land has unknown characteristics.

A copy of the custom soil survey for this project site is included in the Appendix to this report.

The physical characteristics of the existing lot consist of slopes from 0 to 13%, with the lot generally sloping from the northeast to the southwest. Elevations on the site range from 23 to 33 feet above sea level. Due to the observed poor infiltrative capacity of the soil, as well as the general poor quality of urban fills, this site's soil will be treated as a Hydrologic Soil Group D.

The existing site is developed and includes an existing building located at the west of the lot, with the rest of the lot occupied by a gravel parking lot. Vegetation around the lot consists of established grasses and several trees.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) number 33015C0259F (effective date January 29, 2021), the project site is located in Zone X and is determined to be outside of the 0.2% annual chance floodplain. A copy of the FIRM map is included in the Appendix.

PRE-DEVELOPMENT DRAINAGE

In the pre-development condition, the site has been analyzed as two subcatchment basins (E1 and E2) based on localized topography and discharge location. Subcatchment E1 contains an existing parking area and part of the existing building, and drains to the south entrance to the lot. E1 drains to Drainage Point 1 (DP1). Subcatchment E2 contains most of the existing building and some grass, and drains to the west edge of the lot. E2 drains to Drainage Point 2 (DP2).

Table 1: Pre-Development Watershed Basin Summary

Watershed Basin ID	Basin Area (SF)	Tc (MIN)	CN	10-Year Runoff (CFS)	50-Year Runoff (CFS)	To Design Point
E1	13,061	5.0	94	2.39	3.69	DP1
E2	4,435	5.0	91	0.78	1.23	DP2

POST-DEVELOPMENT DRAINAGE

The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. In the post-development condition, the site has been analyzed as three subcatchment basins, (P1, P1a, and P2). Subcatchments P1 and P1a correspond to the subcatchment area E1, and drains to DP1. P1 and P1a contain the proposed roof area and associated landscaping. The peak flows from P1a are attenuated

with the use of R-Tank stormwater storage tanks, and an outlet control structure. Subcatchment P2 corresponds to the subcatchment area E2 and drains to DP2.

Table 2: Post-Development Watershed Basin Summary

Watershed Basin ID	Basin Area (SF)	Tc (MIN)	CN	10-Year Runoff (CFS)	50-Year Runoff (CFS)	Design Point
P1	7,347	5.0	93	1.33	2.07	DP1
P1a	5,720	5.0	98	1.08	1.64	DP1
P2	4,429	5.0	91	0.78	1.23	DP2

The overall impervious coverage of the area analyzed in this report for all basins decreases from 0.310 acres (77.11%) in the pre-development condition to 0.299 acres (74.38%) in the post-development condition. The project proposes the construction of a subsurface storage trench to reduce the peak flow discharge from the site.
Table 3 shows a summary of the comparison between pre-developed flows and post-developed flows for each design point The comparison considers the reduced flows as a result of infiltration.

Table 3: Pre-Development to Post-Development Comparison

	Q2 (CFS)		Q10 (CFS)		Q25 (CFS)		Q50 (CFS)		
Design Point	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Description**
DP1	1.52	1.38	2.39	2.17	3.07	2.78	3.69	3.35	E Lot
DP2	0.48	0.48	0.78	0.78	1.01	1.01	1.23	1.23	W Lot

Note that all drainage points of interest in the development area experience the same or lower peak flows.

OFFSITE INFRASTRUCTURE CAPACITY

City stormwater drainage is currently utilized with the existing site. In order that proposed drainage systems not additionally burden the City's infrastructure, the proposed site's stormwater infrastructure was designed to attenuate the peak flows of runoff to levels equal to or below those of the existing site. The watersheds are not revised, in other words water is not directed to a different watershed.

EROSION AND SEDIMENT CONTROL PRACTICES

The erosion potential for this site as it exists is moderate due to the presence of gravel areas that are highly erodible. During construction, the major potential for erosion is wind and stormwater runoff. The contractor will be required to inspect and maintain all necessary erosion control measures, as well as installing any additional measures as required. All erosion control practices shall conform to "The Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire." Some examples of erosion and sediment control measures to be utilized for this project during construction may include:

- Silt Soxx (or approved alternative) located at the toe of disturbed slopes and catch basin inlets
- Stabilized construction entrance on fods at access point to the site
- Temporary mulching and seeding for disturbed areas
- Spraying water over disturbed areas to minimize wind erosion

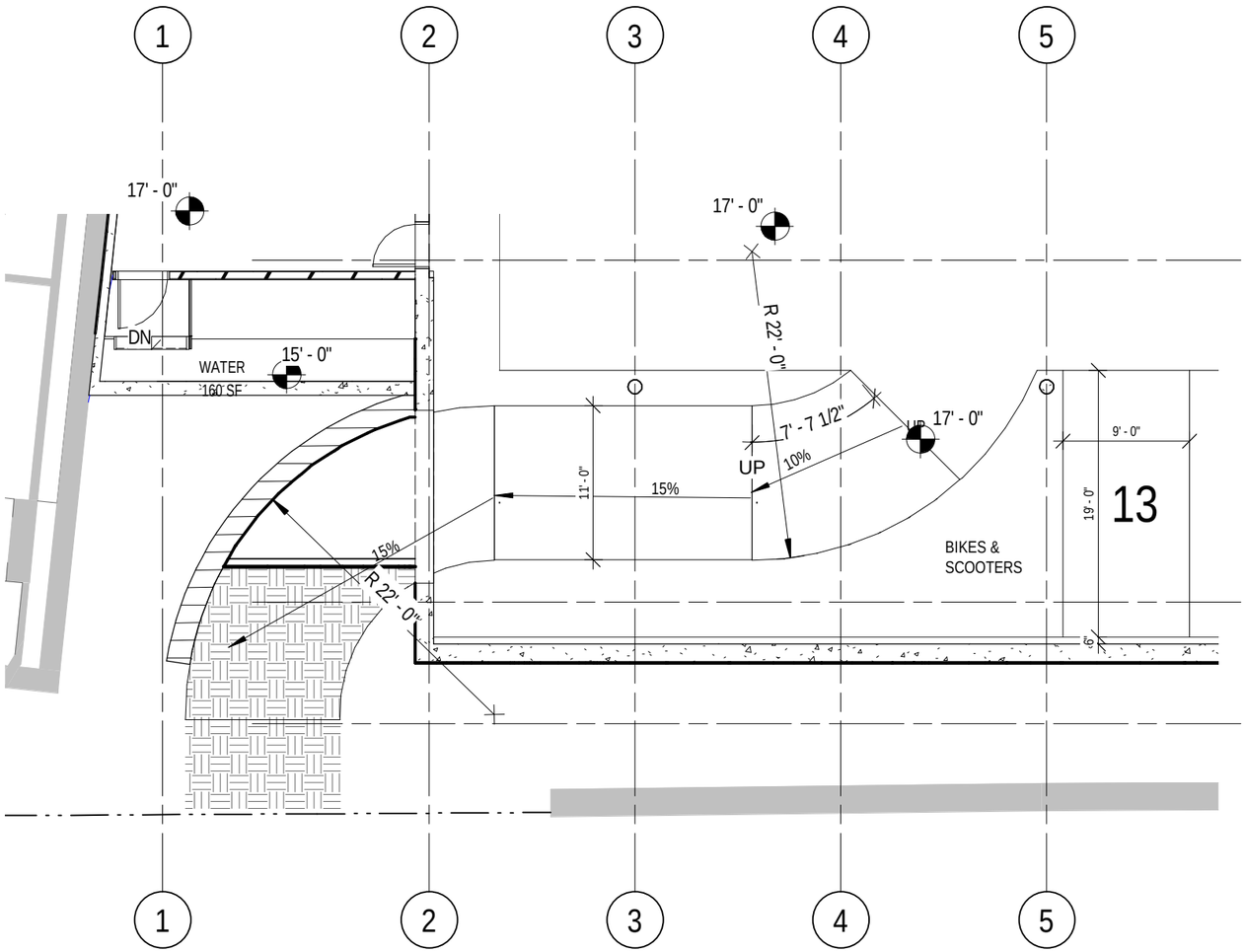
After construction, permanent stabilization will be accomplished by permanent seeding, landscaping, and surfacing the access drives and parking areas with asphalt paving and other areas with brick and concrete walkways.

CONCLUSION

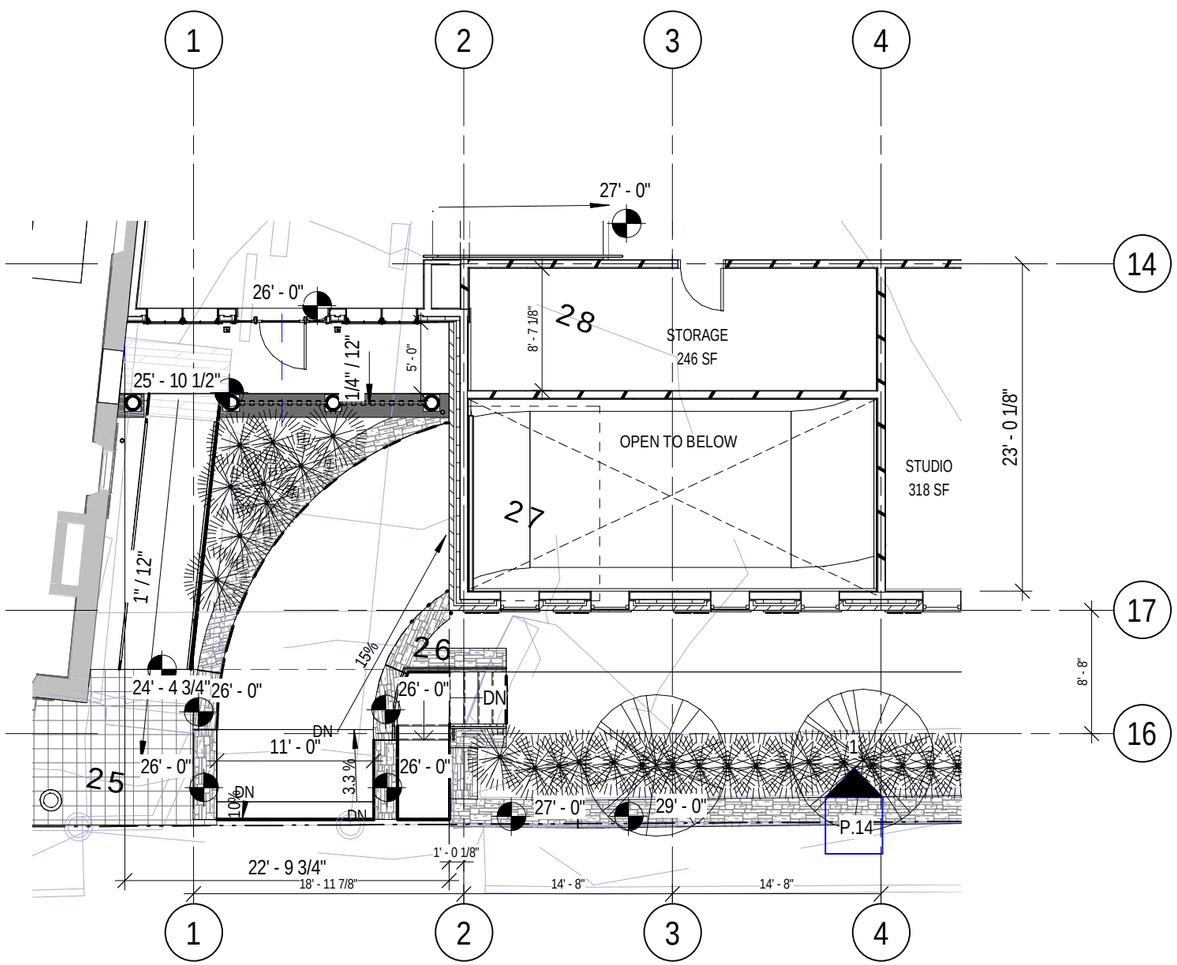
The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. With the design of the R-Tank systems, the post-development runoff rates are reduced to be equal to or below the pre-development runoff rates. Runoff from over 30% of the proposed roof will be treated through a BioClean Downspout Filter, meeting the City's requirement for redevelopment stormwater treatment. Erosion and sediment control practices will be implemented for both the temporary condition during construction and for final stabilization after construction. Therefore, there are no negative impacts to downstream receptors or adjacent properties anticipated as a result of this project.

REFERENCES

1. Comprehensive Environmental Inc. and New Hampshire Department of Environmental Services. *New Hampshire Stormwater Manual (Volumes 1, 2 and 3)*, December 2008 (Revision 1.0).
2. Minnick, E.L. and H.T. Marshall. *Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire*, prepared by Rockingham County Conservation District, prepared for New Hampshire Department of Environmental Services, in cooperation with USDA Soil Conservation Service, August 1992.
3. HydroCAD Software Solution, LLC. *HydroCAD Stormwater Modeling System Version 10.0* copyright 2013.



1 NEW - 0 BASEMENT FLOOR PLAN Ramp Detail
3/32" = 1'-0"



2 NEW - 1 FIRST FLOOR PLAN Ramp Detail
3/32" = 1'-0"

RAMP DETAILS
93 PLEASANT STREET

SCALE: 3/32" = 1'-0"
11/02/2021

JSA
ARCHITECTS
INTERIORS
PLANNERS

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MIXED USE DEVELOPMENT

93 PLEASANT STREET
PORTSMOUTH, NEW HAMPSHIRE
SITE PERMIT PLANS

OWNER:
DAGNY TAGGART LLC
3 PLEASANT STREET
SUITE #400
PORTSMOUTH, NH 03801
TEL. (603) 427–0725

CIVIL ENGINEER:
AMBIT ENGINEERING, INC.
200 GRIFFIN ROAD, UNIT 3
PORTSMOUTH, N.H. 03801
Tel. (603) 430–9282
Fax (603) 436–2315

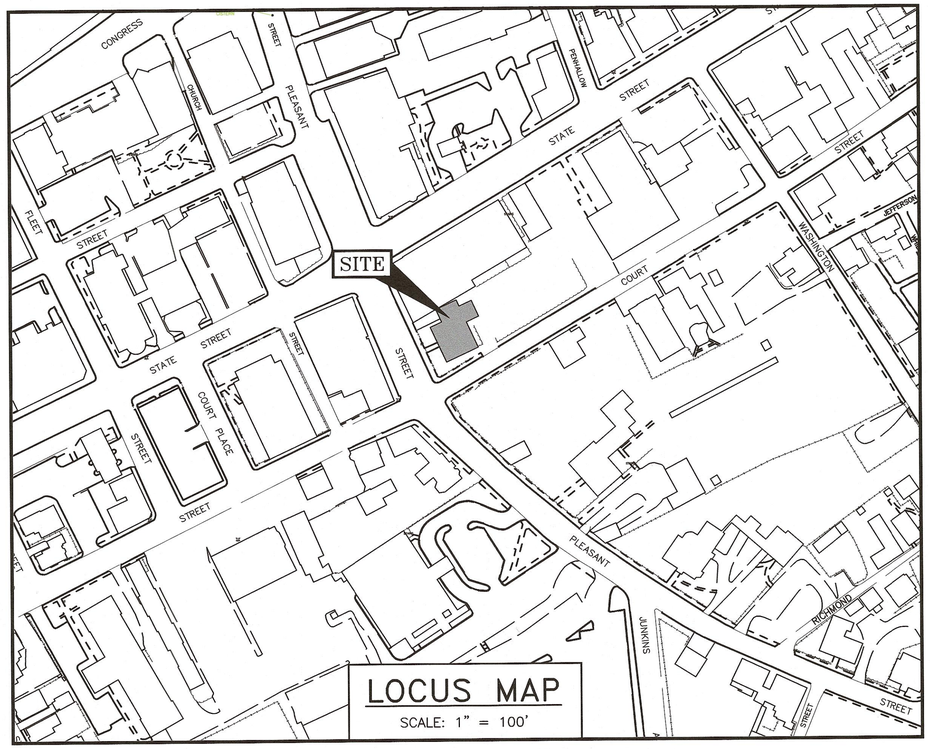
ARCHITECT:
JSA ARCHITECTS
273 CORPORATE DRVIVE
SUITE 100
PORTSMOUTH, NH 03801
TEL. (603) 436–2551

LANDSCAPE ARCHITECT:
TERRA FIRMA LANDSCAPE ARCHITECTURE
163A COURT STREET
PORTSMOUTH, NH 03801
TEL. (603) 430–8388

GEOTECHNICAL:
GEOTECHNICAL SERVICES INC.
18 COTE AVENUE, UNIT 11
GOFFSTOWN, N.H. 03045
Tel. (603) 624–2722

LAND SURVEYOR:
TF MORAN, INC.
170 COMMERCE WAY
SUITE 102
PORTSMOUTH NH, 03801
TEL. (603) 431–2222

PERMIT LIST:
NHDES SEWER DISCHARGE PERMIT: TO BE SUMBITTED



LOCUS MAP
SCALE: 1" = 100'

Map 10.5A21A
Character Districts and Civic Districts

Legend
- Downtown Overlay District
- Historic District

Character Districts
- CD5 Character District 5
- CD4 Character District 4
- CD4-W Character District 4-W
- CD4-L1 Character District 4-L1
- CD4-L2 Character District 4-L2

Civic District
- Civic District

Municipal District
- Municipal District

LEGEND:

EXISTING	*PROPOSED*	
		PROPERTY LINE
		SETBACK
S	S	SEWER PIPE
SL	SL	SEWER LATERAL
G	G	GAS LINE
D	D	STORM DRAIN
W	W	WATER LINE
WS	WS	WATER SERVICE
UGE	UGE	UNDERGROUND ELECTRIC
OHW	OHW	OVERHEAD ELECTRIC/WIRES
	UD	FOUNDATION DRAIN
		EDGE OF PAVEMENT (EP)
100	100	CONTOUR
97x3	98x0	SPOT ELEVATION
		UTILITY POLE
		WALL MOUNTED EXTERIOR LIGHTS
		TRANSFORMER ON CONCRETE PAD
		ELECTRIC HANDHOLD
		SHUT OFFS (WATER/GAS)
	GV	GATE VALVE
	HYD	HYDRANT
CB	CB	CATCH BASIN
S	SMH	SEWER MANHOLE
D	DMH	DRAIN MANHOLE
T	TMH	TELEPHONE MANHOLE
14	14	PARKING SPACE COUNT
PM		PARKING METER
LSA		LANDSCAPED AREA
TBD	TBD	TO BE DETERMINED
CI	CI	CAST IRON PIPE
COP	COP	COPPER PIPE
DI	DI	DUCTILE IRON PIPE
PVC	PVC	POLYVINYL CHLORIDE PIPE
RCP	RCP	REINFORCED CONCRETE PIPE
AC	–	ASBESTOS CEMENT PIPE
VC	VC	VITRIFIED CLAY PIPE
EP	EP	EDGE OF PAVEMENT
EL.	EL.	ELEVATION
FF	FF	FINISHED FLOOR
INV	INV	INVERT
S =	S =	SLOPE FT/FT
TBM	TBM	TEMPORARY BENCH MARK
TYP	TYP	TYPICAL

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PORTSMOUTH APPROVAL CONDITIONS NOTE:
ALL CONDITIONS ON THIS PLAN SET SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE CITY OF PORTSMOUTH SITE PLAN REVIEW REGULATIONS.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____

INDEX OF SHEETS

DWG No.	
–	BOUNDARY PLAN
C1	EXISTING CONDITIONS PLAN
C2	DEMOLITION PLAN
C3	SITE LAYOUT PLAN
C4	PARKING LEVEL PLAN
C5	UTILITY PLAN
C6	GRADING & EROSION CONTROL PLAN
L1–L6	LANDSCAPE PLANS
LT1	LIGHTING PLAN
D1–D4	DETAILS
SP.A0–SP.A8	FLOOR PLANS AND ELEVATIONS

UTILITY CONTACTS

ELECTRIC:
EVERSOURCE
1700 LAFAYETTE ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 436–7708, Ext. 555.5678
ATTN: MICHAEL BUSBY, P.E. (MANAGER)

SEWER & WATER:
PORTSMOUTH DEPARTMENT OF PUBLIC WORKS
680 PEVERLY HILL ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 427–1530
ATTN: JIM TOW

NATURAL GAS:
UNITIL
325 WEST ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 294–5144
ATTN: DAVE BEAULIEU

COMMUNICATIONS:
FAIRPOINT COMMUNICATIONS
JOE CONSIDINE
1575 GREENLAND ROAD
GREENLAND, N.H. 03840
Tel. (603) 427–5525

CABLE:
COMCAST
155 COMMERCE WAY
PORTSMOUTH, N.H. 03801
Tel. (603) 679–5695 (X1037)
ATTN: MIKE COLLINS

SITE PERMIT PLANS
MIXED USE DEVELOPMENT
93 PLEASANT STREET
PORTSMOUTH, N.H.

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road – Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

PLAN SET SUBMITTAL DATE: 22 NOVEMBER 2021

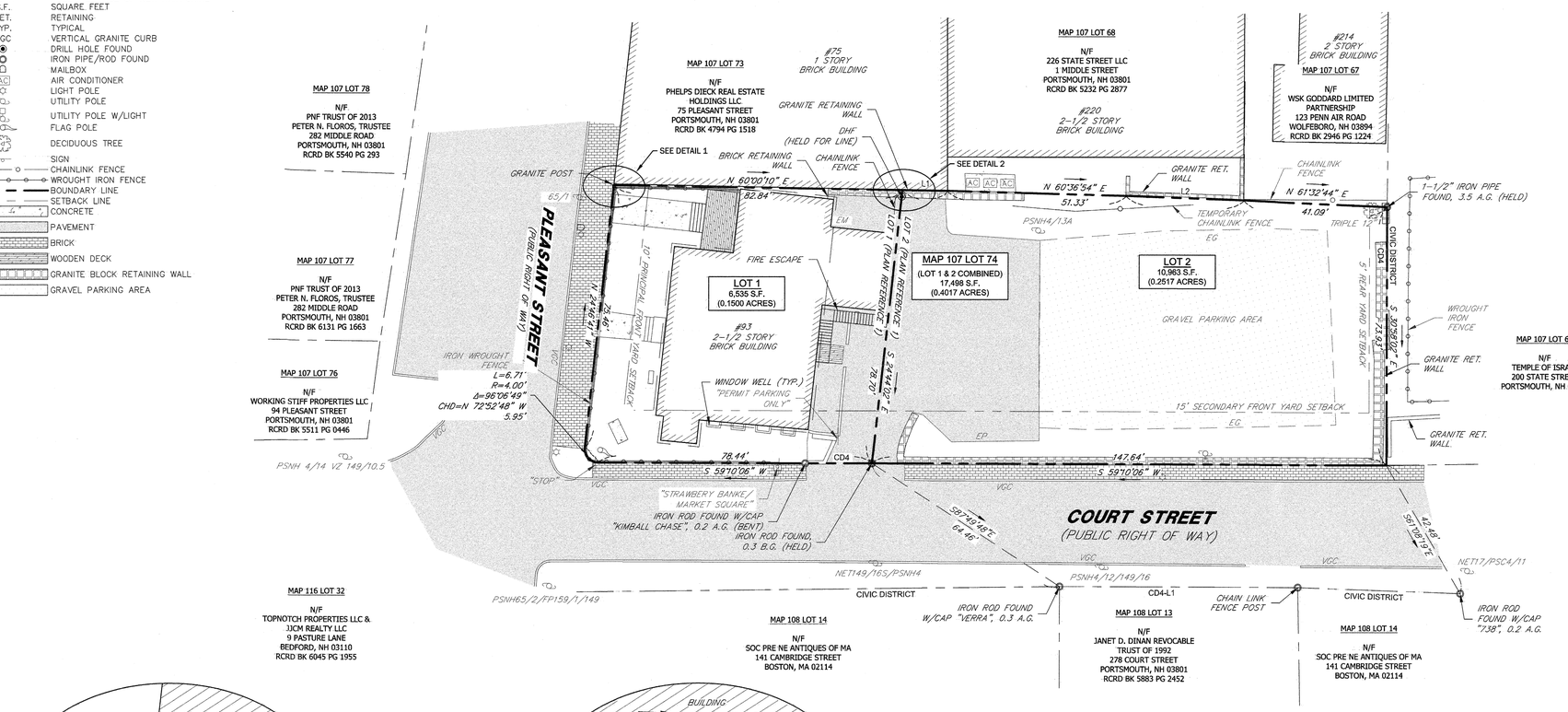
3059.01

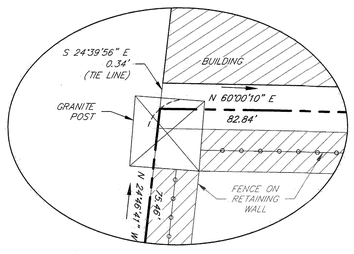
J:\JOBS\3059\3000\A\3059\3059\A200 Site Plan\Plans & Specs\Site\3059 Cover 2021.dwg, COVER, 11/22/2021 4:07:42 PM

LEGEND:

MAP 137 LOT 11	ASSESSORS MAP AND LOT NUMBER
Δ	CENTRAL ANGLE
A.G.	ABOVE GRADE
B.G.	BELOW GRADE
BK PG	BOOK / PAGE
CHD	CHORD
CD4	CHARACTER DISTRICT 4
CD4–L1	CHARACTER DISTRICT 4 – LIMITED 1
EG	EDGE OF GRAVEL
EM	ELECTRIC METER
EP	EDGE OF PAVEMENT
DHF	DRILL HOLE FOUND
L	LENGTH
N/F	NOW OR FORMERLY
NET	NEW ENGLAND TELEPHONE
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
R	RADIUS
PSNH	PUBLIC SERVICE OF NEW HAMPSHIRE
S.F.	SQUARE FEET
RET.	RETAINING
TYP.	TYPICAL
VGC	VERTICAL GRANITE CURB
	DRILL HOLE FOUND
	IRON PIPE/ROD FOUND
	MAILBOX
AC	AIR CONDITIONER
	LIGHT POLE
	UTILITY POLE
	UTILITY POLE W/LIGHT
	FLAG POLE
	DECIDUOUS TREE
	SIGN
	CHAINLINK FENCE
	WROUGHT IRON FENCE
	BOUNDARY LINE
	SETBACK LINE
	CONCRETE
	PAVEMENT
	BRICK
	WOODEN DECK
	GRANITE BLOCK RETAINING WALL
	GRAVEL PARKING AREA

LINE	BEARING	DISTANCE
L1	N 60°00'10" E	12.95'
L2	N 61°05'47" E	33.80'





DETAIL 1
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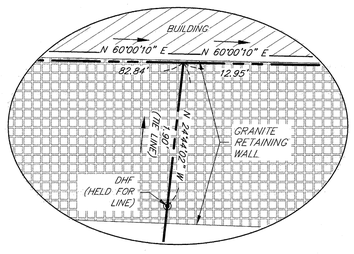
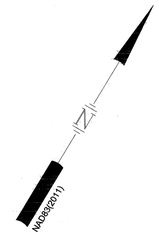
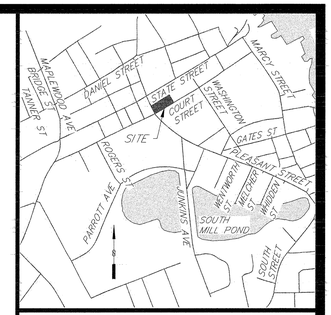


DETAIL 2
1"=1'





LOCATION PLAN

NOTES:

1. THE PARCEL IS LOCATED IN THE CHARACTER DISTRICT 4 (CD4) & THE DOWNTOWN & HISTORIC OVERLAY DISTRICTS.
2. THE PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 107 AS LOT 74.
3. THE PARCEL IS LOCATED IN ZONE 'X' AS SHOWN ON NATIONAL FLOOD INSURANCE PROGRAM (NFIP), FLOOD INSURANCE RATE MAP (FIRM) ROCKINGHAM COUNTY, NEW HAMPSHIRE, PANEL 259 OF 681, VERSION NUMBER 2.3.2.1, MAP NUMBER 33015C0259F, MAP REVISED JANUARY 29, 2021.
4. DIMENSIONAL REQUIREMENTS:

	REQUIRED:
BUILDING PLACEMENT – PRINCIPAL BUILDING:	
MAXIMUM PRINCIPAL FRONT YARD:	10'
MAXIMUM SECONDARY FRONT YARD:	15'
SIDE YARD:	NR
MINIMUM REAR YARD:	5'
MINIMUM FRONT LOT LINE BUILDOUT:	50%
BUILDING AND LOT OCCUPATION:	
MAXIMUM BUILDING COVERAGE:	90%
MAXIMUM BUILDING FOOTPRINT:	15,000 S.F./30,000 S.F.*
MINIMUM LOT AREA:	NR
MINIMUM LOT AREA PER DWELLING UNIT:	NR
MINIMUM OPEN SPACE:	10%
MAXIMUM GROUND FLOOD GFA PER USE:	15,000 S.F.
BUILDING FORM – PRINCIPAL BUILDING:	
BUILDING HEIGHT:	2 STORIES & SHORT 3RD STORY/35'
MAXIMUM FINISHED FLOOR SURFACE OF GROUND FLOOR ABOVE SIDEWALK GRADE:	36"
MINIMUM GROUND STORY HEIGHT:	12'
MINIMUM SECOND STORY HEIGHT:	10'
BUILDING PLACEMENT – OUTBUILDING:	
MINIMUM FRONT YARD:	20' BEHIND A FACADE OF A PRINCIPAL BUILDING
MINIMUM SIDE YARD:	0'
MINIMUM REAR YARD:	3'

   NR = NO REQUIREMENT
   PER THE CITY OF PORTSMOUTH ZONING ORDINANCE DATED DECEMBER 21, 2009 AS AMENDED THROUGH JANUARY 11, 2021 ARTICLE 5A FIGURE 10.5A41.10C
   *SEE SECTION 10.5A43.43
5. OWNER OF RECORD:
   MAP 107 LOT 74:
   DAGNY TAGGART, LLC
   30 PENHALLOW STREET, SUITE 300
   PORTSMOUTH, NH 03801
   RCRD BK.#6162 PG.#0074 (SECOND PARCEL)
6. PARCEL AREA:
   MAP 107 LOT 74:
   17,498 S.F.
   (0.4017 ACRES)
7. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH THE CURRENT LEGAL DESCRIPTIONS. IT IS NOT AN ATTEMPT TO DEFINE THE EXTENT OF OWNERSHIP OR DEFINE THE LIMITS OF TITLE.
8. THE PURPOSE OF THIS PLAN IS TO SHOW THE BOUNDARY LINES AND MAJOR SITE FEATURES OF MAP 107 LOT 74.
9. FIELD SURVEY COMPLETED BY T.C.E. IN JANUARY 2020 USING A TOPCON DS103 AND A TOPCON FC–5000 DATA COLLECTOR.
10. HORIZONTAL DATUM IS NAD83 (2011) PER STATIC GPS OBSERVATIONS.
11. EASEMENTS, RIGHTS, AND RESTRICTIONS SHOWN OR IDENTIFIED ARE THOSE WHICH WERE FOUND DURING RESEARCH PERFORMED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS. OTHER RIGHTS, EASEMENTS, OR RESTRICTIONS MAY EXIST WHICH A TITLE EXAMINATION OF SUBJECT PARCEL(S) WOULD DETERMINE.
12. THE LOCATION OF ANY UNDERGROUND UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. TFMORAN, INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UNDERGROUND UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE THE CONTRACTOR SHALL CONTACT DIG SAFE.

PLAN REFERENCES:

1. "SUBDIVISION OF LAND/ 93 PLEASANT ST. PORTSMOUTH, NEW HAMPSHIRE FOR BREWSTER INN PARTNERSHIP" BY KIMBALL CHASE COMPANY, INC. DATED 10–26–1987 WITH REVISION DATE 1–5–1988. RCRD PLAN D–17511.
2. "SUBDIVISION OF LAND PORTSMOUTH, N.H. TRADER'S BLOCK TRUST JOSEPH G. SAWTELLE, JR., TR." BY JOHN W. DURGIN CIVIL ENGINEERS, DATED DECEMBER 1977. RCRD PLAN C–7497.
3. "SUBDIVISION OF LAND PORTSMOUTH, N.H. TRADER'S BLOCK TRUST JOSEPH G. SAWTELLE, JR., TR." BY JOHN W. DURGIN CIVIL ENGINEERS, DATED MARCH 1977 LAST REVISED APRIL 12, 1977. RCRD PLAN C–6815.
4. "BOUNDARY LINE CONFIRMATION BETWEEN T. & M. LAURIE & STRAWBERY BANK INC. PORTSMOUTH, N.H." BY M.E. JENKINS, DATED APRIL 1989. RCRD PLAN C–19507
5. "PLAN OF LAND 278 COURT STREET PORTSMOUTH, NEW HAMPSHIRE FOR STRAWBERY BANKE, INC." BY JAMES VERRA AND ASSOCIATES, INC., DATED 10–29–2009. RCRD PLAN D–36475.
6. "220–226 STATE STREET CONDOMINIUMS AMENDED SITE PLAN FOR PROPERTY AT 220–226 STATE STREET PORTSMOUTH, ROCKINGHAM COUNTY, NEW HAMPSHIRE OWNED BY 226 STATE STREET LLC" BY NORTH EASTERLY SURVEYING, INC. DATED 10–24–2012. RCRD PLACE D–37475.

PURSUANT TO NEW HAMPSHIRE REVISED STATUTES ANNOTATED 676:18, II AND III AND 672:14:

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN."

I CERTIFY THAT THIS SURVEY AND PLAN WERE PREPARED BY THOSE UNDER MY DIRECT SUPERVISION AND ARE THE RESULT OF A FIELD SURVEY CONDUCTED IN JANUARY 2020. THIS SURVEY CONFORMS TO THE ACCURACY REQUIREMENTS OF AN URBAN SURVEY OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS. I FURTHER CERTIFY THAT THIS SURVEY IS CORRECT TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, AND THE FIELD TRAVERSE SURVEY EXCEEDS A PRECISION OF 1:15,000.

STATE OF NEW HAMPSHIRE — No. 844 — J. COREY COLWELL — LICENSED LAND SURVEYOR

SIGNATURE

LICENSED LAND SURVEYOR

02-24-2021
DATE

TAX MAP 107 LOT 74
STANDARD BOUNDARY SURVEY

93 PLEASANT STREET
PORTSMOUTH, NEW HAMPSHIRE
COUNTY OF ROCKINGHAM
OWNED BY
DAGNY TAGGART, LLC

SCALE: 1" = 20' (22x34)
1" = 40' (11x17)
FEBRUARY 23, 2021

REV.	DATE	DESCRIPTION	DR	CK

20 0 20
Graphic Scale in Feet

Seacoast Division
TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431–2222
Fax (603) 431–0910
www.tfmoran.com

FILE	DR	ID	FB	
47230-21	CK	JCC	CADFILE	

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48 Constitution Drive, Bedford, N.H. 03110

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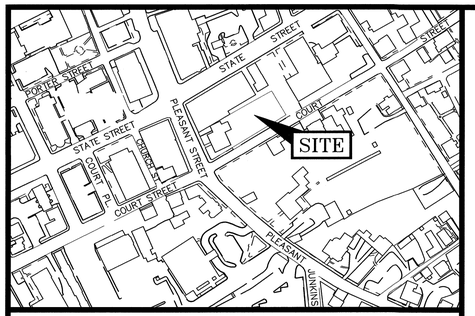
This plan is not effective unless signed by a duly authorized officer of Thomas F. Moran, Inc.

DIG SAFE
MA ME NH RI VT
UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM
CALL 811 TOLL FREE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

Feb 24, 2021 - 3:37pm
F:\MSC Projects\47230 - Pleasant Street - Portsmouth\47230-20 - Madbury Capital - 93 Pleasant St\Carlson Survey\Dwgs\47230-20 SBS.dwg

3059.01



LOCATION MAP SCALE: 1" = 200'

PLAN REFERENCES:

1) BOUNDARY SURVEY PLAN BY T.F.MORAN/MSC.

SEWER STRUCTURE TABLE

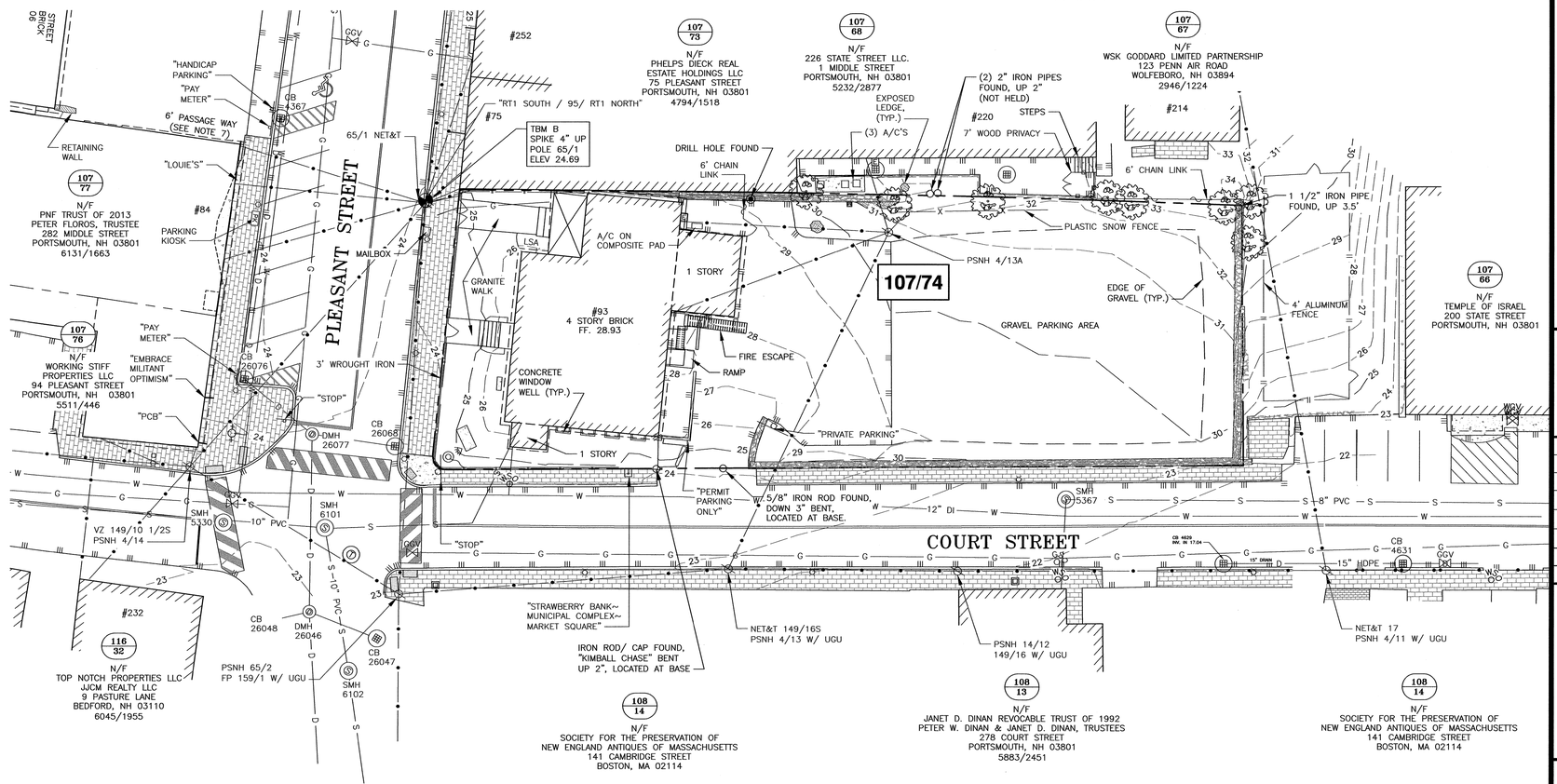
STRUCTURE	RIM ELEV.	INV. ELEV. IN / INV. ELEV. OUT	DOWN STREAM STRUCTURE
PIPE	PIPE LENGTH, PIPE SLOPE		
SMH 5367	22.34	15.75	SMH 5368
		15.74	
6" PVC	L = 191', SLOPE = 0.016 ft./ft.		
SMH 5330	23.20	15.85	SMH 6101
		15.80	
8" PVC	L = 29', SLOPE = 0.024 ft./ft.		
SMH 6101	23.35	17.89 (E)	SMH 6102
		15.10 (W)	
		15.05 (OUT)	
8" PVC	L = 41', SLOPE = 0.019 ft./ft.		
SMH 6102	22.78	14.28	SMH 893
		14.23	

DRAINAGE STRUCTURE TABLE

STRUCTURE	RIM ELEV.	INV. ELEV. IN / INV. ELEV. OUT	DOWN STREAM STRUCTURE
PIPE	PIPE LENGTH, PIPE SLOPE		
CB 4367	23.98	N/A	CB 26076
		21.83	
8" HDPE	L = 75', SLOPE = 0.013 ft./ft.		
CB 26076	23.77	20.82	DMH 26077
		20.82	
12" HDPE	L = 25', SLOPE = 0.005 ft./ft		
CB 26068	23.35	N/A	DMH 26077
		21.90	
12" HDPE	L = 24', SLOPE = 0.046 ft./ft.		
CB 26047	22.79	N/A	DMH 26046
		18.69	
8" HDPE	L = 21', SLOPE = 0.010 ft./ft.		
DMH 26077	23.95	20.80 (E)	DMH 26046
		20.72 (W)	
		20.70 (OUT)	
12" HDPE	L = 50', SLOPE = 0.048 ft./ft.		
DMH 26046	22.90	19.70 (N)	DMH 26050
		18.48 (E)	
		18.40 (W)	
		18.30 (OUT)	
12" HDPE			
CB 4629	21.19	N/A	CB 4631
		16.94	
15" HDPE	L = 51', SLOPE = 0.016 ft./ft.		
CB 4631	20.85	16.10	CB 4632
		16.10	
15" HDPE			

LEGEND

EXISTING	DESCRIPTION
124/21	MAP 124 / LOT 21
N/F	NOW OR FORMERLY
RP	RECORD OF PROBATE
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
	BOUNDARY LINE
	SETBACK LINE
RR SPK FND	RAILROAD SPIKE FOUND
IR FND	IRON ROD FOUND
IP FND	IRON PIPE FOUND
DH FND	DRILL HOLE FOUND
BND w/ DH	BOUND w/ DRILL HOLE
FM	FORCE MAIN
S	SEWER LINE
G	GAS LINE
D	STORM DRAIN
W	POTABLE WATER LINE
	UNDERGROUND ELECTRIC
	OVERHEAD WIRES
100	CONTOUR LINE
97x3	SPOT ELEVATION
	EDGE OF PAVEMENT
	WOODS / TREE LINE
	UTILITY POLE (w/ GUY) (w/ LIGHT)
	LIGHT POLE
WS	SHUTOFF/CURB STOP (WATER, GAS, SEWER)
GV	GATE VALVE
HYD.	HYDRANT
CB	CATCH BASIN
T	TELEPHONE MANHOLE
S	SEWER MANHOLE
D	DRAIN MANHOLE
FF	FINISHED FLOOR
INV.	INVERT
TBM	TEMPORARY BENCHMARK
TYP.	TYPICAL



GRAPHIC SCALE

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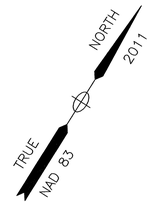
5 0 5 10 15 20 25 METERS



AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road – Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 107 AS LOT 74.

2) OWNERS OF RECORD:
DAGNY TAGGART LLC
3 PLEASANT STREET SUITE 400
PORTSMOUTH, NH 03801
6162/74
D-17511

3) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON FIRM PANEL 33015C0259F. EFFECTIVE JANUARY 29, 2021.

4) EXISTING LOT AREA:
17,498 S.F.
0.4017 ACRES

5) PARCEL IS LOCATED IN CHARACTER DISTRICT 4 (CD4), THE DOWNTOWN OVERLAY DISTRICT AND THE HISTORIC OVERLAY DISTRICT.

6) DIMENSIONAL REQUIREMENTS: SEE PORTSMOUTH ZONING ORDINANCE.

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS ON ASSESSOR'S MAP 107 LOT 74 IN THE CITY OF PORTSMOUTH.

8) VERTICAL DATUM IS MEAN SEA LEVEL NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS (±0.2').

9) SITE BOUNDARY PER PLAN REFERENCE 1.

COMMERCIAL DEVELOPMENT
93 PLEASANT STREET
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
2	BUILDING HEIGHTS	6/18/21
1	ISSUED FOR APPROVAL	4/2/21
0	ISSUED FOR COMMENT	12/17/20

REVISIONS

STATE OF NEW HAMPSHIRE — LAND SURVEYOR — No. 739 JOHN R. CHAGNON — SURVEYOR

SCALE: 1" = 20' DECEMBER 2020

EXISTING CONDITIONS PLAN

C1

FB 321 PG 72

3059.01

J:\JOBS\N 3000\N\N 3050\N3059\N3059 Site Plan\Plans & Specs\Dwg\N3059 Site Option B-Curved Entrance 2021.dwg, 12/8/2021 9:57:27 AM, Canon TX-3000 (3.pltcfg

DEMOLITION NOTES

A) THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE DESIGNER. IT IS THE CONTRACTORS' RESPONSIBILITY TO LOCATE UTILITIES AND ANTICIPATE CONFLICTS. CONTRACTOR SHALL REPAIR EXISTING UTILITIES DAMAGED BY THEIR WORK AND RELOCATE EXISTING UTILITIES THAT ARE REQUIRED TO BE RELOCATED PRIOR TO COMMENCING ANY WORK IN THE IMPACTED AREA OF THE PROJECT.

B) ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTORS UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES. THE CONTRACTOR SHALL COORDINATE REMOVAL, RELOCATION, DISPOSAL, OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.

C) ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO THE ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

D) THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES AND CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.

E) SAWCUT AND REMOVE PAVEMENT ONE FOOT OFF PROPOSED EDGE OF PAVEMENT TRENCH IN AREAS WHERE PAVEMENT IS TO BE REMOVED.

F) IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THE CONDITIONS OF ALL THE PERMIT APPROVALS.

G) THE CONTRACTOR SHALL OBTAIN AND PAY FOR ADDITIONAL CONSTRUCTION PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR ANY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK.

H) THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, CONCRETE, UTILITIES, VEGETATION, PAVEMENT, AND CONTAMINATED SOIL WITHIN THE WORK LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ANY EXISTING DOMESTIC / IRRIGATION SERVICE WELLS IN THE PROJECT AREA IDENTIFIED DURING THE CONSTRUCTION AND NOT CALLED OUT ON THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER FOR PROPER CAPPING / RE-USE.

I) ALL WORK WITHIN THE CITY OF PORTSMOUTH RIGHT OF WAY SHALL BE COORDINATED WITH THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS (DPW).

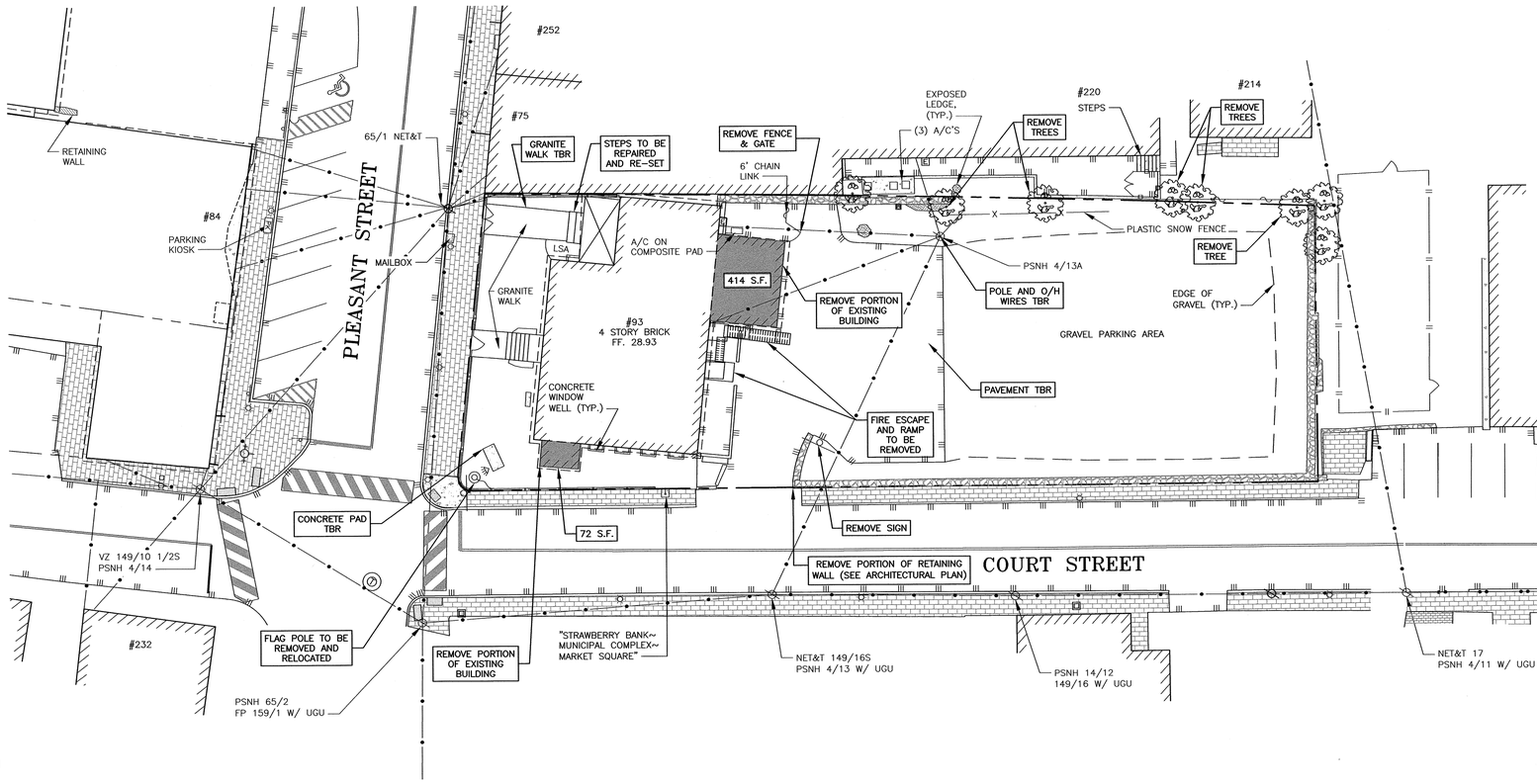
J) REMOVE TREES AND BRUSH AS REQUIRED FOR COMPLETION OF WORK. CONTRACTOR SHALL GRUB AND REMOVE ALL SLUMPS WITHIN LIMITS OF WORK AND DISPOSE OF OFF-SITE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.

K) CONTRACTOR SHALL PROTECT ALL PROPERTY MONUMENTATION THROUGHOUT DEMOLITION AND CONSTRUCTION OPERATIONS. SHOULD ANY MONUMENTATION BE DISTURBED, THE CONTRACTOR SHALL EMPLOY A NH LICENSED LAND SURVEYOR TO REPLACE THEM.

L) PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS WITHIN CONSTRUCTION LIMITS AND MAINTAIN FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE HIGH FLOW SILT SACK BY ACF ENVIRONMENTAL OR APPROVED EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF WARRANTED OR FABRIC BECOMES CLOGGED. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.

M) THE CONTRACTOR SHALL PAY ALL COSTS NECESSARY FOR TEMPORARY PARTITIONING, BARRICADING, FENCING, SECURITY AND SAFELY DEVICES REQUIRED FOR THE MAINTENANCE OF A CLEAN AND SAFE CONSTRUCTION SITE.

N) ANY CONTAMINATED MATERIAL REMOVED DURING THE COURSE OF THE WORK WILL REQUIRE HANDLING IN ACCORDANCE WITH NHDES REGULATIONS. CONTRACTOR SHALL HAVE A HEALTH AND SAFETY PLAN IN PLACE, AND COMPLY WITH ALL APPLICABLE PERMITS, APPROVALS, AUTHORIZATIONS, AND REGULATIONS



GRAPHIC SCALE

10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road - Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

MIXED USE DEVELOPMENT
93 PLEASANT STREET
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
3	WALL TBR	11/22/21
2	SUBMIT FOR TAC	9/20/21
1	SUBMIT FOR 93 ONLY	6/18/21
0	ISSUED FOR COMMENT	4/2/21

REVISIONS

STATE OF NEW HAMPSHIRE
JOHN R. CHAGNON
NO. 7651
LICENSED PROFESSIONAL ENGINEER

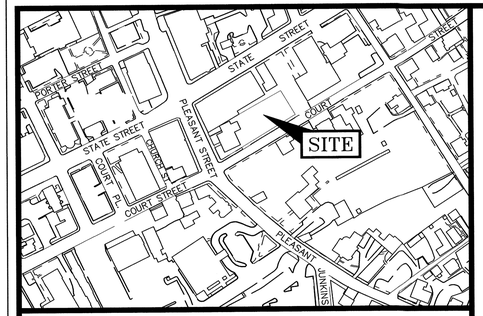
SCALE: 1" = 20' DECEMBER 2020

DEMOLITION PLAN C2

FB 321 PG 72

3059.01

J:\3059\CAD\3059VA 3059VA3059\3059 Site Plan\Plan & Specs\3059 Site Option 6 Curved Entrance 2021.dwg, 11/22/2021 2:23:58 PM, Canon TX-8000 Drafting



LOCATION MAP SCALE: 1" = 200'

BUILDING DATA:

PROPOSED BUILDING:
8,117 S.F. FOOTPRINT
OFFICE SPACE
1 LEVEL OF PARKING

ZONING DEVELOPMENT STANDARD

CD4: CHARACTER DISTRICT 4

BUILDING PLACEMENT (PRINCIPAL):

		93 PLEASANT STREET		TBD COURT STREET	
	REQUIRED	EXISTING	PROPOSED	EXISTING	PROPOSED
MAX. PRINCIPLE FRONT YARD:	10 FEET	19.2'	NC	NA	NA
MAX. SECONDARY FRONT YARD:	15 FEET	9.0'	–	–	29.1'
MIN. SIDE YARD:	NR	0.6'	NC	–	–
MIN. REAR YARD:	5 FEET	158.8'	–	–	9.8'
FRONT LOT LINE BUILDOUT:	50% MIN	85%	85%	–	–

BUILDING TYPES:

ALLOWED BUILDING TYPES: APARTMENT, LIVE/WORK.
PROHIBITED: HOUSE & DUPLEX

ALLOWED FACADE TYPE: STOOP, STEP, SHOPFRONT, OFFICEFRONT, RECESSED-ENTRY, TERRACE WITH STEP AND DOORYARD.
PROHIBITED: PORCH & FORECOURT

BUILDING FORM:

	REQUIRED	EXISTING	PROPOSED	EXISTING	PROPOSED
MAX STRUCTURE HEIGHT:	35 FEET	35'-9"	NC	–	32'-5"
MAX. FINISHED FLOOR SURFACE OF GROUND FLOOR ABOVE SIDEWALK GRADE:	36 INCHES	54"	NC	–	VARIES BETWEEN 24" TO 60" AT UPPER GROUND LEVEL. LOWER GROUND LEVEL IS 60" BELOW GRADE.
MIN. GROUND STORY HEIGHT:	12 FEET	11'-6"	NC	–	10'-8"
MIN. SECOND STORY HEIGHT:	10 FEET	10'-8"	NC	–	10'-8"
FACADE GLAZING (WINDOW/PERIMETER):	70% SHOP 20-50% OTHER	–	NC	–	20.1%

ROOF TYPE ALLOWED: FLAT, GABLE, HIP

LOT OCCUPATION:

	REQUIRED	EXISTING	PROPOSED	EXISTING	PROPOSED
MAX BUILDING BLOCK:	200 FEET	65'	–	–	199'-6"
MAX FACADE MOD. LENGTH:	80 FEET	40'	NC	–	75'-4"
MIN. ENTRANCE SPACING:	50 FEET	–	–	–	95'-3"
MAX BUILDING COVERAGE:	90%	19%	–	–	66%
MAX BUILDING FOOTPRINT:	15,000 SF	2,625 S.F.	–	–	*10,742 S.F.
MIN. LOT AREA:	NR	17,498 S.F.	–	–	NC
MIN. LOT AREA/DWELLING (LOT AREA/# OF UNITS):	NR	–	–	–	–
MIN. OPEN SPACE :	10%	14%	–	–	25.9%

NC = NO CHANGE
NA = NOT APPLICABLE
* WITH BASEMENT 12,211 S.F.

LEVEL	TOTAL GROSS AREA	GARAGE/ SUPPORT	OFFICE
3	9,834	0	9,834
2	10,714	0	10,714
1	10,308	0	10,308
B	11,854	8,444	3,410
TOTAL	42,710	8,444	34,266

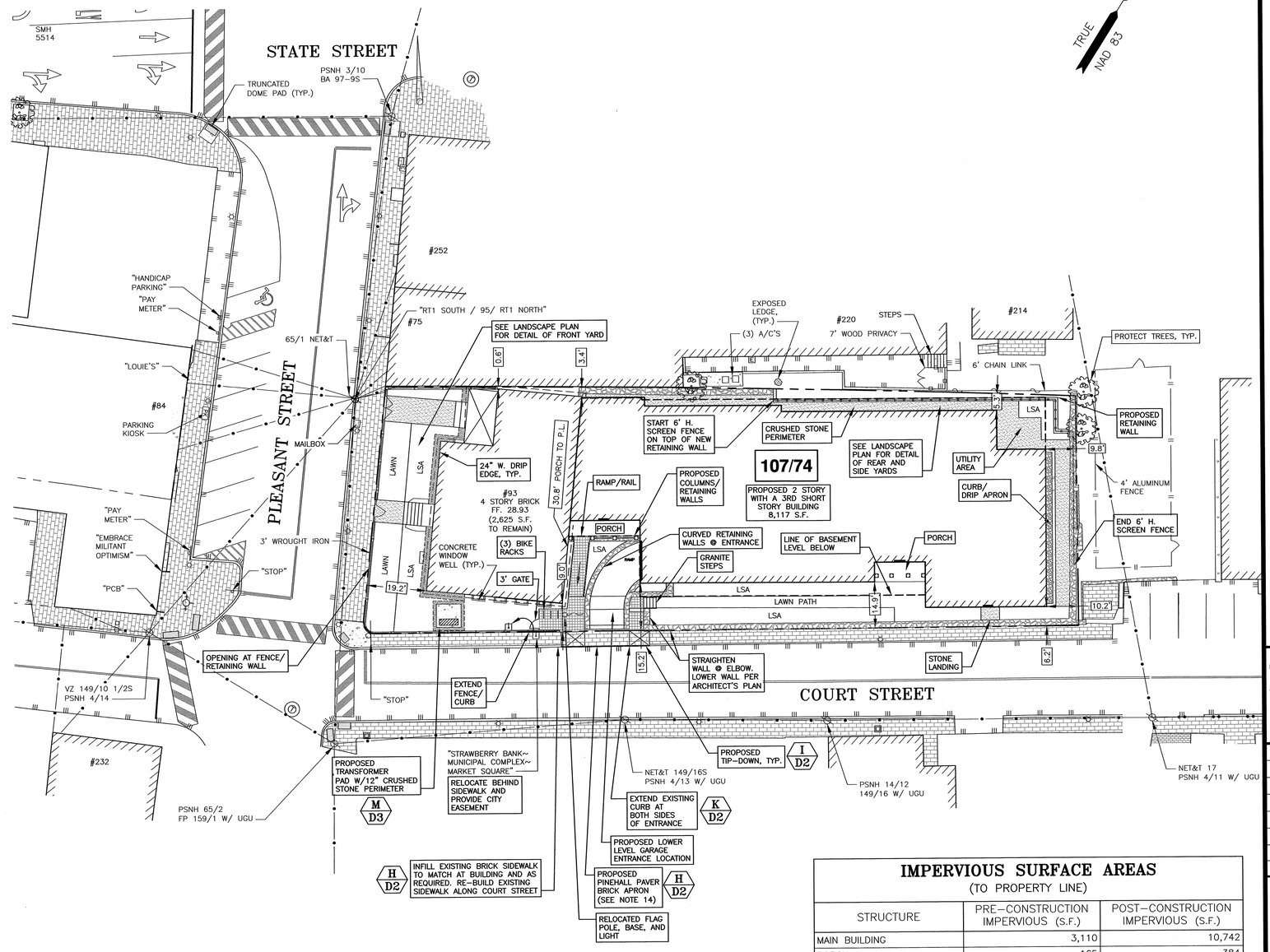
GRAPHIC SCALE

10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

PORTSMOUTH APPROVAL CONDITIONS NOTE:
ALL CONDITIONS ON THIS PLAN SET SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE CITY OF PORTSMOUTH SITE PLAN REVIEW REGULATIONS.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN _____ DATE _____



IMPERVIOUS SURFACE AREAS
(TO PROPERTY LINE)

STRUCTURE	PRE-CONSTRUCTION IMPERVIOUS (S.F.)	POST-CONSTRUCTION IMPERVIOUS (S.F.)
MAIN BUILDING	3,110	10,742
PORCH	165	384
STAIRS	101	121
WALKWAYS & RAMPS	292	544
PAVEMENT	3612	0
RETAINING WALL	584	793
GRAVEL	5308	0
CONCRETE	105	374
TOTAL	13277	12958
LOT SIZE	17,498	17,498
% LOT COVERAGE	75.9%	74.1%

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road - Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 107 AS LOT 74.
2) OWNERS OF RECORD:
DAGNY TAGGART LLC
3 PLEASANT STREET SUITE 400
PORTSMOUTH, NH 03801
6162/74
D-17511
3) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON FIRM PANEL 33015C0259F. EFFECTIVE JANUARY 29, 2021.
4) EXISTING LOT AREA:
17,498 S.F.
0.4017 ACRES
5) PARCEL IS LOCATED IN CHARACTER DISTRICT 4 (CD4), THE DOWNTOWN OVERLAY DISTRICT AND THE HISTORIC OVERLAY DISTRICT.
6) DIMENSIONAL REQUIREMENTS: SEE PORTSMOUTH ZONING ORDINANCE.
7) THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED SITE DEVELOPMENT ON ASSESSOR'S MAP 107 LOT 74 IN THE CITY OF PORTSMOUTH.
8) VERTICAL DATUM IS MEAN SEA LEVEL NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS (±0.2').
9) SEE ARCHITECTURAL PLANS FOR TRASH ENCLOSURE AREA. PICK UP SCHEDULE AS NEEDED TO MAINTAIN CAPACITY.
10) THE SECTION OF COURT STREET FROM PLEASANT STREET TO WASHINGTON STREET SHALL BE MILLED AND RE-PAVED WITH A 1.5" OVERLAY AT THE END OF PROJECT CONSTRUCTION.
11) PROVIDE AN AUDIBLE PEDESTRIAN WARNING SIGNAL AT THE PROPOSED DRIVE ENTRANCE. ALSO PROVIDE A SUITABLE MIRROR ON THE NEW POLE FOR USE BY THE VEHICLES EXITING THE GARAGE.
12) A PORTSMOUTH CMMP IS REQUIRED FOR THIS PROJECT, TO BE COMPLETED PRIOR TO CONSTRUCTION.
13) PROPOSED USE: 34,266 S.F. OFFICE SPACE. NO PARKING IS REQUIRED AS THE PROJECT IS IN THE DOWNTOWN OVERLAY DISTRICT.
14) DRIVEWAY PAVERS WILL REQUIRE A DRIVEWAY PERMIT. THE PROPERTY OWNER IS RESPONSIBLE FOR ALL FUTURE MAINTENANCE.
15) ANY REQUIRED SIDEWALK REPAIRS TO THE SOUTH SIDE OF COURT STREET SHALL BE PERFORMED TO THE SATISFACTION OF THE PORTSMOUTH PUBLIC WORKS DEPARTMENT.

COMMERCIAL DEVELOPMENT
93 PLEASANT STREET
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
8	NOTES 10, 14, 15, SIGN	12/7/21
7	NOTE 13, USE	11/22/21
6	REVISED LAYOUT	11/1/21
5	ISSUED TO TAC, NOTES 10, 11, & 12	10/20/21
4	BUILDING SIZE	10/13/21
3	ISSUED FOR ZBA	9/28/21

REVISIONS

SCALE: 1" = 20' DECEMBER 2020

SITE LAYOUT PLAN

C3

FB 321 PG 72

3059.01

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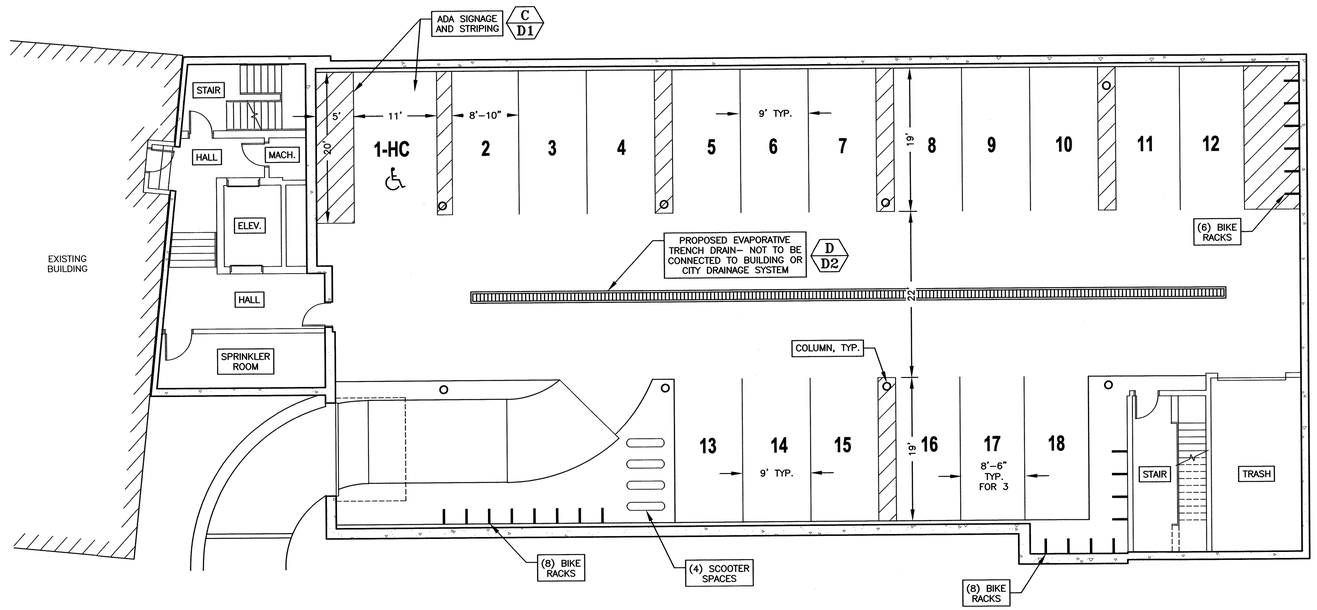

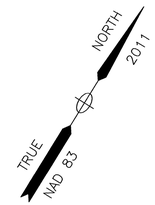

PORTSMOUTH APPROVAL CONDITIONS NOTE:
ALL CONDITIONS ON THIS PLAN SET SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE CITY OF PORTSMOUTH SITE PLAN REVIEW REGULATIONS.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN

DATE

GRAPHIC SCALE

10 5 0 10 20 30 40 FEET
3 0 5 10 METERS

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road - Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
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NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 107 AS LOT 74.

2) OWNERS OF RECORD:
DAGNY TAGGART LLC
3 PLEASANT STREET SUITE 400
PORTSMOUTH, NH 03801
6162/74
D-17511

3) THE PURPOSE OF THIS PLAN IS TO SHOW THE PARKING FOR THE PROPOSED SITE DEVELOPMENT ON ASSESSOR'S MAP 107 LOT 74 IN THE CITY OF PORTSMOUTH.

MIXED USE DEVELOPMENT
93 PLEASANT STREET
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
6	ADA/BIKE RACKS	11/22/21
5	REVISED LAYOUT	11/1/21
4	BIKES AND SCOOTERS	10/20/21
3	BUILDING FOOTPRINT	10/13/21
2	ISSUED TO TAC	9/20/21
1	REVISED BUILDING LAYOUT	9/7/21

REVISIONS

SCALE: 1" = 10' DECEMBER 2020

PARKING LEVEL PLAN

C4

FB 321 PG 72

3059.01

UTILITY NOTES:

1) SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.

2) COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY.

3) SEE GRADING AND DRAINAGE PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.

4) ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, POLYWRAPPED, CEMENT LINED DUCTILE IRON PIPE.

5) ALL WATERMAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION AND BEFORE ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE WITH THE CITY OF PORTSMOUTH.

6) ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.

7) ALL WORK WITHIN CITY R.O.W. SHALL BE COORDINATED WITH CITY OF PORTSMOUTH

8) CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ABUTTING PROPERTIES THROUGHOUT CONSTRUCTION.

9) ANY CONNECTION TO EXISTING WATERMAIN SHALL BE CONSTRUCTED BY THE CITY OF PORTSMOUTH.

10) EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE DEPARTMENT OF PUBLIC WORKS STANDARDS FOR CAPPING OF WATER AND SEWER SERVICES.

11) ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.

12) THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH BUILDING DRAWINGS AND UTILITY COMPANIES.

13) ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.

14) ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.

15) THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATED TO THE OWNER PRIOR TO THE COMPLETION OF PROJECT.

16) THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED IN THESE DRAWING TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.

17) CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES.

18) A 10-FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18-INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS WATER ABOVE SEWER.

19) SAWCUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN.

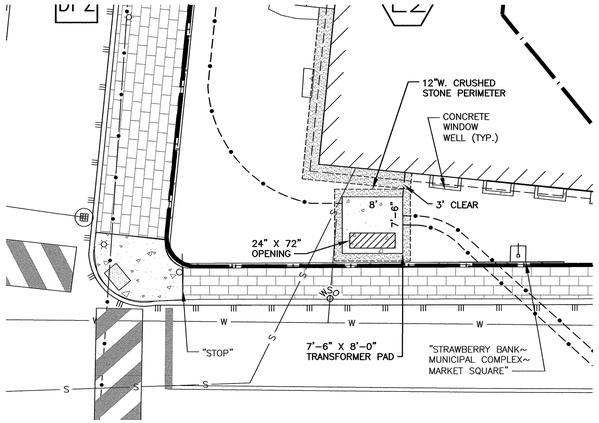
20) GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH.

21) COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF PORTSMOUTH.

22) ALL SEWER PIPES WITH LESS THAN 6' COVER SHALL BE INSULATED.

23) CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK INCLUDING BUT NOT LIMITED TO: CONDUIT CONSTRUCTION, MANHOLE CONSTRUCTION, UTILITY POLE CONSTRUCTION, OVERHEAD WIRE RELOCATION, AND TRANSFORMER CONSTRUCTION WITH POWER COMPANY.

24) CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION, PARTICULARLY WATER MAIN AND GAS MAIN CONSTRUCTION AS TO MAINTAIN CONTINUOUS SERVICE TO ABUTTING PROPERTIES. CONTRACTOR SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH UTILITY COMPANY AND AFFECTED ABUTTER.

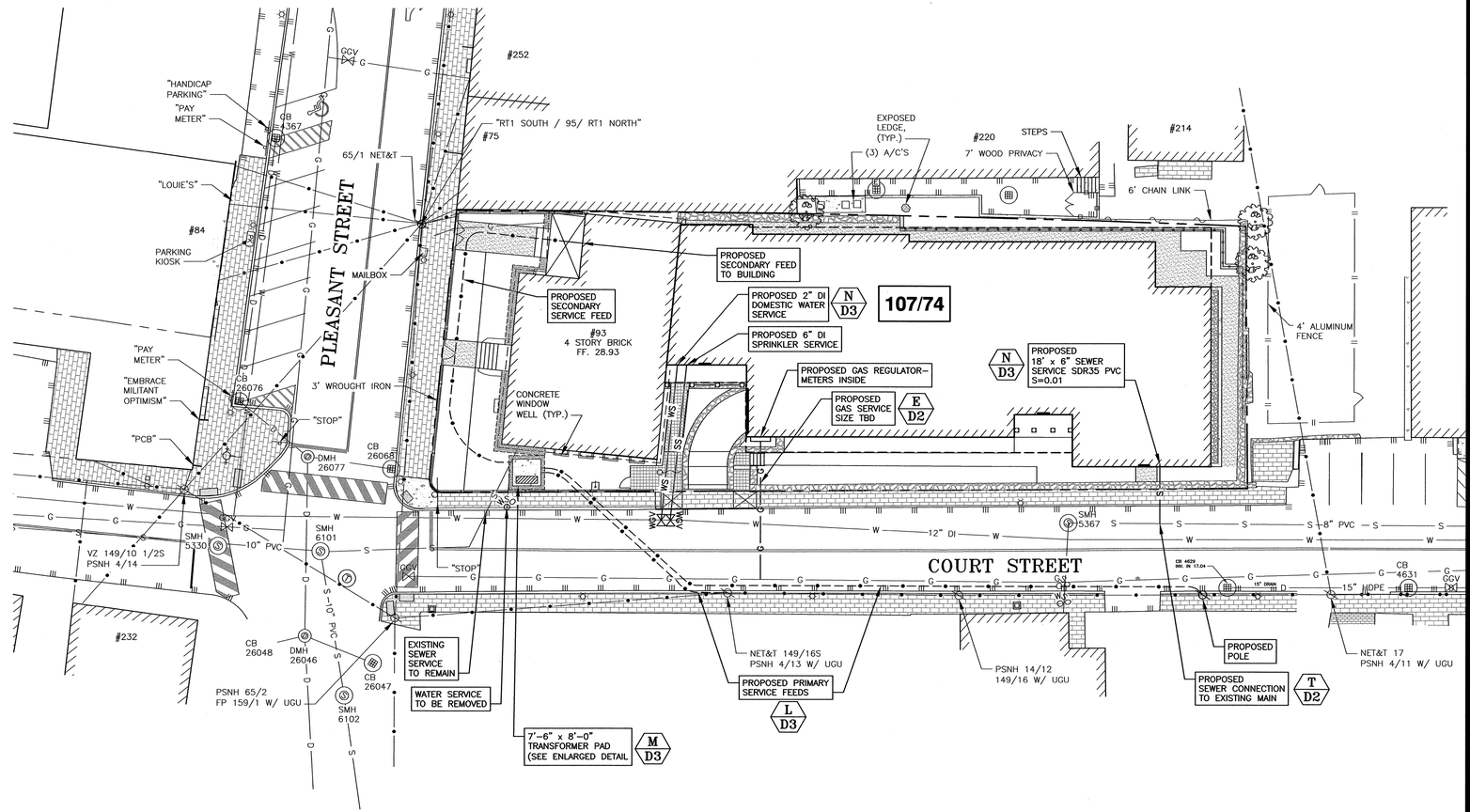


TRANSFORMER DETAIL

GRAPHIC SCALE

10 5 0 10 20 30 40 FEET
3 0 5 10 METERS

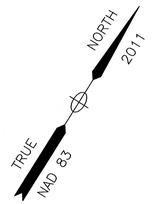
SEWER STRUCTURE TABLE			
STRUCTURE	RIM ELEV.	INV. ELEV. IN / INV. ELEV. OUT	DOWN STREAM STRUCTURE
PIPE	PIPE LENGTH, PIPE SLOPE		
SMH 5367	22.34	15.75	SMH 5368
		15.74	
6" PVC	L = 191', SLOPE = 0.016 ft./ft.		
SMH 5330	23.20	15.85	SMH 6101
		15.80	
8" PVC	L = 29', SLOPE = 0.024 ft./ft.		
SMH 6101	23.35	17.89 (E)	SMH 6102
		15.10 (W)	
		15.05 (OUT)	
8" PVC	L = 41', SLOPE = 0.019 ft./ft.		
SMH 6102	22.78	14.28	SMH 893
		14.23	



GRAPHIC SCALE

10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

PROPOSED SEWER CONNECTION			
STRUCTURE	RIM ELEV.	INV. ELEV. IN / INV. ELEV. OUT	PIPE SIZE & TYPE (FROM/TO)
SMH 5367 (EXISTING)	22.34	15.75	
		15.74	6" PVC (5368)
BUILDING CONNECTION		19.79	INV. OUT @ BLDG.
		15.79	INV. @ DROP
		15.61	INV. @ SMH 5367



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NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

4) INSTALL CATCH BASIN INLET PROTECTION ON ALL EXISTING AND PROPOSED CATCH BASINS UNTIL CONSTRUCTION IS COMPLETED AND THE SITE IS STABILIZED.

5) ALL WATER MAIN AND SANITARY SEWER WORK SHALL MEET THE STANDARDS OF THE NEW HAMPSHIRE STATE PLUMBING CODE AND CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS.

6) UTILITY AS-BUILTS SHALL BE SUBMITTED TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS UPON COMPLETION OF THE PROJECT.

7) EVERSOURCE WORK ORDER #5127007

8) PROPOSED SEWER FLOW:
OFFICE:
34,266 S.F. X 5 GPD PER 100 S.F.
342.66 X 5 = 1,713 GPD
TOTAL PROPOSED FLOW = 1,713 GPD

9) THE APPLICANT SHALL HAVE A COMMUNICATIONS SITE SURVEY CONDUCTED BY A MOTOROLA COMMUNICATIONS CARRIER APPROVED BY THE PORTSMOUTH'S COMMUNICATIONS DIVISION. THE RADIO COMMUNICATIONS CARRIER MUST BE FAMILIAR AND CONVERSANT WITH THE PORTSMOUTH POLICE AND FIRE RADIO SYSTEMS CONFIGURATION. IF THE SITE SURVEY INDICATES THAT IT IS NECESSARY TO INSTALL A SIGNAL REPEATER EITHER ON OR NEAR THE PROPOSED PROJECT, THOSE COSTS SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER. THE PROPERTY OWNER WILL BE REQUIRED TO MAINTAIN ANY INSTALLED EQUIPMENT. THE PROPERTY OWNER SHALL BE RESPONSIBLE TO PAY FOR THE SITE SURVEY WHETHER OR NOT THE SURVEY INDICATES THAT EQUIPMENT IS NECESSARY. THE OWNER SHALL COORDINATE WITH THE SUPERVISOR OF RADIO COMMUNICATIONS FOR PORTSMOUTH. THE SURVEY SHALL BE COMPLETED AND ANY REQUIRED EQUIPMENT INSTALLED, TESTED, AND ACCEPTED PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.

10) COMMUNICATIONS CONDUIT LOCATION SUBJECT TO CONFIRMATION FROM UTILITY PROVIDERS.

11) THE EXISTING WATER MAIN IN COURT STREET IS SHALLOW. INSTALL NEW UTILITIES WITH CAUTION. ELECTRICAL SERVICE WILL BE PLACED UNDER THE WATER MAIN. FIRE SERVICE SHALL BE INSTALLED WITH 5' OF COVER AND INSULATION IMMEDIATELY AFTER TAPPING THE MAIN. NOTIFY CITY WHEN WORK IS TO TAKE PLACE.

COMMERCIAL DEVELOPMENT
93 PLEASANT STREET
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
5	REVISED LAYOUT	11/1/21
4	NOTE 11	10/20/21
3	SUBMIT FOR TAC	9/20/21
2	REVISED BUILDING/EXTERIOR LAYOUT	9/7/21
1	ELECTRICAL FEED	4/28/21
0	ISSUED FOR COMMENT	4/2/21

REVISIONS

STATE OF NEW HAMPSHIRE JOHN R. CHAGNON No. 7851 LICENSED PROFESSIONAL ENGINEER

SCALE: 1" = 20' DECEMBER 2020

UTILITY PLAN

C5

FB 321 PG 72

3059.01

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DRAINAGE STRUCTURE TABLE

STRUCTURE	RIM ELEV.	INV. ELEV. IN / INV. ELEV. OUT	DOWN STREAM STRUCTURE
PIPE	PIPE LENGTH, PIPE SLOPE		
CB 4367	23.98	N/A / 21.83	CB 26076
8" HDPE	L = 75', SLOPE = 0.013 ft./ft.		
CB 26076	23.77	20.82 / 20.82	DMH 26077
12" HDPE	L = 25', SLOPE = 0.005 ft./ft		
CB 26068	23.35	N/A / 21.90	DMH 26077
12" HDPE	L = 24', SLOPE = 0.046 ft./ft.		
CB 26047	22.79	N/A / 18.69	DMH 26046
8" HDPE	L = 21', SLOPE = 0.010 ft./ft.		

DRAINAGE STRUCTURE TABLE–CONT.

STRUCTURE	RIM ELEV.	INV. ELEV. IN / INV. ELEV. OUT	DOWN STREAM STRUCTURE
PIPE	PIPE LENGTH, PIPE SLOPE		
DMH 26077	23.95	20.80 (E) / 20.72 (W) / 20.70 (OUT)	DMH 26046
12" HDPE	L = 50', SLOPE = 0.048 ft./ft.		
DMH 26046	22.90	19.70 (N) / 18.48 (E) / 18.40 (W) / 18.30 (OUT)	DMH 26050
12" HDPE			
CB 4629	21.19	N/A / 16.94	CB 4631
15" HDPE	L = 51', SLOPE = 0.016 ft./ft.		
CB 4631	20.85	16.10 / 16.10	CB 4632
15" HDPE			

DRAINAGE STRUCTURE SCHEDULE

STRUCTURE	PROP/EX	RIM	PIPE SIZE	INVERT	DIRECTION
DMH 1	PROP	30.0	12"	17.24	IN
DMH 1	PROP	30.0	4" UD	26.0	IN
DMH 1	PROP	30.0	6" RD	24.0	IN
DMH 1	PROP	30.0	12"	17.14	OUT
OCS 1	PROP	29.5	12"	23.43	IN
OCS 1	PROP	29.5	12"	17.44	OUT

PIPE SCHEDULE

PIPE #	PIPE SIZE	LENGTH	SLOPE
P1	12"	30'	0.0034
P2	12"	46'	0.0034
P3	12"	20'	0.0034
P4	12"	32'	0.0034
P5	8"	4'	0.02
P6	8"	7'	0.02

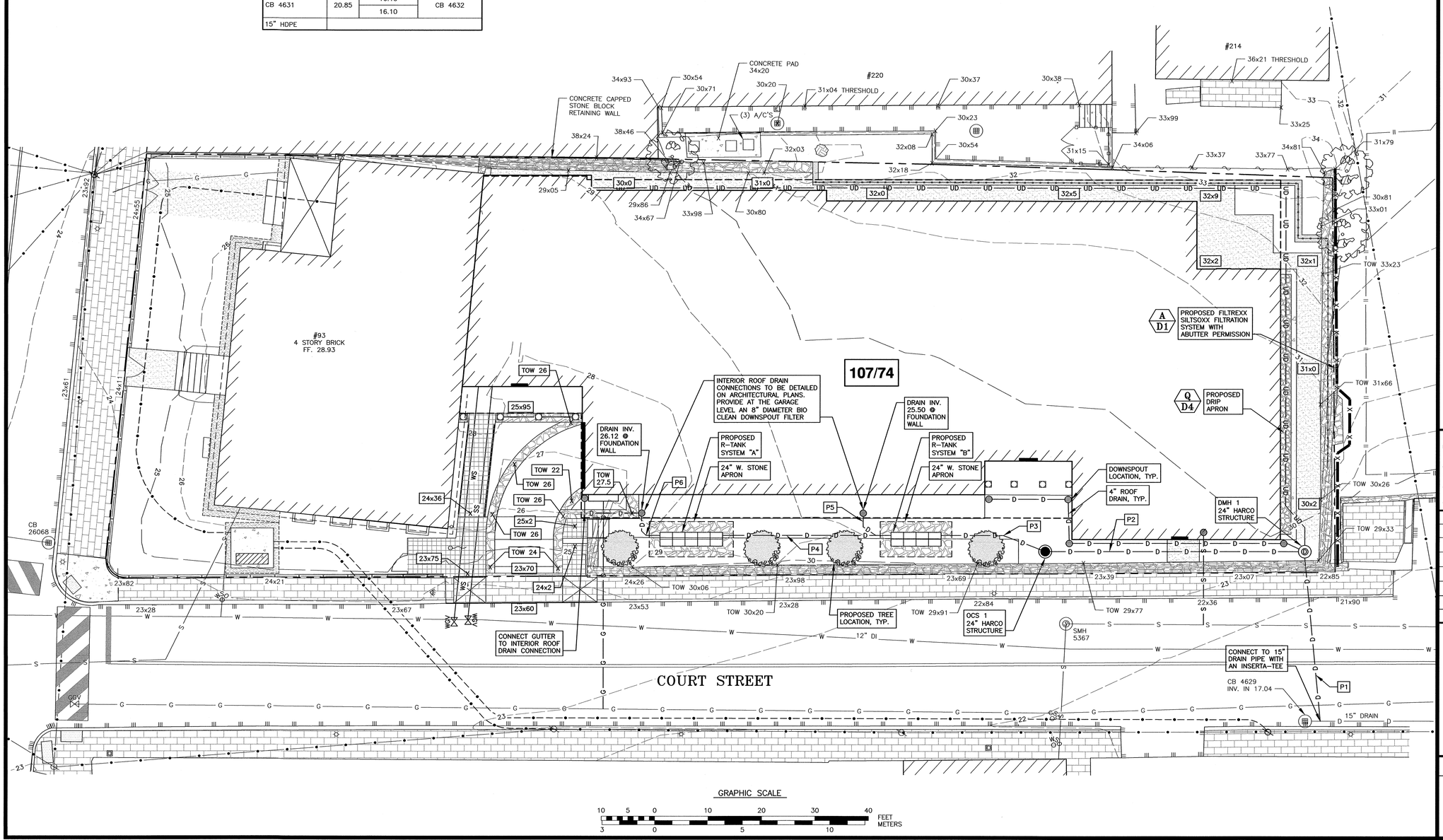
*ALL PIPE TO BE HDPE

R-TANK SYSTEM "A"

MODULE TYPE	LD
TRAFFIC LOAD	PEDESTRIAN
# OF TANKS	10
TANK STORAGE	63.3 C.F.
STONE STORAGE	115.7 C.F.
TOTAL STORAGE	179.0 C.F.
TOP OF COVER STONE	27.00
TOP OF R-TANK	26.00
BOTTOM OF TANK	23.83
STONE BASE INVERT	23.58
SYSTEM IS 2.35' WIDE BY 11.7' LONG	

R-TANK SYSTEM "B"

MODULE TYPE	LD
TRAFFIC LOAD	PEDESTRIAN
# OF TANKS	8
TANK STORAGE	50.7 C.F.
STONE STORAGE	99.8 C.F.
TOTAL STORAGE	150.5 C.F.
TOP OF COVER STONE	26.90
TOP OF R-TANK	25.90
BOTTOM OF TANK	23.73
STONE BASE INVERT	23.48
SYSTEM IS 2.35' WIDE BY 9.38' LONG	



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NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1–888–DIG–SAFE (1–888–344–7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

COMMERCIAL DEVELOPMENT
93 PLEASANT STREET
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
3	DRAINS	12/7/21
2	DRAIN SYSTEM	11/22/21
1	ISSUED FOR APPROVAL	10/20/21
0	ISSUED FOR COMMENT	4/2/21

REVISIONS

JOHN R. CHAGNON No. 7857 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

SCALE: 1" = 10' DECEMBER 2020

GRADING & EROSION CONTROL PLAN

C6

FB 321 PG 72

3059.01

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Plant List - Trees and Shrubs			
ID	Qty	Latin Name	Common Name	Scheduled Size
AAM	2	Aronia melanocarpa 'Autumn Magic'	Black Chokeberry	3-4'
AML	3	Amelanchier laevis 'Spring Flurry'	Spring Flurry Allegheny Serviceberry	5-6' Ht.
BBG	20	Buxus microphylla 'Baby Gem'	Baby Gem Boxwood	4-4 1/2'
BGG	33	Buxus 'Green Gem'	Green Gem Boxwood	2-2.5'
BWG	8	Buxus 'Winter Gem'	Winter Gem Boxwood	2 1/2' Ht.
CFF	16	Carpinus betulus 'Frans Fontaine'	Frans Fontaine Hornbeam	1 1/2-2" Cal.
CTN	1	Chaenomeles speciosa 'Toyo Nishiki'	Toyo Nishiki Quince	2 1/2" Cal.
PFC	6	Picea abies 'Fat Cat'	Fat Cat Norway Spruce	10 Gal.
RYP	18	Rhododendron 'Yaku Princess'	Yaku Princess Rhododendron	3-4'
TOS	4	Thuja occidentalis 'Smaragd'	American Arborvitae	8-10'
VNW	1	Viburnum nudum 'Winterthur'	Winterhur Smooth Viburnum	3-4'

Plant List - Perennials				
ID	Qty	Latin Name	Common Name	Scheduled Size
ABI	28	Amsonia 'Blue Ice'	Blue Star Flower	1 Gal.
AMT	18	Amsonia tabernaemontana	Blue Star	1 Gal.
AOS	14	Aster oblongifolius 'October Skies'	October Skies Aster	2 QT
BAG	10	Baptisia 'American Goldfinch'	Yellow Baptisia	2 QT
CVM	9	Coreopsis verticillata 'Moonbeam'	Threadleaf Coreopsis	2 QT
CWB	29	Chrysanthemum weyrichii 'White Bomb'	Dwarf Chrysanthemum	2 QT
DIG	12	Digitalis grandiflora 'Carillion'	Yellow Foxglove	2 QT
DP	136	Dennstaedtia punctilobata	Hay-Scented Fern	2 QT
EPI	23	Epimedium rubrum	Barrenwort	2 QT
GMB	58	Geranium macrorrhizum 'Bevan's'	Cranesbill	2 QT
LVP	27	Lavendula x intermedia 'Phenomenal'	Niko Lavender	2 QT
PKW	8	Paeonia 'Krinkled White'	Single White Jap. Peony	2 Gal.
PPT	13	Paeonia 'President Taft'	Single Jap. Pink Peony	2 Gal.
PT	7	Parthenocissus tricuspidata	Boston Ivy	
PX	36	Polystichum acrostichoides	Christmas Fern	2 QT
RF	2	Rudbeckia fulgida 'Goldstrum'	Goldstrum Black-Eyed Susan	2 QT
SED	29	Sedum kamtschaticum	Stonecrop	2 QT
SEDM	30	Sedum 'Matrona'	Matrona Stonecrop	2 QT
SEDR	30	Sedum reflexum 'Angelina'	Stonecrop	2 QT
SEDS	30	Sedum sexangulare	Stonecrop	2 QT
STP	29	Sedum ternatum 'Larinem Park'	Stonecrop	2 QT
WAL	11	Waldsteinia ternata	Siberian Barren Strawberry	2 QT

0 10 20 30 40 FT

#252
#75
#220
#214
#93 4 STORY BRICK FF. 28.93
"RT1 SOUTH / 95/ RT1 NORTH"
PLEASANT STREET
COURT STREET
"STOP"
"STRAWBERRY BANK~MUNICIPAL COMPLEX~ MARKET SQUARE"
LAWN
NEW WALL FOR GARAGE ABOVE GARAGE WALL
BEGIN 6' HT. T+G GREEN PAINTED CEDAR FENCE AT P/L
DRIP EDGE TO WALL
84-DP
EXPOSED LEDGE, (TYP.)
EX. STEPS
STORAGE AREA
7' WOOD PRIVACY
4' ALUMINUM FENCE
GRANITE PAVER WALK
EX. STEPS (5 RISERS)
4-RYP
12-EPI
5-DIG
6-RYP
1-AML
11-EPI
4-AMT
2-AAM
6-CFF
2-CFF
36-PX
SMALL UTILITY SPACE
4-DP
EX. WALL TO REMAIN
7-PT
29-STP
29-SED
29-SEDS
29-SEDM
29-SEDR
48" W. CRUSHED STONE
IRON FENCE TO MATCH EX.
STONE LANDING
MAILBOX
3-PPT
1-PKW
9-BBG
18" W. DRIP EDGE
11-LVP
4-CVM
9-AOS
5-CWB
GRANITE PAVER WALK
16-LVP
5-CVM
11-BBG
7-PKW
1-SEDR
1-SEDM
1-SEDS
4-GMB
6-ABI
PROPOSED FLAG POLE
6-PPT
3' GATE
3' WROUGHT IRON
5-AOS
3-CWB
EX. WROUGHT IRON TO BE RESTORED
4-PPT
PORCH (ARCH. STONE SURFACE)
HANDRAIL
11-WAL
1-CTN
8-BWG
RAILINGS
GRANITE STEPS (5)
1-ABI
2-GMB
4-AMT
STORMWATER SYSTEM IN TWO PARTS
5-ABI
8-GMB
6 PFC
10-BAG
4-ABI
7-GMB
STORMWATER SYSTEM IN TWO PARTS
EDGE OF UNDERGROUND GARAGE WALL
19-GMB
1-VNW
2-AML
7-DIG
8-RYP
4-ABI
6-GMB
16-CWB
4-TOS
6-ABI
9-GMB
5-CWB
ACCESS GATE (TBD)
PROPOSED TRANSFORMER PAD
12" W. CRUSHED STONE
FLUSH CURB
BIKE RACKS (3)
PROPOSED IRON FENCE
ALL NEW WALLS TO RE-USE + MATCH STONE + PATTERN IN EX. WALL
GRANITE PAVERS ON CONCRETE BASE
EX. WALL
33 BGG
3-AMT
4-AMT
3-AMT
2-ABI
3-GMB
APPROX. CURB
2-RF
4-CFF
SIDEWALK
2' SQ. STEPPING STONES IN LAWN
DRAIN COVER (TYP. - SEE CIVIL DOCS)

PLEASE NOTE: THIS SHEET IS SCALED FOR 22 BY 34 PAPER, DO NOT REDUCE OR ENLARGE. .

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163 a court street | portsmouth, nh 03801
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LICENSED LANDSCAPE ARCHITECT
TERRENCE P. PARKER
041
STATE OF NEW HAMPSHIRE
Terrence P. Parker

No.	Date	Issue Notes
A	11/22/21	ZBA RE-SUBMISSION

Designed By	TP
Drawn By	TC
Checked By	TP
Reviewed By	TP
Submitted By	TP
Project Manager	
Date	10/28/2021
Revision	Revision
Project ID	93 PLEASANT
Drawing Code	
CAD File	93 PLEASANT
Plot Date	00/00/00

Design Firm
terra firma landscape architecture
163 a Court Street
Portsmouth, NH

Consultant

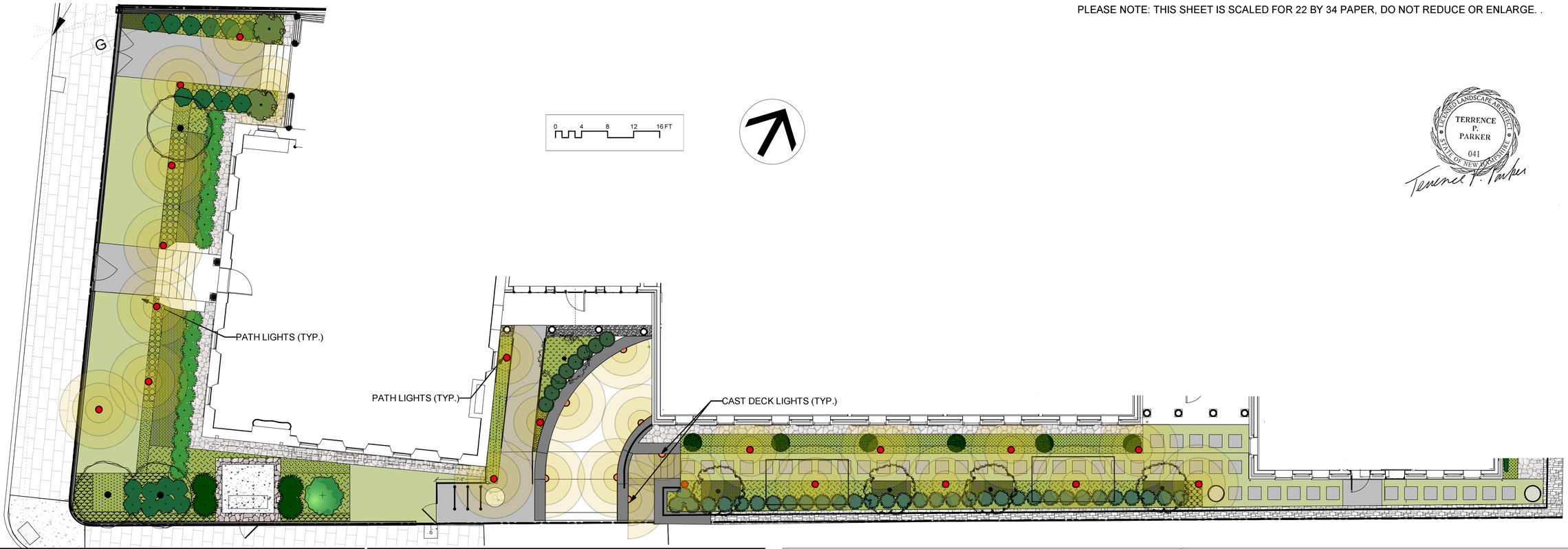
Project Title
93 PLEASANT STREET

Sheet Title
LANDSCAPE PLAN

Scale
1"=10'-0"

Sheet No.
L-1
of
1

PLEASE NOTE: THIS SHEET IS SCALED FOR 22 BY 34 PAPER, DO NOT REDUCE OR ENLARGE. .



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LICENSED LANDSCAPE ARCHITECT · TERRENCE P. PARKER · 041 · STATE OF NEW HAMPSHIRE

Terrence P. Parker

No.	Date	Issue Notes
A	11/22/21	ZBA RE-SUBMISSION

Date 11/18/2021
Revision Revision
Project ID 93 PLEASANT
Drawing Code Drawing Code
CAD File 93 PLEASANT
Plot Date 00/00/00

Designed By TP
Drawn By TC
Checked By TP
Reviewed By TP
Submitted By TP
Project Manager

Designer Firm: terra firma landscape architecture
163 a Court Street
Portsmouth, NH

Consultant

Project Title: 93 PLEASANT STREET

Sheet Title: LANDSCAPE PLAN-Lighting

Scale 1/8"=1'-0"

Sheet No. L-2 of 1

CAST LANDSCAPE Old world craftsmanship. . .tomorrow's technology®

CAST Classic Deck Light (CDL1CB, CDL1LED1, CDL1LED1A) Product Information

CAST Solid Bronze Deck Light - Rugged, Ideal for Walls, Decks, and Docks

Description:

This compact and attractive solid bronze deck light is a durable, reliable, and energy-efficient fixture for wall and post mounting.

Features:

- Solid bronze hood and base
- Glare-free illumination
- Pre-wired with 25' tin-coated No-Ox® marine grade wire
- Spider Splice® ready

Uses:

Suitable for downlighting when mounted on retaining walls, structure surfaces, posts and pilings. Amber version complies with Florida Fish and Wildlife Conservation Commission guidelines for beachside marine turtle habitats.

Dimensions:

3.75" diameter x 1.75" height

Construction:

Solid bronze hood and base; borosilicate lens; 25' tin-coated #18-2 No-Ox® marine-grade wire.

Specifications:

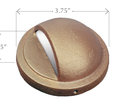
CDL1CB: High Temp. T-5 socket, Lamp: Includes 2.5W, 9-15 volt operating range, T5 LED Lamp (SL921T5200L).

Halogen Option: 12 Volt, 18W T5 xelogen - 18W max. (CWB921X).

CDL1LED1: Power: 10-24V, .27 Amps, 2.82W, .88 pf, 3.20VA; L70 hrs 60,500, CRI 81, Color Temp. 2,759, Fixture Lumens: 49

CDL1LED1A: Input Voltage: 8v-18v AC or DC; Input Power: 3.0 Watts; 0.8 pf; LED Light output: Amber: 70 lm Fixture output: Amber: 35 lm

FWC Cert# 2015-013



CDL1CB, CDL1LED1, CDL1LED1A

www.cast-lighting.com 800.914.CAST
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Revised December 2019

CAST LANDSCAPE Old world craftsmanship. . .tomorrow's technology®

Lighting Specification Sheet

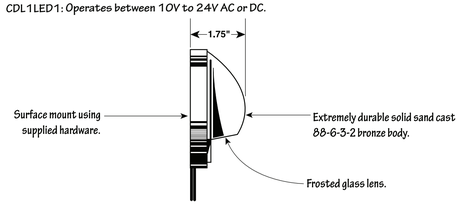
Classic Deck Light (CDL1CB, CDL1LED1, CDL1LED1A)

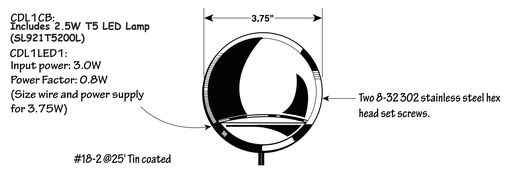
Project: _____ Date: _____
Fixture Type: _____ Quantity: _____
Specifier: _____

Drawing not to scale

CDL1CB: Must operate lamp between 9 to 20 volts. Check voltage with digital multi-meter.

CDL1LED1: Operates between 10V to 24V AC or DC.





Plan Symbol:

Notes

- CDL1CB Includes 2.5W T5 LED Lamp (SL921T5200L)
- Typical spacing 6' to 10'
- Downward and horizontal orientation allowed
- Refer to product installation sheet prior to installation

12-17-2019 973•423•2303 | www.cast-lighting.com | ©Copyright 2020 CAST Lighting LLC. cdl1cbspecs

CAST LANDSCAPE Old world craftsmanship. . .tomorrow's technology®

CAST Large Mushroom Path Light (CMU2CB) Product Information

CAST Classic Large Mushroom Area/Path Light - Beautiful, Glare Free Illumination

Description:

This rugged solid bronze path/area light provides a soft glare free illumination. LED conversion is achieved with the CALED2 module.

Features:

- Solid bronze hat and vase
- Large Talon Eurometal stake
- Heavy-gauge copper stem
- Pre-wired with 35' tin-coated No-Ox' marine grade wire
- High-temp socket
- Spider Splice' ready

Uses:

Suitable for lighting walkways, planting beds, and other areas.

Construction:

Solid bronze hat and vase; Eurometal stake; heavy-gauge copper stem; 35' tin-coated #16-2 No-Ox marine-grade wire.

Dimensions:

25" tall x 9" wide
Stake: 8.5"

Lamp Specifications:

CMU2CB: 12v Wedge Base Krypton (35w max.) (not included).
LED Conversion: CALED2 LED Module

Listing:

U.L 1838 Listed Low Voltage Luminaire for wet locations
LED Versions: UL listed.
All Versions: RoHs, FCC Class B Conducted and Radiated

www.cast-lighting.com 800.914.CAST
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Revised December 2018

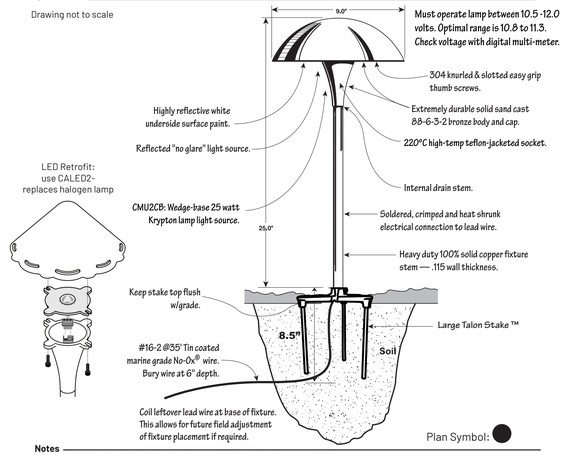
CAST LANDSCAPE Old world craftsmanship. . .tomorrow's technology®

Lighting Specification Sheet

Classic Large Mushroom Area/Path Light (CMU2CB)

Project: _____ Date: _____
Fixture Type: _____ Quantity: _____
Specifier: _____

Drawing not to scale



Plan Symbol:

Notes

- CMU2CB: Requires S8 Wedge Base Lamp (incl. 25w) Max. lamp rating 35 watts
- Typical spacing 10' to 15'
- Refer to product installation sheet prior to installation

OPTIONS

- ❑ Mounting Canopy - Unthreaded (CFM1CBS)
- ❑ Standard Mounting Stake (CMS1EM)
- ✖ Large Talon Stake (CTSL1)(incl.)
- ❑ Long Mounting Stake (CLMS1EM)
- ❑ Heavy Duty Mounting Stake (CHMS1CB)

*NOTE: This is a threaded stake. To use with this fixture, purchase adapter (XCBPTLTA).

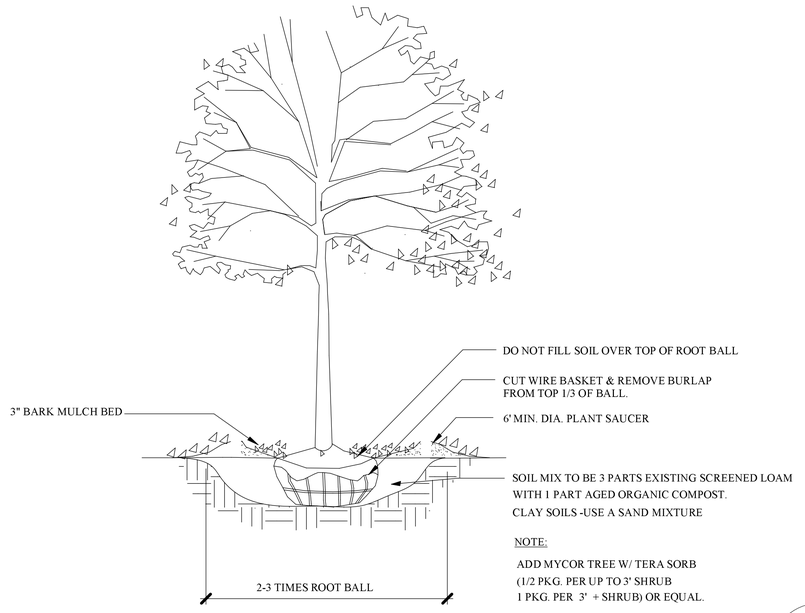
Unthreaded Stems:

- ❑ Replacement Stem (XCBPSTEMS_____)
- ❑ Telescopic Stem (CWTRS_____)

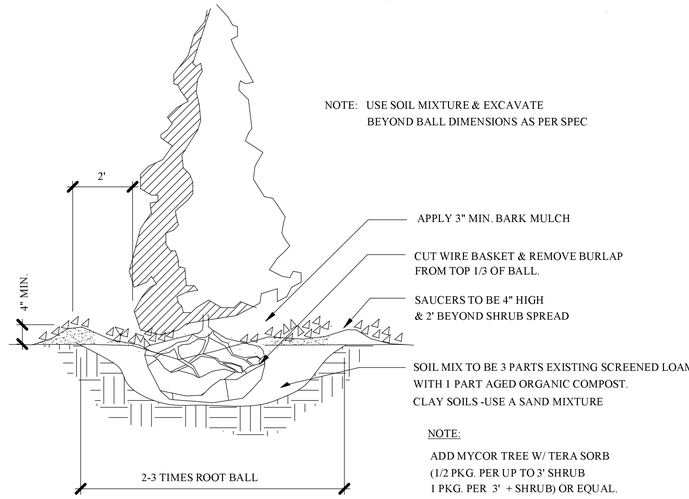
12-11-18 973•423•2303 | www.cast-lighting.com | ©Copyright 2018 CAST Lighting LLC. cmu2cbspecs

DECK LIGHT SPECIFICATION

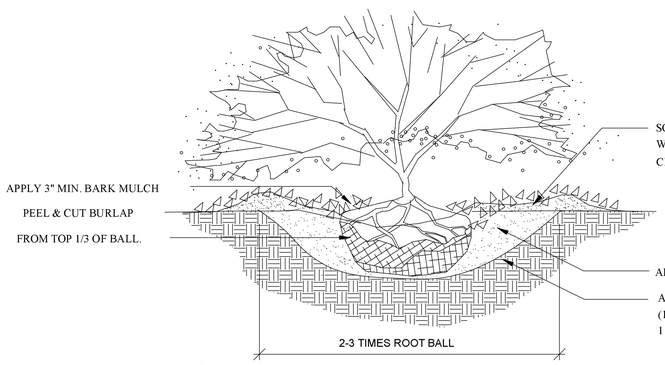
PATH LIGHT SPECIFICATION



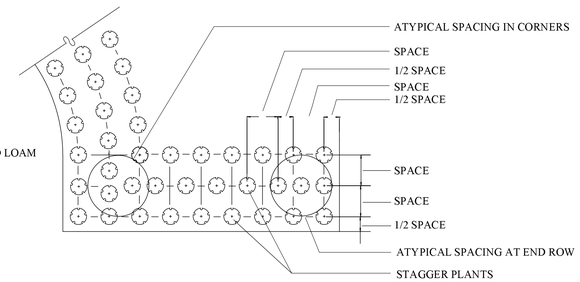
1 / L-3 TREE PLANTING - 2"+ CAL.
SCALE: NTS



2 / L-3 PYRAMIDAL EVERGREEN TREE PLANTING
SCALE: NTS



3 / L-3 B&B SHRUB PLANTING
SCALE: NTS



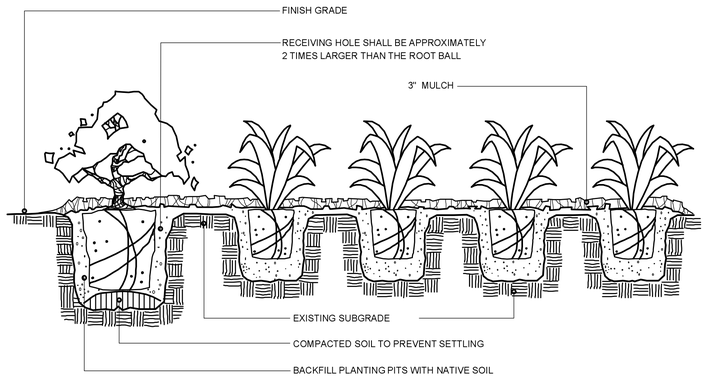
NOTES:

1. PLACE PLANTS IN BED AS SHOWN, SPACING AS SPECIFIED IN PLANT SCHEDULE.
2. GROUNDCOVER SHALL BE TRIANGULAR SPACED IN ROWS PARALLEL TO STRAIGHT EDGES AND SHALL BE EVENLY SPACED IN ROWS PARALLEL TO CURVE EDGES.

4 / L-3 GROUND COVER SPACING DETAIL
SCALE: NTS

LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO STARTING WORK.
2. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS.
3. ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. ALL PLANT SUBSTITUTIONS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT.
5. ALL PLANT MATERIALS SHALL BE EXACTLY AS SPECIFIED BY THE LANDSCAPE ARCHITECT. IF PLANT SPECIES CULTIVARS ARE FOUND TO VARY FROM THAT SPECIFIED AT ANY TIME DURING THE GUARANTEE PERIOD, THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO HAVE THE CONTRACTOR REPLACE THAT PLANT MATERIAL. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANT DELIVERED TO THE SITE FOR AESTHETIC REASONS BEFORE PLANTING. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR THE QUALITY FOR ALL THE PLANTS.
6. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH, UPON DELIVERY OR AT THE JOB SITE WHILE WORK IS ON-GOING TO CONFORMITY TO SPECIFIED QUALITY, SIZE AND VARIETY.
7. PLANTS FURNISHED IN CONTAINERS SHALL HAVE THE ROOTS WELL ESTABLISHED IN THE SOIL MASS AND SHALL HAVE AT LEAST ONE (1) GROWING SEASON. ROOT-BOUND PLANTS OR INADEQUATELY SIZED CONTAINERS TO SUPPORT THE PLANT MAY BE DEEMED UNACCEPTABLE.
8. NO PLANT SHALL BE PUT IN THE GROUND BEFORE GRADING HAS BEEN FINISHED AND APPROVED BY THE LANDSCAPE ARCHITECT.
9. ALL PLANTS SHALL BE INSTALLED AND DETAILED PER PROJECT SPECIFICATIONS.
10. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN IF NECESSARY, DURING THE FIRST GROWING SEASON.
11. ALL PLANTS SHALL BE GUARANTEED BY THE CONTRACTOR FOR NOT LESS THAN ONE FULL YEAR FROM THE TIME OF PROVISIONAL ACCEPTANCE. DURING THIS TIME, THE OWNER SHALL MAINTAIN ALL PLANT MATERIALS IN THE ABOVE MANNER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE PLANTS TO ENSURE PROPER CARE. IF THE CONTRACTOR IS DISSATISFIED WITH THE CARE GIVEN, HE SHALL IMMEDIATELY, AND IN SUFFICIENT TIME TO PERMIT THE CONDITION TO BE RECTIFIED, NOTIFY THE LANDSCAPE ARCHITECT IN WRITING OR OTHERWISE FORFEIT HIS CLAIM. LANDSCAPE CONTRACTOR SHALL PRUNE PLANTINGS OF DEAD LIMBS OR TWIGS DURING THE FIRST YEAR OF GROWTH.
12. FINAL ACCEPTANCE BY THE LANDSCAPE ARCHITECT WILL BE MADE UPON THE CONTRACTOR'S REQUEST AFTER ALL CORRECTIVE WORK HAS BEEN COMPLETED.
13. LANDSCAPE CONTRACTOR SHOULD REPLACE DEAD PLANTINGS IMMEDIATELY UPON OWNER DIRECTION WITHIN THE WARRANTY PERIOD AND AGAIN AT THE END OF THE GUARANTEE PERIOD, THE CONTRACTOR SHALL HAVE REPLACED ANY PLANT MATERIAL THAT IS MISSING, NOT TRUE TO SIZE AS SPECIFIED, THAT HAVE DIED, THAT HAVE LOST THEIR NATURAL SHAPE DUE TO DEAD BRANCHES, EXCESSIVE PRUNING OR INADEQUATE OR IMPROPER CARE, OR THAT ARE, IN THE OPINION OF THE LANDSCAPE ARCHITECT, IN UNHEALTHY OR UNSIGHTLY CONDITION.
14. ALL LANDSCAPE AREAS TO BE GRASS COMMON TO REGION EXCEPT FOR INTERIOR LANDSCAPED ISLANDS OR WHERE OTHER PLANT MATERIAL IS CALLED FOR.
15. ALL TREES AND SHRUBS TO BE PLANTED IN MULCH BEDS WITH DEFINED AND CUT EDGES TO SEPARATE TURF GRASS AREAS.
16. FOR ANY LANDSCAPE AREA SO DESIGNATED TO REMAIN, WHETHER ON OR OFF-SITE, REMOVE WEEDS, ROCKS, CONSTRUCTION ITEMS, ETC., THEN APPLY GRASS SEED OR PINE BARK MULCH AS DEPICTED ON PLANS.
17. LANDSCAPE CONTRACTOR SHALL FEED AND PRUNE EX. TREES, ON OR JUST OFF SITE, THAT HAVE EXPERIENCED ROOT BASE INTRUSION OR DAMAGE DURING CONSTRUCTION IMMEDIATELY AND FOR THE DURATION OF THE WARRANTY PERIOD AT THE DIRECTION OF THE LANDSCAPE ARCHITECT.
18. EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY SNOW FENCING AT THE EDGE OF THE EX. TREE CANOPY THE CONTRACTOR SHALL NOT STORE VEHICLES OR MATERIALS WITHIN THE LANDSCAPED AREAS. ANY DAMAGE TO EXISTING TREES, SHRUBS OR LAWN SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
19. ALL MULCH AREAS SHALL RECEIVE A 2" LAYER OF SHREDDED PINE BARK MULCH.
20. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.



NOTE: SHRUBS SHALL BE PLANTED A MINIMUM OF 1" & NO MORE THAN 2" ABOVE FINISH GRADE, DEPENDING UPON SITE CONDITIONS.

5 / L-3 SHRUB/GROUND COVER PLANTING DETAIL
SCALE: NTS

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TERRENCE P. PARKER 041 — LICENSED LANDSCAPE ARCHITECT — STATE OF NEW HAMPSHIRE

Terrence P. Parker

No.	Date	Issue Notes

Date	10/25/2021
Revision	
Project ID	93 PLEASANT
Drawing Code	
CAD File	93 PLEASANT
Plot Date	00/00/00
Designed By	TP
Drawn By	TC
Checked By	TP
Reviewed By	TP
Submitted By	TP
Project Manager	

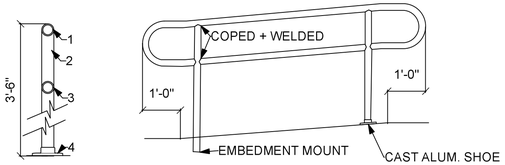
Design Firm: terra firma landscape architecture, 163 a Court Street, Portsmouth, NH
Consultant:

Project Title: 93 PLEASANT STREET
Sheet Title: LANDSCAPE DETAILS

Scale: SEE DETAILS

Sheet No.: L-3 of 1

ITEM NO.	DESCRIPTION
1	1 1/2 SCH.40 ALUM. PIPE TOP RAIL
2	1 1/2 SCH.40 ALUM. PIPE POST
3	1 1/2 SCH.40 ALUM. PIPE INTERMEDIATE RAIL
4	5" CAST ALUM. POST SHOE. FASTENERS BY CONTRACTOR

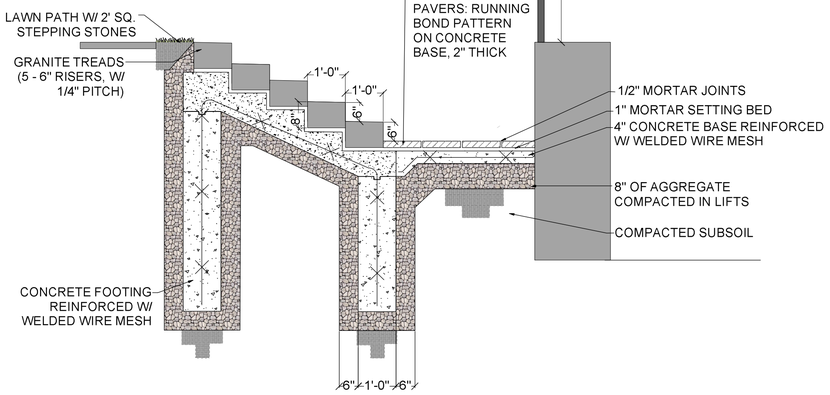


NOTES:
PRE-ENGINEERED AND FABRICATED TO FIT LEVEL.
ARCHITECTURAL SERIES WITH ALL WALLS GROUND SMOOTH.
POWDER COAT FINISH

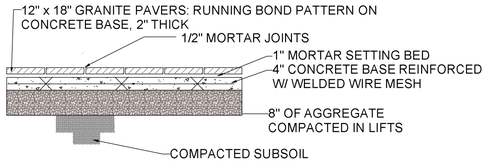
ADA WELDED TWO LINE PIPE RAIL BY AMERICAN RAILING SYSTEMS INC. OR EQUAL

AMERICAN RAILING SYSTEMS INC.
1813 MCCLELLAND AVE. ERIE, PA 16150
PHONE: 814-899-7677
ARS@AMERICANRAIL.COM

1 / L-4 — HANDRAIL
SCALE: 1/2"=1'-0"

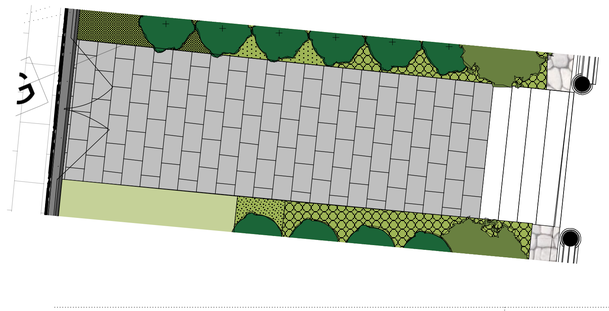


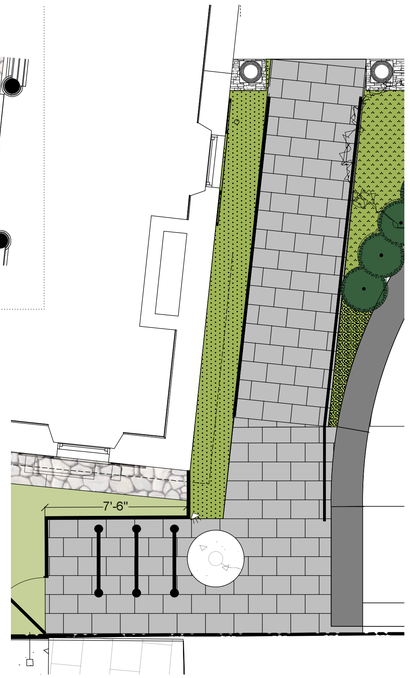
2 / L-4 — COURTYARD STEP DETAIL (TYP.)
SCALE: 1/2"=1'-0"



NOTE: USE A FLEXIBLE ALUMINUM EDGE RESTRAINT ON ALL SIDES. INSTALL PER MFGR INSTRUCTIONS. MFGR: 'StructurEdge' BY PERMALOC OR EQUAL

3 / L-4 — GRANITE PAVER DETAIL
SCALE: 1/2"=1'-0"





4 / L-4 — GRANITE PAVER LAYOUT
SCALE: 1/4"=1'-0"

IRON FENCE (and GATE) TO MATCH EX. IRON FENCE

5 / L-4 — 37" IRON FENCE (AND 4' GATE) DETAIL
SCALE: NTS

IRON FENCE TO MATCH EX. IRON FENCE

5 / L-4 — 37" IRON FENCE ON EX. WALL DETAIL
SCALE: 1/2"=1'-0"

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No.	Date	Issue Notes

Date	11/21/2021
Revision	Revision
Project ID	93 PLEASANT
Drawing Code	Drawing Code
CAD File	93 PLEASANT
Plot Date	00/00/00
Designed By	TP
Drawn By	TC
Checked By	TP
Reviewed By	TP
Submitted By	TP
Project Manager	

Design Firm: terra firma landscape architecture
163 a Court Street
Portsmouth, NH

Consultant:

Project Title: 93 PLEASANT STREET

Sheet Title: LANDSCAPE DETAILS

Scale: SEE DETAILS

Sheet No.: L-4 of 1

LICENSED LANDSCAPE ARCHITECT
TERRENCE P. PARKER
041
STATE OF NEW HAMPSHIRE
Terrence P. Parker

Chilmark Tongue and Groove Cedar Fence (Painted Green)
by Walpole Outdoors OR EQUAL
100 River Ridge Drive, Suite 302
Norwood, MA 02062
(866) 253-3108
https://walpoleoutdoors.com/

1
L-5

6' TONGUE AND GROOVE FENCE
SCALE: NTS

TRIO™ BIKE RACK
PRODUCT DATA

FORMS+SURFACES®

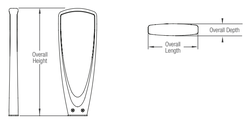
TRIO™ BIKE RACK
PRODUCT DATA

The **Trio Bike Rack** is the perfect complement to our Trio product line. Providing an excellent opportunity for design continuity, the Trio Bike Rack draws on the same triangular shape and exaggerated void seen in both our Trio Bench and Trio Lighting. Contemporary in design, its simple yet sculptural form allows it to be integrated into a myriad of settings.

MATERIAL & FINISHES — **INSTALLATION & MAINTENANCE**

MATERIAL	FINISHES	GUIDELINES & SECURITY	INSTALLATION	MAINTENANCE
• Body is made of corrosion-resistant cast aluminum with powdercoat finish.	• See the Forms+Surfaces Powdercoat Chart for details. Custom RAL colors are available for an upcharge. • Due to the inherent nature of metal castings, gloss powdercoats are not offered for cast components.	• Meets Association of Pedestrian and Bicycle Professionals (APBP) guidelines. • A locking point detail and mounting configurations that meet APBP guidelines can be found on pages 1 and 2 of this document.	• Trio Bike Racks must be surface mounted with embedded anchors. Stainless steel anchors and tamper-resistant stainless steel screws are included.	• Metal surfaces can be cleaned as needed using a soft cloth or brush with warm water and a mild detergent. Avoid abrasive cleaners.

NOMINAL DIMENSIONS

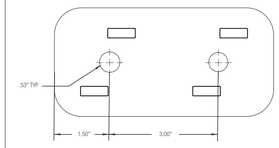


OVERALL LENGTH	OVERALL DEPTH	OVERALL HEIGHT	WEIGHT
12" (305 mm)	2.75" (70 mm)	33.5" (851 mm)	25 lbs (11.3 kg)

LOCKING POINT AND CONFIGURATION EXAMPLES
The Trio Bike Rack was designed to allow for a multitude of locking point and configuration options to meet your individual needs. Please note that for optimal performance, Forms+Surfaces recommends a 36" center-to-center placement. See diagrams below and the separate installation instructions document for more details.

A standard U-lock can be locked at this location to meet APBP guidelines for security and functionality.

LOCKING POINT EXAMPLE



MOUNTING / HARDWARE DETAIL

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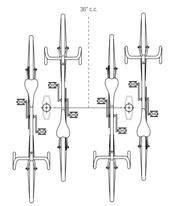
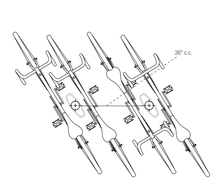
TRIO™ BIKE RACK
PRODUCT DATA

LOCKING POINT AND CONFIGURATION EXAMPLES (Continued)



CONFIGURATION EXAMPLE A



CONFIGURATION EXAMPLE B

ENVIRONMENTAL CONSIDERATIONS
- Please refer to the Trio Bike Rack Environmental Data Sheet for detailed environmental impact information.
- Trio aluminum casting has up to 95% recycled content and is fully recyclable.
- Standard powdercoat finishes are no-VOC; non-standard powdercoat finishes are no- or low-VOC, depending on color.
- Low maintenance.

MODEL NUMBER AND DESCRIPTION

MODEL	DESCRIPTION
SKTRO	Trio Bike Rack

PRODUCT OPTIONS
The following options are available for an upcharge

Premium Texture Colors from Forms+Surfaces Powdercoat Chart
Custom RAL powdercoat color

LEAD TIME: 4 weeks. Shorter lead times may be available upon request. Please contact us to discuss your specific timing requirements.

PRICING: Please contact us at **800.451.0410** or **sales@forms-surfaces.com**. At Forms+Surfaces, we design, manufacture and sell our products directly to you. Our sales team is available to assist you with questions about our products, requests for quotes, and orders. Territory Managers are located worldwide to assist with the front-end specification and quoting process, and our in-house Project Sales Coordinators follow your project through from the time you place an order to shipment.

TO ORDER SPECIFY: Quantity, model and powdercoat color for body casting. Quote/Order Forms are available on our website to lead you through the specification process in a simple checkbox format.

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FORMS + SURFACES TRIO BIKE RACK OR EQUAL

2
L-5

BIKE RACK DETAIL
SCALE: NTS

PLEASE NOTE: THIS SHEET IS SCALED FOR 22 BY 34 PAPER, DO NOT REDUCE OR ENLARGE. .

terra firma
landscape architecture
163 a court street . portsmouth, nh 03801
office 603.430.8588 | terrence@terrafirmalandarch.com

TERRENCE P. PARKER
041
LICENSED LANDSCAPE ARCHITECT
STATE OF NEW HAMPSHIRE

No.	Date	Issue Notes

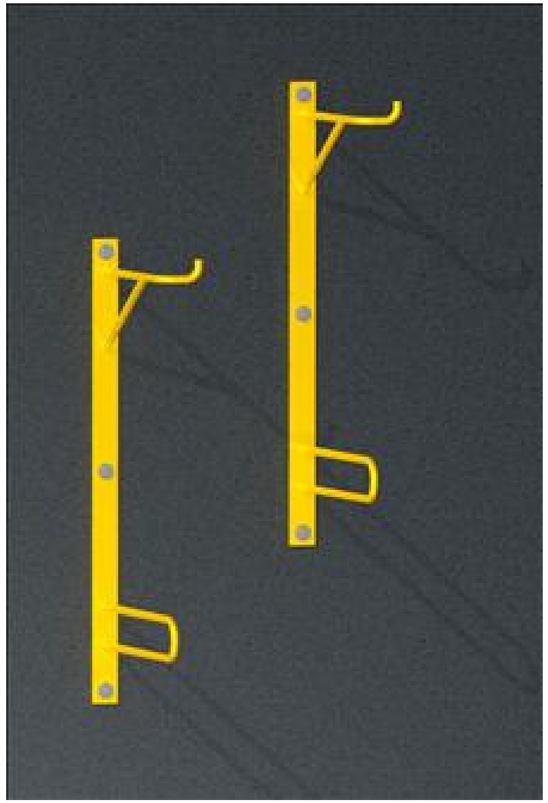
Date	11/21/2021
Revision	Revision
Project ID	93 PLEASANT
Drawing Code	Drawing Code
CAD File	93 PLEASANT
Print Date	00/00/00
Designed By	TP
Drawn By	TC
Checked By	TP
Reviewed By	TP
Submitted By	TP
Project Manager	

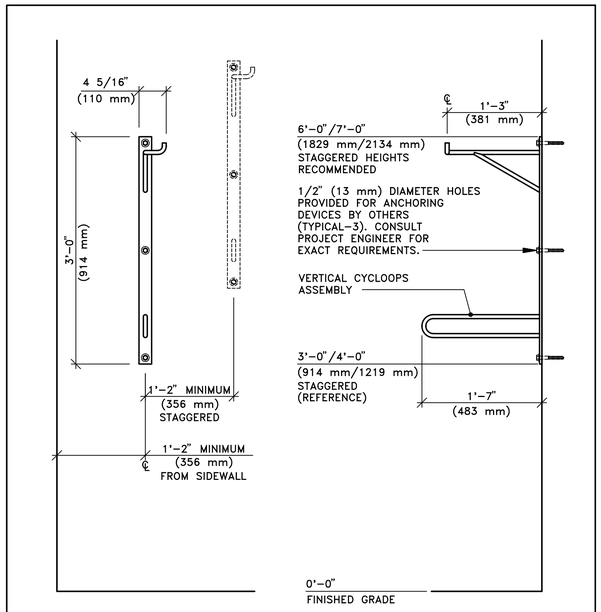
Design Firm: terra firma landscape architecture, 163 a Court Street, Portsmouth, NH
Consultant:

Project Title: 93 PLEASANT STREET
Sheet Title: LANDSCAPE DETAILS

Scale: SEE DETAILS

Sheet No.: L-5 of 1





ELEVATION – FRONT VIEW

ELEVATION – END VIEW

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Authorization for use is hereby granted to architects, landscape architects and similar design professionals solely for the purpose of specifying TimberForm products.

COLUMBIA CASCADE COMPANY
Makers of TimberForm®, PipeLine®, RePlay® TimberForm®-2, InterPlay® CycLoops® and CycLocker® Products.
1300 S.W. Sixth Avenue, Suite 310 Portland, Oregon 97201-3464 U.S.A.
Telephone 503/223-1157 Facsimile 503/223-4530
WWW.TIMBERFORM.COM

Title: TIMBERFORM CYCLOOPS MODEL NO. 2174-01 VERTICAL CYCLOOPS

Scale 1"=1'-0" | Drawn by: AT 07-04-10 | Ck'd by:
Drawing No. W-2174-01 | Sheet 1 of 1

TimberForm® WALL CYCLOOPS 2174-01 VERTICAL HANGING BIKE RACK OR EQUAL

1 / L-6 GARAGE VERTICAL BIKE RACK DETAIL
SCALE: NTS

No. 2174 Wall *CycLoops* Bicycle Rack

Bicycle Rack shall be TimberForm® Wall *CycLoops*™ model No. 2174, to accommodate one bicycle, in color or finish selected by the owner's representative and in the quantity shown on the bill of materials or the project drawings. Manufacturer, Columbia Cascade Company, 1300 SW Sixth Avenue, Suite 310, Portland OR 97201-3464 U.S.A.

1. Materials

Bicycle Rack shall be single loop of 1 inch i.d. schedule 40 mild steel seamless pipe with a minimum wall thickness of .133 inch. *Easily vandalized thin wall tubing is not allowed.* Loop shall include a pre-drilled flange permanently welded to ends which will accommodate two half inch diameter wall anchor bolts (contractor supplied).

2. Construction

Bicycle Rack shall be a single unit. Bicycle Rack shall be deburred and ground smooth after fabrication.

3. Finishes

Steel and cast iron parts shall be coated with CASPAX-7, a tough, opaque, UV resistant exterior grade polyester powder coating applied to a minimum thickness of 6 mils. *Liquid, epoxy or lead-containing powder coatings are not acceptable.*

Preparation of the mild steel substrate shall incorporate the phosphate system. Substrate preparation shall consist first of mechanical cleaning to remove heavy mill scale, rust, varnish, grease, etc., with surfaces uniformly abraded to promote quality of finish coating. Chemical cleaning in accordance with TT-C-490C, Methods I and III shall remove impurities from the surfaces.

After the two-step cleaning process, the metal substrate shall receive a corrosion-inhibiting iron phosphate pre-coating in accordance with TT-C-490C, Type II, prior to the application of the powder color coat. The color coating shall be applied by the electrostatic method and then oven-cured at 400 degrees Fahrenheit to chemically bond the coating to the substrate and to render the coated metal resistant to abrasion, impact, chipping, weathering, and rusting.

-or-

Mild steel (-G) bicycle rack shall be hot-dipped galvanized per ASTM 123 after complete fabrication.

-or-

Stainless steel (-S) bicycle rack shall have No. 4 polish finish.

LICENSED LANDSCAPE ARCHITECT · TERRENCE P. PARKER · 041 · STATE OF NEW HAMPSHIRE

PLEASE NOTE: THIS SHEET IS SCALED FOR 22 BY 34 PAPER, DO NOT REDUCE OR ENLARGE. .

terra firma
landscape architecture
163 a court street · portsmouth, nh 03801
office 603.430.8588 | terrence@terrafirmalandarch.com

No.	Date	Issue Notes

Designed By: TP
Drawn By: TC
Checked By: TP
Reviewed By: TP
Submitted By: TP
Project Manager:

Date: 11/21/2021
Revision: Revision
Project ID: 93 PLEASANT
Drawing Code: Drawing Code
CAD File: 93 PLEASANT
Plot Date: 00/00/00

Design Firm: terra firma landscape architecture
163 a Court Street
Portsmouth, NH

Consultant:

Project Title: 93 PLEASANT STREET

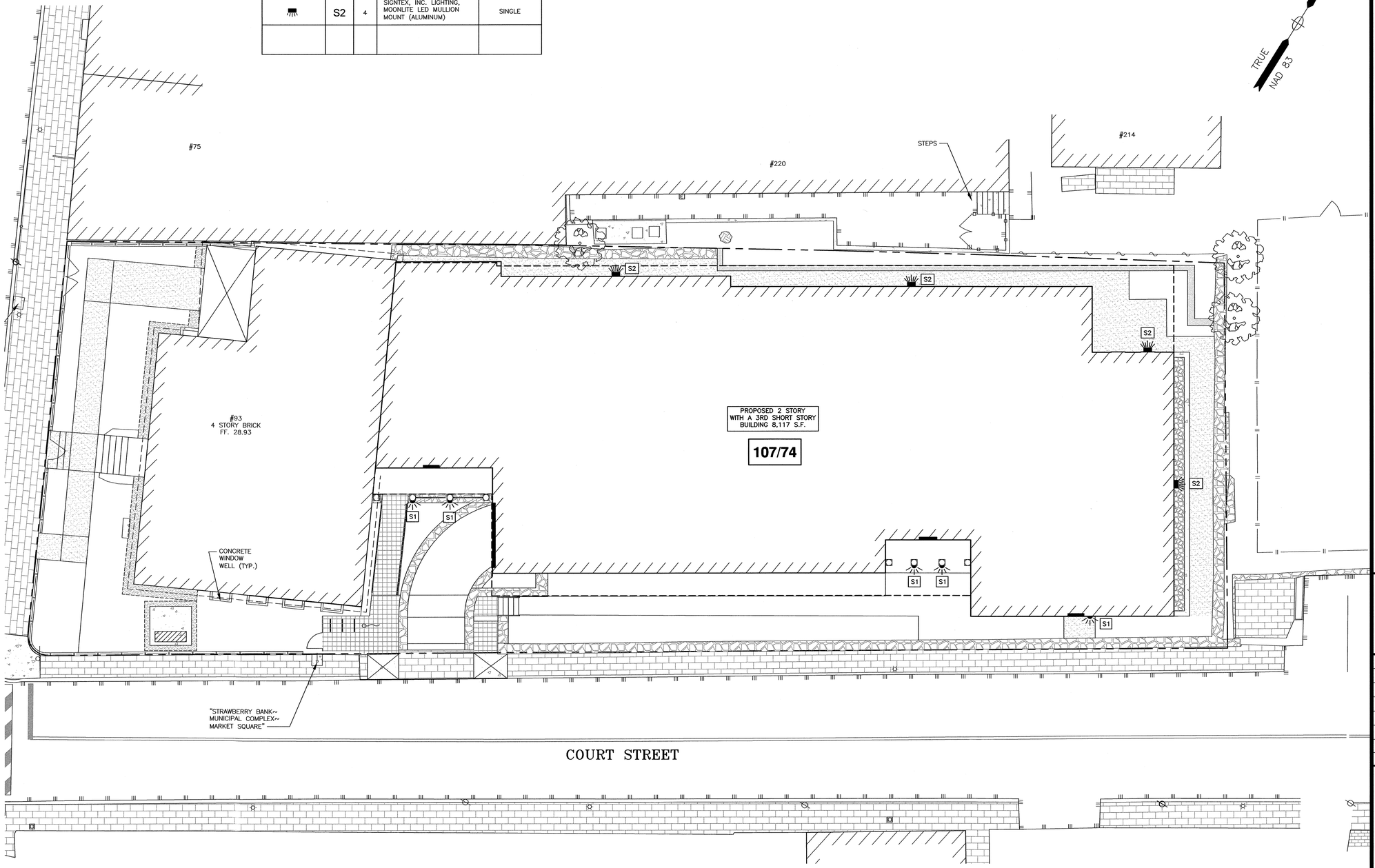
Sheet Title: LANDSCAPE DETAILS

Scale: SEE DETAILS

Sheet No.: L-6 of 1

LUMINAIRE SCHEDULE

SYMBOL	LABEL	QTY.	DESCRIPTION	ARRANGMENT
	S1	5	SEAGULL, CAPE MAY 88241-12 (ALUMINUM)	SINGLE
	S2	4	SIGNTEX, INC. LIGHTING, MOONLITE LED MULLION MOUNT (ALUMINUM)	SINGLE



AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road - Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 107 AS LOT 74.

2) OWNERS OF RECORD:
DAGNY TAGGART LLC
3 PLEASANT STREET SUITE 400
PORTSMOUTH, NH 03801
6162/74
D-17511

3) THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED LIGHTING ON THE PROPOSED BUILDING ON ASSESSOR'S MAP 107 LOT 74 IN THE CITY OF PORTSMOUTH.

4) SEE LANDSCAPE PLAN L2 FOR SITE LIGHTING.

MIXED USE DEVELOPMENT
93 PLEASANT STREET
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	11/22/21

REVISIONS

SCALE: 1" = 10' DECEMBER 2020

LIGHTING PLAN

LT1

FB 321 PG 72

3059.01

EROSION CONTROL NOTES

CONSTRUCTION SEQUENCE

DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.

IF REQUIRED THE CONTRACTOR SHALL OBTAIN AN **NPDES** PHASE II STORMWATER PERMIT AND SUBMIT A NOTICE OF INTENT (N.O.I) BEFORE BEGINNING CONSTRUCTION AND SHALL HAVE ON SITE A STORMWATER POLLUTION PREVENTION PLAN (**S.W.P.P.P.**) AVAILABLE FOR INSPECTION BY THE PERMITTING AUTHORITY DURING THE CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT THE **S.W.P.P.P.** AND INSPECTING AND MAINTAINING ALL BMP'S CALLED FOR BY THE PLAN. THE CONTRACTOR SHALL SUBMIT A NOTICE OF TERMINATION (**N.O.T.**) FORM TO THE REGIONAL EPA OFFICE WITHIN 30 DAYS OF FINAL STABILIZATION OF THE ENTIRE SITE OR TURNING OVER CONTROL OF THE SITE TO ANOTHER OPERATOR.

INSTALL PERIMETER CONTROLS, i.e., SILTSOXX AND CATCH BASIN PROTECTION AROUND THE LIMITS OF DISTURBANCE BEFORE ANY EARTH MOVING OPERATIONS. THE USE OF HAYBALES IS NOT ALLOWED.

PLACE FODS AS NEEDED.

CUT AND GRUB ALL TREES, SHRUBS, SAPLINGS, BRUSH, VINES AND REMOVE OTHER DEBRIS AND RUBBISH AS REQUIRED. DEMOLISH BUILDINGS AND FENCES AS NEEDED. REMOVE WALL AND STORE.

ROUGH GRADE SITE.

LAYOUT AND INSTALL ALL BURIED UTILITIES AND SERVICES UP TO 10' OF THE PROPOSED BUILDING FOUNDATIONS. CAP AND MARK TERMINATIONS OR LOG SWING TIES.

CONSTRUCT BUILDING.

CONNECT UTILITIES.

PLACE BINDER LAYER OF PAVEMENT FOR SIDEWALKS.

PLANT LANDSCAPING IN AREAS OUT OF WAY OF BUILDING CONSTRUCTION. PREPARE AND STABILIZE FINAL SITE GRADING BY ADDING TOPSOIL, SEED, MULCH AND FERTILIZER.

AFTER BUILDINGS ARE COMPLETED, FINISH ALL REMAINING LANDSCAPED WORK.

CONSTRUCT SIDEWALKS.

REMOVE TRAPPED SEDIMENTS FROM COLLECTION DEVICES AS APPROPRIATE, AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES UPON COMPLETION OF FINAL STABILIZATION OF THE SITE.

GENERAL CONSTRUCTION NOTES

THE EROSION CONTROL PROCEDURES SHALL CONFORM TO SECTION 645 OF THE "STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION" OF THE NHDOT, AND "STORM WATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE". THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED. THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED FOR MORE THAN 45 DAYS.

ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY, AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION SHALL BE MACHINE HAY MULCHED AND SEEDED WITH RYE GRASS TO PREVENT EROSION.

DUST CONTROL: IF TEMPORARY STABILIZATION PRACTICES, SUCH AS TEMPORARY VEGETATION AND MULCHING, DO NOT ADEQUATELY REDUCE DUST GENERATION, APPLICATION OF WATER OR CALCIUM CHLORIDE SHALL BE APPLIED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.

SILT FENCES AND SILTSOXX SHALL BE PERIODICALLY INSPECTED DURING THE LIFE OF THE PROJECT AND AFTER EACH STORM. ALL DAMAGED SILT FENCES AND SILTSOXX SHALL BE REPAIRED. SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED IN A SECURED LOCATION.

AVOID THE USE OF FUTURE OPEN SPACES (LOAM AND SEED AREAS) WHEREVER POSSIBLE DURING CONSTRUCTION. CONSTRUCTION TRAFFIC SHALL USE THE ROADBEDS OF FUTURE ACCESS DRIVES AND PARKING AREAS.

ADDITIONAL TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNTS NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS--CONSTRUCT SILT FENCE OR SILTSOXX AROUND TOPSOIL STOCKPILE.

AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL. STUMPS SHALL BE DISPOSED OF IN AN APPROVED FACILITY.

ALL FILLS SHALL BE PLACED AND COMPACTED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS.

ALL NON-STRUCTURAL, SITE-FILL SHALL BE PLACED AND COMPACTED TO 90% MODIFIED PROCTOR DENSITY IN LAYERS NOT EXCEEDING 18 INCHES IN THICKNESS UNLESS OTHERWISE NOTED.

FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIAL, TRASH, WOODY DEBRIS, LEAVES, BRUSH OR ANY DELETERIOUS MATTER SHALL NOT BE INCORPORATED INTO FILLS.

FILL MATERIAL SHALL NOT BE PLACED ON FROZEN FOUNDATION SUBGRADE.

DURING CONSTRUCTION AND UNTIL ALL DEVELOPED AREAS ARE FULLY STABILIZED, ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EACH ONE HALF INCH OF RAINFALL.

THE CONTRACTOR SHALL MODIFY OR ADD EROSION CONTROL MEASURES AS NECESSARY TO ACCOMMODATE PROJECT CONSTRUCTION.

ALL ROADWAYS AND PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.

AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
- BASE COURSE GRAVELS HAVE BEEN INSTALLED ON AREAS TO BE PAVED
- A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
- A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED
- EROSION CONTROL BLANKETS HAVE BEEN INSTALLED

NOTE: THAT COURT STREET SHALL BE SWEEPED DAILY DURING THE EXCAVATION PHASE OF THE BUILDING CONSTRUCTION.

VEGETATIVE PRACTICE

FOR PERMANENT MEASURES AND PLANTINGS:

LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF 2 TONS PER ACRE.

FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 500 POUNDS PER ACRE OF 10-20-20 FERTILIZER.

SEED SHALL BE SOWN AT THE RATES SHOWN IN THE TABLE BELOW. IMMEDIATELY BEFORE SEEDING, THE SOIL SHALL BE LIGHTLY RAKED. ONE HALF THE SEED SHALL BE SOWN IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE ORIGINAL DIRECTION. IT SHALL BE LIGHTLY RAKED INTO THE SOIL TO A DEPTH NOT OVER 1/4 INCH AND ROLLED WITH A HAND ROLLER WEIGHING NOT OVER 100 POUNDS PER LINEAR FOOT OF WIDTH. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AT A RATE OF 1.5 TO 2 TONS PER ACRE, AND SHALL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE EROSION AND SEDIMENT CONTROL HANDBOOK.

THE SURFACE SHALL BE WATERED AND KEPT MOIST WITH A FINE SPRAY AS REQUIRED, WITHOUT WASHING AWAY THE SOIL, UNTIL THE GRASS IS WELL ESTABLISHED. ANY AREAS WHICH ARE NOT SATISFACTORILY COVERED SHALL BE RESEEDED, AND ALL NOXIOUS WEEDS REMOVED.

A GRASS SEED MIXTURE CONTAINING THE FOLLOWING SEED REQUIREMENTS SHALL BE:

GENERAL COVER	PROPORTION	SEEDING RATE
CREEPING RED FESCUE	50%	100 LBS/ACRE
KENTUCKY BLUEGRASS	50%	

SLOPE SEED (USED ON ALL SLOPES GREATER THAN OR EQUAL TO 3:1)

CREEPING RED FESCUE	42%	
TALL FESCUE	42%	48 LBS/ACRE
BIRDSFOOT TREFOIL	16%	

IN NO CASE SHALL THE WEED CONTENT EXCEED ONE PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH APPLICABLE STATE AND FEDERAL SEED LAWS.

FOR TEMPORARY PROTECTION OF DISTURBED AREAS:
MULCHING AND SEEDING SHALL BE APPLIED AT THE FOLLOWING RATES:
PERENNIAL RYE: 0.7 LBS/1,000 S.F.
MULCH: 1.5 TONS/ACRE

MAINTENANCE AND PROTECTION

THE CONTRACTOR SHALL MAINTAIN ALL LOAM & SEED AREAS UNTIL FINAL ACCEPTANCE AT THE COMPLETION OF THE CONTRACT. MAINTENANCE SHALL INCLUDE WATERING, WEEDING, REMOVAL OF STONES AND OTHER FOREIGN OBJECTS OVER 1/2 INCHES IN DIAMETER WHICH MAY APPEAR AND THE FIRST TWO (2) CUTTINGS OF GRASS NO CLOSER THEN TEN (10) DAYS APART. THE FIRST CUTTING SHALL BE ACCOMPLISHED WHEN THE GRASS IS FROM 2 1/2 TO 3 INCHES HIGH. ALL BARE AND DEAD SPOTS WHICH BECOME APPARENT SHALL BE PROPERLY PREPARED, LIMED AND FERTILIZED, AND RESEEDED BY THE CONTRACTOR AT HIS EXPENSE AS MANY TIMES AS NECESSARY TO SECURE GOOD GROWTH. THE ENTIRE AREA SHALL BE MAINTAINED, WATERED AND CUT UNTIL ACCEPTANCE OF THE LAWN BY THE OWNER'S REPRESENTATIVE.

THE CONTRACTOR SHALL TAKE WHATEVER MEASURES ARE NECESSARY TO PROTECT THE GRASS WHILE IT IS DEVELOPING.

TO BE ACCEPTABLE, SEEDED AREAS SHALL CONSIST OF A UNIFORM STAND OF AT LEAST 90 PERCENT ESTABLISHED PERMANENT GRASS SPECIES, WITH UNIFORM COUNT OF AT LEAST 100 PLANTS PER SQUARE FOOT.

SEEDED AREAS WILL BE FERTILIZED AND RESEEDED AS NECESSARY TO INSURE VEGETATIVE ESTABLISHMENT.

THE SWALES WILL BE CHECKED WEEKLY AND REPAIRED WHEN NECESSARY UNTIL ADEQUATE VEGETATION IS ESTABLISHED.

THE SILT FENCE OR SILTSOXX BARRIER SHALL BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.

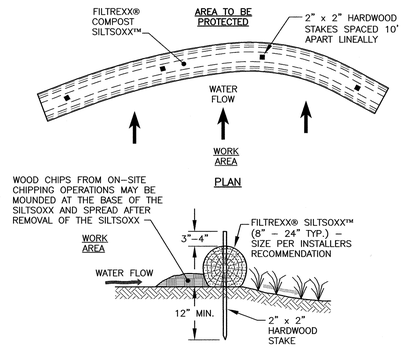
SILT FENCING AND SILTSOXX SHALL BE REMOVED ONCE VEGETATION IS ESTABLISHED, AND DISTURBED AREAS RESULTING FROM SILT FENCE AND SILTSOXX REMOVAL SHALL BE PERMANENTLY SEEDED.

WINTER NOTES

ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.

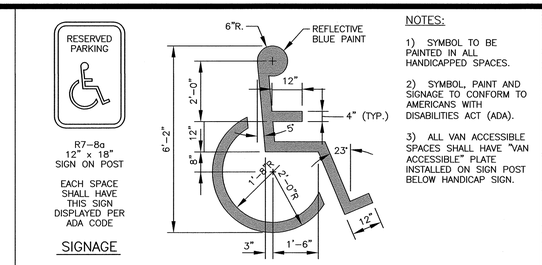
ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.

AFTER NOVEMBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.



NOTES:
1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
2. FILLTREXX SYSTEM SHALL BE INSTALLED BY A CERTIFIED FILTREXX INSTALLER.
3. THE CONTRACTOR SHALL MAINTAIN THE COMPOST FILTRATION SYSTEM IN A FUNCTIONAL CONDITION AT ALL TIMES. IT WILL BE ROUTINELY INSPECTED AND REPAIRED WHEN REQUIRED.
4. SILTSOXX DEPICTED IS FOR MINIMUM SLOPES, GREATER SLOPES MAY REQUIRE ADDITIONAL PLACEMENTS.
5. THE COMPOST FILTER MATERIAL WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE ENGINEER.

A / C6 FILTREXX® SILTSOXX™ FILTRATION SYSTEM (AS NEEDED) NTS



NOTES:

1) SYMBOL TO BE PAINTED IN ALL HANDICAPPED SPACES.

2) SYMBOL, PAINT AND SIGNAGE TO CONFORM TO AMERICANS WITH DISABILITIES ACT (ADA).

3) ALL VAN ACCESSIBLE SPACES SHALL HAVE "VAN ACCESSIBLE" PLATE INSTALLED ON SIGN POST BELOW HANDICAP SIGN.

C / C4 HANDICAP PARKING DETAIL NTS

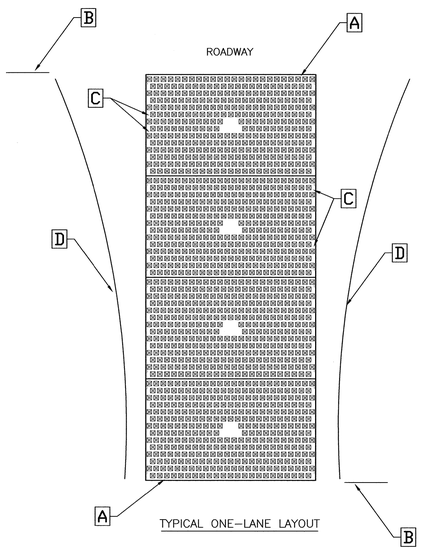
FODS TRACKOUT CONTROL SYSTEM

INSTALLATION:

THE PURPOSE AND DESIGN OF THE FODS TRACKOUT CONTROL SYSTEM IS TO EFFECTIVELY REMOVE MOST SEDIMENT FROM VEHICLE TIRES AS THEY EXIT A DISTURBED LAND AREA ONTO A PAVED STREET. THIS MANUAL IS A PLATFORM FROM WHICH TO INSTALL A FODS TRACKOUT CONTROL SYSTEM. (NOTE: THIS IS NOT A ONE SIZE FITS ALL GUIDE.) THE INSTALLATION MAY NEED TO BE MODIFIED TO MEET THE EXISTING CONDITIONS, EXPECTATIONS, OR DEMANDS OF A PARTICULAR SITE. THIS IS A GUIDELINE. ULTIMATELY THE FODS TRACKOUT CONTROL SYSTEM SHOULD BE INSTALLED SAFELY WITH PROPER ANCHORING AND SIGNS PLACED AT THE ENTRANCE AND EXIT TO CAUTION USERS AND OTHERS.

KEY NOTES:

A. FODS TRACKOUT CONTROL SYSTEM MAT.
B. FODS SAFETY SIGN.
C. ANCHOR POINT.
D. SILT OR ORANGE CONSTRUCTION FENCE.



INSTALLATION:
1. THE SITE WHERE THE FODS TRACKOUT CONTROL SYSTEM IS TO BE PLACED SHOULD CORRESPOND TO BEST MANAGEMENT PRACTICES AS MUCH AS POSSIBLE. THE SITE WHERE FODS TRACKOUT CONTROL SYSTEM IS PLACED SHOULD ALSO MEET OR EXCEED THE LOCAL JURISDICTION OR STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS.
2. CALL FOR UTILITY LOCATES 3 BUSINESS DAYS IN ADVANCE OF THE OF FODS TRACKOUT CONTROL SYSTEM INSTALLATION FOR THE MARKING OF UNDERGROUND UTILITIES. CALL THE UTILITY NOTIFICATION CENTER AT 811.
3. ONCE THE SITE IS ESTABLISHED WHERE FODS TRACKOUT CONTROL SYSTEM IS TO BE PLACED, ANY EXCESSIVE UNEVEN TERRAIN SHOULD BE LEVELED OUT OR REMOVED SUCH AS LARGE ROCKS, LANDSCAPING MATERIALS, OR SUDDEN ABRUPT CHANGES IN ELEVATION.
4. THE INDIVIDUAL MATS CAN START TO BE PLACED INTO POSITION. THE FIRST MAT SHOULD BE PLACED NEXT TO THE CLOSEST POINT OF EGRESS. THIS WILL ENSURE THAT THE VEHICLE WILL EXIT STRAIGHT FROM THE SITE ONTO THE PAVED SURFACE.
8. AFTER THE FIRST MAT IS PLACED DOWN IN THE PROPER LOCATION, MATS SHOULD BE ANCHORED TO PREVENT THE POTENTIAL MOVEMENT WHILE THE ADJOINING MATS ARE INSTALLED. ANCHORS SHOULD BE PLACED AT EVERY ANCHOR POINT (IF FEASIBLE) TO HELP MAINTAIN THE MAT IN ITS CURRENT POSITION.
9. AFTER THE FIRST MAT IS ANCHORED IN ITS PROPER PLACE, AN H BRACKET SHOULD BE PLACED AT THE END OF THE FIRST MAT BEFORE ANOTHER MAT IS PLACED ADJACENT TO THE FIRST MAT.
10. ONCE THE SECOND MAT IS PLACED ADJACENT TO THE FIRST MAT, MAKE SURE THE H BRACKET IS CORRECTLY SITUATED BETWEEN THE TWO MATS, AND SLIDE MATS TOGETHER.
11. NEXT THE CONNECTOR STRAPS SHOULD BE INSTALLED TO CONNECT THE TWO MATS TOGETHER.
12. UPON PLACEMENT OF EACH NEW MAT IN THE SYSTEM, THAT MAT SHOULD BE ANCHORED AT EVERY ANCHOR POINT TO HELP STABILIZE THE MAT AND ENSURE THE SYSTEM IS CONTINUOUS WITH NO GAPS IN BETWEEN THE MATS.
13. SUCCESSIVE MATS CAN THEN BE PLACED TO CREATE THE FODS TRACKOUT CONTROL SYSTEM REPEATING THE ABOVE STEPS.

USE AND MAINTENANCE
1. VEHICLES SHOULD TRAVEL DOWN THE LENGTH OF THE TRACKOUT CONTROL SYSTEM AND NOT CUT ACROSS THE MATS.
2. DRIVERS SHOULD TURN THE WHEEL OF THEIR VEHICLES SUCH THAT THE VEHICLE WILL MAKE A SHALLOW S-TURN ROUTE DOWN THE LENGTH OF THE FODS TRACKOUT CONTROL SYSTEM.
3. MATS SHOULD BE CLEANED ONCE THE VOIDS BETWEEN THE PYRAMIDS BECOME FULL OF SEDIMENT. TYPICALLY THIS WILL NEED TO BE PERFORMED WITHIN TWO WEEKS AFTER A STORM EVENT. BRUSHING IS THE PREFERRED METHOD OF CLEANING, EITHER MANUALLY OR MECHANICALLY.
4. THE USE OF ICE MELT, ROCK SALT, SNOW MELT, DE-ICER, ETC. SHOULD BE UTILIZED AS NECESSARY DURING THE WINTER MONTHS AND AFTER A SNOW EVENT TO PREVENT ICE BUILDUP.

REMOVAL
1. REMOVAL OF FODS TRACKOUT CONTROL SYSTEM IS REVERSE ORDER OF INSTALLATION.
2. STARTING WITH THE LAST MAT, THE MAT THAT IS PLACED AT THE INNERMOST POINT OF THE SITE OR THE MAT FURTHEST FROM THE EXIT OR PAVED SURFACE SHOULD BE REMOVED FIRST.
3. THE ANCHORS SHOULD BE REMOVED.
4. THE CONNECTOR STRAPS SHOULD BE UNBOLTED AT ALL LOCATIONS IN THE FODS TRACKOUT CONTROL SYSTEM.
5. STARTING WITH THE LAST MAT IN THE SYSTEM, EACH SUCCESSIVE MAT SHOULD THEN BE MOVED AND STACKED FOR LOADING BY FORKLIFT OR EXCAVATOR ONTO A TRUCK FOR REMOVAL FROM THE SITE.

B / C6 FODS (USE AS REQUIRED) NTS

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road - Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

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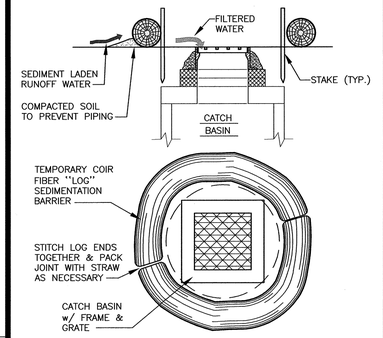


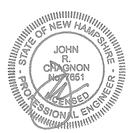
NOTE:
1. PRIOR TO INSTALLATION, SILT LOGS SHALL BE KEPT DRY AND STORED IN THEIR ORIGINAL WRAPPING.
2. MINIMUM CROSS SECTIONAL DIAMETER OF SILT LOGS: 12".
3. SILT LOGS MAY BE CUT AND RE-STITCHED AS NEEDED PER MANUFACTURERS RECOMMENDATIONS.
4. SILT LOGS SHALL BE INSPECTED AFTER EACH STORM EVENT.
5. REMOVE ACCUMULATED SILT WHEN DEPTH REACHES ONE HALF OF SILT LOG DIAMETER.
6. IF LOGS ARE TOO STIFF TO BEND AROUND CATCH BASIN INLET, THEY MAY BE CUT AND LAID SQUARE.

"SILT LOG" BARRIER AT CATCH BASIN INLET (AS NEEDED) NTS

COMMERCIAL DEVELOPMENT
93 PLEASANT STREET
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	EXISTING CONDITIONS NOTES	10/20/21
0	ISSUED FOR COMMENT	4/2/21

REVISIONS



SCALE: AS SHOWN DECEMBER 2020

EROSION PROTECTION NOTES AND DETAILS — **D1**

FB 321 PG 72

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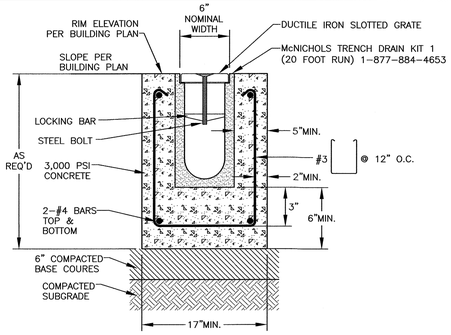
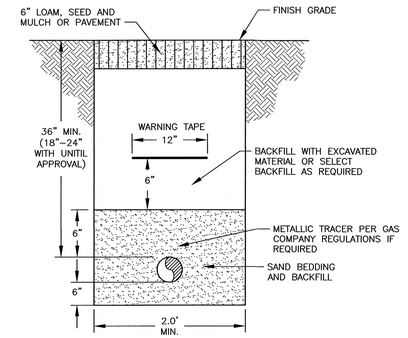


D / C4 TRENCH DRAIN DETAIL

EVAPORATIVE NTS



E / C5 GAS SERVICE TRENCH

NTS

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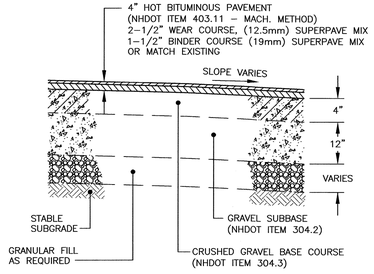
NTS

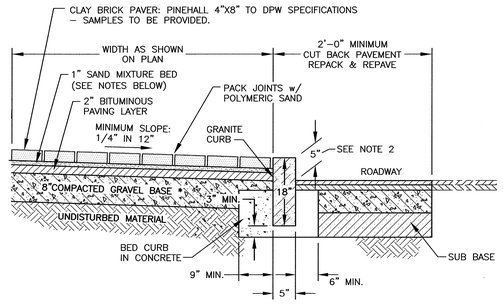


G / C3 TYPICAL PAVEMENT CROSS-SECTION

NTS

CONSTRUCTION NOTE:

EXISTING GRANITE CURB DISTURBED BY CONSTRUCTION SHALL BE REUSED AND ANY MISSING CURB SHALL BE REPLACED WITH NEW CURB MATCHING EXISTING CURB SIZE. NO CURB LESS THAN 3' IN LENGTH WILL BE ALLOWED.



BRICK PAVEMENT NOTES

SCOPE OF WORK:

1) THE WORK SHALL CONSIST OF CONSTRUCTING/RECONSTRUCTING THE SUB-BASE AND CONSTRUCTING A NEW BRICK SIDEWALK AND DRIVEWAY PAVERS AS DIRECTED IN THE FIELD BY THE ENGINEER.
2) REVEAL SHALL BE 5" (COORDINATE WITH PORTSMOUTH DPW).

METHODS OF CONSTRUCTION:

A) ALL LABOR AND MATERIALS SHALL CONFORM TO THE STATE OF NEW HAMPSHIRE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SECTION 608, AND CITY OF PORTSMOUTH SPECIFICATIONS FOR NEW BRICK SIDEWALK, SECTION 6.

B) ALL BRICKS SHALL CONFORM TO THE REQUIREMENTS OF ASTM STANDARD SPECIFICATIONS FOR BUILDING BRICKS: CLASS SX, TYPE 1, APPLICATION PX. THE BRICKS SHALL BE NO. 1, WIRE CUT TYPE FOR PAVING, WITH A COMPRESSIVE STRENGTH OF NOT LESS THAN 6,000 POUNDS PER SQUARE INCH. THE BRICKS SHALL NOT BE CORED OR HAVE FROGS AND SHALL BE OF A STANDARD SIZE (2.25" X 4 X 8"). 60 MM FOR SIDEWALK AND 80 MM FOR DRIVEWAY ENTRANCE.

C) EXCAVATION FOR SIDEWALKS SHALL BE AT A DEPTH OF 10 INCHES BELOW FINISH GRADE. IN AREAS NOT BUTTING CURBING OR BUILDINGS, THE EXCAVATION SHALL BE 6 INCHES WIDER THAN THE FINISHED SIDEWALK WIDTH. AT ALL DRIVE CROSSINGS, THE DEPTH OF EXCAVATION SHALL BE INCREASED ACCORDINGLY. THE CONTRACTOR SHALL PROVIDE NEAT AND SQUARE CUTTING OF EXISTING ASPHALT ROAD SURFACE AS NEEDED. ALL UNSUITABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF OFF-SITE AT THE CONTRACTOR'S OWN EXPENSE.

D) THE BASE MATERIAL SHALL CONSIST OF A MIXTURE OF STONES OR ROCK FRAGMENTS AND PARTICLES WITH 100% PASSING THE 3 INCH SIEVE, 95% TO 100% PASSING THE 2 INCH SIEVE, 55% TO 85% PASSING THE 1 INCH SIEVE, AND 27% TO 52% PASSING THE NO. 4 SIEVE. AT LEAST 50% OF THE MATERIALS RETAINED ON THE 1 INCH SIEVE SHALL HAVE A FRACTURED FACE. THE BASE MATERIAL SHALL BE THOROUGHLY COMPACTED TO THE DEPTH SPECIFIED OR DIRECTED. IN THE WAY OF ALL DRIVE CROSSINGS THE BASE WILL BE INCREASED TO A COMPACTED DEPTH OF 12 INCHES. GRAVEL REQUIREMENTS FOR RECONSTRUCTION WILL BE AS DIRECTED, BASED ON SITE CONDITIONS. THE WORK INCLUDES BACKING UP ANY AND ALL CURB BEING INSTALLED BY OTHERS ON BOTH SIDES.

E) THE CLAY BRICK PAVERS SHALL BE LAID IN A 1 INCH BED OF A SAND MIXTURE COMPRISED OF: 3 PARTS SAND MIXED WITH 1 PART PORTLAND CEMENT.

F) THE CONTRACTOR SHALL LAY THE BRICKS SO THAT APPROXIMATELY 4.5 BRICKS SHALL COVER ONE SQUARE FOOT.

G) THE SIDEWALK SHALL PITCH TOWARDS THE STREET AS SHOWN ON THE GRADING PLAN.

H) IN AREAS WHERE THE FRONT OF THE BRICK SIDEWALK IS NOT ADJACENT TO GRANITE CURBING, THE CONTRACTOR SHALL INSTALL EDGING TO HOLD THE BRICKS IN PLACE. SUCH EDGING SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.

I) THE CONTRACTOR SHALL SUBMIT A SAMPLE OF THE BRICKS FOR APPROVAL BY THE CITY BEFORE BRICKS ARE INSTALLED.

H / C3 BRICK SIDEWALK w/ VERTICAL GRANITE CURB

(STONE DUST BEDDING OVER BITUMINOUS PAVING) NTS

I RESERVED

NTS

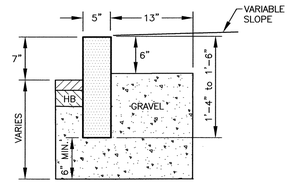
J RESERVED

NTS

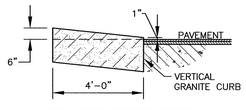
MIN. LENGTH OF CURB STONES 3FT.
MAX. LENGTH OF CURB STONES 10FT.
MAX. LENGTH OF STRAIGHT CURB STONES LAID ON CURVES SEE CHART

NOTE: ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATE LENGTH.

Radius	Max. length
21'	3'
22' - 28'	4'
29' - 35'	5'
36' - 42'	6'
43' - 49'	7'
50' - 56'	8'
57' - 60'	9'
over 60'	10'

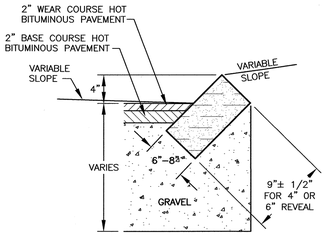


VERTICAL GRANITE CURB



NOTE: JOINTS BETWEEN STONES TO BE MORTARED

GRANITE CURB END



MIN. LENGTH OF STRAIGHT CURB STONES: 18"
MAX. LENGTH OF STRAIGHT CURB STONES: 8FT.
MAX. LENGTH OF STRAIGHT STRAIGHT CURB STONES LAID ON CURVE: SEE CHART

Radius for stones with square joints	Maximum length
16' - 28'	6" - 1'
29' - 41'	2'
42' - 55'	3'
56' - 68'	4'
69' - 82'	5'
83' - 96'	6'
97' - 110'	7'
over 110'	8'

SLOPE GRANITE CURB

K / C3 GRANITE CURBING DETAILS

NTS

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COMMERCIAL DEVELOPMENT
93 PLEASANT STREET
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
2	DETAIL F, H, I & J	12/7/21
1	DETAIL E	10/20/21
0	ISSUED FOR COMMENT	4/2/21

REVISIONS

SCALE: AS SHOWN DECEMBER 2020

DETAILS D2

FB 321 PG 72

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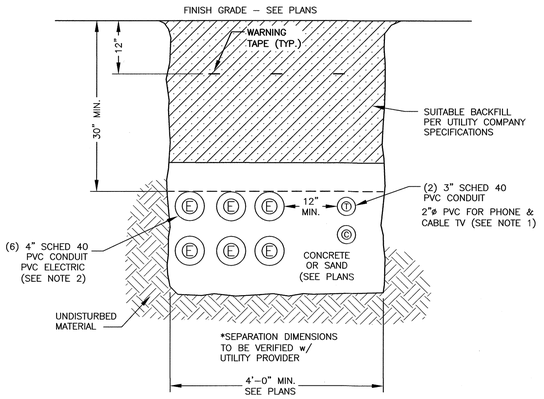
NOTES:
1) ALL CONDUIT TO BE U.L. LISTED, SCH. 80 UNDER ALL TRAVEL WAYS, & SCHED. 40 FOR THE REMAINDER.

2) NORMAL CONDUIT SIZES FOR PSNH ARE 3 INCH FOR SINGLE PHASE PRIMARY AND SECONDARY VOLTAGE CABLES, 4 INCH FOR THREE PHASE SECONDARY, AND 5 INCH FOR THREE PHASE PRIMARY.

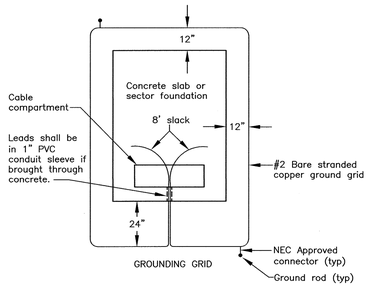
3) ALL WORK TO CONFORM TO THE NATIONAL ELECTRICAL CODE (LATEST REVISION)

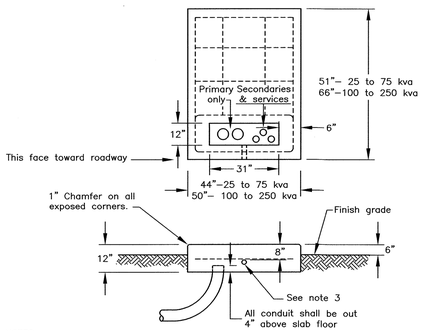
4) INSTALL A 200# PULL ROPE FOR EACH CONDUIT

5) VERIFY ALL CONDUIT SPECIFICATIONS WITH UTILITY COMPANY'S PRIOR TO ANY CONSTRUCTION.



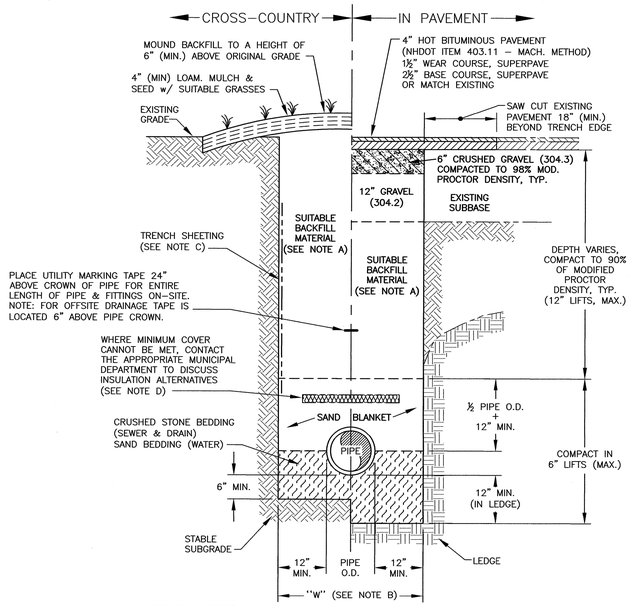
L C5 BURIED ELEC/COMM CABLE
NTS





NOTES
1. See sheet "Requirements for Padmounted Transformer Slab Details".
2. All reinforcing to be #6 bars.
3. 1" PVC conduit sleeve for ground grid leads.
4. The ground grid shall be supplied and installed by the customer and is to be buried at least 12" below grade. Eight feet of extra wire for each ground grid leg shall be left exposed in the cable compartment to allow for the connection to the transformer. the two 8' ground rods may be either galvanized steel or copperweld and they shall be connected to the grid with NEC approved connectors.

M C5 TRANSFORMER PAD
PSNH NTS



TRENCH NOTES:
A) TRENCH BACKFILL:
– IN PAVED AREAS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION, OR ANY MATERIALS DEEMED TO BE UNACCEPTABLE BY THE ENGINEER.

– IN CROSS–COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK OR PEAT, IF HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE.

B) "W" = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D..

C) TRENCH SHEETING:
THE CONTRACTOR IS SOLELY RESPONSIBLE FOR SAFE EXCAVATION PRACTICES.

D) MINIMUM PIPE COVER FOR UTILITY MAINS (UNLESS GOVERNED BY OTHER CODES):
- 5' MINIMUM FOR SEWER (IN PAVEMENT)
- 4' MINIMUM FOR SEWER (CROSS COUNTRY)
- 3' MINIMUM FOR STORMWATER DRAINS
- 5' MINIMUM FOR WATER MAINS

E) ALL PAVEMENT CUTS SHALL BE REPAIRED BY THE INFRARED HEAT METHOD.

N C5 TYPICAL PIPE TRENCH
NTS

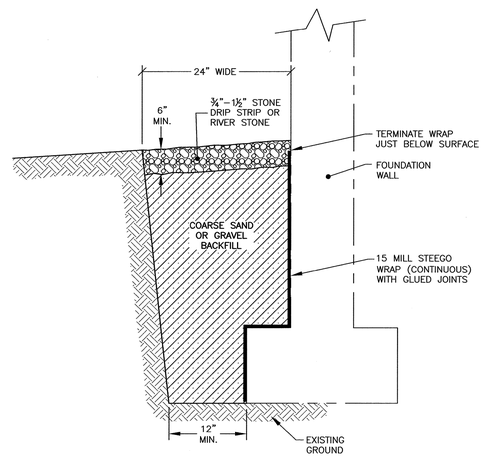
0 RESERVED

CITY OF PORTSMOUTH TREE PLANTING REQUIREMENTS

THE BASE OF THE CITY OF PORTSMOUTH TREE PLANTING REQUIREMENTS IS THE ANSI A300 PART 6 STANDARD PRACTICES FOR PLANTING AND TRANSPLANTING. ANSI A300 PART 6 LAYS OUT TERMS AND BASIC STANDARDS AS SET FORTH BY INDUSTRY BUT IS NOT THE "END ALL" FOR THE CITY OF PORTSMOUTH. THE FOLLOWING ARE THE CITY OF PORTSMOUTH, NH TREE PLANTING REQUIREMENTS THAT ARE IN ADDITION TO OR THAT GO BEYOND THE ANSI A300 PART 6.

1. ALL PLANTING HOLES MUST BE DUG BY HAND– NO MACHINES. THE ONLY EXCEPTIONS ARE NEW CONSTRUCTION WHERE NEW PLANTING PITS, PLANTING BEDS WITH GRANITE CURBING, AND PLANTING SITES WITH SILVA CELLS ARE BEING CREATED. IF A MACHINE IS USED TO DIG IN ANY OF THESE SITUATIONS AND PLANTING DEPTH NEEDS TO BE RAISED THE MATERIAL IN THE BOTTOM OF THE PLANTING HOLE MUST BE FIRMED WITH MACHINE TO PREVENT SINKING OF THE ROOT BALL.
2. ALL WIRE AND BURLAP SHALL BE REMOVED FROM THE ROOT BALL AND PLANTING HOLE.
3. THE ROOT BALL OF THE TREE SHALL BE WORKED SO THAT THE ROOT COLLAR OF THE TREE IS VISIBLE AND NO GIRDLING ROOTS ARE PRESENT.
4. THE ROOT COLLAR OF THE TREE SHALL BE 2"–3" ABOVE GRADE OF PLANTING HOLE FOR FINISHED DEPTH.
5. ALL PLANTINGS SHALL BE BACKFILLED WITH SOIL FROM THE SITE AND AMENDED NO MORE THAN 20% WITH ORGANIC COMPOST. THE ONLY EXCEPTIONS ARE NEW CONSTRUCTION WHERE ENGINEERED SOIL IS BEING USED IN CONJUNCTION WITH SILVA CELLS AND WHERE NEW PLANTING BEDS ARE BEING CREATED.
6. ALL PLANTINGS SHALL BE BACKFILLED IN THREE LIFTS AND ALL LIFTS SHALL BE WATERED SO THE PLANTING WILL BE SET AND FREE OF AIR POCKETS– NO EXCEPTIONS.
7. AN EARTH BERM SHALL BE PLACED AROUND THE PERIMETER OF THE PLANTING HOLE EXCEPT WHERE CURBED PLANTING BEDS OR PITS ARE BEING USED.
8. 2"–3" OF MULCH SHALL BE PLACED OVER THE PLANTING AREA.
9. AT THE TIME THE PLANTING IS COMPLETE THE PLANTING SHALL RECEIVE ADDITIONAL WATER TO ENSURE COMPLETE HYDRATION OF THE ROOTS, BACKFILL MATERIAL, AND MULCH LAYER.
10. STAKES AND GUYS SHALL BE USED WHERE APPROPRIATE AND/OR NECESSARY. GUY MATERIAL SHALL BE NON–DAMAGING TO THE TREE.
11. ALL PLANTING STOCK SHALL BE SPECIMEN QUALITY, FREE OF DEFECTS, AND DISEASE OR INJURY. THE CITY OF PORTSMOUTH, NH RESERVES THE RIGHT TO REFUSE/REJECT ANY PLANT MATERIAL OR PLANTING ACTION THAT FAILS TO MEET THE STANDARDS SET FORTH IN THE ANSI A300 PART 6 STANDARD PRACTICES FOR PLANTING AND TRANSPLANTING AND/OR THE CITY OF PORTSMOUTH, NH PLANTING REQUIREMENTS.

P L1 CITY OF PORTSMOUTH



Q C5 STONE DRIP APRON
(UNDER BUILDING DRIP LINE) NTS

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PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
2	DETAILS O & P	12/7/21
1	DETAIL Q	10/20/21
0	ISSUED FOR COMMENT	4/2/21

REVISIONS

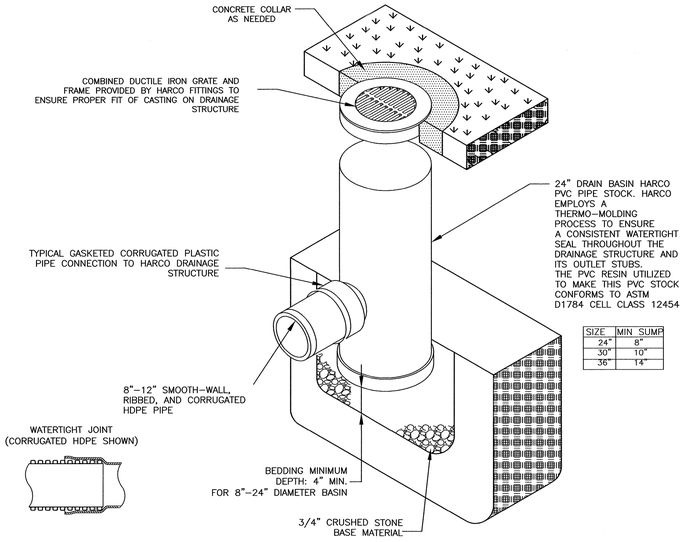
SCALE: AS SHOWN DECEMBER 2020

DETAILS D3

FB 321 PG 72

3059.01

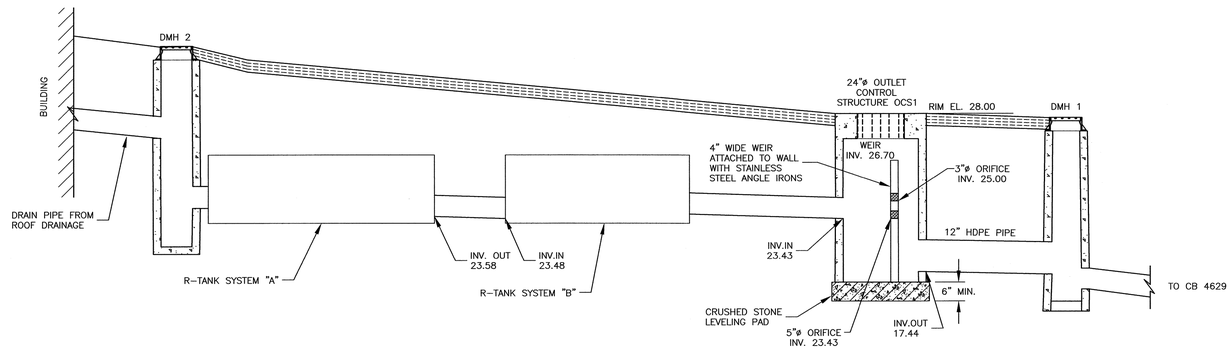
J:\CAD\3JN 3000\JN 3059\3059D2020 Site Plan\Plans & Specs\3059d3dt2020 Details 2021.dwg DETAILS D3, 12/7/2021 11:13:54 AM



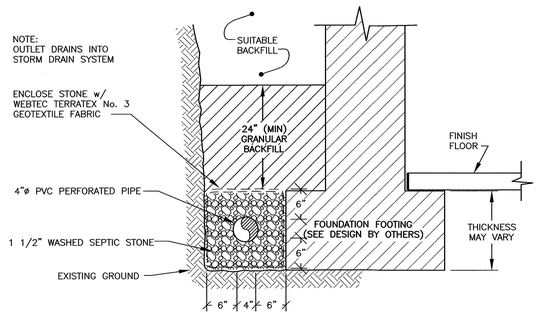
SIZE	MIN. SUMP
24"	8"
30"	10"
36"	14"

NOTES:
1. GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2. FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
3. SEE GRADING, DRAINAGE, AND EROSION CONTROL PLAN FOR LOCATIONS.

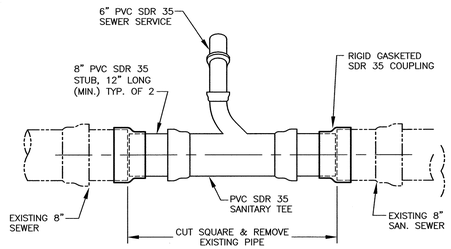
Q / C6 HARCO DRAIN BASIN DETAIL



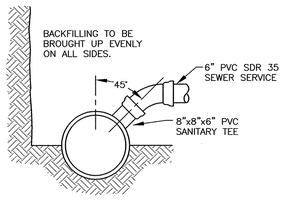
S / C4 R-TANK SYSTEM
NTS



R / C6 TYPICAL FOUNDATION DRAIN
NTS



PLAN



SECTION

T / C4 SEWER SERVICE CONNECTION DETAIL
NTS

NOTE: COORDINATE DESIGN OF SEWER CONNECTION WITH CITY OF PORTSMOUTH DPW. PROVIDE SHOP DRAWINGS FOR REVIEW.

GENERAL NOTES:

1) MINIMUM PIPE SIZE FOR HOME SERVICES SHALL BE SIX INCHES.

2) PIPE AND JOINT MATERIALS:
A. PLASTIC SEWER PIPE
1. PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

ASTM STANDARDS	GENERIC PIPE MATERIAL	SIZES APPROVED
D3034	*PVC (SOLID WALL)	8" THROUGH 15" (SDR 35)
F679	PVC (SOLID WALL)	18" THROUGH 27" (T-1 & T-2)
F789	PVC (SOLID WALL)	4" THROUGH 18" (T-1 To T-3)
F794	PVC (RIBBED WALL)	8" THROUGH 36"
AWWA C900	PVC (SOLID WALL)	8" THROUGH 18"

*PVC: POLYVINYL CHLORIDE

2. JOINT SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D-3212 AND SHALL BE PUSH-ON BELL AND SPIGOT TYPE.

B. DUCTILE IRON PIPE, FITTINGS AND JOINTS.
1. DUCTILE IRON PIPE AND FITTINGS FOR SEWERS SHALL CONFORM TO THE FOLLOWING STANDARDS OF THE UNITED STATES OF AMERICA STANDARDS INSTITUTE:
A21.50 THICKNESS DESIGN OF DUCTILE IRON PIPE AND WITH ASTM A-536 DUCTILE IRON CASTINGS.
A21.51 DUCTILE IRON PIPE, CENTRIFUGALLY CAST IN METAL MOULDS OR SAND LINED MOULDS FOR SEWER APPLICATIONS.
2. JOINTS SHALL BE OF THE MECHANICAL OR PUSH ON TYPE. JOINTS AND GASKETS SHALL CONFORM TO:
A21.11 RUBBER GASKET JOINTS FOR CAST IRON PRESSURE PIPE & FITTINGS.

3) DAMAGED PIPE SHALL BE REJECTED AND REMOVED FROM THE JOB SITE.
4) JOINTS SHALL BE DEPENDENT UPON A NEOPRENE OR ELASTOMERIC GASKET FOR WATER TIGHTNESS. ALL JOINTS SHALL BE PROPERLY MATCHED WITH THE PIPE MATERIALS USED. WHERE DIFFERING MATERIALS ARE TO BE CONNECTED, AS AT THE STREET SEWER WYE OR AT THE FOUNDATION WALL, APPROPRIATE MANUFACTURED ADAPTERS SHALL BE USED.

5) TEES AND WYES: WHERE A TEE OR WYE IS NOT AVAILABLE IN THE EXISTING STREET SEWER, AN APPROPRIATE CONNECTION SHALL BE MADE DEPENDING ON THE PIPE ENCOUNTERED, FOR PVC PIPE, USE PVC SADDLES OR INSERT-A-TEE, OR CUT IN A SANITARY TEE. FOR CLAY PIPE, USE INSERT-A-TEE OR CUT IN A SANITARY TEE. ALL WORK TO BE APPROVED BY GOVERNING BODY.

6) HOUSE SEWER INSTALLATION: THE PIPE SHALL BE HANDLED, PLACED AND JOINTED IN ACCORDANCE WITH INSTALLATION GUIDES OF THE APPROPRIATE MANUFACTURER. IT SHALL BE CAREFULLY BEDDED ON A 4 INCH LAYER OF CRUSHED STONE AND/OR GRAVEL AS SPECIFIED IN NOTE 10. BEDDING AND REFILL FOR DEPTH OF 12 INCHES ABOVE THE TOP OF THE PIPE SHALL BE CAREFULLY AND THOROUGHLY TAMPED BY HAND OR WITH APPROPRIATE MECHANICAL DEVICES.
THE PIPE SHALL BE LAID AT A CONTINUOUS AND CONSTANT GRADE FROM THE STREET SEWER CONNECTION TO THE FOUNDATION AT A GRADE OF NOT LESS THAN 1/4 INCH PER FOOT. PIPE JOINTS MUST BE MADE UNDER DRY CONDITIONS. IF WATER IS PRESENT, ALL NECESSARY STEPS SHALL BE TAKEN TO DEWATER THE TRENCH.

7) TESTING: WHEN REQUIRED BY THE GOVERNING AUTHORITY, TESTING SHALL CONFORM TO ENV-WQ 704.07.

8) ILLEGAL CONNECTIONS: NOTHING BUT SANITARY WASTE FLOW FROM DWELLING TOILETS, SINKS, LAUNDRY ETC. SHALL BE PERMITTED. ROOF LEADERS, FOOTING DRAINS, SUMP PUMPS OR OTHER SIMILAR CONNECTIONS CARRYING RAIN WATER, DRAINAGE OR GROUND WATER SHALL NOT BE PERMITTED.

9) WATER SERVICE SHALL NOT BE LAID IN SAME TRENCH AS SEWER SERVICE, UNLESS IT IS ON A SHELF 12" HIGHER, AND 18" APART.

GENERAL NOTES- CONT'D:

10) BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE, FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33 STONE SIZE NO. 67.

100% PASSING	1 INCH SCREEN
90%-100% PASSING	3/4 INCH SCREEN
20%- 55% PASSING	3/8 INCH SCREEN
0%- 10% PASSING	#4 SIEVE
0%- 5% PASSING	#8 SIEVE

WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, GRADED SCREENED GRAVEL OR CRUSHED STONE 1/2 INCH TO 1-1/2 INCH SHALL BE USED.

11) LOCATION: THE LOCATION OF THE TEE OR WYE SHALL BE RECORDED AND FILED IN THE MUNICIPAL RECORDS. IN ADDITION, A FERROUS METAL ROD OR PIPE SHALL BE PLACED OVER THE TEE OR WYE AS DESCRIBED IN THE TYPICAL "CHIMNEY" DETAIL, TO AID IN LOCATING THE BURIED PIPE WITH A DIP NEEDLE OR PIPE FINDER.
12) CAST-IN-PLACE CONCRETE: SHALL CONFORM TO THE REQUIREMENTS FOR CLASS A (3000 PSI) CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AS FOLLOWS:
CEMENT: 6.0 BAGS PER CUBIC YARD
WATER: 5.75 GALLONS PER BAG OF CEMENT
MAXIMUM AGGREGATE SIZE: 3/4 INCH

13) CHIMNEYS: IF VERTICAL DROP INTO SEWER IS GREATER THAN 4 FEET, A CHIMNEY SHALL BE CONSTRUCTED FOR THE HOUSE CONNECTION OR MAIN. CHIMNEY INSTALLATION AS RECOMMENDED BY THE PIPE MANUFACTURER MAY BE USED IF APPROVED BY THE ENGINEER.

14) BACKFILL UP TO SUBBASE GRAVEL SHALL BE WITH EXCAVATED SOIL FROM TRENCHING OPERATIONS. COMPACT IN 8" LIFTS WITH VIBRATORY PLATE COMPACTORS TO 90% OF MODIFIED PROCTOR DENSITY. IF FINE-GRAINED, COMPACT WITH POGO STICKS OR SHEEPSFOOT ROLLERS. PLACE NO LARGE ROCKS WITHIN 24" OF PIPE. TRENCHES THAT ARE NOT ADEQUATELY COMPACTED SHALL BE RE-EXCAVATED AND BACKFILLED UNDER THE SUPERVISION OF THE DESIGN ENGINEER OR GOVERNING BODY. UNSUITABLE BACKFILL MATERIAL INCLUDES CHUNKS OF PAVEMENT, TOPSOIL, ROCKS OVER 6" IN SIZE, MUCK, PEAT OR PIECES OF PAVEMENT.

15) THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB-SITE SAFETY AND COMPLIANCE WITH GOVERNING REGULATIONS.

16) ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE. REFILL WITH BEDDING MATERIAL. FOR TRENCH WIDTH SEE TRENCH DETAIL.
17) SAND BLANKET: CLEAN SAND, FREE FROM ORGANIC MATTER, SO GRADED THAT 90% - 100% PASSES A 1/2 INCH SIEVE AND NOT MORE THAN 15% WILL PASS A #200 SIEVE. BLANKET MAY BE OMITTED FOR DUCTILE IRON AND REINFORCED CONCRETE PIPE PROVIDED THAT NO STONE LARGER THAN 2 INCHES IS IN CONTACT WITH THE PIPE.

18) BASE COURSE GRAVEL, IF ORDERED BY THE ENGINEER, SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE LATEST EDITION OF THE:
STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
OF THE STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION.

19) FOR CROSS COUNTRY CONSTRUCTION, BACKFILL OR FILL SHALL BE MOUNDED TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.

20) IF FULL ENCASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MIN.) BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS.

21) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

22) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION.

23) THE PURPOSE OF THESE NOTES IS TO DETAIL STANDARDS FOR SEWER CONSTRUCTION.

24) ALL WORK SHALL BE IN COMPLIANCE WITH NHDES CODE OF ADMINISTRATIVE RULES PART ENV-WQ 704 DESIGN OF SEWERS.

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road - Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

NOTES:

1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY WITHIN 100 FEET OF UNDERGROUND UTILITIES. THE EXCAVATOR IS RESPONSIBLE TO MAINTAIN MARKS. DIG SAFE TICKETS EXPIRE IN THIRTY DAYS.

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

COMMERCIAL DEVELOPMENT
93 PLEASANT STREET
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
2	DETAIL T	12/7/21
1	DETAIL S	11/22/21
0	ISSUED FOR COMMENT	10/20/21

REVISIONS

STATE OF NEW HAMPSHIRE - JOHN R. CHAGNON No. 7681 - LICENSED PROFESSIONAL ENGINEER

SCALE: AS SHOWN DECEMBER 2020

DETAILS D4

FB 321 PG 72

3059.01

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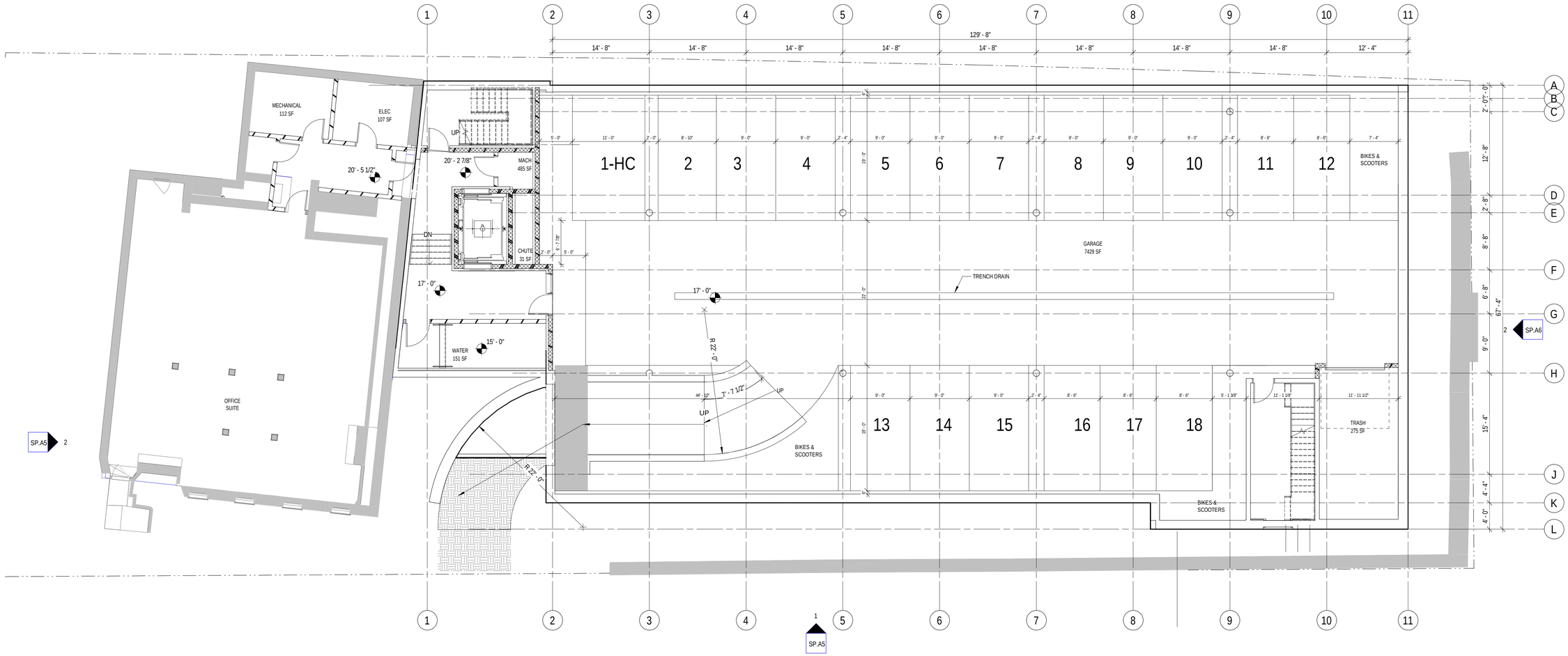

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93 PLEASANT STREET

93 PLEASANT STREET
PORTSMOUTH, NH

Dagny Taggart, LLC
McNabb Properties

Scale:	1/8" = 1'-0"
Date:	11/22/2021
Project Number:	P150.00

REVISIONS		
NO.	DESCRIPTION	DATE

SITE PLAN REVIEW

BASEMENT FLOOR PLAN

SP.A0

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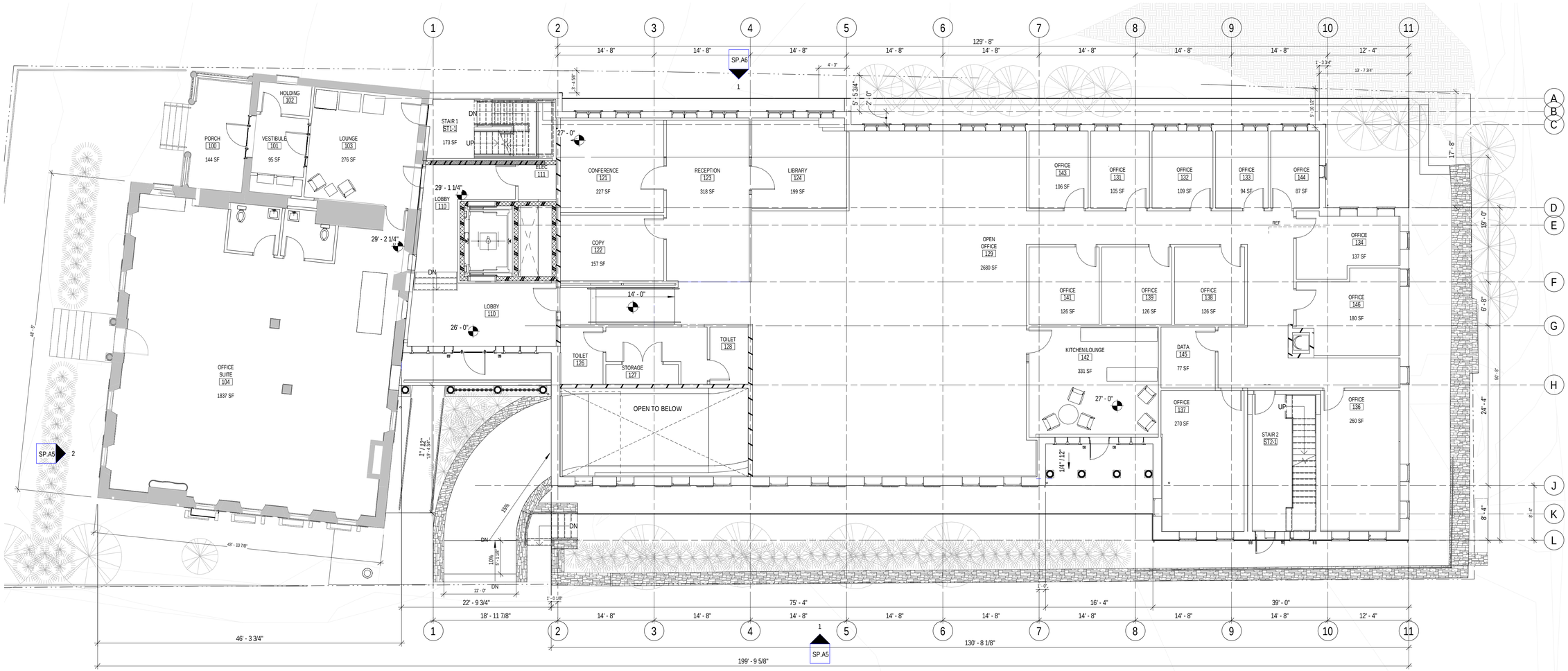

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93 PLEASANT STREET
PORTSMOUTH, NH

Dagny Taggart, LLC
McNabb Properties

Scale: 1/8" = 1'-0"
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SITE PLAN REVIEW

FIRST FLOOR PLAN

SP.A1

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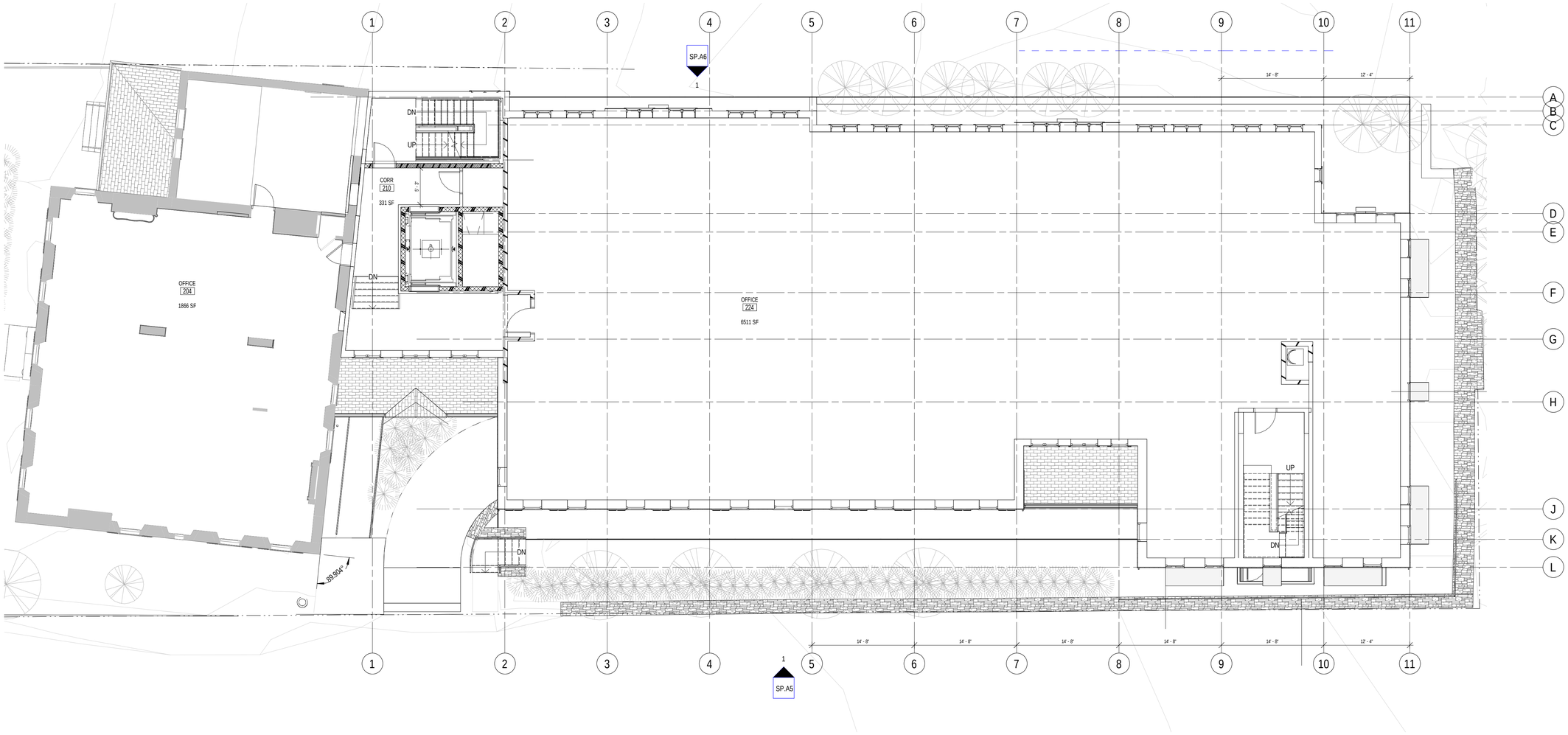

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SITE PLAN REVIEW

SECOND FLOOR PLAN

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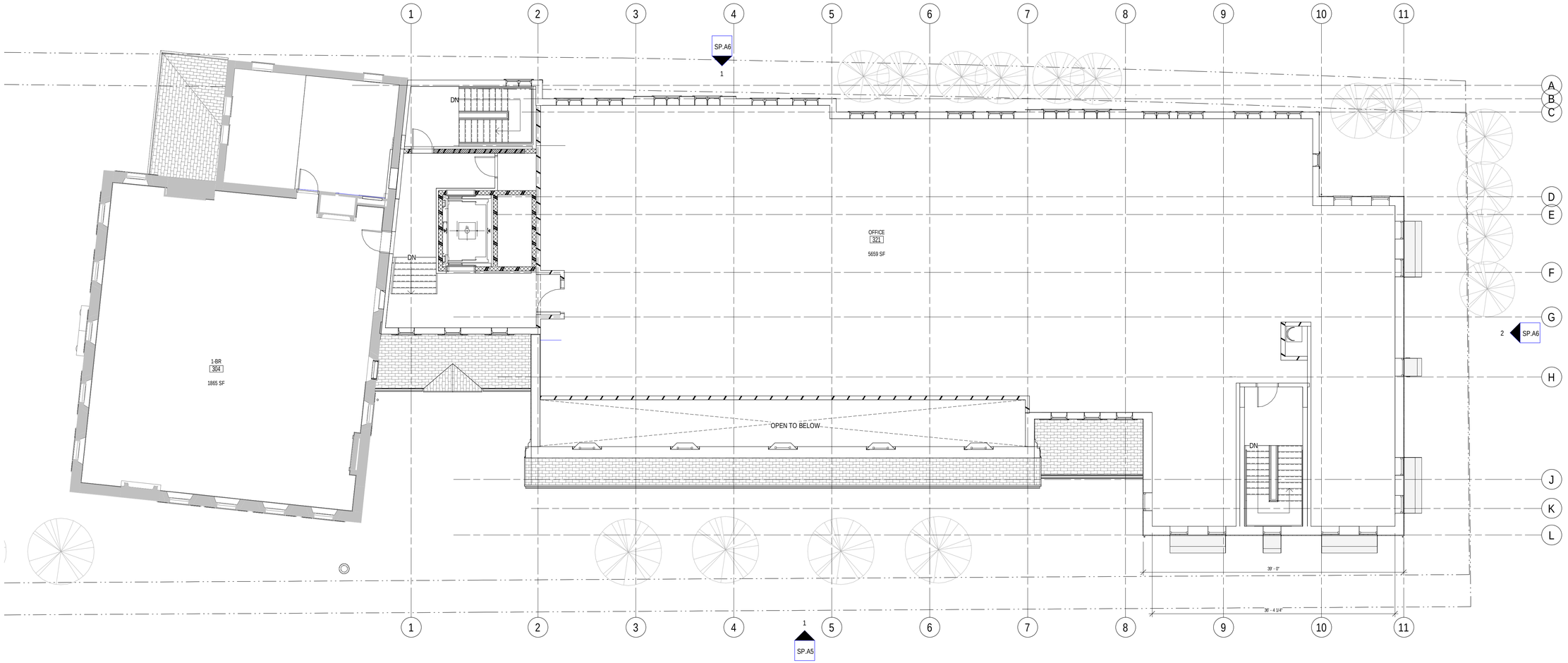

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SITE PLAN REVIEW

THIRD FLOOR PLAN

SP.A3

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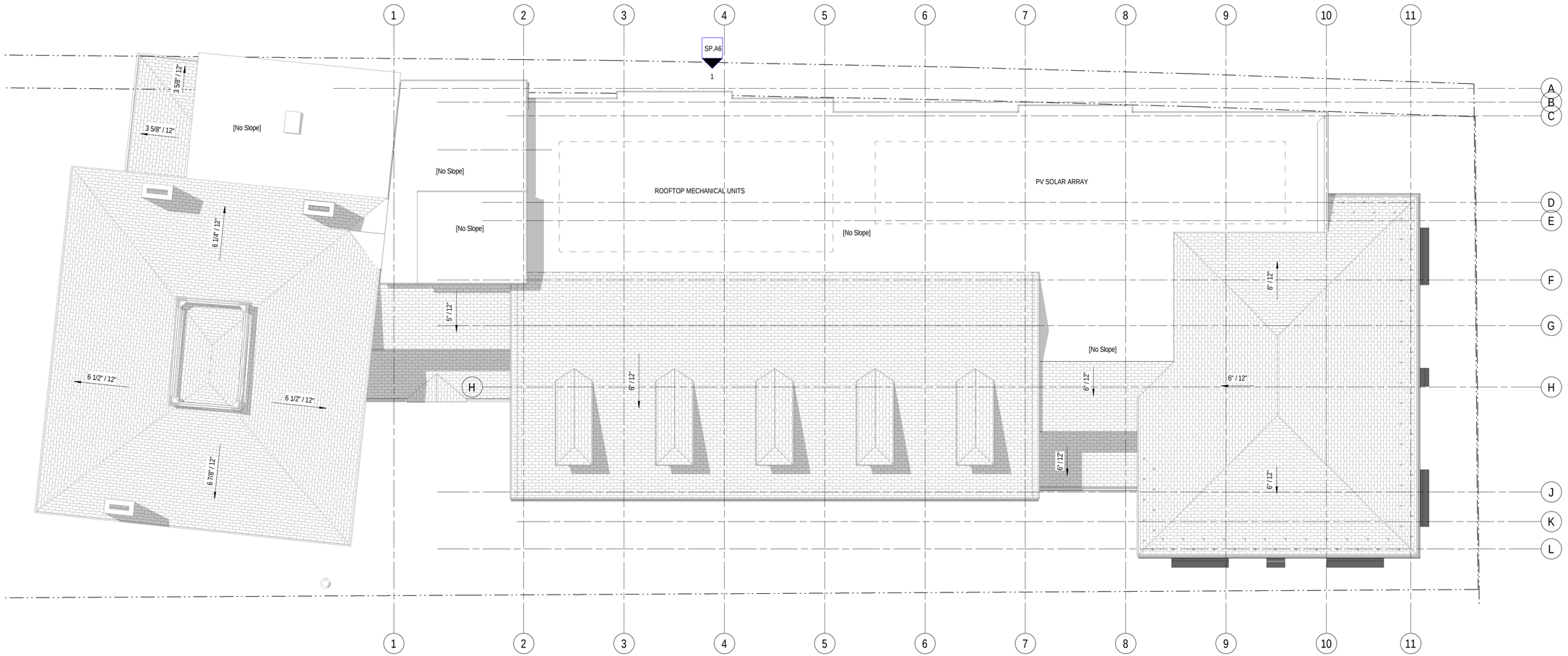

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93 PLEASANT STREET

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SITE PLAN REVIEW

ROOF FLOOR PLAN

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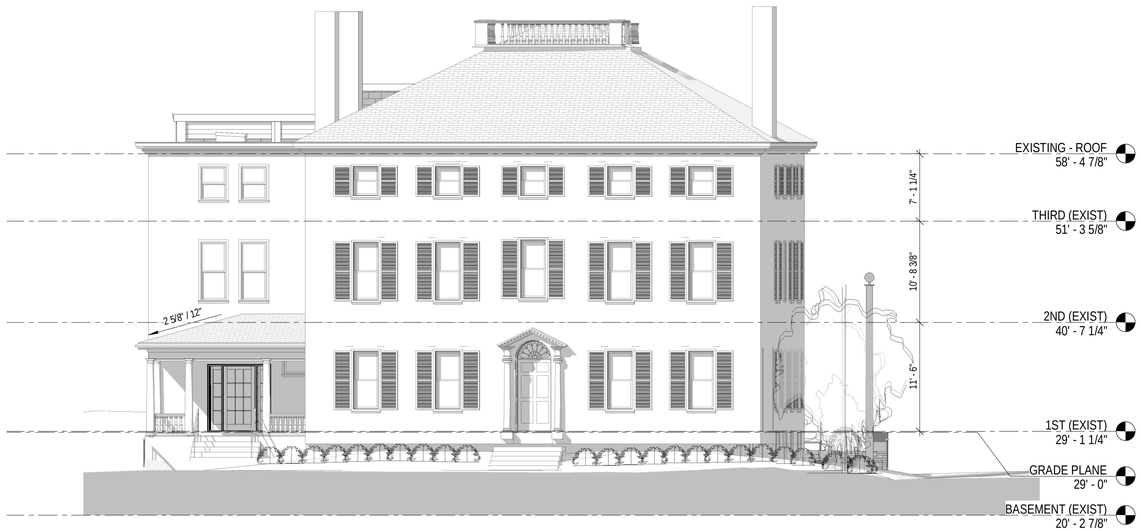
1 OVERALL - COURT STREET - TAC
1/8" = 1'-0"



2 OVERALL - PLEASANT STREET - TAC
1/8" = 1'-0"

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93 PLEASANT STREET

93 PLEASANT STREET
PORTSMOUTH, NH

Dagny Taggart, LLC
McNabb Properties

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SITE PLAN REVIEW

ELEVATIONS

SP.A5

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1 OVERALL - NORTH ELEVATION - TAC
1/8" = 1'-0"

2 OVERALL - EAST ELEVATION - TAC
1/8" = 1'-0"

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SITE PLAN REVIEW

ELEVATIONS

SP.A6

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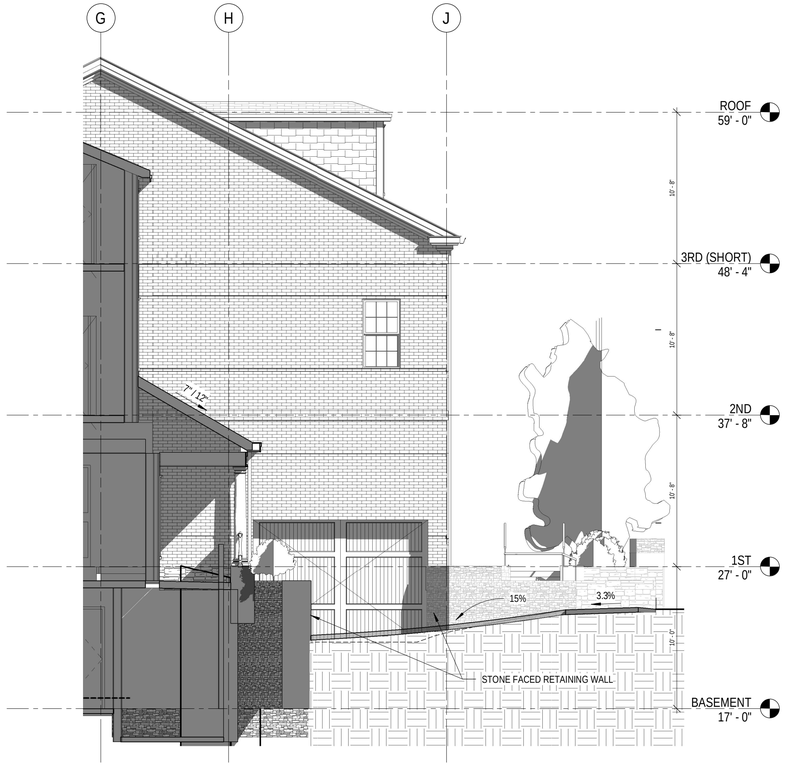
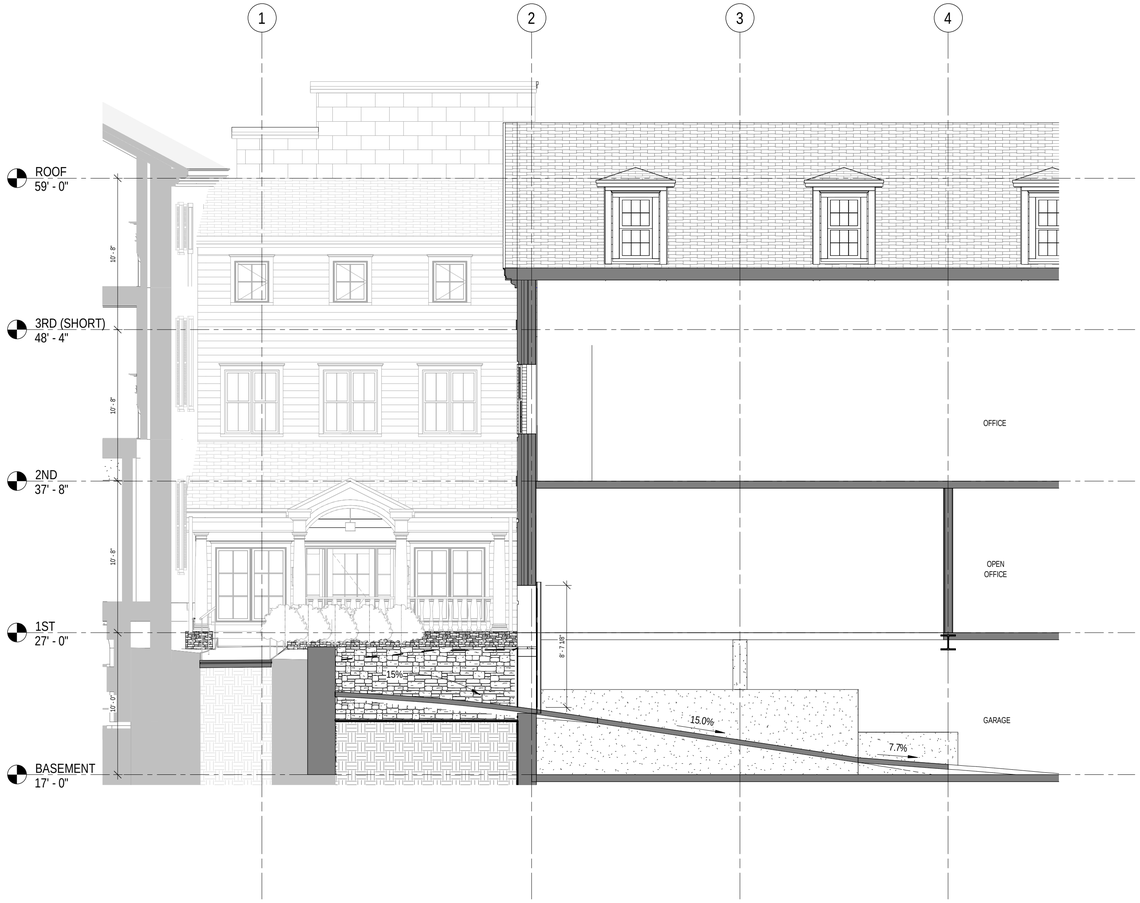


1 TAC Section - ramp 1
3/16" = 1'-0"



2 TAC Section - ramp 2
3/16" = 1'-0"

JSA
DESIGN
273 CORPORATE DRIVE
PORTSMOUTH, NH 03801
T 603.436.2551
www.jsainc.com

CIVIL ENGINEER & LAND SURVEYOR
AMBIT ENGINEERING INC
200 Griffin Rd, Unit 3
Portsmouth NH 03801
603.430.9282

LANDSCAPE ARCHITECTURE
TERRA FIRMA
163a Court St 03801
603.531.9109
Portsmouth NH

TRAFFIC ENGINEERING
GPI/Greenman Pedersen Inc
21 Daniel St
Portsmouth NH 03801
603.766.8259

STRUCTURAL ENGINEERING
JSN ASSOCIATES INC
1 Autumn St
Portsmouth NH 03801
603.133.8639

MEPFP ENGINEERING
WV ENGINEERING & ASSOCIATES
11 King Court
Keene, NH 03431
603.352.7007

93 PLEASANT STREET

93 PLEASANT STREET
PORTSMOUTH, NH

Dagny Taggart, LLC
McNabb Properties

Scale: 3/16" = 1'-0"
Date: 11/22/2021
Project Number: P150.00

REVISIONS		
NO.	DESCRIPTION	DATE

SITE PLAN REVIEW

RAMP SECTIONS

SP.A7

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11/22/2021 2:10:53 PM C:_revit 2018\P150.00 - 93 Pleasant - CENTRAL_ikozak@jsainc.com.rvt

JSA
DESIGN

273 CORPORATE DRIVE
PORTSMOUTH, NH 03801
T 603.436.2551
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603.133.8639

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11 King Court
Keene, NH 03431
603.352.7007

93 PLEASANT STREET

93 PLEASANT STREET
PORTSMOUTH, NH

Dagny Taggart, LLC
McNabb Properties

Scale:
Date: 11/22/2021
Project Number: P150.00

REVISIONS		
NO.	DESCRIPTION	DATE

SITE PLAN REVIEW

3d VIEWS

SP.A8

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T5047-001
December 8, 2021

Mr. Dexter Legg, Chair
City of Portsmouth Planning Board
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: Request for Site Review & Conditional Use Permits
Proposed Multifamily Development, 2454 Lafayette Road, Portsmouth, NH

Dear Chairman Legg:

On behalf of 2422 Lafayette Road Associates, LLC (owner), and Torrington Properties Inc (applicant), we are pleased to submit one (1) set of hard copies of the following information to support a request for a Site Review Permit, Conditional Use Permit for Density Bonus Incentives, Conditional Use Permit for Development Site Standards, and an Amended Conditional Use Permit for Parking for the above referenced project:

- One (1) 22x34 & one (1) 11x17 copy of the Site Plan Set, last revised December 8, 2021;
- TAC Comment Response Report, dated December 8, 2021;
- Parking Conditional Use Permit Request, dated October 18, 2021;
- Density Bonus Conditional Use Permit Request, last revised November 22, 2021;
- Development Site Conditional Use Permit Request, last revised November 22, 2021;
- Drainage Analysis Memorandum, dated October 18, 2021;
- Community Space Exhibit, last revised November 22, 2021;
- Truck Turning Exhibit, dated October 18, 2021;
- Traffic Impact Memorandum, dated September 20, 2021;
- Green Building Statement, dated October 18, 2021;
- Site Review Checklist, dated October 18, 2021;
- Building Perspectives, dated October 18, 2021;
- Building Renderings, dated November 22, 2021

The proposed project is located at 2454 Lafayette Road on properties identified as Map 273 Lot 3 on the City of Portsmouth Tax Maps and is located in the Gateway Neighborhood Mixed Use Corridor, G1 District. The existing parcel is approximately 18.7 acres and is bound by an access drive for Water County to the north, Water Country property to the east, Route One (Lafayette Road) to the south and Constitution Avenue to the west.

The proposed project consists of the demolition of the former Cinemagic movie theater and the construction of a 5-story, 95-unit multifamily condominium building located in the northern corner of the site. Also, the previously approved 5,000 SF restaurant pad proposed for this area will not be constructed. The project will include associated site improvements such as paving, utilities, lighting, landscaping and community space. The proposed project is providing 21,897 SF of community spaces (14.6% of the total project area) which meets the

10% of total lot area required as part of the Development Site Standards for the G1 District. The community space calculation is depicted in the enclosed Community Space Exhibit.

The proposed project will be designating 20% of the units as workforce housing units which will meet the Density Bonus Incentives of section 10.5B70 of the City of Portsmouth Zoning Ordinance to be eligible for a Conditional Use Permit. The proposed project will require the following site related approvals from the Planning Board:

- Site Plan Review Permit
- Conditional Use Permit for Density Bonus Incentives
- Conditional Use Permit for the use of Development Site Standards
- Amended Conditional Use Permit for Parking

To date the applicant has attending the following meetings with the local land-use boards related to the Site Plan:

- August 19, 2021 – Planning Board Conceptual Consultation
- September 14, 2021 – Technical Advisory Committee Work Session
- September 16, 2021 – Planning Board Design Review
- November 2, 2021 – Technical Advisory Committee Meeting
- December 7, 2021 – Technical Advisory Committee Meeting

The enclosed information has been prepared to address comments and feedback received to date from these land-use boards.

We trust the above described and enclosed materials address the criteria and requirements for the Planning Board to grant a Site Plan Review Permit, Conditional Use Permit for Density Bonus Incentives, Conditional Use Permit for Development Site Standards, and an Amended Conditional Use Permit for Parking for the proposed project. The proposed project meets requirements of the Zoning Ordinance. The proposed project achieves the goals of City's Master Plan to encourage walkable mixed-use development along existing commercial corridors, to improve access to indoor and outdoor recreation facilities throughout the city, to ensure that new development complements and enhances its surroundings, and to adapt housing stock to accommodate changing demographics and to accommodate the housing needs of low and moderate income residents.

As shown in the enclosed information, this proposal expands on previous re-developments of the site by continuing to promote alternative modes of transportation such as walking, bicycling, and public transportation by incorporating bicycle storage areas in the proposed building and extending the multi-use path along Constitution. The proposal adds an outdoor recreation facility to the City with the proposed pickleball courts proposed to be included in the community space area. Additionally, the proposed project will provide additional housing stock for the City, including designating 20% of the units as workforce housing units. Based on this, the applicant respectfully requests approval for the various land-use permits noted above.

We respectfully request to be placed on the Planning Board agenda for December 16, 2021. If you have any questions or need any additional information, please contact Patrick Crimmins by phone at (603) 988-8066 or by email at pmcrimmins@tighebond.com.

Sincerely,

TIGHE & BOND, INC.

Patrick M. Crimmins, PE
Senior Project Manager

Neil A. Hansen, PE
Project Engineer

Cc: 2422 Lafayette Road Associates, LLC (via e-mail)
Torrington Properties Inc (via e-mail)
Gregg Mikolaities, August Consulting, PLLC (via e-mail)
John Bosen, Bosen & Associates, PLLC (via e-mail)

Portsmouth Green - City of Portsmouth TAC STIPULATION RESPONSE Date: December 10, 2021

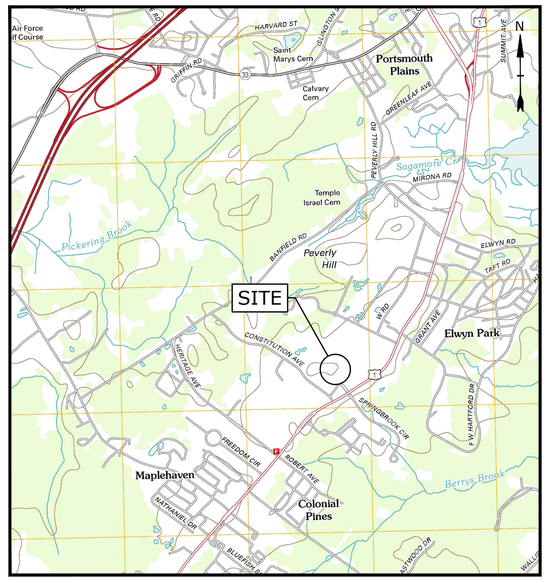
City of Portsmouth TAC, December 10, 2021:			
	TAC Comment	**Applicant Response**	**Sheet**
TAC Stipulations from 12/10 Correspondence:			
1	The applicant will clean out the drainage system on site upon completion of construction.	Grading and Drainage note #6 has been modified as noted.	C-103.1
2	Locate manholes in parking lot that have been paved over and remove asphalt.	Grading and Drainage note #4 has been modified as noted.	C-103.1
3	Insure sufficient lighting for dog park and pickle ball courts	Dedicated lighting for the pickleball courts is included with the photometrics plan. The parking lot lighting adjacent to the dog park provides adequate light to the dog park.	C-105
4	Add note to second floor plan about life safety that the interior floor plan will be amended to meet life safety code.	A note has been added to the second floor plan stating that further building code compliance will be addressed prior to building permit submission.	A602
5	Remove existing permanent striping and replace with temporary striping in Constitution before removal of pavement begins for multi-use path extension.	Note #1 has been added to Sheet C-201.	C-201
6	All structures in Constitution in the area of construction (both sides of street) are to be reset and fitted with catch basin liners prior to overlay.	This has been add as Note #1 on Sheet C-203. A Polyethylene Liner Detail has been added to sheet C-505.	C-203 & C-505
7	The sump is added to the catch basin detail.	Catch Basin Detail has been modified to show a 4' sump with oil/water separator.	C-505
8	The Constitution Ave work will be to DPW standards and that pavement mix designs will need to be approved through the DPW prior to paving.	This has been added as Note #1 on Sheet C-202.	C-202

PROPOSED MULTI-FAMILY DEVELOPMENT
PORTSMOUTH GREEN
2454 LAFAYETTE ROAD
PORTSMOUTH, NEW HAMPSHIRE

AUGUST 5, 2021

LAST REVISED: DECEMBER 8, 2021

LIST OF DRAWINGS		
SHEET NO.	SHEET TITLE	LAST REVISED
	COVER SHEET	12/8/2021
C-101	OVERALL EXISTING CONDITIONS PLAN	12/8/2021
C-101.1	EXISTING CONDITIONS AND DEMOLITION PLAN	12/8/2021
C-102	OVERALL SITE PLAN	12/8/2021
C-102.1	SITE PLAN	12/8/2021
C-103.1	GRADING, DRAINAGE AND EROSION CONTROL PLAN	12/8/2021
C-104	UTILITIES PLAN	12/8/2021
C-105	PHOTOMETRICS PLAN	12/8/2021
L-100	LANDSCAPE PLAN	12/8/2021
L-101	LANDSCAPE SCHEDULE & DETAILS	12/8/2021
C-201	MULTIUSE PATH EXISTING CONDITIONS AND DEMOLITION PLAN	12/8/2021
C-202	MULTIUSE PATH SITE PLAN	12/8/2021
C-203	MULTIUSE PATH GRADING, DRAINAGE AND EROSION CONTROL PLAN	12/8/2021
C-501	EROSION CONTROL NOTES AND DETAILS SHEET	12/8/2021
C-502	DETAILS SHEET	12/8/2021
C-503	DETAILS SHEET	12/8/2021
C-504	DETAILS SHEET	12/8/2021
C-505	DETAILS SHEET	12/8/2021
C-506	DETAILS SHEET	12/8/2021
C-507	DETAILS SHEET	12/8/2021
A-201	NORTH/SOUTH ELEVATIONS	12/8/2021
A-202	WEST ELEVATION	12/8/2021
A-203	EAST ELEVATION	12/8/2021
A-601	1ST FLOOR	12/8/2021
A-602	2ND FLOOR	12/8/2021
A-603	3RD TO 4TH FLOOR	12/8/2021
A-604	5TH FLOOR	12/8/2021



LOCATION MAP
SCALE: 1" = 2,000'

LIST OF PERMITS		
LOCAL	STATUS	DATE
SITE PLAN REVIEW PERMIT		
CONDITIONAL USE PERMIT - PARKING		
CONDITIONAL USE PERMIT - DEVELOPMENT SITE		
CONDITIONAL USE PERMIT - DENSITY BONUS INCENTIVES		
STATE		
NHDES - SEWER CONNECTION PERMIT		
NHDOT - DRIVEWAY PERMIT		

PREPARED BY:
Tighe&Bond
177 CORPORATE DRIVE
PORTSMOUTH, NEW HAMPSHIRE 03801
603-433-8818

OWNERS:
2422 LAFAYETTE ROAD ASSOCIATES, LLC
C/O WATERSTONE RETAIL DEVELOPMENT
322 RESERVOIR STREET, 2ND FLOOR
NEEDHAM, MASSACHUSETTS 02494

APPLICANT:
TORRINGTON PROERTIES INC
11 ELKINS STREET, SUITE 420
BOSTON, MASSACHUSETTS 02127

SURVEYOR:
DOUCET SURVEY, LLC
102 KENT PLACE
NEWMARKET, NH 03857

ARCHITECT:
EMBARC STUDIO
580 HARRISON AVENUE, SUITE 2W
BOSTON, MASSACHUSETTS 02118

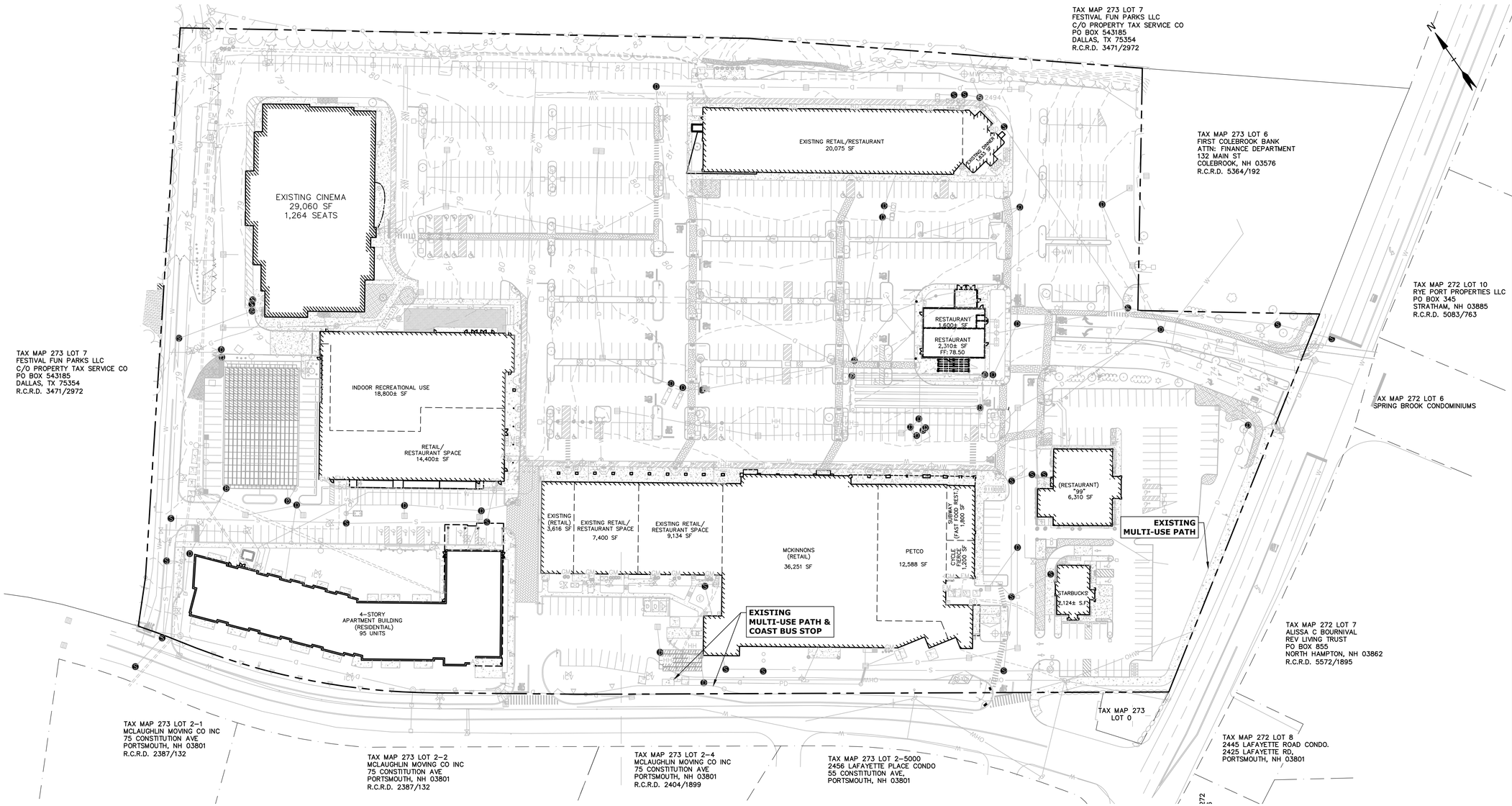
STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER – 12/8/21

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER – 12/08/21

PB SUBMISSION
COMPLETE SET 27 SHEETS

T & B PROJECT NO: T-5047-001

Last Saved: 11/22/2021
Plotted: Dec 08, 2021 - 9:50am By: CKrzcuk
Tighe & Bond: J:\T\T5047 Torrington Properties\001 Constitution Ave, Portsmouth NH\Drawings, Figures\AutoCAD\Sheet\T5047-001-C-COVER.dwg



EXISTING CONDITIONS PLAN NOTES:

1. **EXISTING CONDITIONS ARE BASED ON A FIELD SURVEY BY PERFORMED BY DOUCET SURVEY INC. SEE REFERENCE PLANS.**
2. **HORIZONTAL DATUM BASED ON REFERENCE PLAN #5.**
3. **VERTICAL DATUM BASED ON REFERENCE PLAN #5.**

REFERENCE PLANS:

1. **"STANDARD BOUNDARY SURVEY MAP 273 - LOT 3 FOR LAYFAYETTE PLAZA, LLC" DATED FEBRUARY 2004 BY AMBIT ENGINEERING, INC. R.C.R.D. PLAN D-34306.**
2. **"CONDOMINIUM SITE PLAN OF PORTSMOUTH GREEN CONDOMINIUM FOR 2422 LAFAYETTE ROAD ASSOCIATES, LLC C/O WATERSTONE RETAIL, TAX MAP 273 LOT 3, 2454 LAFAYETTE ROAD (US ROUTE 1) PORTSMOUTH, NEW HAMPSHIRE" DATED OCTOBER 2016 BY DOUCET SURVEY, INC. TO BE RECORDED IN THE R.C.R.D.**
3. **"SOUTHGATE PLAZA RESIDENTIAL DEVELOPMENT, 2454 LAFAYETTE ROAD PORTSMOUTH NEW HAMPSHIRE SITE PLANS" DATED JANUARY 19, 2016 (REVISED SEPTEMBER 26, 2016) BY TIGHE & BOND CONSULTING ENGINEERS.**
4. **"PROPOSED EASEMENT PLAN" FOR 2422 LAFAYETTE ROAD ASSOCIATES, LLC C/O WATERSTONE RETAIL. DATED OCTOBER 26, 2016 BY DOUCET SURVEY, INC.**
5. **"TOPOGRAPHIC WORKSHEET OF PORTSMOUTH GREEN" FOR TIGHE & BOND, TAX MAP 273 LOT 3, 2454 LAFAYETTE ROAD (US ROUTE 1) PORTSMOUTH, NEW HAMPSHIRE" DATED DECEMBER 2017 BY DOUCET SURVEY, INC.**
6. **"AS-BUILT CONDOMINIUM SITE PLAN FOR 2422 LAFAYETTE ROAD ASSOCIATES, LLC OF PORTSMOUTH GREEN CONDOMINIUM, TAX MAP 273 LOT 3, 2454 LAFAYETTE ROAD (US ROUTE 1) PORTSMOUTH, NEW HAMPSHIRE" DATED AUGUST 25, 2020 BY DOUCET SURVEY, INC.**

Tighe&Bond

STATE OF NEW HAMPSHIRE
BRADLEE MEZQUITA
No. 08830
LICENSED
PROFESSIONAL ENGINEER
12.8.21

STATE OF NEW HAMPSHIRE
PATRICK CRIMMINS
No. 12378
LICENSED
PROFESSIONAL ENGINEER
12/08/21

0 60' 120'
GRAPHIC SCALE

Multi-Family Development

Torrington Properties, Inc.

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
F	12/8/2021	PB Submission
E	11/22/2021	TAC Resubmission
D	10/27/2021	Revised Site Data Table
C	10/18/2021	TAC Submission
B	9/2/2021	Design Review - TAC WS
A	8/5/2021	PB Conceptual Consultation

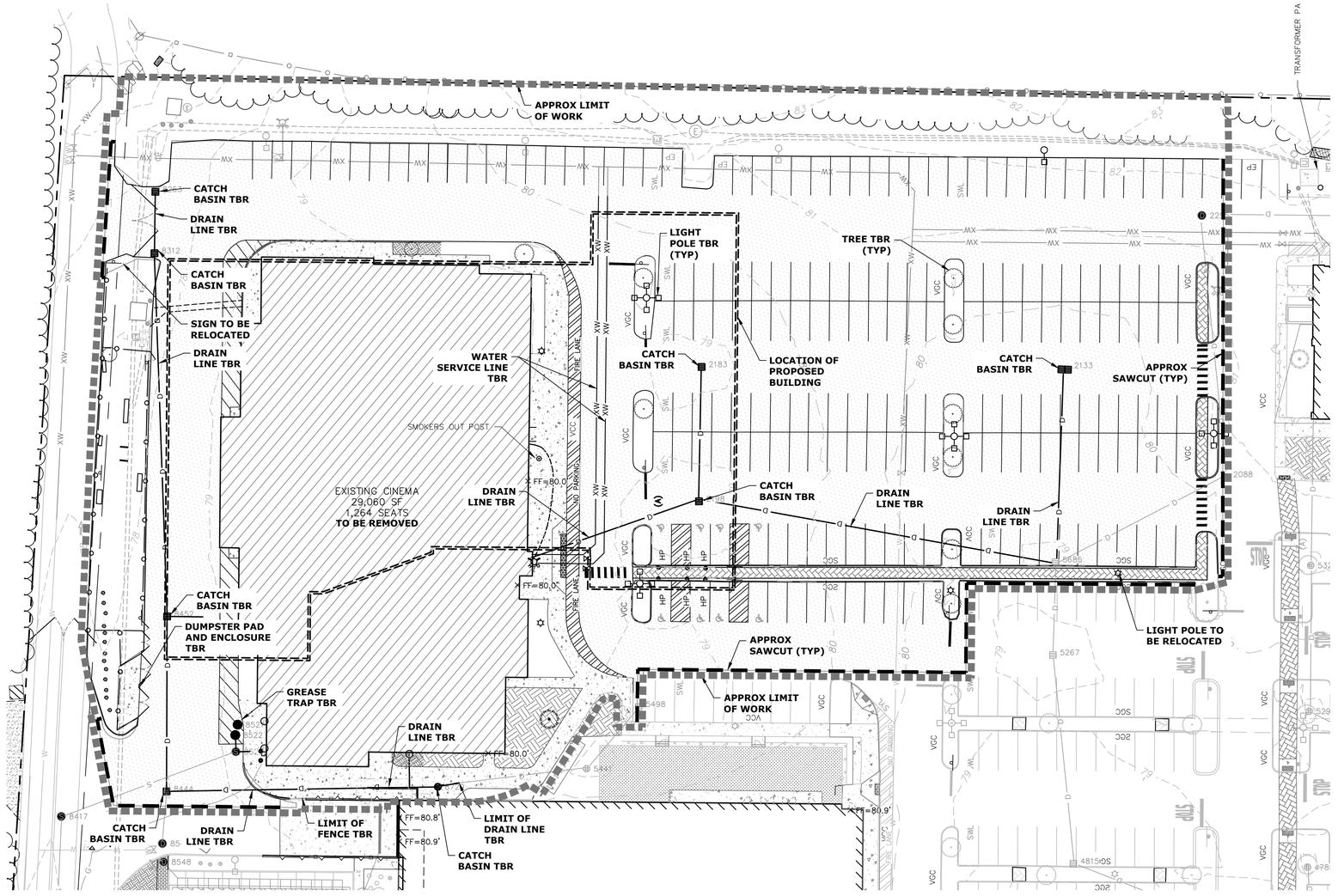
PROJECT NO:	T-5047-001
DATE:	August 5, 2021
FILE:	T5047-001-C-DSGN.DWG
DRAWN BY:	NAH
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

OVERALL EXISTING CONDITIONS PLAN

SCALE: AS SHOWN

C-101

Last Saved: 12/8/2021
Plotted On: Dec 08, 2021 - 9:18am By: CKrzcsik
Tighe & Bond: J:\T\T5047 Torrington Properties\001 Constitution Ave, Portsmouth NH\Drawings_Figures\AutoCAD\Sheet\T5047-001-C-DSGN.dwg



LEGEND

- APPROXIMATE LIMIT OF PROPOSED SAW CUT
- LIMIT OF WORK
- PROPOSED SILT SOCK
- APPROXIMATE LIMIT OF PAVEMENT TO BE REMOVED
- PROPOSED CONSTRUCTION EXIT
- BUILDING TO BE REMOVED
- LOCATION OF PROPOSED BUILDING
- INLET PROTECTION SILT SACK
- TBR — TO BE REMOVED
- BLDG — BUILDING
- TYP — TYPICAL
- COORD — COORDINATE

DEMOLITION NOTES:

1. THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK.
2. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES. CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.
3. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES.
4. COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
5. ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO MATCH ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
6. SAW CUT AND REMOVE PAVEMENT ONE (1) FOOT OFF PROPOSED EDGE OF PAVEMENT OR EXISTING CURB LINE IN ALL AREAS WHERE PAVEMENT TO BE REMOVED ABUTS EXISTING PAVEMENT OR CONCRETE TO REMAIN.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THE CONDITIONS OF ALL OF THE PERMIT APPROVALS.
8. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ADDITIONAL PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK, EXCEPT FOR WORK NOTED TO BE COMPLETED BY OTHERS.
10. UTILITIES SHALL BE TERMINATED AT THE MAIN LINE PER UTILITY COMPANY STANDARDS. THE CONTRACTOR SHALL REMOVE ALL ABANDONED UTILITIES LOCATED WITHIN THE LIMITS OF WORK.
11. CONTRACTOR SHALL VERIFY ORIGIN OF ALL DRAINS AND UTILITIES PRIOR TO REMOVAL/TERMINATION TO DETERMINE IF DRAINS OR UTILITY IS ACTIVE, AND SERVICES ANY ON OR OFF-SITE STRUCTURE TO REMAIN. THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY OF ANY SUCH UTILITY FOUND AND SHALL MAINTAIN THESE UTILITIES UNTIL PERMANENT SOLUTION IS IN PLACE.
12. PAVEMENT REMOVAL LIMITS ARE SHOWN FOR CONTRACTOR'S CONVENIENCE. ADDITIONAL PAVEMENT REMOVAL MAY BE REQUIRED DEPENDING ON THE CONTRACTOR'S OPERATION. CONTRACTOR TO VERIFY FULL LIMITS OF PAVEMENT REMOVAL PRIOR TO BID.
13. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, CONCRETE PADS, UTILITIES AND PAVEMENT WITHIN THE WORK LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ITEMS TO BE REMOVED INCLUDE BUT ARE NOT LIMITED TO: CONCRETE, PAVEMENT, CURBS, LIGHTING, MANHOLES, CATCH BASINS, UNDER GROUND PIPING, POLES, STAIRS, SIGNS, FENCES, RAMPS, WALLS, BOLLARDS, BUILDING SLABS, FOUNDATION, TREES AND LANDSCAPING.
14. COORDINATE ALL WORK WITHIN THE PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
15. REMOVE TREES AND BRUSH AS REQUIRED FOR COMPLETION OF WORK. CONTRACTOR SHALL GRUB AND REMOVE ALL STUMPS WITHIN LIMITS OF WORK AND DISPOSE OF OFF SITE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.
16. CONTRACTOR SHALL PROTECT ALL PROPERTY MONUMENTATION THROUGHOUT DEMOLITION AND CONSTRUCTION OPERATIONS. SHOULD ANY MONUMENTATION BE DISTURBED BY THE CONTRACTOR, THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED SURVEYOR TO REPLACE DISTURBED MONUMENTS.
17. PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS/CURB INLETS WITHIN CONSTRUCTION LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. INLET PROTECTION BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE "HIGH FLOW SILT SACK" BY ACF ENVIRONMENTAL OR EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN EVENT OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED OR SEDIMENT HAS ACCUMULATED TO 1/3 THE DESIGN DEPTH OF THE BARRIER.
18. THE CONTRACTOR SHALL PHASE DEMOLITION AND CONSTRUCTION AS REQUIRED TO PROVIDE CONTINUOUS SERVICE TO EXISTING BUSINESSES AND HOMES THROUGHOUT THE CONSTRUCTION PERIOD. EXISTING BUSINESS AND HOME SERVICES INCLUDE, BUT ARE NOT LIMITED TO ELECTRICAL, COMMUNICATION, FIRE PROTECTION, DOMESTIC WATER AND SEWER SERVICES. TEMPORARY SERVICES, IF REQUIRED, SHALL COMPLY WITH ALL FEDERAL, STATE, LOCAL AND UTILITY COMPANY STANDARDS. CONTRACTOR SHALL PROVIDE DETAILED CONSTRUCTION SCHEDULE TO OWNER PRIOR TO ANY DEMOLITION/CONSTRUCTION ACTIVITIES AND SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH THE UTILITY COMPANY AND AFFECTED ABUTTER.
19. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.
20. THE CONTRACTOR SHALL PAY ALL COSTS NECESSARY FOR TEMPORARY PARTITIONING, BARRICADING, FENCING, SECURITY AND SAFETY DEVICES REQUIRED FOR THE MAINTENANCE OF A CLEAN AND SAFE CONSTRUCTION SITE.
21. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL UTILITIES TO BE REMOVED AND PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN.

Tighe&Bond

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER
12/8/21

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER
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0 30' 60'
GRAPHIC SCALE

Multi-Family Development

Torrington Properties, Inc.

Portsmouth, New Hampshire

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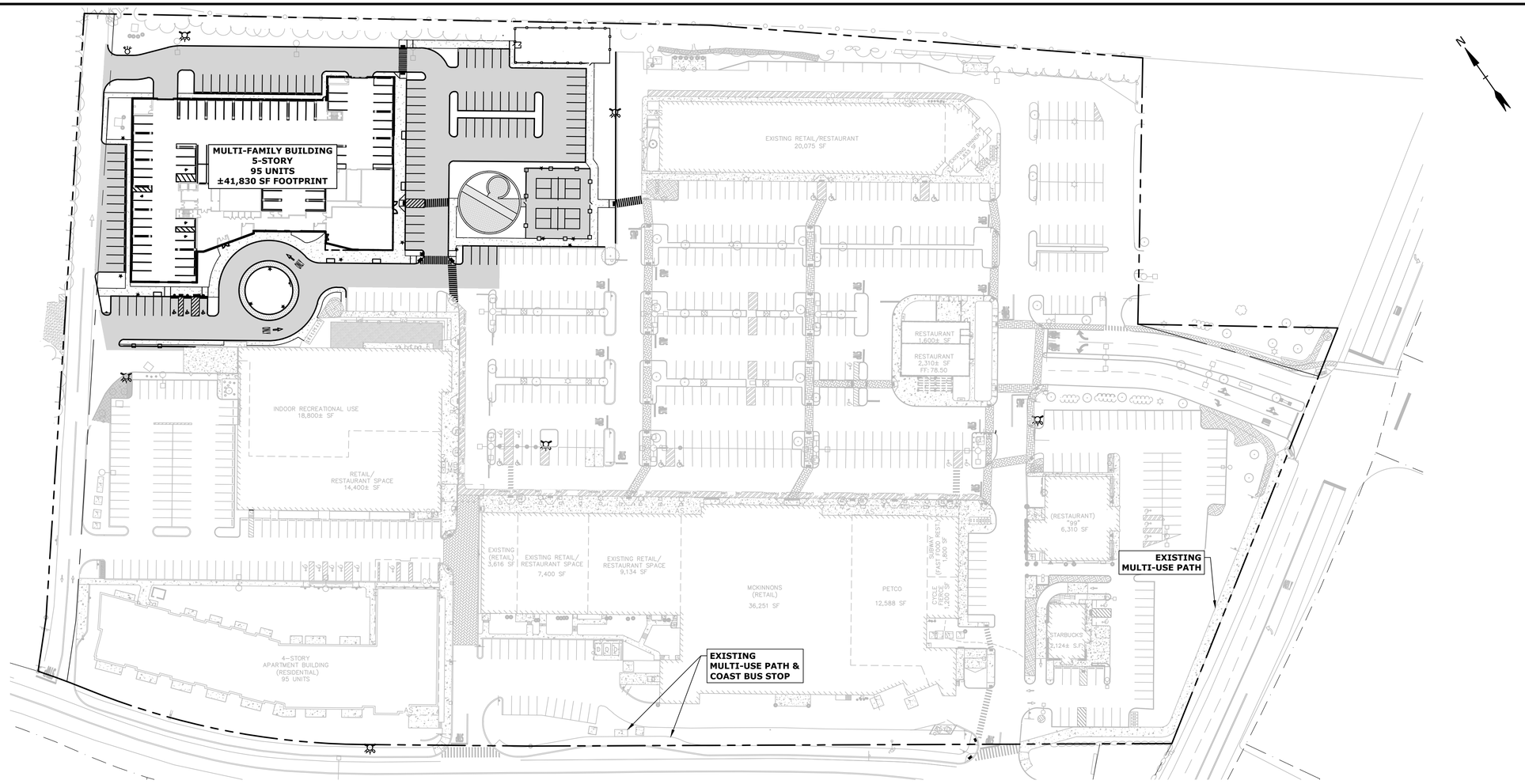
DATE:	August 5, 2021
FILE:	T5047-001-C-DSGN.DWG
DRAWN BY:	NAH
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

EXISTING CONDITIONS AND DEMOLITION PLAN

SCALE: AS SHOWN

C-101.1

Last Saved: 12/8/2021
Printed: Dec 08, 2021 - 9:19am By: CKrzcuik
Tighe & Bond: J:\T\T5047 Torrington Properties\001 Constitution Ave, Portsmouth NH\Drawings_Figures\AutoCAD\Sheet\T5047-001-C-DSGN.dwg



LEGEND

	PROPERTY LINE
	PROPOSED PROPERTY LINE
	PROPOSED EDGE OF PAVEMENT
	PROPOSED CURB
	PROPOSED BUILDING
	PROPOSED PAVEMENT SECTION
	PROPOSED CONCRETE SIDEWALK
	PROPOSED BRICK SIDEWALK
•	PROPOSED BOLLARD
BLDG	BUILDING
TYP	TYPICAL
COORD	COORDINATE
30'R	PROPOSED CURB RADIUS
VGC	PROPOSED VERTICAL GRANITE CURB
SGC	PROPOSED SLOPED GRANITE CURB

SITE DATA:

LOCATION: TAX MAP 273, LOT 3

OWNER: 2422 LAFAYETTE ROAD ASSOCIATES, LLC
C/O WATERSTONE RETAIL
322 RESERVOIR STREET
NEEDHAM, MA 02494

ZONING DISTRICT: GATEWAY CORRIDOR (G1)
PROPOSED USE: SHOPPING CENTER/RESIDENTIAL
PROPOSED LOT SIZE: ±18.71 ACRES (±814,896 SF)

BUILDING PLACEMENT & LOT STANDARDS

APARTMENT BUILDING STANDARDS:	REQUIRED	PROPOSED
MINIMUM LOT DEPTH:	NR	NR
MINIMUM STREET FRONTAGE:	50 FT	±450 FT
FRONT BUILDING SETBACK:	10 FT MIN, 30 FT MAX	± 419 FT(1)
MINIMUM SIDE BUILDING SETBACK:	15 FT	± 57 FT
MINIMUM REAR BUILDING SETBACK:	20 FT	± 52 FT
MINIMUM OPEN SPACE COVERAGE:	20%	±21.7%
FRONT LOT LINE BUILDOUT:	75%	0%(4)
BUILDING DESIGN STANDARDS:		
MAXIMUM BUILDING HEIGHT:	4 STORIES	5 STORIES(2)
	50 FT	<60 FT(2)
MINIMUM STREET FACING FACADE HEIGHT:	24 FT	>24 FT
MAXIMUM FINISHED FLOOR SURFACE OF GROUND FLOOR ABOVE SIDEWALK GRADE:	36 IN	<36 IN
MAXIMUM BUILDING FOOTPRINT:	NR	
MAXIMUM FACADE MODULATION LENGTH:	50 FT	<50 FT
MINIMUM STREET FACING FACADE GLAZING:	20% GROUND FLOOR	>20%
DEVELOPMENT SITE STANDARDS:(3)		
MINIMUM DEVELOPMENT SITE AREA:	20,000 SF	±814,896 SF
MINIMUM SITE WIDTH:	100 FT	±721 FT
MINIMUM SITE DEPTH:	100 FT	±1,137 FT
MINIMUM PERIMETER BUFFER FROM RESIDENTIAL, MIXED RESIDENTIAL, OR CD4-L1 DISTRICTS:	75 FT	N/A
MAXIMUM DEVELOPMENT BLOCK DIMENSIONS:		
BLOCK LENGTH:	800 FT	±1,137 FT(4)
BLOCK PERIMETER:	2,200 FT	±3,780 FT(4)
MAXIMUM BUILDING COVERAGE:	70%	25.4%
MINIMUM OPEN SPACE COVERAGE:	20%	±21.7%
FRONT LOT LINE BUILDOUT:	75%	0%(4)
DENSITY THRESHOLDS AND BONUSES:		
DWELLING UNITS PER ACRE:	16 UNITS	10.2 UNITS
DWELLING UNITS PER BUILDING:	36 UNITS	95 UNITS(1)(2)
PLUS 1-STORY, MAX 10 FT	5 STORIES	5 STORIES(2)
	60 FT	<60 FT(2)

(1) - MODIFICATION OF STANDARDS ALLOWED AS PART OF CONDITIONAL USE PERMIT PER 10.5B74.30.
(2) - ALLOWED BY CONDITIONAL USE PERMIT PER 10.5B72 FOR PROVIDING 20% WORK FORCE HOUSING AND PUBLIC REALM IMPROVEMENTS.
(3) - USE OF DEVELOPMENT SITE STANDARDS ALLOWED BY CONDITIONAL USE PERMIT PER 10.5B40.
(4) - EXISTING NON-CONFORMING CONDITION, MODIFICATION OF STANDARDS ALLOWED AS PART OF CONDITIONAL USE PERMIT PER 10.5B74.30.

PARKING REQUIREMENTS

PARKING CALCULATIONS:

RETAIL:	1 SPACE PER 300 GFA
RESTAURANT:	1 SPACE PER 100 GFA
INDOOR RECREATION:	1 SPACE PER 4 PERSONS
RESIDENTIAL:	0.5 SPACES PER UNIT <500 SF 1 SPACE PER UNIT 500 SF - 750 SF 1.3 SPACES PER UNIT >750 SF

LOADING CALCULATIONS:

RETAIL:	0 SPACES FOR 0 - 10,000 SF 1 SPACE FOR 10,001 - 25,000 SF 2 SPACES FOR 25,001 - 60,000 SF
OTHER NON-RESIDENTIAL:	0 SPACES FOR 0 - 10,000 SF 1 SPACE FOR 10,001 SF - 40,000 SF

SHOPPING CENTER:

RETAIL:	AREA (SF):	MINIMUM	PROVIDED	LOADING SPACES: MINIMUM	LOADING SPACES: PROVIDED
PETCO	±12,588			1	1
CYCLE FIERCE	±1,200			0	1
EXISTING RETAIL/RESTAURANT	±20,075			0	1
EXISTING RETAIL/RESTAURANT (MUSE)	±3,616			0	1
EXISTING RETAIL/RESTAURANT (SHIO JAPANESE)	±7,400			0	1
PROPOSED RESTAURANT (OLD BIG LOTS)	±14,400			1	1
INDOOR RECREATIONAL (PINZ)	±18,800			1	1
SUBWAY	±1,800			0	0
THE 99	±6,310			0	1
McKINNON'S	±36,251			2	3
RETAIL	±9,134			0	1
DINER	±1,833			0	1
PROPOSED RESTAURANT	±1,600			1	0
PROPOSED RESTAURANT	±2,310			0	0
STARBUCKS	±2,124			0	1
TOTAL SHOPPING CENTER	±139,441	406 SPACES(1)		8	15
RESIDENTIAL:					
PROPOSED DWELLING UNITS	95 UNITS				
EXISTING DWELLING UNITS	95 UNITS				
VISITOR PARKING					
TOTAL:		654 SPACES(1)	795 SPACES	9	15

(1) - PER PARKING DEMAND ANALYSIS PERFORMED BY TIGHE & BOND DATED OCTOBER 18, 2021

	REQUIRED	PROVIDED
ACCESSIBLE SPACES (2% OF TOTAL):	15	32
VAN ACCESSIBLE SPACES (1 PER 6 ACCESSIBLE SPACES):	2	24
PARKING STALL SIZE:	8.5 FT X 19 FT	8.5 FT X 19 FT
DRIVE AISLE:	24 FT	24 FT, 26 FT

BIKE SPACES REQUIRED:

	REQUIRED	PROVIDED
SHOPPING CENTER:		
1 BIKE SPACE / 10 PARKING SPACES MAXIMUM OF 30 SPACES	30 SPACES	42 SPACES
RESIDENTIAL:		
EXISTING 95 DWELLING UNITS	19 SPACES	30 SPACES
PROPOSED 95 DWELLING UNITS	19 SPACES	20 SPACES

Tighe&Bond

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER
12/8/21

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER
12/08/21

0 60' 120'
GRAPHIC SCALE

Multi-Family Development

Torrington Properties, Inc.

Portsmouth, New Hampshire

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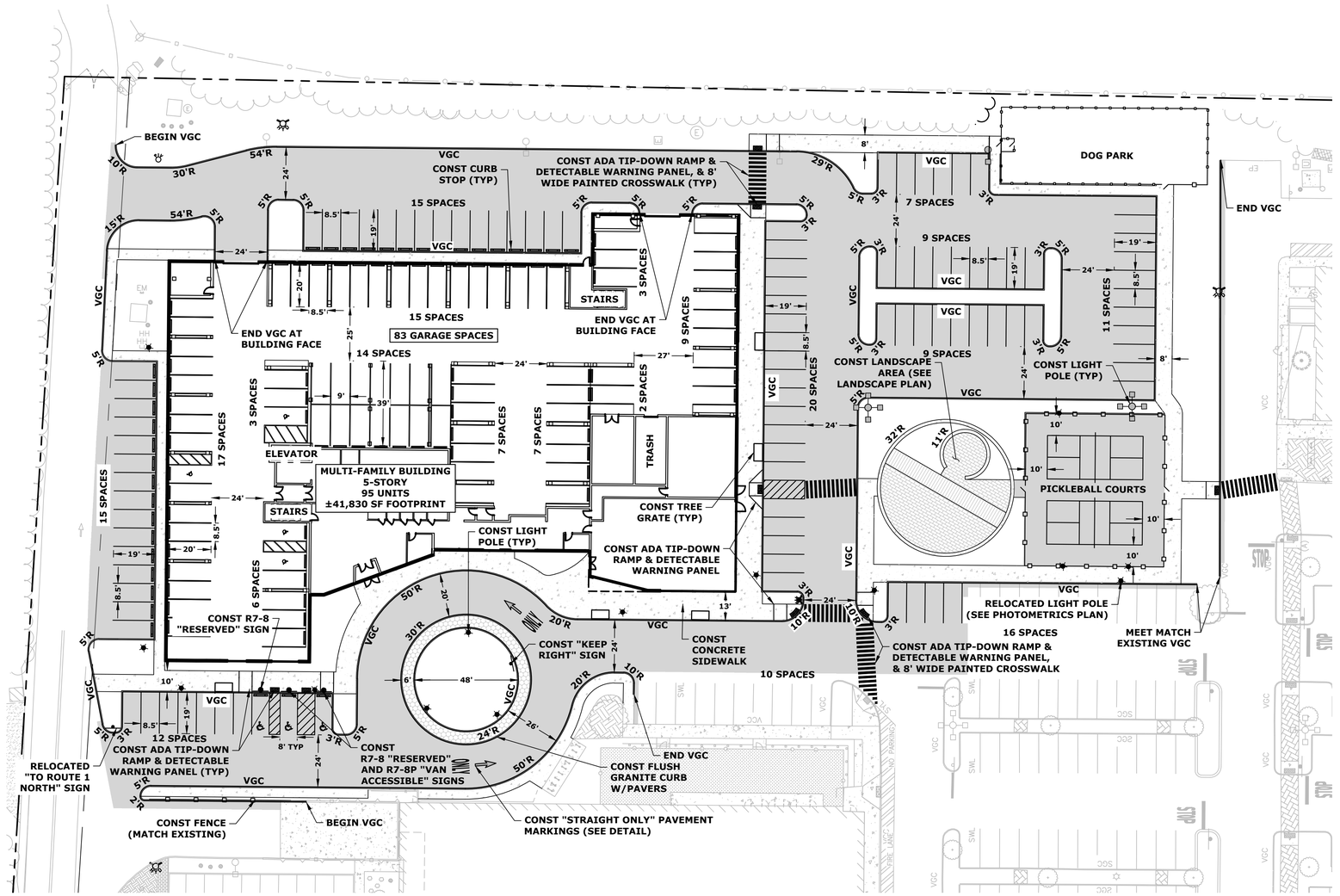
DRAWN BY:	NAH
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

OVERALL SITE PLAN

SCALE: AS SHOWN

C-102

Last Saved: 12/8/2021
Plotted: 08 Dec 08, 2021 - 9:20am By: CKrzosiuk
Tighe & Bond: J:\T\T5047 Torrington Properties\001 Constitution Ave, Portsmouth NH\Drawings, Figures\AutoCAD\Sheet\T5047-001-C-DSGN.dwg



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LEGEND

	PROPERTY LINE
	PROPOSED PROPERTY LINE
	PROPOSED EDGE OF PAVEMENT
	PROPOSED CURB
	PROPOSED BUILDING
	PROPOSED PAVEMENT SECTION
	PROPOSED CONCRETE SIDEWALK
	PROPOSED BRICK SIDEWALK
•	PROPOSED BOLLARD
BLDG	BUILDING
TYP	TYPICAL
COORD	COORDINATE
30'R	PROPOSED CURB RADIUS
VGC	PROPOSED VERTICAL GRANITE CURB
SGC	PROPOSED SLOPED GRANITE CURB

SITE NOTES:

1. STRIPE PARKING AREAS AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, ADA SYMBOLS, PAINTED ISLANDS, CROSS WALKS, ARROWS, LEGENDS AND CENTERLINES SHALL BE THERMOPLASTIC MATERIAL. THERMOPLASTIC MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO AASHTO M249. (ALL MARKINGS EXCEPT CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING WHITE TRAFFIC PAINT. CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING YELLOW TRAFFIC PAINT. ALL TRAFFIC PAINT SHALL MEET THE REQUIREMENTS OF AASHTO M248 TYPE "F").
2. ALL PAVEMENT MARKINGS AND SIGNS TO CONFORM TO "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS, LATEST EDITIONS.
3. SEE DETAILS FOR PARKING STALL MARKINGS, ADA SYMBOLS, SIGNS AND SIGN POSTS.
4. CENTERLINES SHALL BE FOUR (4) INCH WIDE YELLOW LINES. STOP BARS SHALL BE EIGHTEEN (18) INCHES WIDE.
5. PAINTED ISLANDS SHALL BE FOUR (4) INCH WIDE DIAGONAL LINES AT 3'-0" O.C. BORDERED BY FOUR (4) INCH WIDE LINES.
6. THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED LAND SURVEYOR TO DETERMINE ALL LINES AND GRADES.
7. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAW CUT LINE WITH RS-1 EMULSION IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
8. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES & SPECIFICATIONS.
9. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAY WITH THE CITY OF PORTSMOUTH.
10. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
11. SEE ARCHITECTURAL/BUILDING DRAWINGS FOR ALL CONCRETE PADS & SIDEWALKS ADJACENT TO BUILDING.
12. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
13. CONTRACTOR TO PROVIDE BACKFILL AND COMPACTION AT CURB LINE AFTER CONCRETE FORMS FOR SIDEWALKS AND PADS HAVE BEEN STRIPPED. COORDINATE WITH BUILDING CONTRACTOR.
14. ALL LIGHT POLE BASES NOT PROTECTED BY A RAISED CURB SHALL BE PAINTED YELLOW.
15. COORDINATE ALL WORK ADJACENT TO BUILDING WITH BUILDING CONTRACTOR.
16. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
17. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
18. THE APPLICANT SHALL HAVE A SITE SURVEY CONDUCTED BY A RADIO COMMUNICATIONS CARRIER APPROVED BY THE CITY'S COMMUNICATIONS DIVISION. THE RADIO COMMUNICATIONS CARRIER MUST BE FAMILIAR AND CONVERSANT WITH THE POLICE AND RADIO CONFIGURATION. IF THE SITE SURVEY INDICATES IT IS NECESSARY TO INSTALL A SIGNAL REPEATER EITHER ON OR NEAR THE PROPOSED PROJECT, THOSE COSTS SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER. THE OWNER SHALL COORDINATE WITH THE SUPERVISOR OF RADIO COMMUNICATIONS FOR THE CITY.
19. PROPERTY MANAGEMENT SHALL BE RESPONSIBLE FOR TIMELY SNOW REMOVAL FROM ALL PRIVATE SIDEWALKS, DRIVEWAYS, AND PARKING AREAS. SNOW SHALL BE HAULED OFF-SITE AND LEGALLY DISPOSED OF WHEN NECESSARY TO MAINTAIN ADEQUATE SNOW STORAGE AREAS.
20. THE APPLICANT SHALL PREPARE A CONSTRUCTION MANAGEMENT AND MITIGATION PLAN (CMMP) FOR REVIEW AND APPROVAL BY THE CITY'S LEGAL AND PLANNING DEPARTMENTS.

PROJECT AREA DATA:

PROPOSED PROJECT AREA: ±3.45 ACRES (±150,350 SF)

DEVELOPMENT STANDARDS (MIXED USE):	REQUIRED	PROPOSED
MINIMUM OPEN SPACE COVERAGE:	20% 30,070 SF	±33.16% 49,855 SF
COMMUNITY SPACE:	10% 15,035 SF	±14.6% 21,897 SF

SITE RECORDING NOTES:

1. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
2. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.
3. THIS IS NOT A BOUNDARY SURVEY AND SHALL NOT BE USED AS SUCH.

Tighe&Bond

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER
12.8.21

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER
12/08/21

0 30' 60'
GRAPHIC SCALE

Multi-Family Development

Torrington Properties, Inc.

Portsmouth, New Hampshire

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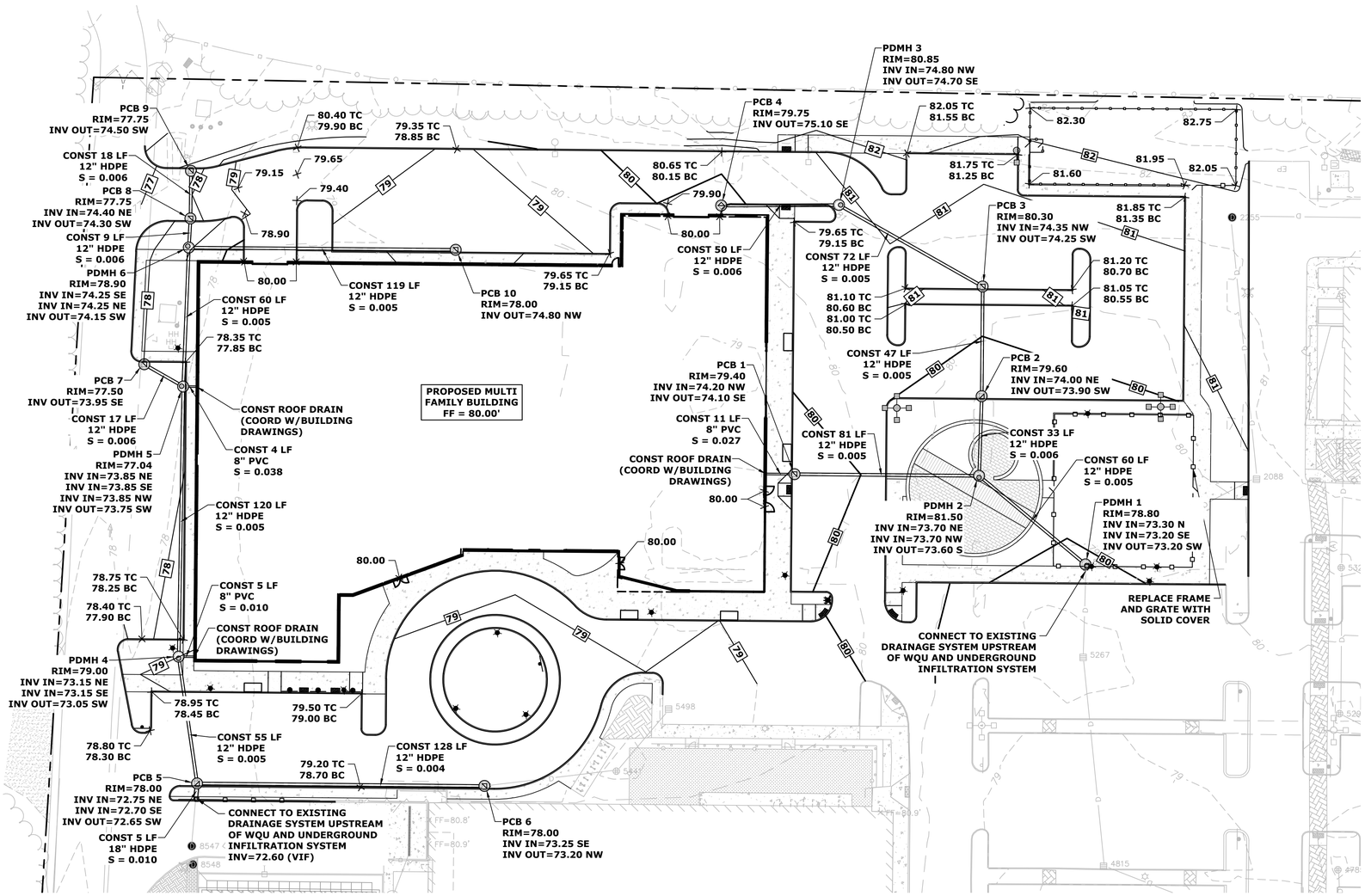
APPROVED BY:	BLM

SITE PLAN

SCALE: AS SHOWN

C-102.1

Last Saved: 12/8/2021
Last Saved By: CKrzcuik
Plotted On: Dec 08, 2021 - 9:22am By: CKrzcuik
Tighe & Bond: J:\T\T5047 Torrington Properties\001 Constitution Ave, Portsmouth NH\Drawings_Figures\AutoCAD\Sheet\T5047-001-C-DSGN.dwg



LEGEND

- PROPOSED MAJOR CONTOUR LINE
- PROPOSED MINOR CONTOUR LINE
- PROPOSED DRAIN LINE (TYP)
- PROPOSED SILT SOCK
- INLET PROTECTION SILT SACK
- PROPOSED CATCHBASIN
- PROPOSED DOUBLE GRATE CATCHBASIN
- PROPOSED DRAIN MANHOLE
- PROPOSED YARD DRAIN

BLDG	BUILDING
TYP	TYPICAL
COORD	COORDINATE
TC	TOP OF CURB
BC	BOTTOM OF CURB
TW	TOP OF WALL
BW	BOTTOM OF WALL

GRADING AND DRAINAGE NOTES:

1. COMPACTION REQUIREMENTS:

BELOW PAVED OR CONCRETE AREAS	95%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL	95%
BELOW LOAM AND SEED AREAS	90%

* ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557, METHOD C FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM D-1556 OR ASTM-2922.

2. ALL STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE (HANCOR HI-Q, ADS N-12 OR EQUAL) OR RCP CLASS IV, UNLESS OTHERWISE SPECIFIED.
3. SEE UTILITY PLAN FOR ALL SITE UTILITY INFORMATION.
4. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN DEVELOPMENT LOT TO FINISH GRADE.
5. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE AND LAWN AREAS FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCES, EXITS, RAMPS AND LOADING DOCK AREAS ADJACENT TO THE BUILDING.
6. CONTRACTOR SHALL THOROUGHLY CLEAN ALL CATCH BASINS, MANHOLES, UNDERGROUND INFILTRATION BASINS AND DRAIN LINES, WITHIN THE DEVELOPMENT LOT, OF SEDIMENT IMMEDIATELY UPON COMPLETION OF CONSTRUCTION. CONTRACTOR TO PROVIDE A PHOTO AND DESCRIPTION LOG TO THE ENGINEER UPON COMPLETION OF WORK.
7. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES.
8. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED FERTILIZER AND MULCH.
9. ALL STORM DRAIN CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE NHDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, LATEST EDITION.
10. ALL PROPOSED CATCH BASINS SHALL BE EQUIPPED WITH OIL/GAS SEPARATOR HOODS AND 4' SUMPS.
11. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
12. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
13. SEE EXISTING CONDITIONS PLAN FOR BENCH MARK INFORMATION.

EROSION CONTROL NOTES:

1. INSTALL EROSION CONTROL BARRIERS AS SHOWN AS FIRST ORDER OF WORK.
2. SEE GENERAL EROSION CONTROL NOTES ON "EROSION CONTROL NOTES & DETAILS SHEET".
3. PROVIDE INLET PROTECTION AROUND ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. MAINTAIN FOR THE DURATION OF THE PROJECT.
4. INSTALL STABILIZED CONSTRUCTION EXIT(S).
5. INSPECT INLET PROTECTION AND PERIMETER EROSION CONTROL MEASURES DAILY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
6. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED, FERTILIZER AND MULCH.
7. CONSTRUCT EROSION CONTROL BLANKET ON ALL SLOPES STEEPER THAN 3:1.
8. PRIOR TO ANY WORK OR SOIL DISTURBANCE COMMENCING ON THE SUBJECT PROPERTY, INCLUDING MOVING OF EARTH, THE APPLICANT SHALL INSTALL ALL EROSION AND SILTATION MITIGATION AND CONTROL MEASURES AS REQUIRED BY STATE AND LOCAL PERMITS AND APPROVALS.
9. CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST AND WIND EROSION THROUGHOUT THE CONSTRUCTION PERIOD. DUST CONTROL MEASURES SHALL INCLUDE, BUT ARE NOT LIMITED TO, SPRINKLING WATER ON UNSTABLE SOILS SUBJECT TO ARID CONDITIONS.
10. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
11. ALL CATCH BASIN SUMPS AND PIPING SHALL BE THOROUGHLY CLEANED TO REMOVE ALL SEDIMENT AND DEBRIS AFTER THE PROJECT HAS BEEN FULLY PAVED.
12. TEMPORARY SOIL STOCKPILE SHALL BE SURROUNDED WITH PERIMETER CONTROLS AND SHALL BE STABILIZED BY TEMPORARY EROSION CONTROL SEEDING. STOCKPILE AREAS TO BE LOCATED AS FAR AS POSSIBLE FROM THE DELINEATED EDGE OF WETLANDS.
13. SAFETY FENCING SHALL BE PROVIDED AROUND STOCKPILES OVER 10 FT.
14. CONCRETE TRUCKS WILL BE REQUIRED TO WASH OUT (IF NECESSARY) SHOOTS ONLY WITHIN AREAS WHERE CONCRETE HAS BEEN PLACED. NO OTHER WASH OUT WILL BE ALLOWED.

Tighe&Bond

STATE OF NEW HAMPSHIRE
BRADLEE MEZQUITA
No. 08830
LICENSED
PROFESSIONAL ENGINEER
12.8.21

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0 30' 60'
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GRADING, DRAINAGE & EROSION CONTROL PLAN

SCALE: AS SHOWN

C-103.1

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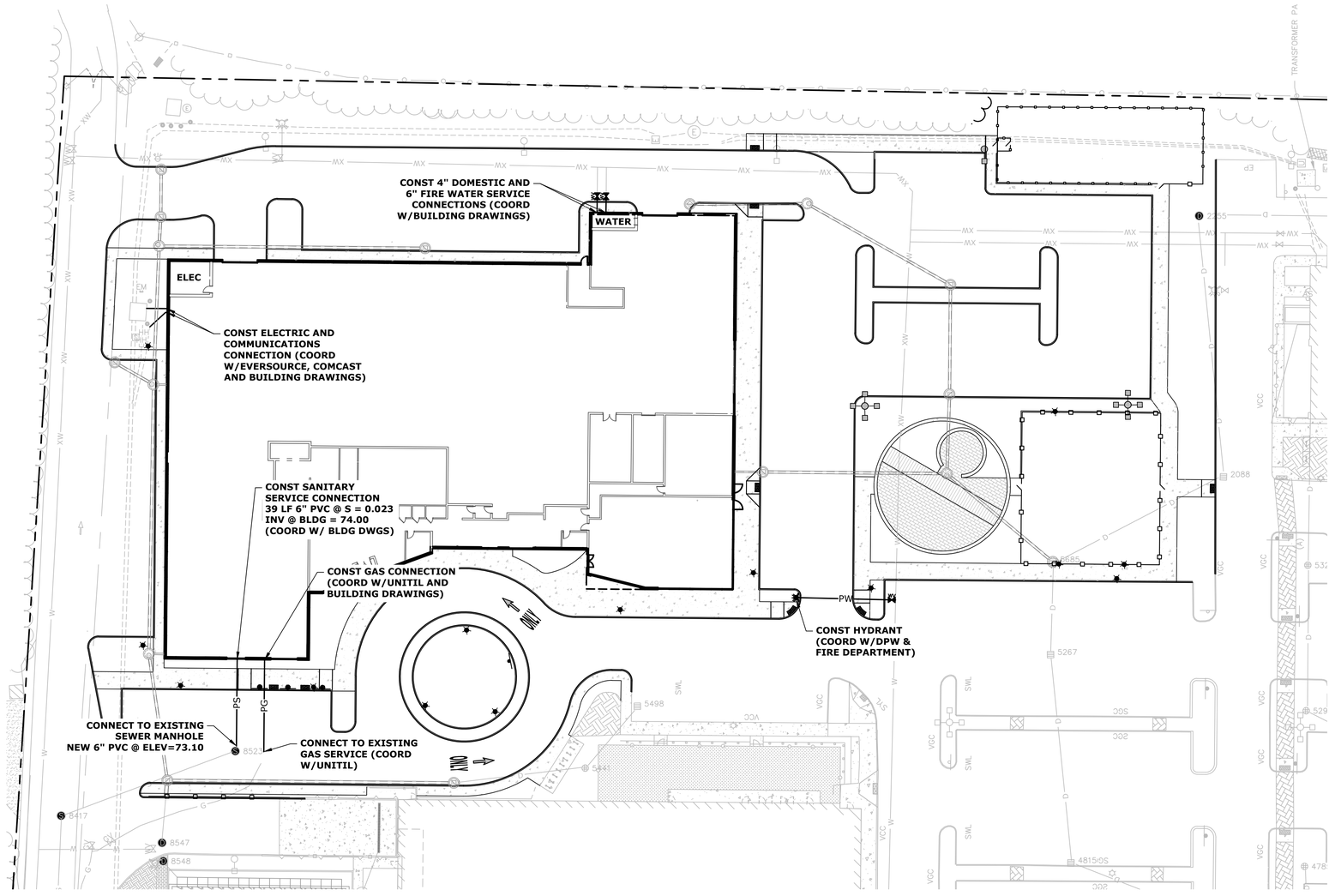
Tighe & Bond: J:\TYT5047 Torrington Properties\001 Constitution Ave, Portsmouth NH\Drawings, Figures\AutoCAD\Sheet\T5047-001-C-DSGN.dwg



LEGEND

- MATCH LINE
- EXISTING STORM DRAIN
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER TO BE REMOVED
- EXISTING UNDERGROUND TELECOMMUNICATION
- EXISTING WATER
- EXISTING GAS
- EXISTING UNDERGROUND ELECTRIC
- EXISTING OVERHEAD UTILITY
- PROPOSED STORM DRAIN
- PROPOSED SANITARY SEWER
- PROPOSED WATER
- PROPOSED GAS
- PROPOSED UNDERGROUND ELECTRIC
- PROPOSED UNDERGROUND TELECOMMUNICATION
- EXISTING CATCHBASIN
- EXISTING DRAIN MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING ELECTRIC MANHOLE
- EXISTING TELEPHONE MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED DRAIN MANHOLE
- PROPOSED SEWER MANHOLE
- PROPOSED WATER VALVE
- PROPOSED HYDRANT
- PROPOSED GAS VALVE
- PROPOSED LIGHT POLE BASE

BLDG	BUILDING
TYP	TYPICAL
COORD	COORDINATE
VIF	VERIFY IN FIELD

UTILITY NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES, AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
2. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.
   - NATURAL GAS - UNITIL
   - WATER/SEWER - CITY OF PORTSMOUTH
   - ELECTRIC - EVERSOURCE
   - COMMUNICATIONS - COMCAST/FAIRPOINT/FIRST LIGHT
3. SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
4. SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
5. ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, CEMENT LINED DUCTILE IRON PIPE.
6. ALL WATER MAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION PRIOR TO ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE CHLORINATION AND TESTING WITH THE CITY OF PORTSMOUTH WATER DEPARTMENT.
7. ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
8. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAYS WITH THE CITY OF PORTSMOUTH.
9. CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ABUTTING PROPERTIES THROUGHOUT CONSTRUCTION.
10. CONNECTION TO EXISTING WATER MAIN SHALL BE CONSTRUCTED TO CITY OF PORTSMOUTH STANDARDS.
11. EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE DEPARTMENT OF PUBLIC WORKS STANDARDS FOR CAPPING OF WATER AND SEWER SERVICES.
12. ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
13. THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE BUILDING DRAWINGS AND THE APPLICABLE UTILITY COMPANIES.
14. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
15. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
16. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO THE COMPLETION OF THIS PROJECT.
17. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES, AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
18. CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES.
19. A 10-FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18-INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS.
20. THE CONTRACTOR SHALL CONTACT "DIG-SAFE" 72 HOURS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL HAVE THE "DIG-SAFE" NUMBER ON SITE AT ALL TIMES.
21. CONTRACTOR TO SUBMIT AS-BUILT PLANS ON REPRODUCIBLE MYLARS AND IN DIGITAL FORMAT (.DWG FILES) TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
22. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN
23. HYDRANTS, GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH.
24. COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF PORTSMOUTH.
25. ALL SEWER PIPE WITH LESS THAN 6' OF COVER IN PAVED AREAS OR LESS THAT 4' OF COVER IN UNPAVED AREAS SHALL BE INSULATED.
26. CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK INCLUDING BUT NOT LIMITED TO: CONDUIT CONSTRUCTION, MANHOLE CONSTRUCTION, UTILITY POLE CONSTRUCTION, OVERHEAD WIRE RELOCATION, AND TRANSFORMER CONSTRUCTION WITH POWER COMPANY.
27. CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION, PARTICULARLY WATER MAIN AND GAS MAIN CONSTRUCTION AS TO MAINTAIN CONTINUOUS SERVICE TO ABUTTING PROPERTIES. CONTRACTOR SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH THE UTILITY COMPANY AND AFFECTED ABUTTER.
28. SITE LIGHTING SPECIFICATIONS, CONDUIT LAYOUT AND CIRCUITRY FOR PROPOSED SITE LIGHTING AND SIGN ILLUMINATION SHALL BE PROVIDED BY THE PROJECT ELECTRICAL ENGINEER.
29. EACH OF THE NEW BUILDINGS SHALL INCLUDE A SEPARATE KNOX BOX. EACH NEW TENANT SHALL HAVE A SEPARATE FIRE ALARM SYSTEM AND SHALL COMPLY WITH ANY APPLICABLE NFPA CODES AND STANDARDS. KNOX BOX LOCATIONS AND FIRE ALARM SYSTEMS SHALL BE COORDINATED WITH THE CITY OF PORTSMOUTH FIRE DEPARTMENT.
30. ALL WATER MAIN PIPE AND FITTINGS SHALL BE POLYWRAPPED AND THREE (3) BRASS WEDGES SHALL BE INSTALLED AT ALL NON-CONDUCTIVE PIPE JOINTS.
31. SHOP DRAWINGS SUBMITTALS SHALL BE SENT TO ENGINEER OF RECORD AND TO 3RD PARTY INSPECTOR AND PORTSMOUTH DPW FOR REVIEW/APPROVAL. ENGINEER OF RECORD SHALL INDICATE CONFORMANCE TO PLANS OR NOTE THE DEVIATION PRIOR TO SENDING TO 3RD PARTY INSPECTOR AND DPW.

Tighe&Bond

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER – 12.8.21

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER – 12/08/21

0 30' 60'
GRAPHIC SCALE

Multi-Family Development

Torrington Properties, Inc.

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
F	12/8/2021	PB Submission
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D	10/27/2021	Revised Site Data Table
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PROJECT NO:	T-5047-001
DATE:	August 5, 2021
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DRAWN BY:	NAH
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

UTILITIES PLAN

SCALE: AS SHOWN

C-104

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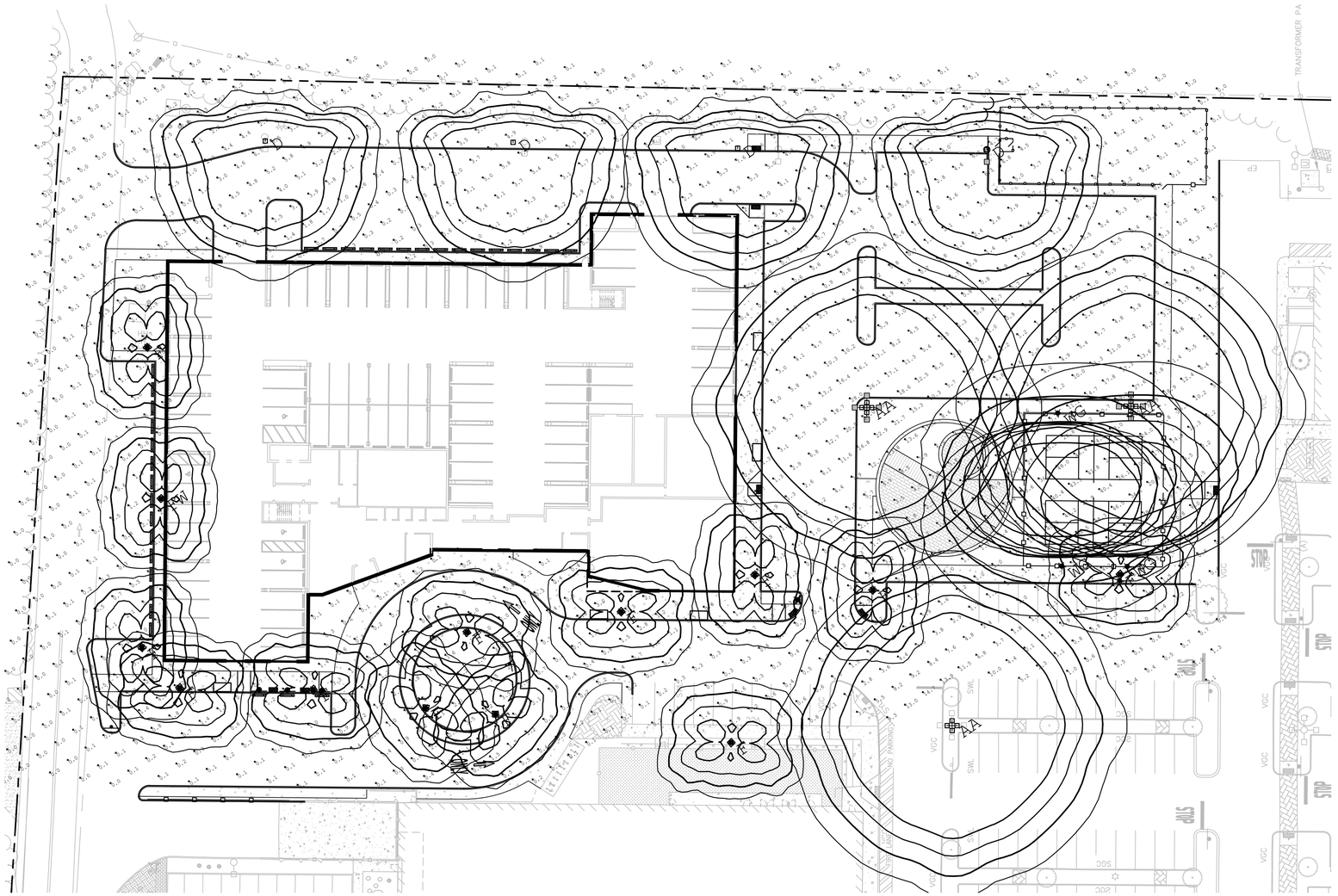

Luminaire Schedule				
Symbol	Qty	Label	Arrangement	Description
	6	AA	4 @ 90 DEGREES	4-SVL22-IV-400PSMH-FG/ 20' POLE 1' PED
	4	D	SINGLE	SVL22-IV-400PSMH-FG-HS/ 20' POLE 1' PED
	20	F	SINGLE	LCK1-YK-PG5-100PSMH/ 11' POLE ON 1' PED
	1	FW	SINGLE	LCK1-YK-PG5-100PSMH/ WALL MTD 12' AFG
	3	WG	Single	WGE-450-4000K-FT / 20' POLE 1' BASE

StatArea_1
NEW PARKING SPACES
Illuminance (Fc)
Average = 1.35
Maximum = 6.7
Minimum = 0.1
Avg/Min Ratio = 13.50
Max/Min Ratio = 67.00

StatArea_2
PICKLEBALL COURTS
Illuminance (Fc)
Average = 27.99
Maximum = 49.2
Minimum = 1.7
Avg/Min Ratio = 16.46
Max/Min Ratio = 28.94

LIGHTING DESIGN:
CHARRON INC.
40 LONDONDERRY TURNPIKE
HOOKSETT, NH 03106
(603) 624-4827

Tighe&Bond

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER
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0 30' 60'
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PHOTOMETRICS PLAN

SCALE: AS SHOWN

C-105

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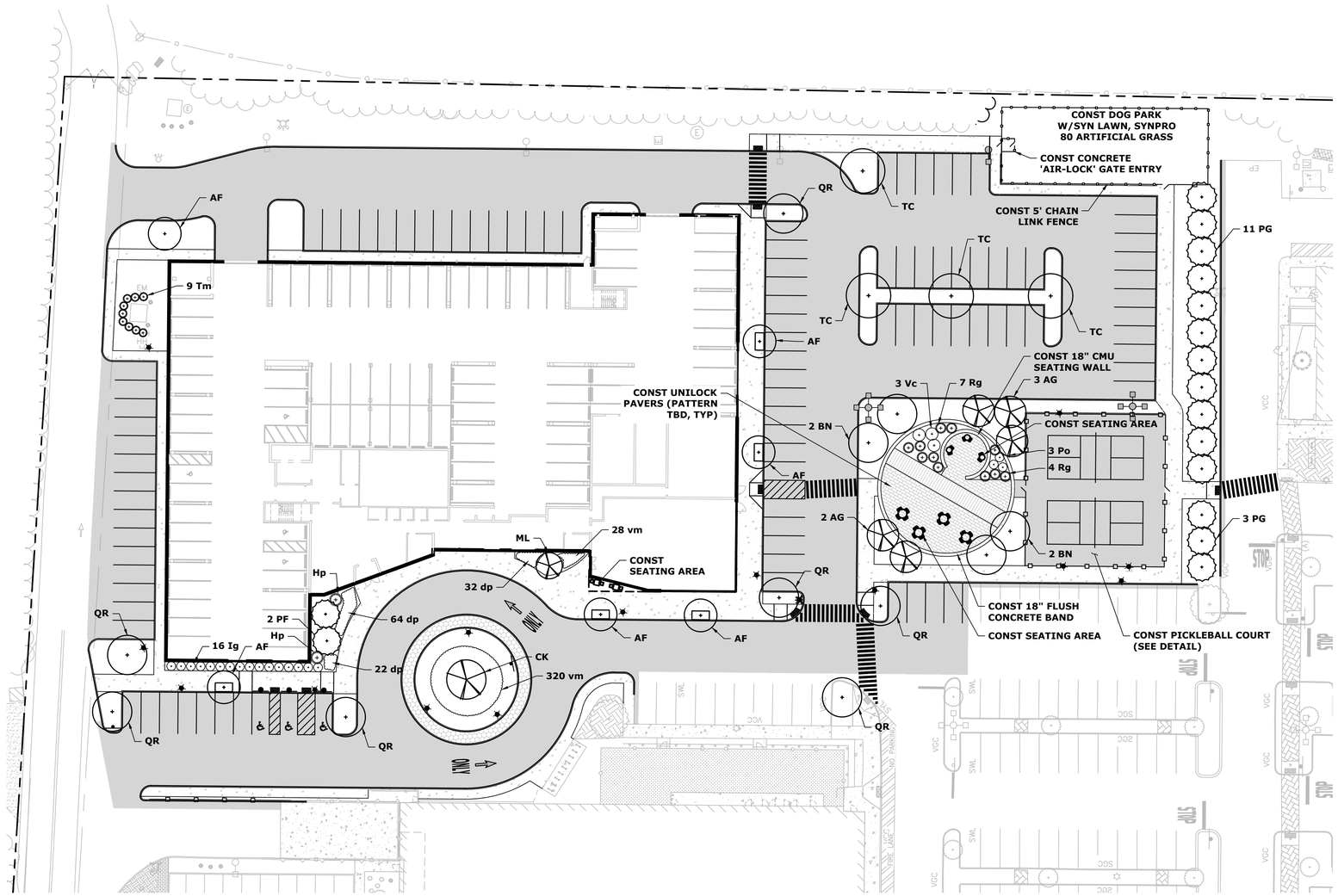

LEGEND

- PROPOSED LIGHT POLE BASE
- PROPOSED DECIDUOUS TREE
- PROPOSED ORNAMENTAL TREE
- PROPOSED EVERGREEN TREE
- PROPOSED EVERGREEN SHRUB
- PROPOSED SHRUB
- PROPOSED GROUND COVER

LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL FURNISH AND PLANT ALL PLANTS IN QUANTITIES AS SHOWN ON THIS PLAN. NO SUBSTITUTIONS WILL BE PERMITTED UNLESS APPROVED BY OWNER. ALL PLANTS SHALL BE NURSERY GROWN.
2. ALL PLANTS SHALL BE NURSERY GROWN AND PLANTS AND WORKMANSHIP SHALL CONFORM TO THE AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS, INCLUDING BUT NOT LIMITED TO SIZE, HEALTH, SHAPE, ETC., AND SHALL BE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO ARRIVAL ON-SITE AND AFTER PLANTING.
3. PLANT STOCK SHALL BE GROWN WITHIN THE HARDINESS ZONES 4 THRU 7 ESTABLISHED BY THE PLANT HARDINESS ZONE MAP, MISCELLANEOUS PUBLICATIONS NO. 814, AGRICULTURAL RESEARCH SERVICE, UNITED STATES DEPARTMENT AGRICULTURE, LATEST REVISION.
4. PLANT MATERIAL SHALL BARE THE SAME RELATIONSHIP TO FINISHED GRADE AS TO THE ORIGINAL PLANTING GRADE PRIOR TO DIGGING.
5. THE NUMBER OF EACH INDIVIDUAL PLANT TYPE AND SIZE PROVIDED IN THE PLANT LIST OR ON THE PLAN IS FOR THE CONTRACTOR'S CONVENIENCE ONLY. IF A DISCREPANCY EXISTS BETWEEN THE NUMBER OF PLANTS ON THE LABEL AND THE NUMBER OF SYMBOLS SHOWN ON THE DRAWINGS, THE GREATER NUMBER SHALL APPLY.
6. NO SUBSTITUTION OF PLANT MATERIALS WILL BE ALLOWED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER'S REPRESENTATIVE.
7. THE CONTRACTOR SHALL LOCATE, VERIFY AND MARK ALL EXISTING AND NEWLY INSTALLED UNDERGROUND UTILITIES PRIOR TO ANY LAWN WORK OR PLANTING. ANY CONFLICTS WHICH MIGHT OCCUR BETWEEN PLANTING AND UTILITIES SHALL IMMEDIATELY BE REPORTED TO THE OWNER SO THAT ALTERNATE PLANTING LOCATIONS CAN BE DETERMINED.
8. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED, SHALL RECEIVE 6" OF LOAM AND SEED. NO FILL SHALL BE PLACED IN ANY WETLAND AREA.
9. LANDSCAPING SHALL BE LOCATED WITHIN 150 FT OF EXTERIOR HOSE ATTACHMENT OR SHALL BE PROVIDED WITH AN IRRIGATION SYSTEM.
10. SEE PLANTING DETAILS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
11. TREE STAKES SHALL REMAIN IN PLACE FOR NO LESS THAN 6 MONTHS AND NO MORE THAN 1 YEAR.
12. PLANTING SHALL BE COMPLETED FROM APRIL 15TH THROUGH OCTOBER 1ST. NO PLANTING DURING JULY AND AUGUST UNLESS SPECIAL PROVISIONS ARE MADE FOR DROUGHT.
13. PARKING AREA PLANTED ISLANDS TO HAVE MINIMUM OF 1'-0" TOPSOIL PLACED TO WITHIN 3 INCHES OF THE TOP OF CURB ELEVATION. REMOVE ALL CONSTRUCTION DEBRIS BEFORE PLACING TOPSOIL.
14. TREES SHALL BE PRUNED IN ACCORDANCE WITH THE LATEST EDITION OF ANSI A300 'TREES, SHRUBS AND OTHER WOOD PLANT MAINTENANCE STANDARD PRACTICES.
15. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24 HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN, IF NECESSARY DURING THE FIRST GROWING SEASON. LANDSCAPE CONTRACTOR SHALL COORDINATE WATERING SCHEDULE WITH OWNER DURING THE ONE (1) YEAR GUARANTEE PERIOD.
16. EXISTING TREES AND SHRUBS SHOWN ON THE PLAN ARE TO REMAIN UNDISTURBED. ALL EXISTING TREES AND SHRUBS SHOWN TO REMAIN ARE TO BE PROTECTED WITH A 4-FOOT SNOW FENCE PLACED AT THE DRIP LINE OF THE BRANCHES OR AT 8 FEET MINIMUM FROM THE TREE TRUNK. ANY EXISTING TREE OR SHRUB SHOWN TO REMAIN, WHICH IS REMOVED DURING CONSTRUCTION, SHALL BE REPLACED BY A TREE OF COMPARABLE SIZE AND SPECIES TREE OR SHRUB.
17. THE CONTRACTOR SHALL GUARANTEE ALL PLANTINGS TO BE IN GOOD HEALTHY, FLOURISHING AND ACCEPTABLE CONDITION FOR A PERIOD OF ONE (1) YEAR BEGINNING AT THE DATE OF ACCEPTANCE OF SUBSTANTIAL COMPLETION. ALL GRASSES, TREES AND SHRUBS THAT, IN THE OPINION OF THE LANDSCAPE ARCHITECT, SHOW LESS THAN 80% HEALTHY GROWTH AT THE END OF ONE YEAR PERIOD SHALL BE REPLACED BY THE CONTRACTOR.
18. UPON EXPIRATION OF THE CONTRACTOR'S ONE YEAR GUARANTEE PERIOD, THE OWNER SHALL BE RESPONSIBLE FOR LANDSCAPE MAINTENANCE INCLUDING WATERING DURING PERIODS OF DROUGHT
19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PLANTING AND LAWNS AGAINST DAMAGE FROM ONGOING CONSTRUCTION. THIS PROTECTION SHALL BEGIN AT THE TIME THE PLANT IS INSTALLED AND CONTINUE UNTIL THE FORMAL ACCEPTANCE OF ALL THE PLANTINGS.
20. PRE-PURCHASE PLANT MATERIAL AND ARRANGE FOR DELIVERY TO MEET PROJECT SCHEDULE AS REQUIRED IT MAY BE NECESSARY TO PRE-DIG CERTAIN SPECIES WELL IN ADVANCE OF ACTUAL PLANTING DATES.

Tighe&Bond

STATE OF NEW HAMPSHIRE – PROFESSIONAL ENGINEER – BRADLEE MEZQUITA No. 08830 LICENSED
12/8/21

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER
12/08/21

0 30' 60'
GRAPHIC SCALE

Multi-Family Development

Torrington Properties, Inc.

Portsmouth, New Hampshire

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CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

LANDSCAPE PLAN

SCALE: AS SHOWN

L-100

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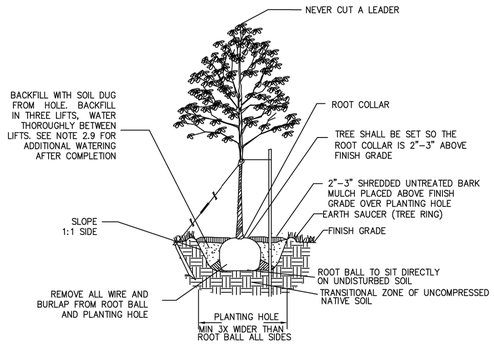
PLANT SCHEDULE

Symbol	Quantity	*Botanical Name*	Common Name	Size	Spacing
TREES					
AF	6	*Acer freemanii 'Autumn Blaze'*	Autumn Blaze Maple	2.5-3" Cal.	
AG	5	*Amelanchier grandiflora 'Autumn Brilliance'*	Apple Serviceberry	8'-10' Ht, Multi	
BN	4	*Betula nigra 'Heritage'*	Heritage River Birch	2.5-3" Cal.	
CK	1	*Cornus kousa*	Kousa Dogwood	3.5-4" Cal.	
ML	1	*Magnolias loebneri 'Dr Merrill'*	Merril Star Magnolia	10'-12' Ht, Multi	
PF	2	*Picea pungens 'Fat Albert'*	Fat Albert Spruce	7'-8' Ht	
PG	14	*Picea glauca*	White Spruce	8'-10' Ht	
QR	7	*Quercus rubra*	Northern Red Oak	4-5" Cal.	
TC	4	*Tilia cordata 'Greenspire'*	Greenspire Littleleaft Linden	2.5-3" Cal.	
SHRUBS					
Hp	2	*Hydrangea paniculata 'pinky winky*	Pinky Winky Hydrangea	3 Gal	
Ig	16	*Ilex glabra 'Shamrock'*	Shamrock Inkberry	5 Gal	
Po	3	*Physocarpus opulifolius 'Coppertina'*	Coppertina Ninebark	7 Gal	
Rg	11	*Rhus aromatica 'Gro-Low'*	Fro-Low Fragrant Sumac	3 Gal	
Tm	9	*Taxus media 'Nigra'*	Dark Spreading Yew	2'-2.5' BB	
Vc	3	*Viburnum carlesii 'Cayuga'*	Cayuga Mayflower	3'-4' BB	
PERENNIALS					
dp	118	*Dennstaedtia punctilobula*	Hay Scented Fern	1 Gal	18" oc
vm	348	*Vinca minor 'Bowles'*	Foamflower	4" Pot	18" oc



TREE PLANTING DETAIL
N.T.S.

PART 1 – GENERAL:

1.1 THE BASE OF THE CITY OF PORTSMOUTH TREE PLANTING REQUIREMENTS IS THE ANSI A300 PART 6 STANDARD PRACTICES FOR PLANTING AND TRANSPLANTING. ANSI A300 PART 6 LAYS OUT TERMS AND BASIC STANDARDS AS SET FORTH BY INDUSTRY BUT IT IS NOT THE "END ALL" FOR THE CITY OF PORTSMOUTH. THE FOLLOWING ARE THE CITY OF PORTSMOUTH, NH TREE PLANTING REQUIREMENTS THAT ARE IN ADDITION TO OR THAT GO BEYOND THE ANSI A300 PART 6.

PART 2 – EXECUTION:

2.1 ALL PLANTING HOLES SHALL BE DUG BY HAND – NO MACHINES. THE ONLY EXCEPTIONS ARE NEW CONSTRUCTION WHERE NEW PLANTING PITS, PLANTING BEDS WITH GRANITE CURBING, AND PLANTING SITES WITH SILVA CELLS ARE BEING CREATED. IF A MACHINE IS USED TO DIG IN ANY OF THESE SITUATIONS AND PLANTING DEPTH NEEDS TO BE RAISED THE MATERIAL IN THE BOTTOM OF THE PLANTING HOLE MUST BE FIRMED WITH MACHINE TO PREVENT SINKING OF THE ROOT BALL.

2.2 ALL WIRE AND BURLAP SHALL BE REMOVED FROM THE ROOT BALL AND PLANTING HOLE.

2.3 THE ROOT BALL OF THE TREE SHALL BE WORKED SO THAT THE ROOT COLLAR OF THE TREE IS VISIBLE AND NO GIRDLING ROOTS ARE PRESENT.

2.4 THE ROOT COLLAR OF THE TREE SHALL BE 2"–3" ABOVE GRADE OF PLANTING HOLE FOR FINISHING DEPTH.

2.5 ALL PLANTINGS SHALL BE BACKFILLED WITH SOIL FROM THE SITE AND AMENDED NO MORE THAN 20% WITH ORGANIC COMPOST. THE ONLY EXCEPTIONS ARE NEW CONSTRUCTION WHERE ENGINEERED SOIL IS BEING USED IN CONJUNCTION WITH SILVA CELLS AND WHERE NEW PLANTING BEDS ARE BEING CREATED.

2.6 ALL PLANTINGS SHALL BE BACKFILLED IN THREE LIFTS AND ALL LIFTS SHALL BE WATERED SO THE PLANTING WILL BE SET AND FREE OF AIR POCKETS – NO EXCEPTIONS.

2.7 AN EARTH BERM SHALL BE PLACED AROUND THE PERIMETER OF THE PLANTING HOLE EXCEPT WHERE CURBED PLANTING BEDS OR PITS ARE BEING USED.

2.8 2"–3" OF MULCH SHALL BE PLACED OVER THE PLANTING AREA.

2.9 AT THE TIME OF PLANTING IS COMPLETE THE PLANTING SHALL RECEIVE ADDITIONAL WATER TO ENSURE COMPLETE HYDRATION OF THE ROOTS, BACKFILL MATERIAL AND MULCH LAYER.

2.10 STAKES AND GUYS SHALL BE USED WHERE APPROPRIATE AND/OR NECESSARY. GUY MATERIAL SHALL BE NON–DAMAGING TO THE TREE.

2.11 ALL PLANTING STOCK SHALL BE SPECIMEN QUALITY, FREE OF DEFECTS, AND DISEASE OR INJURY. THE CITY OF PORTSMOUTH, NH RESERVES THE RIGHT TO REFUSE/REJECT ANY PLANT MATERIAL OR PLANTING ACTION THAT FAILS TO MEET THE STANDARDS SET FORTH IN THE ANSI A300 PART 6 STANDARD PRACTICES FOR PLANTING AND TRANSPORTATION AND/OR THE CITY OF PORTSMOUTH, NH PLANTING REQUIREMENTS.

Tighe&Bond

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0 30' 60'
GRAPHIC SCALE

Multi-Family Development

Torrington Properties, Inc.

Portsmouth, New Hampshire

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CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

LANDSCAPE SCHEDULE & DETAILS

SCALE: AS SHOWN

L-101

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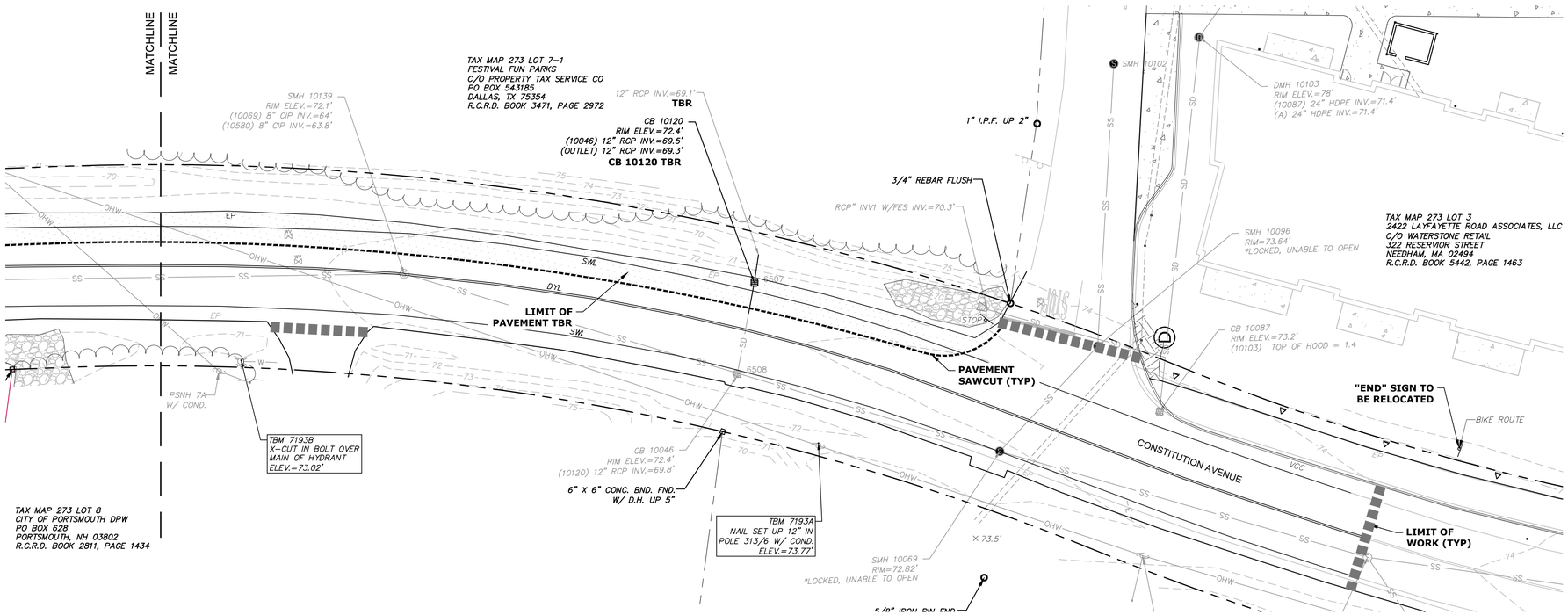

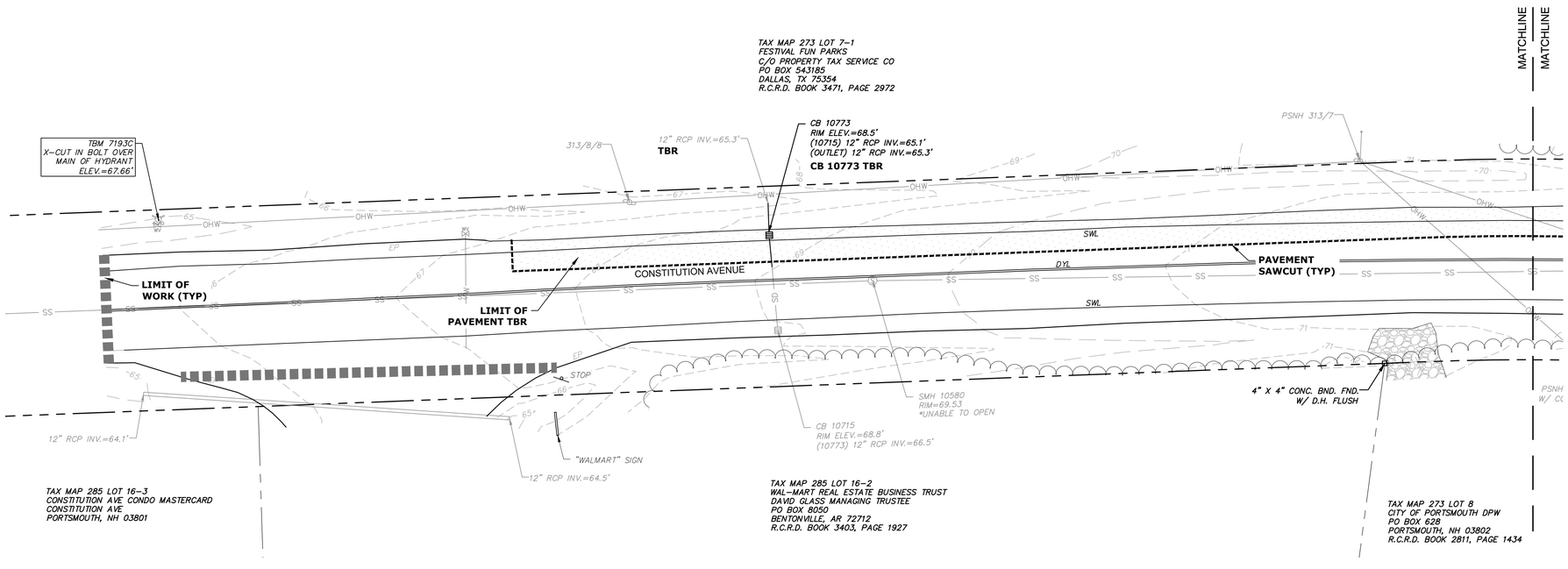

NOTE:
1. REMOVE EXISTING PERMANENT STRIPING AND REPLACE WITH TEMPORARY STRIPING IN CONSTITUTION AVENUE PRIOR TO THE REMOVAL OF PAVEMENT FOR THE MULTI-USE PATH.

SEE SHEET C-101.1 FOR EXISTING CONDITIONS AND DEMOLITION NOTES & LEGEND

Tighe&Bond

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MULTI-USE PATH
EXISTING CONDITIONS AND DEMOLITION PLAN

SCALE: AS SHOWN

C-201

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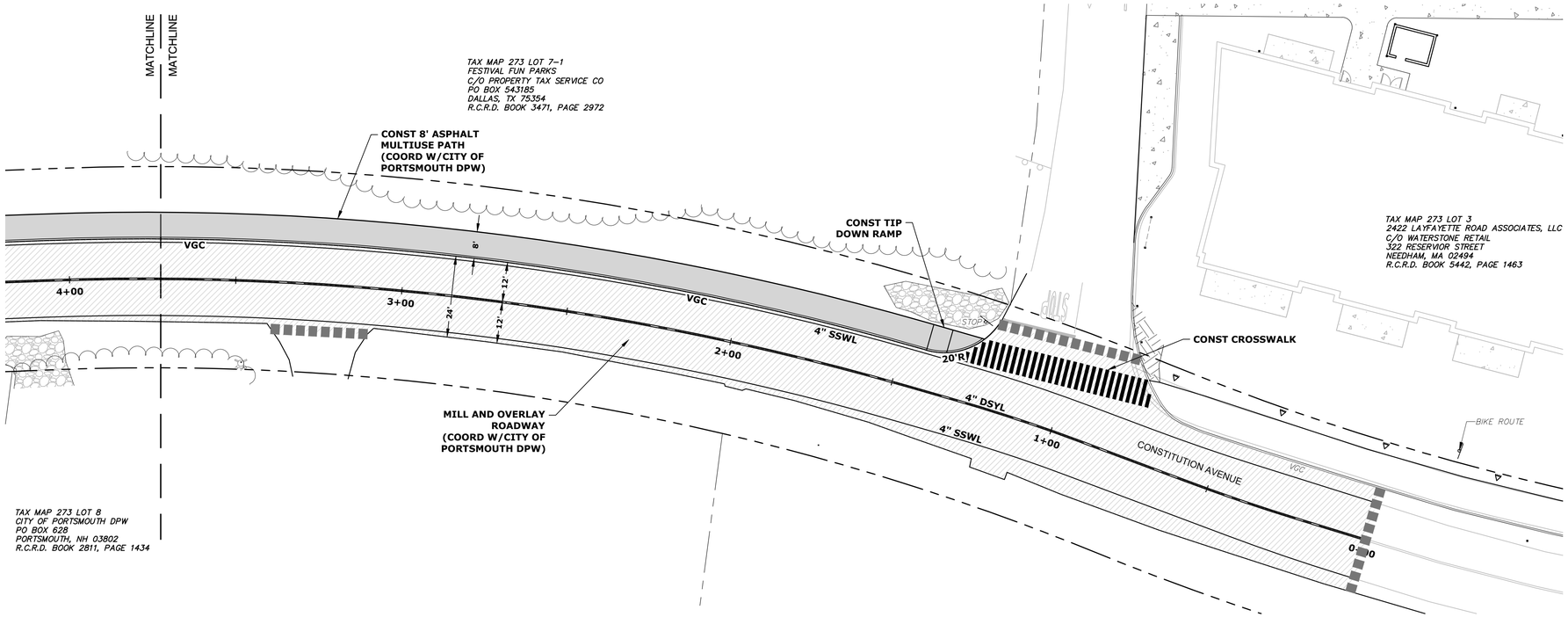

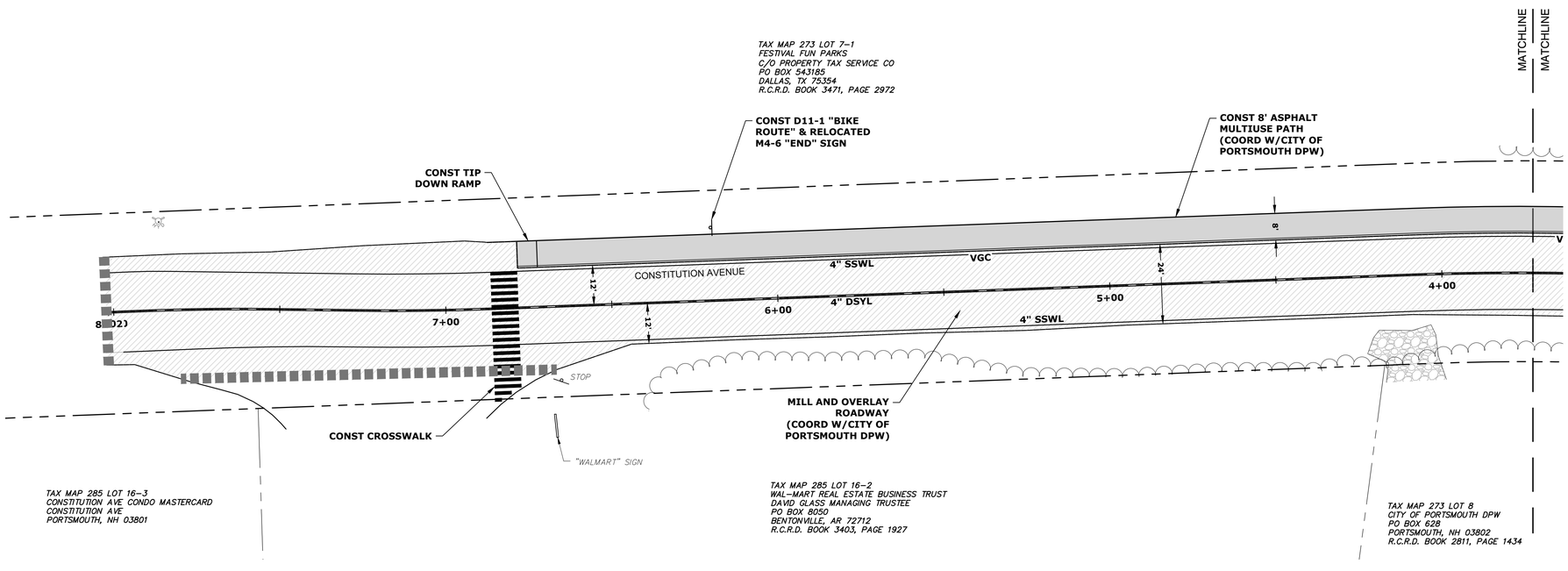

NOTE:
1. CONSTITUTION AVENUE WORK SHALL BE CONSTRUCTED TO DPW STANDARDS. PAVEMENT MIX DESIGNS SHALL BE PROVIDED TO ENGINEER FOR FINAL APPROVAL BY DPW.

SEE SHEET C-102.1 FOR SITE NOTES & LEGEND

Tighe&Bond

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MULTI-USE PATH SITE PLAN

SCALE: AS SHOWN

C-202

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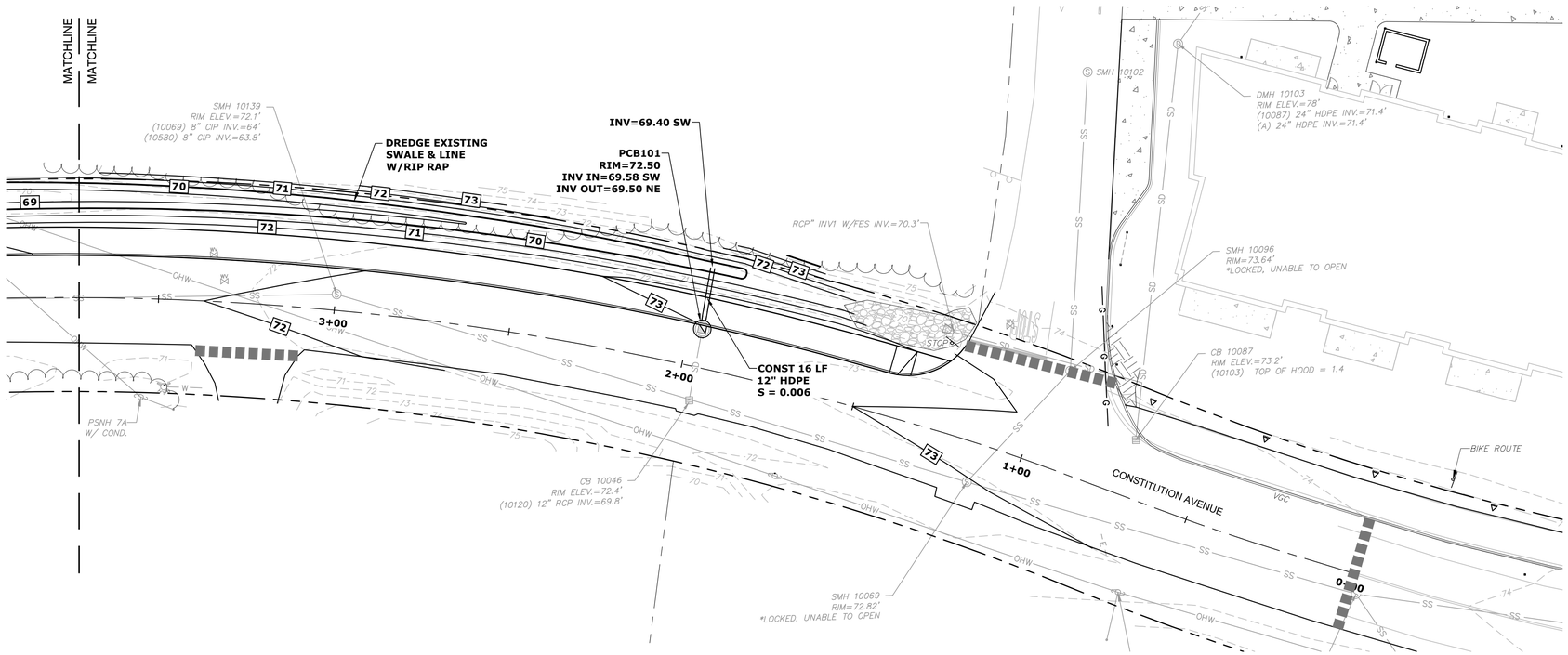
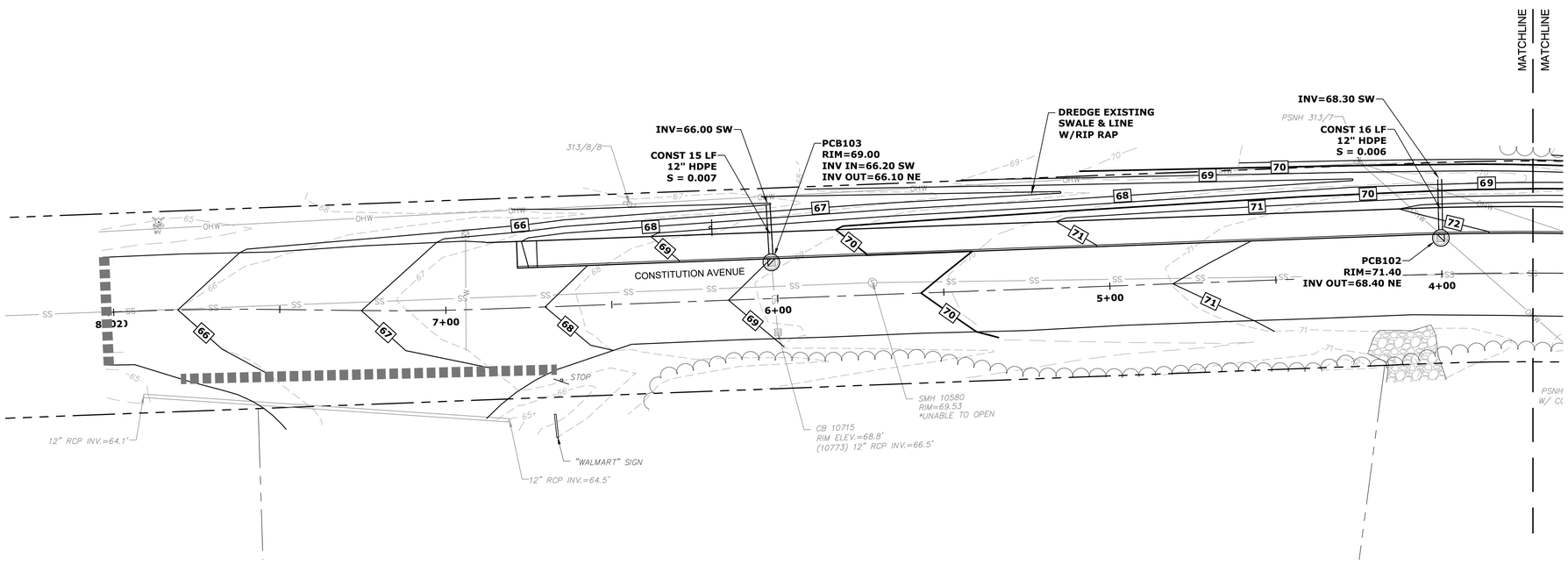
Plotted: Dec 08, 2021-11:29am By: CKrzcuik
Tighe & Bond: J:\T\T5047 Torrington Properties\001 Constitution Ave, Portsmouth NH\Drawings_Figures\AutoCAD\Sheet\T5047-001-C-DSGN-PATH.dwg





NOTE:
1. ALL STRUCTURES IN CONSTITUTION AVENUE IN THE AREA OF CONSTRUCTION ARE TO BE RESET AND FITTED WITH CATCH BASIN LINERS PRIOR TO PAVEMENT OVERLAY.

SEE SHEET C-103.1 FOR GRADING, DRAINAGE & EROSION CONTROL NOTES & LEGEND

Tighe&Bond

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER – 12.8.21

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER – 12/08/21

0 20' 40'
GRAPHIC SCALE

Multi-Family Development

Torrington Properties, Inc.

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
F	12/8/2021	PB Submission
E	11/22/2021	TAC Resubmission
D	10/27/2021	Revised Site Data Table
C	10/18/2021	TAC Submission
B	9/2/2021	Design Review - TAC WS
A	8/5/2021	PB Conceptual Consultation

PROJECT NO:	T-5047-001
DATE:	August 5, 2021
FILE:	T5047-001-C-DSGN-PATH.DWG
DRAWN BY:	NAH
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

MULTI-USE PATH GRADING, DRAINAGE & EROSION CONTROL PLAN

SCALE: AS SHOWN

C-203

Last Saved: 12/8/2021
Plotted On: Dec 08, 2021 - 8:58am By: CKrzculk
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GENERAL PROJECT INFORMATION

PROJECT OWNER: 2422 LAFAYETTE ROAD ASSOC LLC
C/O WATERSTONE RETAIL
322 RESERVOIR STREET
NEEDHAM, MA 02494

PROJECT NAME: PORTSMOUTH GREEN - MULTI-FAMILY DEVELOPMENT

PROJECT ADDRESS: 2454 LAFAYETTE ROAD
PORTSMOUTH, NH 03801

PROJECT MAP / LOT: MAP 273 / LOT 3
PROJECT LATITUDE: 43.036120 N
PROJECT LONGITUDE: -70.784829 W

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF DEMOLITION OF THE EXISTING CINEMA AND THE CONSTRUCTION OF A PROPOSED MULTI-FAMILY RESIDENTIAL BUILDING.

DISTURBED AREA

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 3.5 ACRES.

SOIL CHARACTERISTICS

BASED ON THE NRCS WEB SOIL SURVEY FOR ROCKINGHAM COUNTY - NEW HAMPSHIRE THE SOILS ON SITE CONSIST OF MOSTLY URBAN SOILS WHICH HAVE UNKNOWN DRAINAGE PROPERTIES.

NAME OF RECEIVING WATERS

THE STORMWATER RUNOFF WILL BE COLLECTED IN A CLOSED DRAINAGE SYSTEM WHICH ULTIMATELY DISCHARGES TO THE LITTLE HARBOR.

CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES:

1. CONSTRUCT TEMPORARY AND PERMANENT SEDIMENT, EROSION AND DETENTION CONTROL FACILITIES. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATIONS THAT WILL INFLUENCE STORMWATER RUNOFF SUCH AS:
   - NEW CONSTRUCTION
   - CONTROL OF DUST
   - NEARNESS OF CONSTRUCTION SITE TO RECEIVING WATERS
   - CONSTRUCTION DURING LATE WINTER AND EARLY SPRING
2. ALL PERMANENT DITCHES, SWALES, DETENTION, RETENTION AND SEDIMENTATION BASINS TO BE STABILIZED USING THE VEGETATIVE AND NON-STRUCTURAL BMPS PRIOR TO DIRECTING RUNOFF TO THEM.
3. CLEAR AND DISPOSE OF DEBRIS.
4. CONSTRUCT TEMPORARY CULVERTS AND DIVERSION CHANNELS AS REQUIRED.
5. GRADE AND GRAVEL ROADWAYS AND PARKING AREAS - ALL ROADS AND PARKING AREA SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
6. BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, PERIMETER EROSION CONTROL MEASURES, SEDIMENT TRAPS, ETC., MULCH AND SEED AS REQUIRED.
7. FINISH PAVING ALL ROADWAYS AND PARKING LOTS.
8. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES.
9. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
10. REMOVE TRAPPED SEDIMENTS FROM COLLECTOR DEVICES AS APPROPRIATE AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES.

SPECIAL CONSTRUCTION NOTES:

1. THE CONSTRUCTION SEQUENCE MUST LIMIT THE DURATION AND AREA OF DISTURBANCE.
2. THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
3. LIMIT THE LENGTH OF EXPOSURE OF UNSTABILIZED SOIL TO 45 DAYS OR LESS.

EROSION CONTROL NOTES:

1. ALL EROSION CONTROL MEASURES AND PRACTICES SHALL CONFORM TO THE "NEW HAMPSHIRE STORMWATER MANUAL VOLUME 3: EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION" PREPARED BY THE NHDES.
2. PRIOR TO ANY WORK OR SOIL DISTURBANCE, CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EROSION CONTROL MEASURES AS REQUIRED IN THE PROJECT MANUAL.
3. CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL BARRIERS, INCLUDING HAY BALE, SILT FENCES, MULCH BERMS, INLET PROTECTION AND SILT SOCKS AS SHOWN IN THESE DRAWINGS AS THE FIRST ORDER OF WORK.
4. INLET PROTECTION SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AND BE MAINTAINED FOR THE DURATION OF THE PROJECT.
5. PERIMETER CONTROLS INCLUDING SILT FENCES, MULCH BERM, SILT SOCK, AND/OR HAY BALE BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL NON-PAVED AREAS HAVE BEEN STABILIZED.
6. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
7. ALL DISTURBED AREAS NOT OTHERWISE BEING TREATED SHALL RECEIVE 6" LOAM, SEED AND FERTILIZER.
8. INSPECT ALL INLET PROTECTION AND PERIMETER CONTROLS WEEKLY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
9. CONSTRUCT EROSION CONTROL BLANKETS ON ALL SLOPES STEEPER THAN 3:1.

STABILIZATION:

1. AN AREA SHALL BE CONSIDERED STABLE WHEN ONE OF THE FOLLOWING HAS OCCURRED:
   A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
   B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
   C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED;
   D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
2. WINTER STABILIZATION PRACTICES:
   A. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS;
   B. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;
   C. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;
3. STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA. STABILIZATION MEASURES TO BE USED INCLUDE:
   A. TEMPORARY SEEDING;
   B. MULCHING.
4. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN THESE AREAS, SILT FENCES, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
5. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILT FENCES, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY NOVEMBER 15.

DUST CONTROL:

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST THROUGHOUT THE CONSTRUCTION PERIOD.
2. DUST CONTROL METHODS SHALL INCLUDE, BUT BE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
3. DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.

STOCKPILES:

1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

OFF SITE VEHICLE TRACKING:

1. THE CONTRACTOR SHALL CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE(S) PRIOR TO ANY EXCAVATION ACTIVITIES.

VEGETATION:

1. TEMPORARY GRASS COVER:
   A. SEEDBED PREPARATION:
      a. APPLY FERTILIZER AT THE RATE OF 600 POUNDS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF THREE (3) TONS PER ACRE;
   B. SEEDING:
      a. UTILIZE ANNUAL RYE GRASS AT A RATE OF 40 LBS/ACRE;
      b. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF TWO (2) INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED;
      c. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). HYDROSEEDINGS, WHICH INCLUDE MULCH, MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING;
   C. MAINTENANCE:
      a. TEMPORARY SEEDING SHALL BE PERIODICALLY INSPECTED. AT A MINIMUM, 95% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES USED IN THE INTERIM (MULCH, FILTER BARRIERS, CHECK DAMS, ETC.).
2. VEGETATIVE PRACTICE:
   A. FOR PERMANENT MEASURES AND PLANTINGS:
      a. LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF THREE (3) TONS PER ACRE IN ORDER TO PROVIDE A PH VALUE OF 5.5 TO 6.5;
      b. FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 800 POUNDS PER ACRE OF 10-20-20 FERTILIZER;
      c. SOIL CONDITIONERS AND FERTILIZER SHALL BE APPLIED AT THE RECOMMENDED RATES AND SHALL BE THOROUGHLY WORKED INTO THE LOAM. LOAM SHALL BE RAKED UNTIL THE SURFACE IS FINELY PULVERIZED, SMOOTH AND EVEN, AND THEN COMPACTED TO AN EVEN SURFACE CONFORMING TO THE REQUIRED LINES AND GRADES WITH APPROVED ROLLERS WEIGHING BETWEEN 4-1/2 POUNDS AND 5-1/2 POUNDS PER INCH OF WIDTH;
      d. SEED SHALL BE SOWN AT THE RATE SHOWN BELOW. SOWING SHALL BE DONE ON A CALM, DRY DAY, PREFERABLY BY MACHINE, BUT IF BY HAND, ONLY BY EXPERIENCED WORKMEN. IMMEDIATELY BEFORE SEEDING, THE SOIL SHALL BE LIGHTLY RAKED. ONE HALF THE SEED SHALL BE SOWN IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE ORIGINAL DIRECTION. IT SHALL BE LIGHTLY RAKED INTO THE SOIL TO A DEPTH NOT OVER 1/4 INCH AND ROLLED WITH A HAND ROLLER WEIGHING NOT OVER 100 POUNDS PER LINEAR FOOT OF WIDTH;
      e. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AS INDICATED ABOVE;
      f. THE SURFACE SHALL BE WATERED AND KEPT MOIST WITH A FINE SPRAY AS REQUIRED, WITHOUT WASHING AWAY THE SOIL, UNTIL THE GRASS IS WELL ESTABLISHED. ANY AREAS WHICH ARE NOT SATISFACTORILY COVERED WITH GRASS SHALL BE RESEEDED, AND ALL NOXIOUS WEEDS REMOVED;
      g. THE CONTRACTOR SHALL PROTECT AND MAINTAIN THE SEEDED AREAS UNTIL ACCEPTED;
      h. A GRASS SEED MIXTURE CONTAINING THE FOLLOWING SEED REQUIREMENTS SHALL BE APPLIED AT THE INDICATED RATE:

SEED MIX	APPLICATION RATE
CREEPING RED FESCUE	20 LBS/ACRE
TALL FESCUE	20 LBS/ACRE
REDTOP	2 LBS/ACRE

   IN NO CASE SHALL THE WEED CONTENT EXCEED ONE (1) PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH STATE AND FEDERAL SEED LAWS. SEEDING SHALL BE DONE NO LATER THAN SEPTEMBER 15. IN NO CASE SHALL SEEDING TAKE PLACE OVER SNOW.
3. DORMANT SEEDING (SEPTEMBER 15 TO FIRST SNOWFALL):
   A. FOLLOW PERMANENT MEASURES SLOPE, LIME, FERTILIZER AND GRADING REQUIREMENTS. APPLY SEED MIXTURE AT TWICE THE INDICATED RATE. APPLY MULCH AS INDICATED FOR PERMANENT MEASURES.

CONCRETE WASHOUT AREA:

1. THE FOLLOWING ARE THE ONLY NON-STORMWATER DISCHARGES ALLOWED. ALL OTHER NON-STORMWATER DISCHARGES ARE PROHIBITED ON SITE:
   A. THE CONCRETE DELIVERY TRUCKS SHALL, WHENEVER POSSIBLE, USE WASHOUT FACILITIES AT THEIR OWN PLANT OR DISPATCH FACILITY;
   B. IF IT IS NECESSARY, SITE CONTRACTOR SHALL DESIGNATE SPECIFIC WASHOUT AREAS AND DESIGN FACILITIES TO HANDLE ANTICIPATED WASHOUT WATER;
   C. CONTRACTOR SHALL LOCATE WASHOUT AREAS AT LEAST 150 FEET AWAY FROM STORM DRAINS, SWALES AND SURFACE WATERS OR DELINEATED WETLANDS;
   D. INSPECT WASHOUT FACILITIES DAILY TO DETECT LEAKS OR TEARS AND TO IDENTIFY WHEN MATERIALS NEED TO BE REMOVED.

ALLOWABLE NON-STORMWATER DISCHARGES:

1. FIRE-FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
11. UNCONTAMINATED EXCAVATION DEWATERING;
12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL:

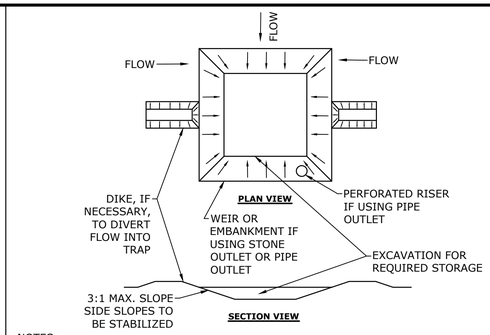
1. WASTE MATERIAL:
   A. ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
   B. NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
   C. ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE:
   A. ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
   B. SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE:
   A. ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

SPILL PREVENTION:

1. CONTRACTOR SHALL BE FAMILIAR WITH SPILL PREVENTION MEASURES REQUIRED BY LOCAL, STATE AND FEDERAL AGENCIES. AT A MINIMUM, CONTRACTOR SHALL FOLLOW THE BEST MANAGEMENT SPILL PREVENTION PRACTICES OUTLINED BELOW.
2. THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES DURING CONSTRUCTION TO STORMWATER RUNOFF:
   A. GOOD HOUSEKEEPING - THE FOLLOWING GOOD HOUSEKEEPING PRACTICE SHALL BE FOLLOWED ON SITE DURING CONSTRUCTION:
      a. ONLY SUFFICIENT AMOUNTS OF PRODUCTS TO DO THE JOB SHALL BE STORED ON SITE;
      b. ALL MATERIALS STORED ON SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE;
      c. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED;
      d. THE SITE SUPERINTENDENT SHALL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS;
      e. SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER;
      f. WHENEVER POSSIBLE ALL OF A PRODUCT SHALL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
   B. HAZARDOUS PRODUCTS - THE FOLLOWING PRACTICES SHALL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
      g. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE;
      h. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHALL BE RETAINED FOR IMPORTANT PRODUCT INFORMATION;
      i. SURPLUS PRODUCT THAT MUST BE DISPOSED OF SHALL BE DISCARDED ACCORDING TO THE MANUFACTURER'S RECOMMENDED METHODS OF DISPOSAL.
   C. PRODUCT SPECIFIC PRACTICES - THE FOLLOWING PRODUCT SPECIFIC PRACTICES SHALL BE FOLLOWED ON SITE:
      a. PETROLEUM PRODUCTS:
         a.1. ALL ON SITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE LEAKAGE;
         a.2. PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED SUBSTANCES USED ON SITE SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
      b. FERTILIZERS:
         b.1. FERTILIZERS USED SHALL BE APPLIED ONLY IN THE MINIMUM AMOUNTS DIRECTED BY THE SPECIFICATIONS;
         b.2. ONCE APPLIED FERTILIZER SHALL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER;
         b.3. STORAGE SHALL BE IN A COVERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER SHALL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
      c. PAINTS:
         c.1. ALL CONTAINERS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE;
         c.2. EXCESS PAINT SHALL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM;
         c.3. EXCESS PAINT SHALL BE DISPOSED OF PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.
   D. SPILL CONTROL PRACTICES - IN ADDITION TO GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTION, THE FOLLOWING PRACTICES SHALL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
      a. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY POSTED AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES;
      b. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS SHALL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE;
      c. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY;
      d. THE SPILL AREA SHALL BE KEPT WELL VENTILATED AND PERSONNEL SHALL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE;
      e. SPILLS OF TOXIC OR HAZARDOUS MATERIAL SHALL BE REPORTED TO THE APPROPRIATE LOCAL, STATE OR FEDERAL AGENCIES AS REQUIRED;
      f. THE SITE SUPERINTENDENT RESPONSIBLE FOR DAY-TO-DAY SITE OPERATIONS SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.
   E. VEHICLE FUELING AND MAINTENANCE PRACTICE:
      a. CONTRACTOR SHALL MAKE AN EFFORT TO PERFORM EQUIPTMENT/VEHICAL FUELING AND MAINTENANCE AT AN OFF-SITE FACILITY;
      b. CONTRACTOR SHALL PROVIDE AN ON-SITE FUELING AND MAINTENANCE AREA THAT IS CLEAN AND DRY;
      c. IF POSSIBLE THE CONTRACTOR SHALL KEEP AREA COVERED;
      d. CONTRACTOR SHALL KEEP A SPILL KIT AT THE FUELING AND MAINTENANCE AREA;
      e. CONTRACTOR SHALL REGULARLY INSPECT VEHICLES FOR LEAKS AND DAMAGE;
      f. CONTRACTOR SHALL USE DRIP PANS, DRIP CLOTHS, OR ABSORBENT PADS WHEN REPLACING SPENT FLUID.

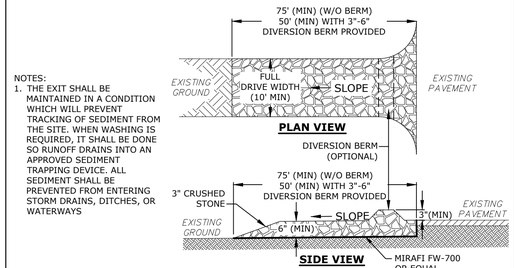
EROSION CONTROL OBSERVATIONS AND MAINTENANCE PRACTICES

1. THIS PROJECT EXCEEDS ONE (1) ACRE OF DISTURBANCE AND THUS REQUIRES A SWPPP. THE SWPPP SHALL BE PREPARED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE FAMILIAR WITH THE SWPPP AND KEEP AN UPDATED COPY OF THE SWPPP ONSITE AT ALL TIMES.
2. THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT:
   A. OBSERVATIONS OF THE PROJECT FOR COMPLIANCE WITH THE SWPPP SHALL BE MADE BY THE CONTRACTOR AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF A STORM 0.25 INCHES OR GREATER;
   B. AN OBSERVATION REPORT SHALL BE MADE AFTER EACH OBSERVATION AND DISTRIBUTED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR;
   C. A REPRESENTATIVE OF THE SITE CONTRACTOR, SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
   D. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.



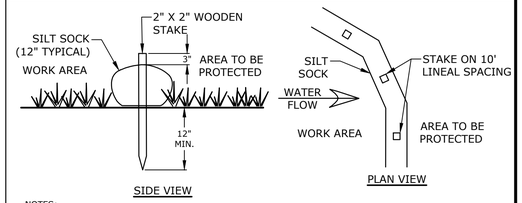
NOTES:
1. THE TRAP SHALL BE INSTALLED AS CLOSE TO THE DISTURBED AREA AS POSSIBLE.
2. THE MAXIMUM CONTRIBUTING AREA TO A SINGLE TRAP SHALL BE LESS THAN 5 ACRES.
3. THE MINIMUM VOLUME OF THE TRAP SHALL BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA.
4. TRAP OUTLET SHALL BE MINIMUM OF ONE FOOT BELOW THE CREST OF THE TRAP.
5. TRAP SHALL DISCHARGE TO A STABILIZED AREA.
6. TRAP SHALL BE CLEANED WHEN 50 PERCENT OF THE ORIGINAL VOLUME IS FILLED.
7. MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AND STABILIZED.
8. SEDIMENT TRAPS MUST BE USED AS NEEDED TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.

SEDIMENT TRAP
NO SCALE



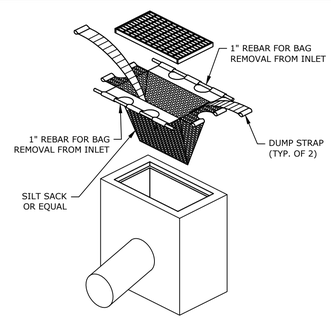
NOTES:
1. THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT FROM THE SITE. WHEN WASHING IS REQUIRED, IT SHALL BE DONE SO RUNOFF DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS

STABILIZED CONSTRUCTION EXIT
NO SCALE



NOTES:
1. SILT SOCK SHALL BE SILT SOXX BY FILTREXX OR APPROVED EQUAL.
2. SILT SOCK SHALL BE FILLED WITH FILTERMEDIA BY FILTREXX OR APPROVED EQUAL.
3. WHERE TWO SILT SOCKS ARE JOINED, A MINIMUM OF 2 FEET OF OVERLAP SHALL BE MAINTAINED.
4. SILT SOCKS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. CONTRACTOR TO INSTALL SILT SOCK IN J-HOOK OR SMILE CONFIGURATION TO LIMIT CONCENTRATION OF STORMWATER RUNOFF AT A SINGLE DISCHARGE POINT.

SILT SOCK
NO SCALE



NOTES:
1. INLET PROTECTION BARRIER SHALL BE SILT SACK BY ACF ENVIRONMENTAL OR APPROVED EQUAL.
2. INLET PROTECTION BARRIER SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASINS LOCATED WITHIN THE LIMIT OF WORK.
3. SILT SACK SHALL BE INSPECTED REGULARLY AND MAINTAIN IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

INLET PROTECTION BARRIER
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE — BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER — 12.8.21

STATE OF NEW HAMPSHIRE — PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER — 12/08/21

Multi-Family Development

Torrington Properties, Inc.

Portsmouth, New Hampshire

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DRAWN BY:	NAH
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

EROSION CONTROL NOTES

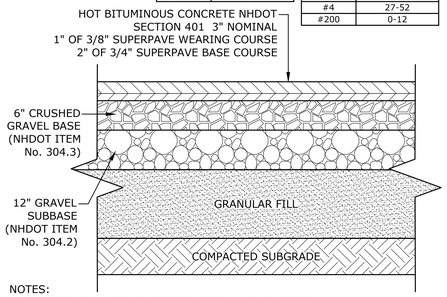
SCALE: AS SHOWN

C-501

Last Saved: 11/22/2021
Plotted On: Dec 08, 2021 - 9:47am By: CKrzcsuik
Tighe & Bond: J:\T\T5047 Torrington Properties\001 Constitution Ave, Portsmouth NH\Drawings, Figures\AutoCAD\Sheet\T5047-001-C-DTLS.dwg

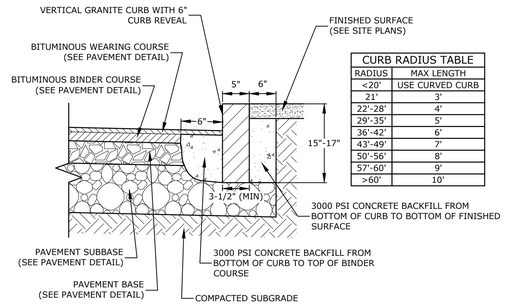
NHDOT ITEM No. 304.2 (GRAVEL)	
SIEVE SIZE	% PASSING
6"	100
#4	25-70
#200	0-12

NHDOT ITEM No. 304.3 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING
3"	100
2"	95-100
1"	55-85
#4	27-52
#200	0-12



NOTES:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
3. A TACK COAT SHALL BE PLACED ON TOP OF BINDER COURSE PAVEMENT PRIOR TO PLACING WEARING COURSE.
4. REFER TO CITY SPECIFICATIONS FOR ASPHALT MIX DESIGN.
5. CONTRACTOR SHALL CONFIRM THIS PAVEMENT SECTION WITH THE PROJECT'S GEOTECHINCAL ENGINEEER PRIOR TO CONSTRUCTION.

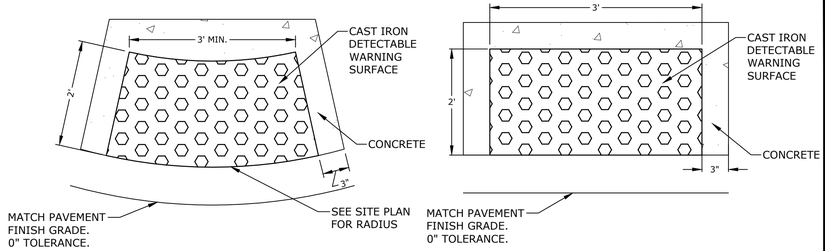
ON-SITE PAVEMENT SECTION
NO SCALE



CURB RADIUS TABLE	
RADIUS	MAX LENGTH
<20'	USE CURVED CURB
21'	3'
22'-28'	4'
29'-35'	5'
36'-42'	6'
43'-49'	7'
50'-56'	8'
57'-60'	9'
>60'	10'

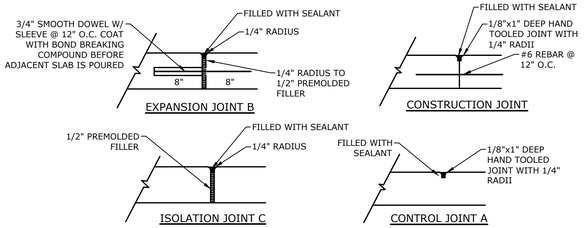
NOTES:
1. SEE SITE PLAN(S) FOR LIMITS OF VERTICAL GRANITE CURB (VGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 3'
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 10'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
6. ALL RADII 20 FEET AND SMALLER SHALL BE CONSTRUCTED USING CURVED SECTIONS.
7. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

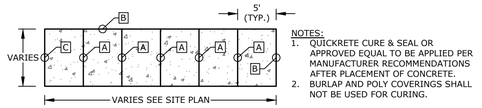
VERTICAL GRANITE CURB
NO SCALE



NOTES:
1. DETECTABLE WARNING SURFACE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

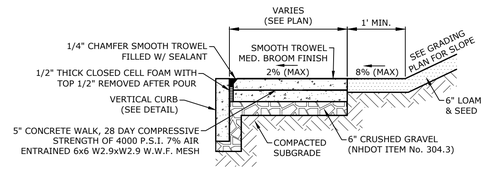
DETECTABLE WARNING SURFACE
NO SCALE



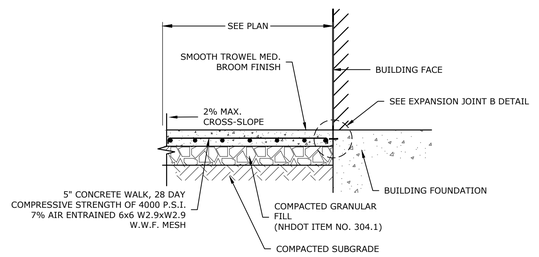


NOTES:
1. QUICKRETE CURE & SEAL OR APPROVED EQUAL TO BE APPLIED PER MANUFACTURER RECOMMENDATIONS AFTER PLACEMENT OF CONCRETE.
2. BURLAP AND POLY COVERINGS SHALL NOT BE USED FOR CURING.

PLAN VIEW

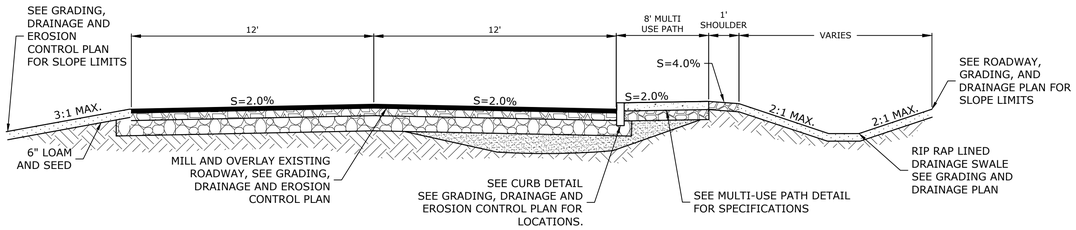


SECTION VIEW

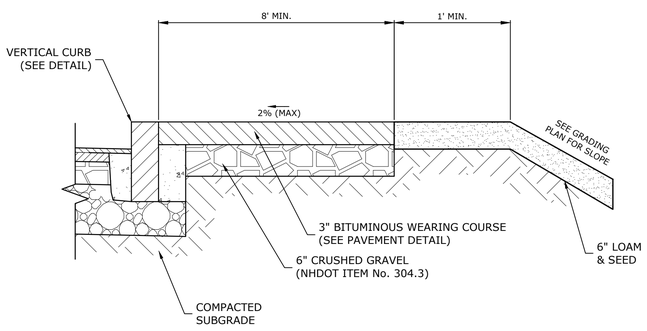


CONCRETE SIDEWALK SECTION VIEW @ BUILDING

CONCRETE SIDEWALK
NO SCALE



CONSTITUTION AVE TYPICAL CROSS SECTION STA 0+00 TO 7+00
NO SCALE



MULTI-USE PATH
NO SCALE

Tighe&Bond

Multi-Family Development

Torrington Properties, Inc.

Portsmouth, New Hampshire

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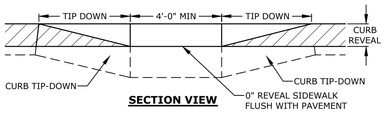
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

DETAILS

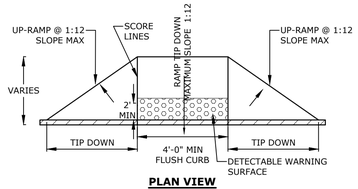
SCALE: AS SHOWN

C-502

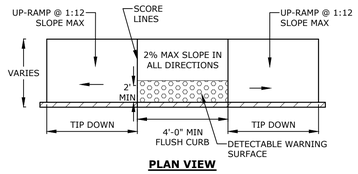
Last Saved: 12/8/2021
Plotted On: Dec 08, 2021 - 11:31am By: CKrzcuik
Tighe & Bond: J:\T\T5047 Torrington Properties\001 Constitution Ave, Portsmouth NH\Drawings_Figures\AutoCAD\Sheet\T5047-001-C-DTLS.dwg



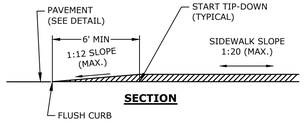
SECTION VIEW



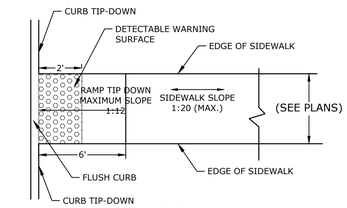
PLAN VIEW



PLAN VIEW



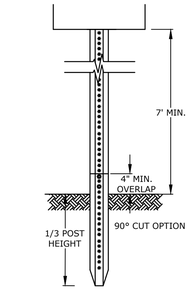
SECTION



PLAN

NOTES:
1. RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
2. A 9" COMPACTED CRUSHED GRAVEL BASE (NHDOT ITEM No. 304.3) SHALL BE PROVIDED BENEATH RAMPS.
3. DETECTABLE WARNING PANEL SHALL BE CAST IRON WITH BLACK COATING

CONCRETE SIDEWALK TIP-DOWN
RAMPS WITH DETECTABLE WARNING PANEL
NO SCALE

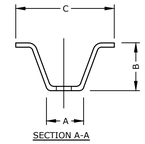


* IN LEDGE DRILL & GROUT TO A MIN OF 2'

SIGN POST TO COMPLY WITH ALL ASPECTS OF NHDOT SECTION 615.

LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)
HOLES: 3/8" DIAMETER, 1" C-C FULL LENGTH
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASSTM A-576 (GRADE 1070 - 1080)
FINISH: SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

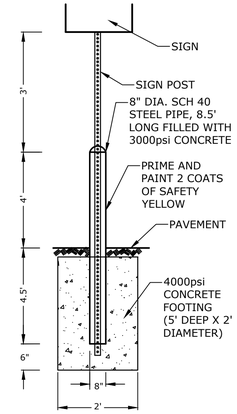
WT.	A	B	C
3 LBS	1 3/4" OR 1 5/16"	1 3/4" OR 1 5/8"	3 1/4"
4 LBS	1 5/8"	1 3/4"	3 1/4"



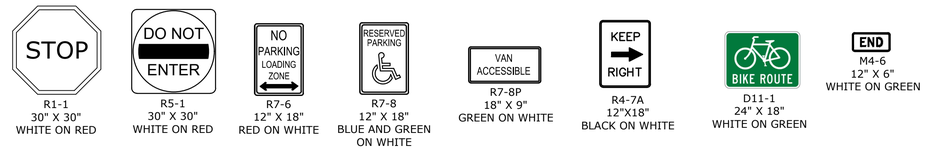
SECTION A-A

NOTES:
1. STEEL FOR POSTS SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A 499-81 GRADE 60 AND TO THE CHEMICAL REQUIREMENTS OF ASTM A1-76 CARBON STEEL TEE RAIL HAVING NOMINAL WEIGHT OF 91 LBS. OR GREATER PER LINEAR YARD.
2. AFTER FABRICATION, ALL STEEL POSTS SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A 123.
3. ALL SIGN POSTS SHALL HAVE "BREAKAWAY" FEATURES THAT MEET AASHTO REQUIREMENTS CONTAINED IN "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS-1985." THE "BREAKAWAY" FEATURES SHALL BE STRUCTURALLY ADEQUATE TO CARRY THE SIGNS SHOWN IN THE PLANS AT 60 MPH WIND LOADINGS. INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
4. TYPE A POSTS - 3 LB/FT TYPE B POSTS - 4 LB/FT.
5. ALL SIGNS TO BE CONSTRUCTED PER THE LATEST EDITION OF THE FHWA STANDARD HIGHWAY SIGNS MANUAL AND INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
6. MEET REQUIREMENTS OF SECTION 615 SIGNS OF NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2010 EDITION, AS AMENDED.

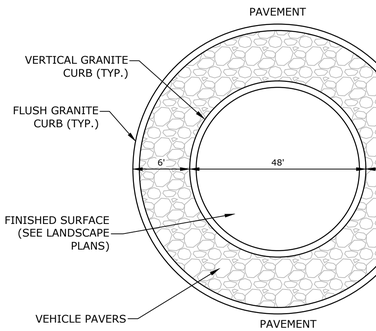
SIGN POST
NO SCALE



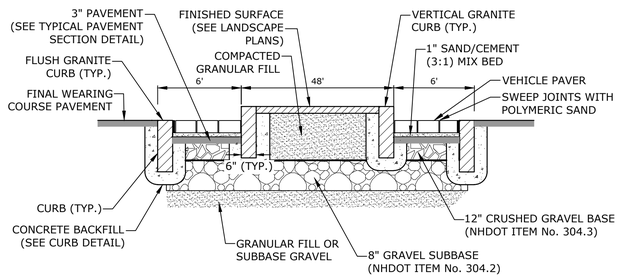
BOLLARD MOUNTED SIGN DETAIL
NO SCALE



SIGN LEGEND & SIGN POST
NO SCALE



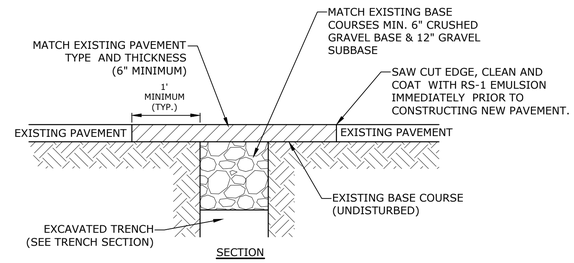
DROP OFF PLAN VIEW



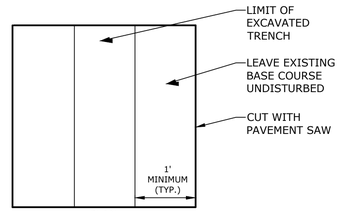
DROP OFF CENTER SECTION

NOTES:
1. BEDDING MATERIAL SHALL BE A SAND/CEMENT MIX THAT IS 3 PARTS SAND AND 1 PART CEMENT. SAND SHALL CONFORM WITH ASTM C33 AND CEMENT SHALL BE PORTLAND CEMENT TYPE I/TYPE II.

DROP OFF CENTER
NO SCALE



SECTION



PLAN

NOTE:
COORDINATE AND OBTAIN APPROVAL FOR ALL TRENCHING AND PATCHING WITHIN CITY RIGHT OF WAY WITH CITY OF PORTSMOUTH DPW PRIOR TO COMMENCING WORK.

ROADWAY TRENCH PATCH
NO SCALE

Tighe&Bond

BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE
12/8/21

PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE
12/08/21

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DETAILS

SCALE: AS SHOWN

C-503

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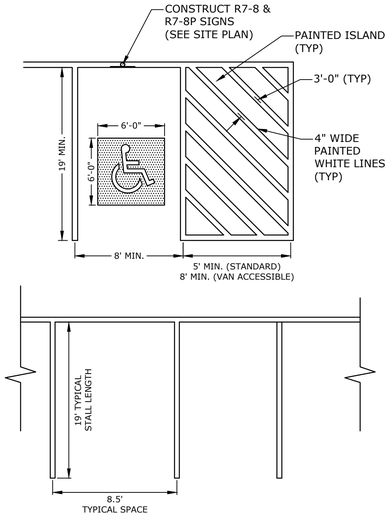
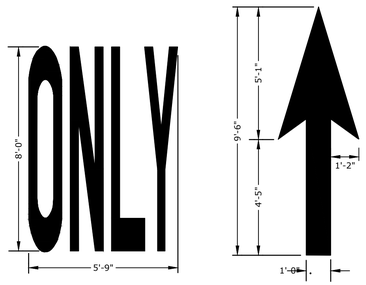


NOTE:
1. ALL PAINT SHALL BE FAST DRYING TRAFFIC PAINT, METHING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
2. SYMBOLS & PARKING STALLS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
3. FINISH PAVEMENT GRADES AT ALL HANDICAP ACCESSIBLE STALLS AND PAINTED ACCESS AISLES SHALL NOT EXCEED 2% IN ANY DIRECTION.

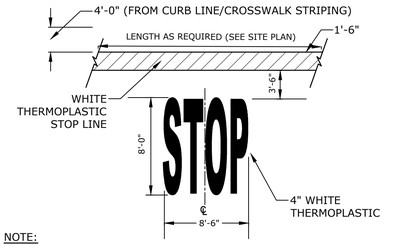
STALL STRIPING
NO SCALE



ONLY LEGEND THROUGH (STRAIGHT) ARROW

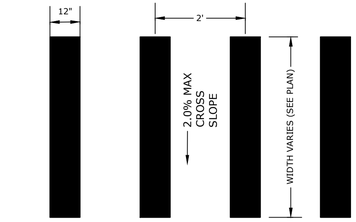
NOTES:
1. ALL WORDS AND SYMBOLS SHALL BE RETROREFLECTIVE WHITE AND SHALL CONFORM TO THE LATEST VERSION OF THE MUTCD.
2. ALL PAINT SHALL BE FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.

DIRECTIONAL PAVEMENT MARKING DETAILS
NO SCALE



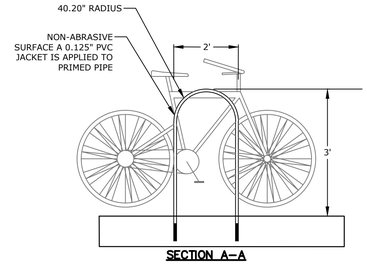
NOTE:
1. PAVEMENT MARKINGS TO BE INSTALLED IN LOCATIONS AS SHOWN ON SITE PLAN.
2. STRIPING SHALL BE CONSTRUCTED USING WHITE THERMO PLASTIC, REFLECTERIZED PAVEMENT MARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505

STOP BAR AND LEGEND
NO SCALE

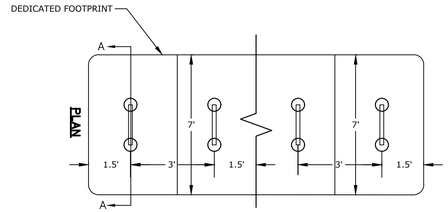


NOTE:
STRIPING SHALL BE CONSTRUCTED USING WHITE THERMO PLASTIC, REFLECTERIZED PAVEMENT MARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505

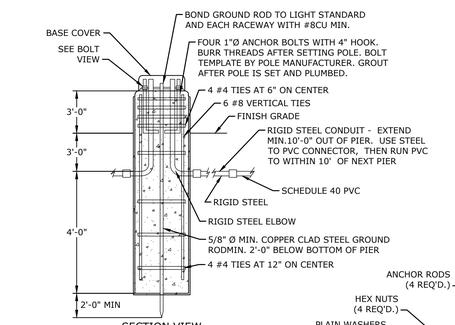
CROSSWALK STRIPING
NO SCALE



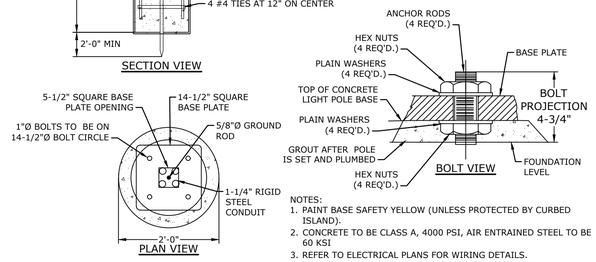
SECTION A–A



BIKE RACK
NO SCALE



SECTION VIEW

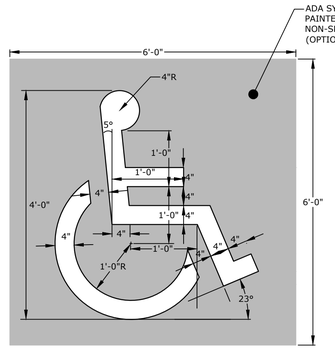


PLAN VIEW

BOLT VIEW

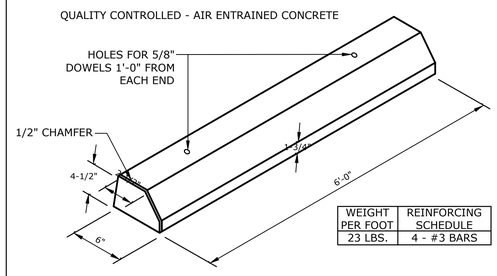
NOTES:
1. PAINT BASE SAFETY YELLOW (UNLESS PROTECTED BY CURBED ISLAND).
2. CONCRETE TO BE CLASS A, 4000 PSI, AIR ENTRAINED STEEL TO BE 60 KSI
3. REFER TO ELECTRICAL PLANS FOR WIRING DETAILS.
4. LIGHT POLE BASE DETAIL FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL, TO INCLUDE PERFORMANCE SPECIFICATIONS, CALCULATIONS AND NH LICENSED STRUCTURAL ENGINEER'S STAMP FOR LIGHT POLE FOUNDATION.

TYPICAL LIGHT POLE BASE
NO SCALE



NOTES:
1. SYMBOL SHALL BE CONSTRUCTED IN ALL ACCESSIBLE SPACES USING WHITE THERMOPLASTIC, REFLECTORIZED PAVEMENT PARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505.
2. SYMBOL SHALL BE CONSTRUCTED TO THE LATEST ADA, STATE AND LOCAL REQUIREMENTS.

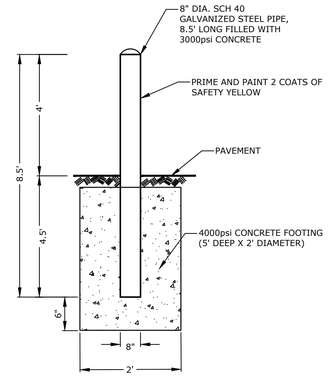
ACCESSIBLE SYMBOL
NO SCALE



WEIGHT PER FOOT	REINFORCING SCHEDULE
23 LBS.	4 - #3 BARS

NOTE:
1. CURBING TO BE PINNED THROUGH ASPHALT PAVEMENT.

CONCRETE WHEEL STOP
NO SCALE



BOLLARD DETAIL
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER – 12.8.21

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER – 12/08/21

Multi-Family Development

Torrington Properties, Inc.

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
F	12/8/2021	PB Submission
E	11/22/2021	TAC Resubmission
D	10/27/2021	Revised Site Data Table
C	10/18/2021	TAC Submission
B	9/2/2021	Design Review - TAC WS
A	8/5/2021	PB Conceptual Consultation

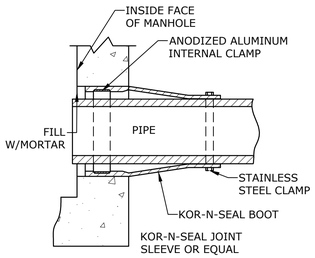
PROJECT NO:	T-5047-001
DATE:	August 5, 2021
FILE:	T5047-001-C-DTLS.DWG
DRAWN BY:	NAH
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

DETAILS

SCALE: AS SHOWN

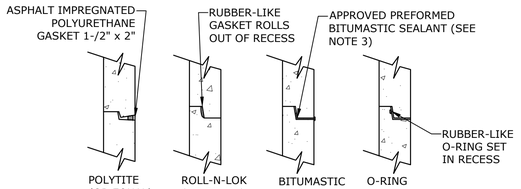
C-504

Last Saved: 11/22/2021
Plotted On: Dec 08, 2021 - 9:47am By: CKrzcuk
Tighe & Bond: J:\TYT5047 Torrington Properties\001 Constitution Ave, Portsmouth NH\Drawings, Figures\AutoCAD\Sheet\T5047-001-C-DTLS.dwg



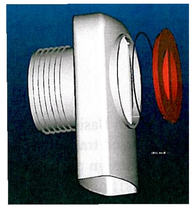
PIPE TO MANHOLE JOINTS

NOTES:
1. HORIZONTAL JOINTS BETWEEN THE SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE PER CITY OF PORTSMOUTH DPW STANDARD AND SHALL BE SEALED FOR WATERTIGHTNESS USING A DOUBLE ROW ELASTOMERIC OR MASTIC-LIKE GASKET.
2. PIPE TO MANHOLE JOINTS SHALL BE PER CITY OF PORTSMOUTH STANDARD.
3. FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT LEAST 75% OF THE JOINT CAVITY.
4. ALL GASKETS, SEALANTS, MORTAR, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS.



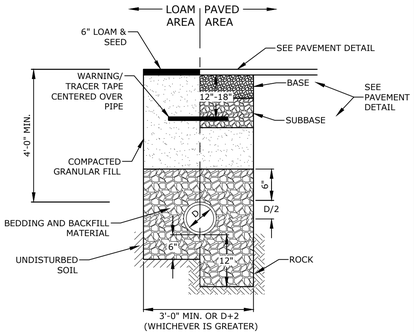
HORIZONTAL JOINTS

MANHOLE JOINTS
NO SCALE



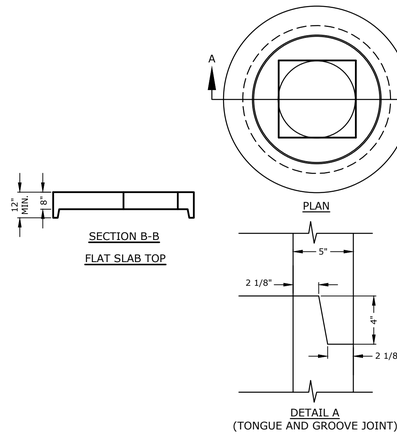
NOTES:
1. ALL CATCH BASIN OUTLETS TO HAVE "ELIMINATOR" OIL AND FLOATING DEBRIS TRAP MANUFACTURED BY KLEANSTREAM (NO EQUAL)
2. INSTALL DEBRIS TRAP TIGHT TO INSIDE OF STRUCTURE.
3. 1/4" HOLE SHALL BE DRILLED IN TOP OF DEBRIS TRAP

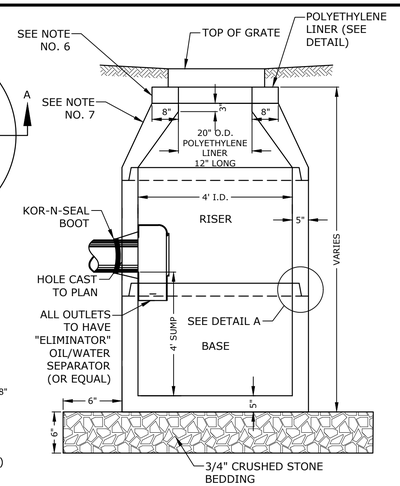
"ELIMINATOR" OIL FLOATING DEBRIS TRAP
NO SCALE



NOTE:
1. CRUSHED STONE BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 6" ABOVE TOP OF PIPE.
2. ALL UTILITIES SHALL BE INSTALLED PER THE INDIVIDUAL UTILITY COMPANY STANDARDS. COORDINATE ALL INSTALLATIONS WITH INDIVIDUAL UTILITY COMPANIES AND THE CITY OF PORTSMOUTH.
3. DRAIN LINE SHALL BE INSULATED WHERE THERE IS LESS THAN 6' OF COVER IN PAVED AREAS AND LESS THAN 4' OF COVER IN NON-PAVED AREAS.

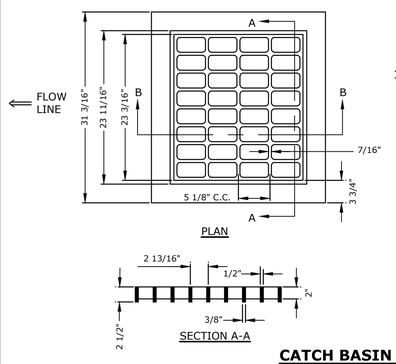
STORM DRAIN TRENCH
NO SCALE

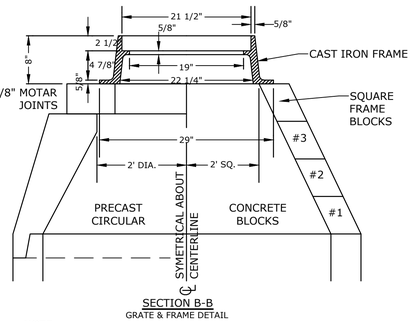




NOTES:
1. ALL SECTIONS SHALL BE CONCRETE CLASS AA(4000 psi).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
6. FITTING FRAME TO GRADE MAY BE DONE WITH PREFABRICATED ADJUSTMENT RINGS OR CLAY BRICKS (2 COURSES MAX.).
7. CONE SECTIONS MAY BE EITHER CONCENTRIC OR ECCENTRIC, OR FLAT SLAB TOPS MAY BE USED WHERE PIPE WOULD OTHERWISE ENTER INTO THE CONE SECTION OF THE STRUCTURE AND WHERE PERMITTED.
8. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
9. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
10. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
11. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
12. "ELIMINATOR" OIL/WATER SEPARATOR SHALL BE INSTALLED TIGHT TO INSIDE OF CATCHBASIN.

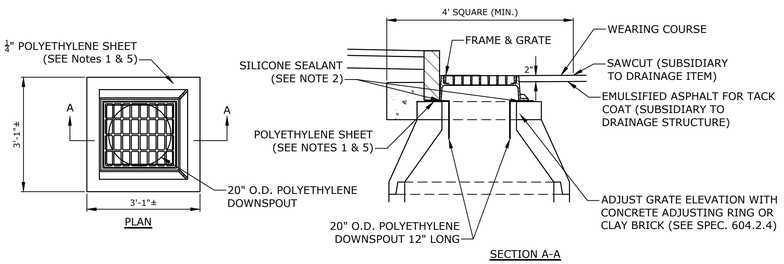
4' DIAMETER CATCHBASIN
NO SCALE





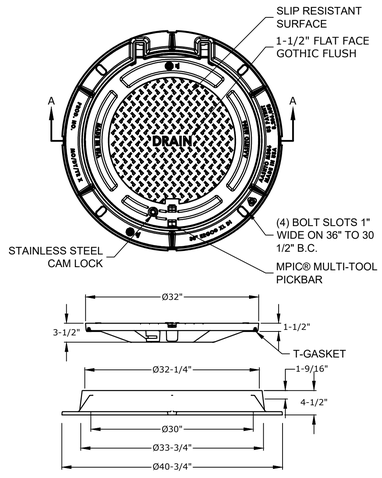
NOTE:
1. GRATE TO BE CAST IRON (NHDOT TYPE B)
2. FRAME AND GRATE TO BE MANUFACTURED IN THE USA

CATCH BASIN FRAME & GRATE
NO SCALE



NOTES:
1. POLYETHYLENE LINER (ITEM 604.0007) SHALL BE FABRICATED AT THE SHOP. DOWNSPOUT SHALL BE EXTRUSION FILLET WELDED TO THE POLYETHYLENE SHEET.
2. PLACE A CONTINUOUS BEAD OF AN APPROVED SILICONE SEALANT (SUBSIDIARY TO ITEM 604.0007) BETWEEN FRAME AND POLYETHYLENE SHEET.
3. PLACE CLASS AA CONCRETE TO 2" BELOW THE TOP OF THE GRATE ELEVATION (SUBSIDIARY TO DRAINAGE STRUCTURE).
4. USE ON DRAINAGE STRUCTURES 4' MIN. DIAMETER ONLY.
5. TRIM POLYETHYLENE SHEET A MAXIMUM OF 4" OUTSIDE THE FLANGE ON THE FRAME FOR THE CATCH BASIN BEFORE PLACING CONCRETE (EXCEPT AS SHOWN WHEN USED WITH 3-FLANGE FRAME AND CURB).
6. THE CENTER OF THE GRATE & FRAME MAY BE SHIFTED A MAXIMUM OF 6" FROM THE CENTER OF THE DOWNSPOUT IN ANY DIRECTION.
7. PLACED ONLY IN DRAINAGE STRUCTURES IN PAVEMENT.
8. SEE NHDOT DR-04, "DI-DB, UNDERDRAIN FLUSHING BASIN AND POLYETHYLENE LINER DETAILS", FOR ADDITIONAL INFORMATION.
9. CATCHBASINS WITHIN CITY RIGHT OF WAY SHALL HAVE A POLYETHYLENE LINER.

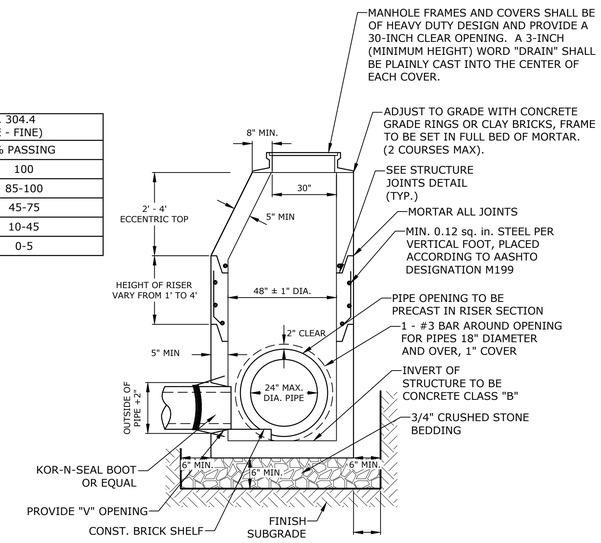
POLYETHYLENE LINER
NO SCALE



NOTES:
1. MANHOLE FRAME AND COVER SHALL BE 32" HINGED ERGO XL BY EJ CO.
2. ALL DIMENSIONS ARE NOMINAL.
3. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
   A. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
   B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAMES ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
   C. ALL OTHER PERTINENT REQUIREMENTS OF THE SPECIFICATIONS ARE MET.
4. LABEL TYPE OF MANHOLE WITH 3" HIGH LETTERS IN HE CENTER OF THE COVER.

DRAIN MANHOLE FRAME & COVER
NO SCALE

NHDOT ITEM No. 304.4 (CRUSHED STONE - FINE)	
SIEVE SIZE	% PASSING
2"	100
1-1/2"	85-100
3/4"	45-75
#4	10-45
#200	0-5



NOTES:
1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
4. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
5. CONSTRUCT CRUSHED STONE BEDDING AND BACKFILL UNDER (6" MINIMUM THICKNESS)
6. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
7. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
8. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
9. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
10. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZNTAL CROSS SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS.

4' DIAMETER DRAIN MANHOLE
NO SCALE

Tighe&Bond

Multi-Family Development

Torrington Properties, Inc.

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
F	12/8/2021	PB Submission
E	11/22/2021	TAC Resubmission
D	10/27/2021	Revised Site Data Table
C	10/18/2021	TAC Submission
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PROJECT NO:	T-5047-001
DATE:	August 5, 2021
FILE:	T5047-001-C-DTLS.DWG
DRAWN BY:	NAH
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

DETAILS

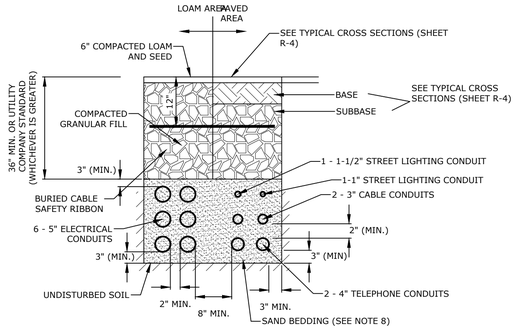
SCALE: AS SHOWN

C-505

Last Saved: 11/22/2021
Plotted On: Dec 08, 2021 9:48am By: CKrzculk
Tighe & Bond: J:\T\T5047 Torrington Properties\001 Constitution Ave, Portsmouth NH\Drawings_Figures\AutoCAD\Sheet\T5047-001-C-DTLS.dwg

GRANULAR FILL (GRAVEL)	
SIEVE SIZE	% PASSING
3"	95-100
#4	25-70

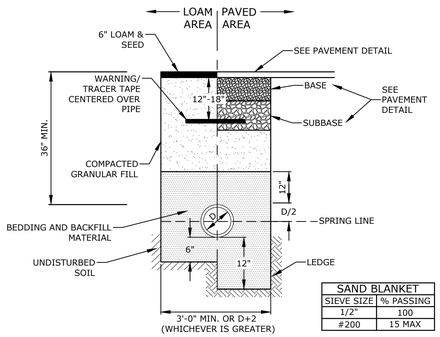
SAND BLANKET	
SIEVE SIZE	% PASSING
1/2"	100
#200	15 MAX



AASHTO #67 STONE (#4 to 3/4")	
SIEVE SIZE	% PASSING
1"	100
3/4"	90-100
3/8"	20-55
#4	0-10
#8	0-5

NOTE:
1. NUMBER, MATERIAL, AND SIZE OF UTILITY CONDUITS TO BE DETERMINED BY LOCAL UTILITY OR AS SHOWN ON ELECTRICAL DRAWINGS. CONTRACTOR TO PROVIDE ONE SPARE CONDUIT FOR EACH UTILITY TO BUILDING.
2. DIMENSIONS SHOWN REPRESENT OWNERS MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS MAY BE GREATER BASED ON UTILITY COMPANY STANDARDS, BUT SHALL NOT BE LESS THAN THOSE SHOWN.
3. NO CONDUIT RUN SHALL EXCEED 360 DEGREES IN TOTAL BENDS.
4. A SUITABLE PULLING STRING, CAPABLE OF 200 POUNDS OF PULL, MUST BE INSTALLED IN THE CONDUIT BEFORE UTILITY COMPANY IS NOTIFIED TO INSTALL CABLE. THE STRING SHOULD BE BLOWN INTO THE CONDUIT AFTER THE RUN IS ASSEMBLED TO AVOID BONDING THE STRING TO THE CONDUIT.
5. UTILITY COMPANY MUST BE GIVEN THE OPPORTUNITY TO INSPECT THE CONDUIT PRIOR TO BACKFILL. THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS SHOULD THE UTILITY COMPANY BE UNABLE TO INSTALL ITS CABLE IN A SUITABLE MANNER.
6. ALL CONDUIT INSTALLATIONS MUST CONFORM TO THE CURRENT EDITION OF THE NATIONAL ELECTRIC SAFETY CODE, STATE AND LOCAL CODES AND ORDINANCES, AND, WHERE APPLICABLE, THE NATIONAL ELECTRIC CODE.
7. ALL 90° SWEEPS WILL BE MADE USING RIGID GALVANIZED STEEL. SWEEPS WITH A 36 TO 48 INCH RADIUS.
8. SAND BEDDING TO BE REPLACED WITH CONCRETE ENCASEMENT WHERE COVER IS LESS THAN 3 FEET, WHEN LOCATED BELOW PAVEMENT, OR WHERE SHOWN ON THE UTILITIES PLAN.

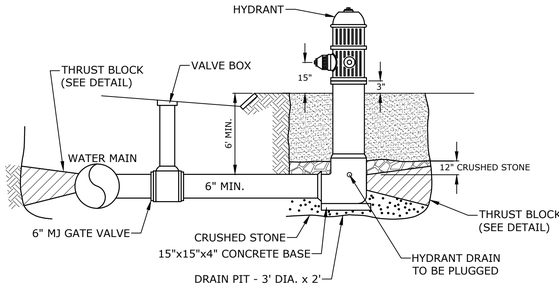
ELECTRICAL AND COMMUNICATION CONDUIT
NO SCALE



SAND BLANKET	
SIEVE SIZE	% PASSING
1/2"	100
#200	15 MAX

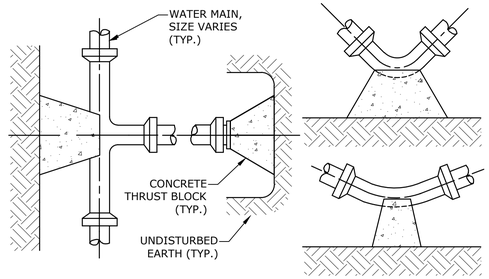
NOTE:
1. SAND BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 12" ABOVE TOP OF PIPE.
2. GAS LINE SHALL BE INSTALLED PER THE INDIVIDUAL UTILITY COMPANY STANDARDS. COORDINATE ALL INSTALLATIONS WITH INDIVIDUAL UTILITY COMPANIES AND THE CITY/TOWN OF ????.

GAS TRENCH
NO SCALE



NOTE:
1. HYDRANT TO BE KENNEDY TYPE K-81, RIGHT OPEN (NO EQUAL). COORDINATE WITH CITY OF PORTSMOUTH WATER DEPARTMENT AND CITY OF PORTSMOUTH FIRE DEPARTMENT.
2. PAINT HYDRANT IN ACCORDANCE WITH CITY STANDARD SPECIFICATIONS AFTER INSTALLATION AND TESTING.

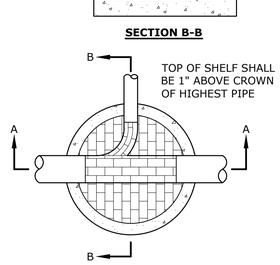
FIRE HYDRANT
NO SCALE

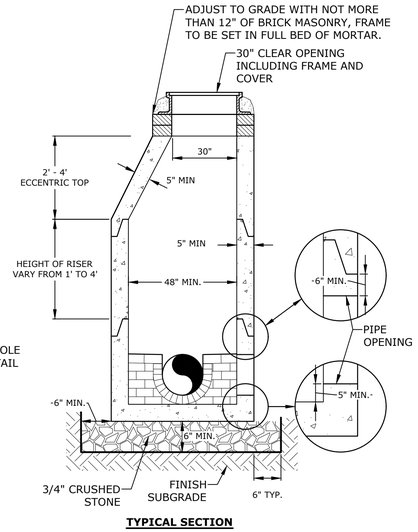


TEST PRESSURE = 200psi	SQUARE FEET OF CONCRETE THRUST BLOCKING BEARING ON UNDISTURBED MATERIAL				
REACTION TYPE	PIPE SIZE				
	4"	6"	8"	10"	12"
A 90°	0.89	2.19	3.82	11.14	17.24
B 180°	0.65	1.55	2.78	8.38	12.00
C 45°	0.48	1.19	2.12	6.02	9.32
D 22-1/2°	0.25	0.60	1.06	3.08	4.74
E 11-1/4°	0.13	0.30	0.54	1.54	2.38

NOTES:
1. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL, WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE.
2. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
3. PLACE BOARD IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCKS.
4. WHERE M.J. PIPE IS USED, M.J. PLUG WITH RETAINER GLAND MAY BE SUBSTITUTED FOR END BLOCKINGS.
5. INSTALLATION AND STANDARD DIMENSIONAL REQUIREMENTS SHALL BE WITH CITY OF PORTSMOUTH WATER DEPARTMENT STANDARDS.

THRUST BLOCKING DETAIL
NO SCALE

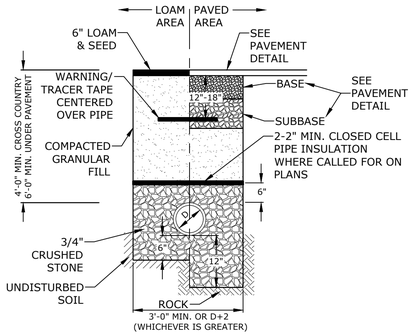




TYPICAL SECTION

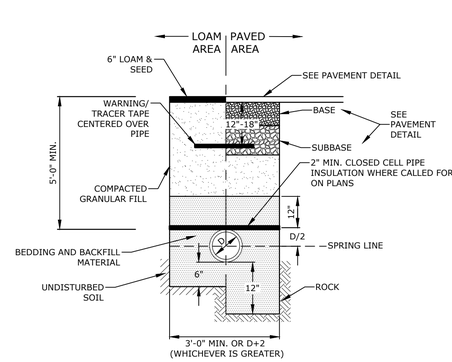
NOTES:
1. INVERT AND SHELF TO BE PLACED AFTER EACH LEAKAGE TEST.
2. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT.
3. INVERT BRICKS SHALL BE LAID ON EDGE.
4. TWO (2) COATS OF BITUMINOUS WATERPROOF COATING SHALL BE APPLIED TO ENTIRE EXTERIOR OF MANHOLE.
5. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS WITHIN CITY RIGHT OF WAY SHALL BE CITY STANDARD HINGE COVERS MANUFACTURED BY EJ. FRAMES AND COVERS WILL BE PURCHASED FROM THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS. ALL OTHER MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. A 3-INCH (MINIMUM HEIGHT) WORD "SEWER" SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
6. HORIZONTAL JOINTS SHALL BE SEALED FOR WATER TIGHTNESS USING A DOUBLE ROW OF ELASTOMERIC OR MASTIC-LIKE SEALANT.
7. BARREL AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE DESIGNED FOR H20 LOADING, AND CONFORMING TO ASTM C478-06.

SEWER MANHOLE
NO SCALE



NOTE:
1. CRUSHED STONE BEDDING FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK. CRUSHED STONE SHALL ALSO COMPLETELY ENCASE THE PIPE AND COVER THE PIPE TO A GRADE 6" OVER THE TOP OF THE PIPE FOR THE ENTIRE WIDTH OF THE TRENCH.
2. COORDINATE ALL INSTALLATIONS WITH THE CITY OF PORTSMOUTH.

SEWER SERVICE TRENCH
NO SCALE



SAND BLANKET	
SIEVE SIZE	% PASSING
1/2"	100
#200	15 MAX

GRANULAR FILL (GRAVEL)	
SIEVE SIZE	% PASSING
3"	95-100
#4	25-70

AASHTO #67 STONE (#4 to 3/4")	
SIEVE SIZE	% PASSING
1"	100
3/4"	90-100
3/8"	20-55
#4	0-10
#8	0-5

NOTE:
1. SAND BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 12" ABOVE TOP OF PIPE.
2. ALL UTILITIES SHALL BE INSTALLED PER THE INDIVIDUAL UTILITY COMPANY STANDARDS. COORDINATE ALL INSTALLATIONS WITH INDIVIDUAL UTILITY COMPANIES AND THE CITY OF PORTSMOUTH.

WATER TRENCH
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER
12/8/21

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER
12/08/21

Multi-Family Development

Torrington Properties, Inc.

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
F	12/8/2021	PB Submission
E	11/22/2021	TAC Resubmission
D	10/27/2021	Revised Site Data Table
C	10/18/2021	TAC Submission
B	9/2/2021	Design Review - TAC WS
A	8/5/2021	PB Conceptual Consultation

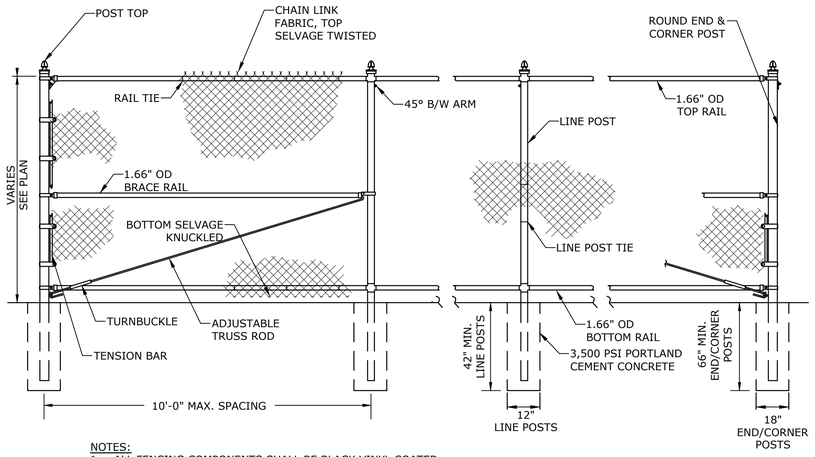
PROJECT NO:	T-5047-001
DATE:	August 5, 2021
FILE:	T5047-001-C-DTLS.DWG
DRAWN BY:	NAH
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

DETAILS

SCALE: AS SHOWN

C-506

Last Saved: 11/22/2021
Plotted On: Dec 08, 2021 - 9:48am By: CKrzculk
Tighe & Bond: J:\T\T5047 Torrington Properties\001 Constitution Ave, Portsmouth NH\Drawings_ Figures\AutoCAD\Sheet\T5047-001-C-DTLS.dwg

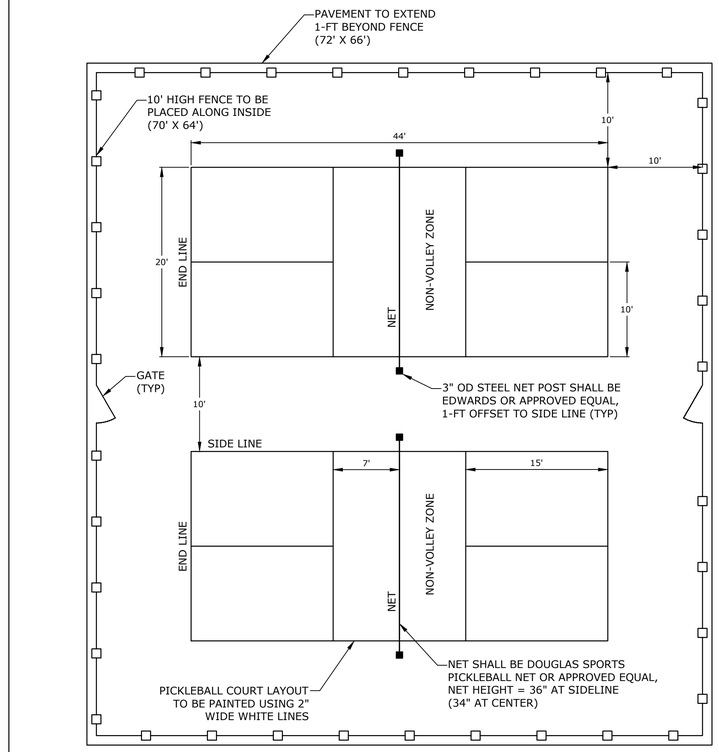


NOTES:
1. ALL FENCING COMPONENTS SHALL BE BLACK VINYL COATED.
2. CHAIN LINK FABRIC SHALL BE MADE OF 9 GAUGE STEEL WIRE, 1" MESH SIZE, AND HOT DIPPED GALVANIZED PRIOR TO WEAVING. ONE EDGE OF THE FABRIC SHALL BE FINISHED WITH A SELVAGE TWIST AND THE OTHER WITH A SELVAGE KNUCKLE.
3. ALL POSTS SHALL BE PLUMB IN ALL DIRECTIONS.
4. LINE & TERMINAL POSTS, BRACE TUBES, TOP RAILS, BOTTOM RAILS, & GATE POSTS SHALL ALL BE SCHEDULE 40 PIPE. REFERENCED DIAMETER IS NOMINAL.
5. GATE FRAME SHALL BE WELDED, USE OF CORNER FITTINGS WILL NOT BE PERMITTED.
6. FOOTING DIMENSIONS ARE PROTOTYPICAL AND NEED TO BE CONFIRMED BY MANUFACTURER FOR CURRENT SITE CONDITIONS.

CHAIN LINK FENCE
NO SCALE

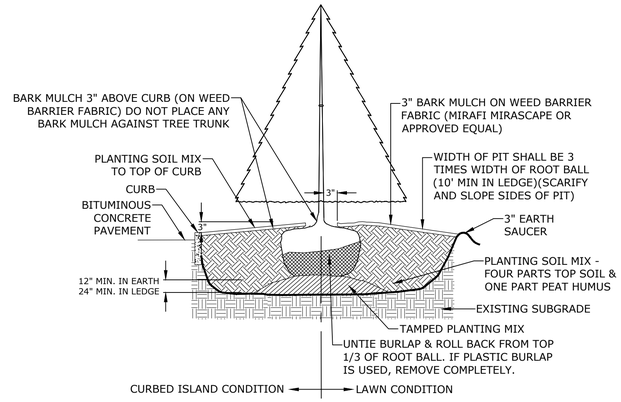
NOTES:
1. CONTAINMENT MUST BE STRUCTURALLY SOUND AND LEAK FREE AND CONTAIN ALL LIQUID WASTES.
2. CONTAINMENT DEVICES MUST BE OF SUFFICIENT QUANTITY OR VOLUME TO COMPLETELY CONTAIN THE LIQUID WASTES GENERATED.
3. WASHOUT MUST BE CLEANED OR NEW FACILITIES CONSTRUCTED AND READY TO USE ONCE WASHOUT IS 75% FULL.
4. WASHOUT AREA(S) SHALL BE INSTALLED IN A LOCATION EASILY ACCESSIBLE BY CONCRETE TRUCKS.
5. ONE OR MORE AREAS MAY BE INSTALLED ON THE CONSTRUCTION SITE AND MAY BE RELOCATED AS CONSTRUCTION PROGRESSES.
6. AT LEAST WEEKLY REMOVE ACCUMULATION OF SAND AND AGGREGATE AND DISPOSE OF PROPERLY.

CONCRETE WASHOUT AREA
NO SCALE



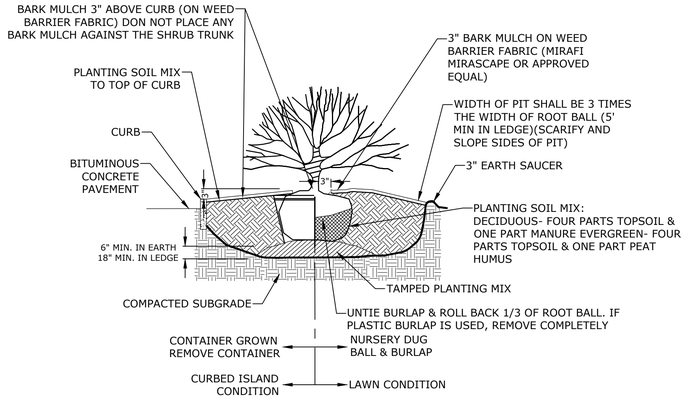
NOTES:
1. COURTS SHALL BE SURFACED AND STRIPED WITH PREMIER SPORTS SURFACE MANUFACTURED BY CALIFORNIA SPORTS SURFACES.
2. COURT SURFACE SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

PICKLEBALL COURT TYPICAL LAYOUT
NO SCALE



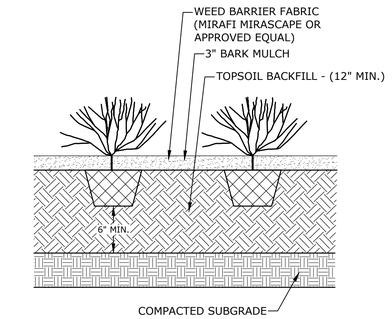
NOTE: PLANT AT SAME DEPTH AS PREVIOUSLY PLANTED IN NURSERY, OR WITHIN 2" ABOVE.

EVERGREEN TREE PLANTING
NO SCALE



NOTE: PLANT AT SAME DEPTH AS PREVIOUSLY PLANTED, OR WITHIN 2" ABOVE.

SHRUB PLANTING
NO SCALE



PERENNIAL PLANTING
NO SCALE

Tighe&Bond

STATE OF NEW HAMPSHIRE – BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER – 12.8.21

STATE OF NEW HAMPSHIRE – PATRICK CRIMMINS No. 12378 LICENSED PROFESSIONAL ENGINEER – 12/08/21

Multi-Family Development

Torrington Properties, Inc.

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
F	12/8/2021	PB Submission
E	11/22/2021	TAC Resubmission
D	10/27/2021	Revised Site Data Table
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PROJECT NO:	T-5047-001
DATE:	August 5, 2021
FILE:	T5047-001-C-DTLS.DWG
DRAWN BY:	NAH
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

DETAILS

SCALE: AS SHOWN

C-507

Last Saved: 11/22/2021
Plotted On: Dec 08, 2021 9:48am By: CKrzcuik
Tighe & Bond: J:\TT\5047 Torrington Properties\001 Constitution Ave, Portsmouth NH\Drawings, Figures\AutoCAD\Sheet\T5047-001-C-DTLS.dwg

1 NORTH ELEVATION
3/32" = 1'-0"

2 SOUTH ELEVATION
3/32" = 1'-0"

ARCHITECT
EMBARC
580 HARRISON AVE, SUITE 2W
BOSTON, MA 02118
O: 617.765.8000
www.embarcdesign.com

OWNER

TORRINGTON PROPERTIES, INC

CONSULTANTS

2454 LAFAYETTE ROAD
PORTSMOUTH, NH

TAC SUBMISSION

REVISIONS

MARK	ISSUE	DATE

DRAWING INFORMATION

ISSUE:	TAC SUBMISSION
DATE:	10/18/21
PROJECT #:	21035
SCALE:	3/32" = 1'-0"

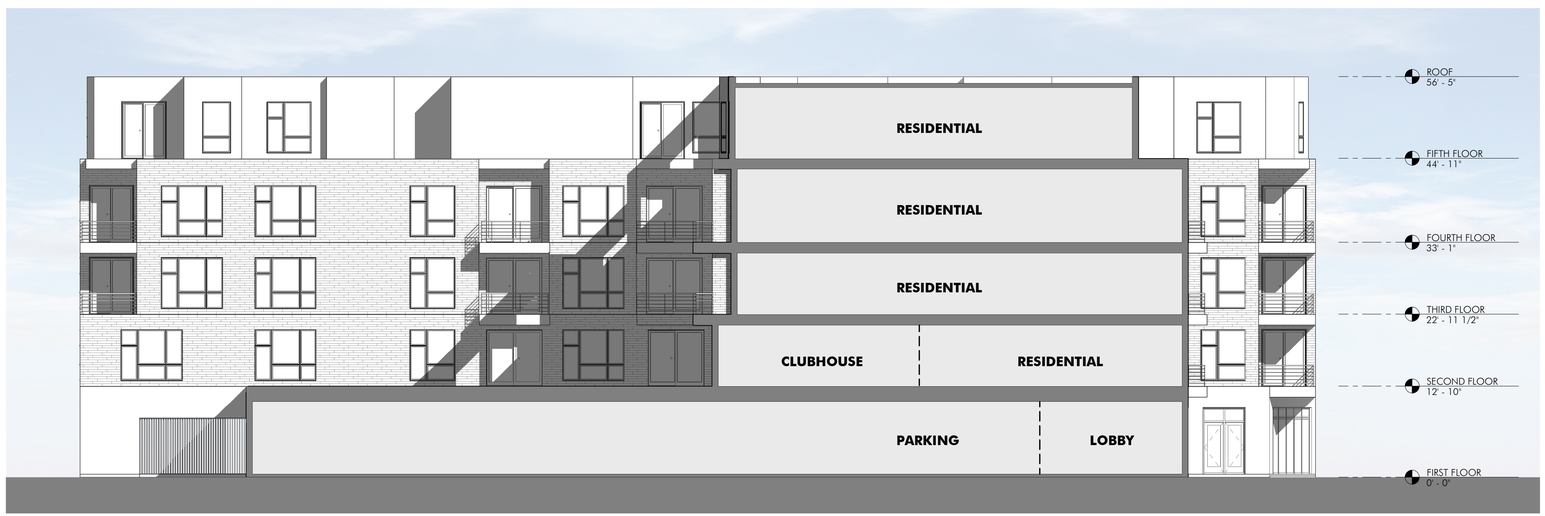
DRAWING TITLE
NORTH/SOUTH ELEVATION

DRAWING NUMBER
A201

copyright: EMBARC INC.

C:\Local Revit\21035_Constitution Ave_051321_CUrlbeLISLH.rvt
12/8/2021 10:49:26 AM

1 WEST ELEVATION
3/32" = 1'-0"



2 WEST SECTION
3/32" = 1'-0"

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OWNER

TORRINGTON PROPERTIES, INC

CONSULTANTS

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PORTSMOUTH, NH

TAC SUBMISSION

REVISIONS

MARK	ISSUE	DATE

DRAWING INFORMATION

ISSUE:	TAC SUBMISSION
DATE:	10/18/21
PROJECT #:	21035
SCALE:	3/32" = 1'-0"

DRAWING TITLE
WEST ELEVATION

DRAWING NUMBER
A202

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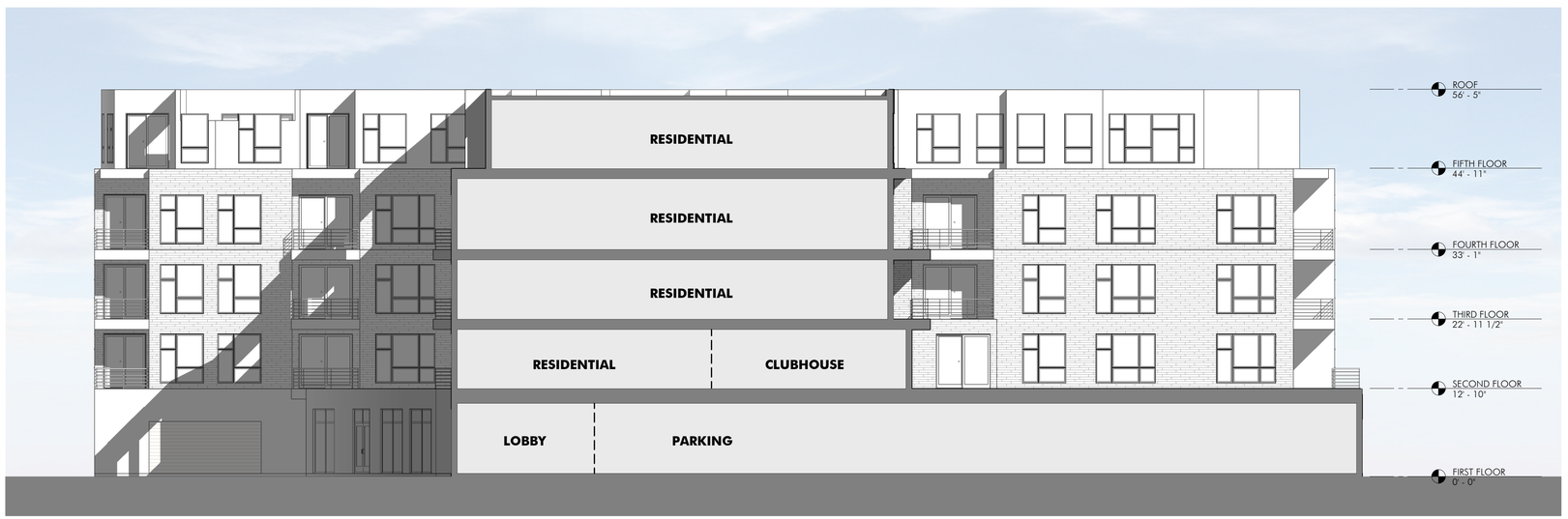
12/8/2021 10:49:41 AM

1 EAST ELEVATION
3/32" = 1'-0"



2 EAST SECTION
3/32" = 1'-0"

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TORRINGTON PROPERTIES, INC

CONSULTANTS

2454 LAFAYETTE ROAD
PORTSMOUTH, NH

TAC SUBMISSION

REVISIONS

MARK	ISSUE	DATE

DRAWING INFORMATION

ISSUE:	TAC SUBMISSION
DATE:	10/18/21
PROJECT #:	21035
SCALE:	3/32" = 1'-0"

DRAWING TITLE
EAST ELEVATION

DRAWING NUMBER
A203

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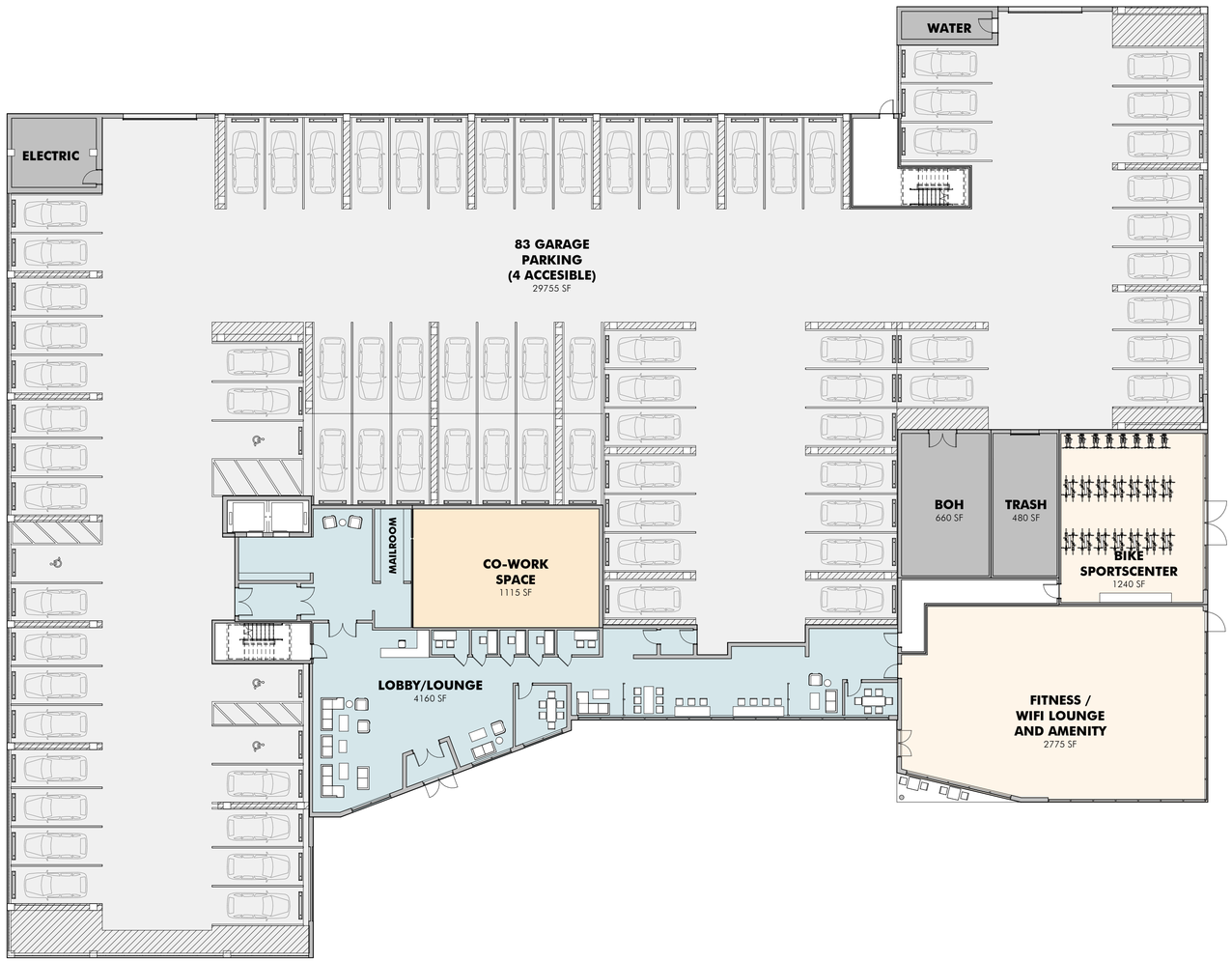

ARCHITECT
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BOSTON, MA 02118
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CONSULTANTS

2454 LAFAYETTE ROAD
PORTSMOUTH, NH

TAC SUBMISSION

REVISIONS

MARK	ISSUE	DATE

DRAWING INFORMATION

ISSUE:	TAC SUBMISSION
DATE:	10/18/21
PROJECT #:	21035
SCALE:	1/16" = 1'-0"

DRAWING TITLE
1ST FLOOR

DRAWING NUMBER
A601

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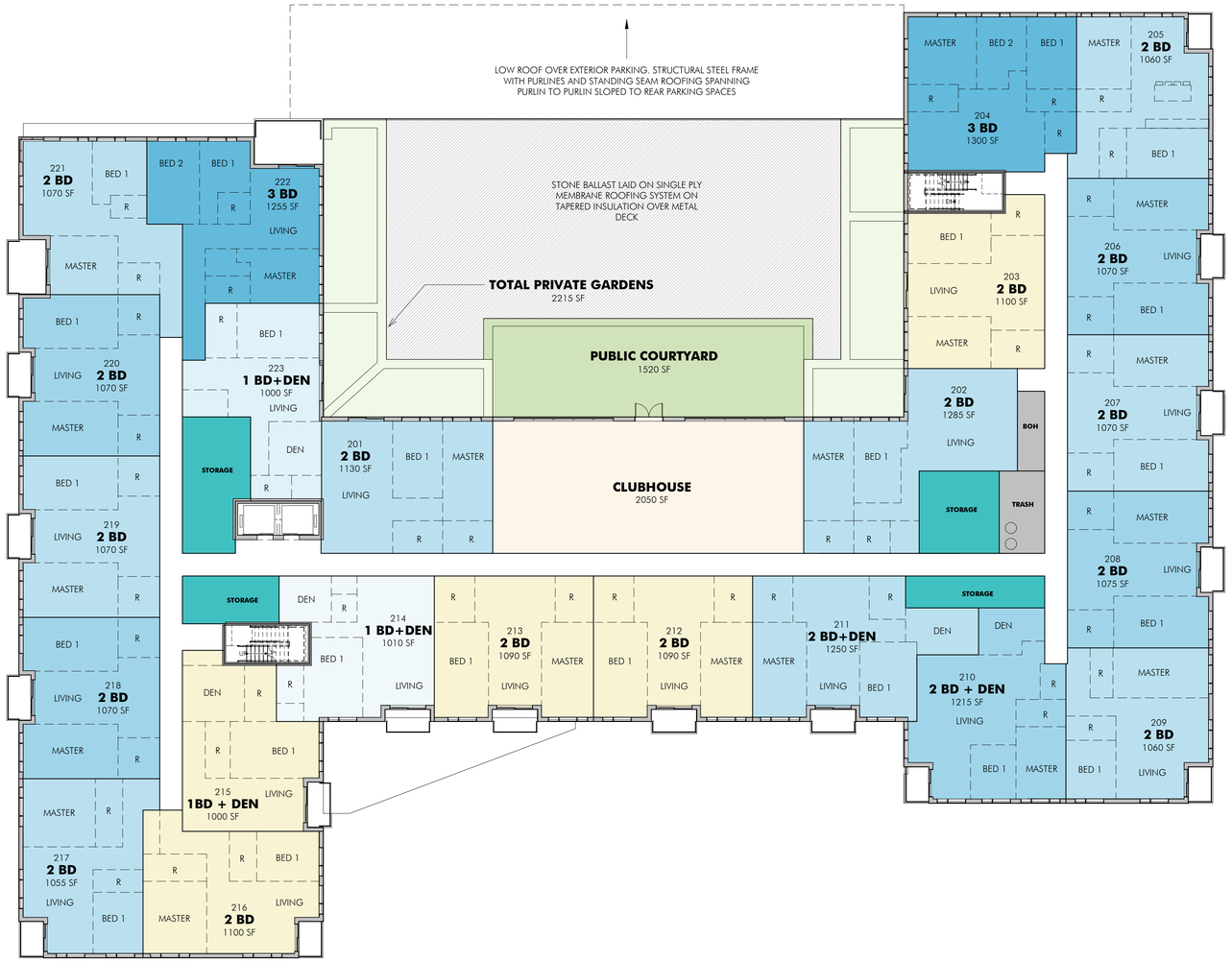

WORKFORCE HOUSING	
UNITS	AREA S.F.
UNIT 203	1,110
UNIT 212	1,090
UNIT 213	1,090
UNIT 215	1,000
UNIT 216	1,100

PLANS HAVE BEEN PREPARED FOR THE SITE PLAN REVIEW PERMIT. FURTHER BUILDING CODE COMPLIANCE WILL BE ADDRESSED PRIOR TO BUILDING PERMIT SUBMISSION

ARCHITECT
EMBARC
580 HARRISON AVE, SUITE 2W
BOSTON, MA 02118
O: 617.765.8000
www.embarcdesign.com

OWNER
TORRINGTON PROPERTIES, INC

CONSULTANTS

2454 LAFAYETTE ROAD
PORTSMOUTH, NH

TAC SUBMISSION

REVISIONS

MARK	ISSUE	DATE
	TRC SUBMISSION	11/22/2021

DRAWING INFORMATION

ISSUE:	TAC SUBMISSION
DATE:	10/18/21
PROJECT #:	21035
SCALE:	As indicated

DRAWING TITLE
2ND FLOOR

DRAWING NUMBER
A602

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WORKFORCE HOUSING	
UNITS	AREA S.F.
UNIT 304	1,010
UNIT 306	1,260
UNIT 312	1,215
UNIT 315	1,090
UNIT 318	1,110
UNIT 404	1,010
UNIT 412	1,215
UNIT 415	1,090
UNIT 418	1,110

ARCHITECT
EMBARC
580 HARRISON AVE, SUITE 2W
BOSTON, MA 02118
O: 617.765.8000
www.embarcdesign.com

OWNER

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CONSULTANTS

2454 LAFAYETTE ROAD
PORTSMOUTH, NH

TAC SUBMISSION

REVISIONS

MARK	ISSUE	DATE
	TRC SUBMISSION	11/22/2021

DRAWING INFORMATION

ISSUE:	TAC SUBMISSION
DATE:	10/18/21
PROJECT #:	21035
SCALE:	As indicated

DRAWING TITLE

3RD TO 4TH FLOOR

DRAWING NUMBER

A603

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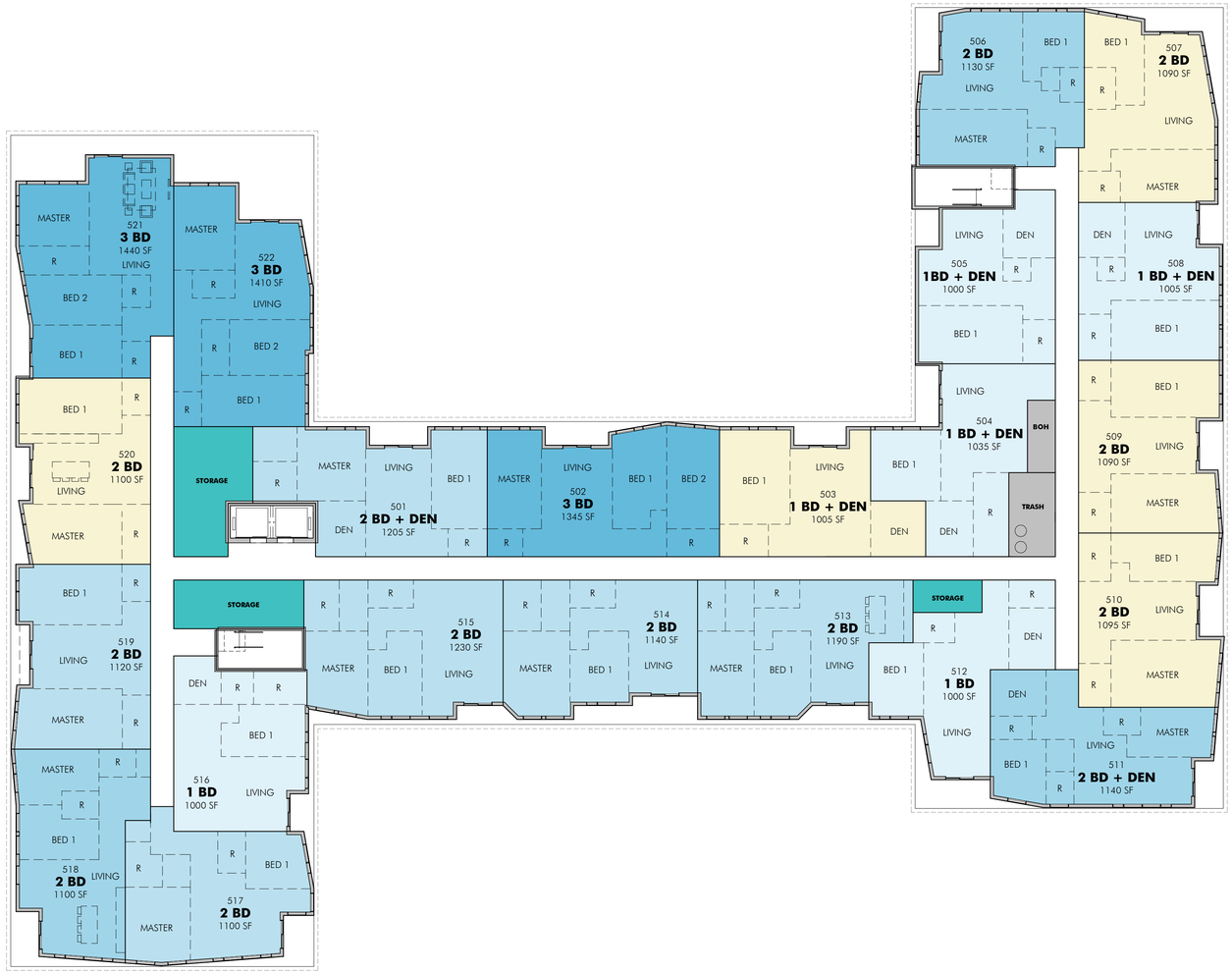

WORKFORCE HOUSING	
UNITS	AREA S.F.
UNIT 503	1,005
UNIT 507	1,090
UNIT 509	1,090
UNIT 510	1,090
UNIT 520	1,100
1 BD+DEN	4 UNITS
2 BD	12 UNITS
2 BD+DEN	2 UNITS
3 BD	1 UNIT
95 UNITS TOTAL	19 UNITS

ARCHITECT
EMBARC
580 HARRISON AVE, SUITE 2W
BOSTON, MA 02118
O: 617.765.8000
www.embarcdesign.com

OWNER

TORRINGTON PROPERTIES, INC

CONSULTANTS

2454 LAFAYETTE ROAD
PORTSMOUTH, NH

TAC SUBMISSION

REVISIONS

MARK	ISSUE	DATE
	TRC SUBMISSION	11/22/2021

DRAWING INFORMATION

ISSUE:	TAC SUBMISSION
DATE:	10/18/21
PROJECT #:	21035
SCALE:	As indicated

DRAWING TITLE

5TH FLOOR

DRAWING NUMBER

A604

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12/8/2021 10:50:06 AM

T5047-001
October 18, 2021

Mr. Peter Britz, Interim Planning Director
City of Portsmouth Planning Department
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: **Conditional Use Permit Request**
2454 Lafayette Road (Portsmouth Green)

Dear Peter:

On behalf of 2422 Lafayette Road Associates, LLC (owner), and Torrington Properties Inc (applicant), we are pleased to submit the following information relative to a request for a Conditional Use Permit (CUP) to provide less than the minimum number of off-street parking spaces for the above-referenced project:

- One (1) copy of the Parking Demand Analysis, dated October 18, 2021;
- One (1) check in the amount of $200 for the CUP application fee

Portsmouth Green, formerly Southgate Plaza, (Project) received a CUP for parking on August 20, 2019 for a new tenant, PINZ, to occupy a portion of the vacant retail space that was formerly Big Lots. A current proposal associated with the Project is related to another change of use. The proposed change of use consists of the demolition of the former Cinemagic movie theater and the construction of a 5-story, 95-unit multifamily condominium building located in the northern corner of the site. Also, a previously approved 5,000 SF restaurant pad that had been proposed and approved for this area will not be constructed.

Due to the change in use for the PINZ, the parking calculations needed to be updated on the Site Plan based on the current Zoning Ordinance. The minimum parking required for the 2016 site approval was based on a previous version of the Zoning Ordinance that included a minimum parking requirement for a Shopping Center Use. While Shopping Center is still a defined Use in the current Zoning Ordinance, the Ordinance no longer has a minimum parking requirement listed for a Shopping Center Use. As such, the minimum parking requirement must be calculated based on each individual commercial use on the property. With this approach the overall site would no longer meet the minimum off-street parking requirement. Therefore, a CUP for parking was applied for and granted on August 20, 2019. With this proposed change of use consisting of the demolition of the movie theater and the construction of a 5-story, 95-unit multifamily condominium building the parking demand analysis included in the existing CUP needs to be updated and the CUP approval amended.

Pursuant Section 10.1112.14, the applicant is respectfully requesting that a CUP be granted by the Planning Board to allow the Project to provide less than the minimum off-street parking spaces required by Section 10.1112.30 or Section 10.1112.61:

- Section 10.1112.141 – The enclosed Parking Demand Analysis has been provided as required by this section. The Parking Demand Analysis demonstrates the off-street parking provided by the Project is sufficient for its Uses.

- Section 10.1112.142 – This section indicates an application for a CUP shall identify permanent evidence-based measures to reduce parking demand. As described in the

enclosed Parking Demand Analysis, the Project provides measures that promotes alternative modes of transportation such as walking, bicycling, and public transportation.

We trust the enclosed information is sufficient to support a Request for a CUP. As per Section 10.1112.141 the City's Technical Advisory Committee (TAC) shall review the Parking Demand Analysis prior to submission to the Planning Board. We respectfully request to be placed on the TAC meeting agenda for November 2, 2021. If you have any questions, please feel free to contact me by phone at (603) 433-8818 or by email at pmcrimmins@tighebond.com.

Sincerely,

TIGHE & BOND, INC.

Patrick M. Crimmins, PE
Senior Project Manager

Neil A. Hansen, PE
Project Engineer

Copy: 2422 Lafayette Road Associates, LLC (via e-mail)
Torrington Properties Inc (via e-mail)
Gregg Mikolaities, August Consulting, PLLC (via e-mail)
John Bosen, Bosen & Associates, PLLC (via e-mail)

Portsmouth Green – Parking Demand Analysis

TO: City of Portsmouth Planning Board

FROM: Patrick M. Crimmins, PE
Neil A. Hansen, PE

COPY: Torrington Properties, Inc.

DATE: October 18, 2021

Tighe & Bond, Inc. (Tighe & Bond) has prepared this Parking Demand Analysis to summarize the parking demand related to Portsmouth Green (the "Project"), a redevelopment of the former Southgate Plaza, located at 2454 Lafayette Road (Route 1) in Portsmouth, New Hampshire.

Project Background

The Project previously received Site Plan Review approval in April 2016 for the construction of the Veridian Residences, a 4-story 95-unit multi-family residential building in the rear of the site, and two (2) new commercial pads in the existing Portsmouth Green parking area. The Veridian building was completed in Fall 2017. In December 2018, Amended Site Plan approval was granted by the Planning Board for amendments related to the front commercial pads. Construction for the front pads was completed in 2020. The most recent land use approval associated with the Project was the conversion of the former Big Lots space, to a PINZ indoor entertainment use. That change in use required two (2) Special Exceptions which were granted by the Zoning Board of Adjustment on June 18, 2019 and a CUP to provide less than the minimum number of off-street parking spaces which was approved on August 20, 2019. PINZ was opened in Summer 2020.

Parking Demand Calculations for Prior Approved Site Plan

Before the change of use for PINZ, the Project was approved under a prior Zoning Ordinance. Minimum parking requirements for the prior approval were calculated based on two uses, Residential and Shopping Center. The project exceeded the minimum off-street parking requirements for the Residential and Shopping Center Uses in the prior Gateway Planned Development (GPD) regulations under which the Project was approved.

Due to the change in use for PINZ, the parking calculations needed to be updated on the Site Plan based on the current Zoning Ordinance. At the time of the change of use the Shopping Center Use no longer had a minimum parking requirement listed in the Table of Off-Street Parking Requirements for Non-Residential Uses in Section 10.1112.32 of the current Zoning Ordinance, so the minimum parking requirement was to be calculated based on each individual commercial use on the property. With this approach the overall site no longer met the minimum parking space requirement based on Section 10.1112 of the current Zoning Ordinance and therefore applied for and was granted a Conditional Use Permit (CUP) which is enclosed as an attachment.

1.1 Parking Demand Calculations for Change of Use

The current proposal associated with the Project is related to a change of use. The proposed change of use consists of the demolition of the former Cinemagic movie theater and the construction of a 5-story, 95-unit multifamily condominium building located in the northern corner of the site. Also, the previously approved 5,000 SF restaurant pad proposed for this area will not be constructed. Using the Table of Off-Street Parking Requirements for Non-Residential Uses in Section 10.1112.32 of the current Zoning Ordinance, the overall site would

not meet the minimum parking space requirement based on Section 10.1112 of the current Zoning Ordinance as 1,075 spaces would be required as shown in the enclosed attachment.

To demonstrate that the provided number of off-street parking spaces is sufficient for the overall development, a parking demand analysis was performed utilizing the Institute of Transportation Engineers Parking Generation Manual, 5th Edition (ITE Manual). To estimate peak parking demand for the Project, land use codes described in the ITE Parking Generation Manual were researched and the following Land Use Codes (LUC) we used to perform parking generation calculations:

- **LUC 221: Multi-family Housing Mid-Rise** - ITE description for LUC 221 is a "mid-rise multi-family housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and with between 3 and 10 levels (floors) of residence".

  Based on the ITE description, LUC 221 was used to generate the peak parking demand for a the 4-story and 5-story multi-family buildings with a total of 190 dwelling units.

- **LUC 820: Shopping Center** – ITE description for LUC 820 is "A shopping center is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. A shopping center's composition is related to its market area in terms of size, location, and type of store. A shopping center also provides on-site parking facilities sufficient to serve its own parking demands". This description nearly mimics the definition of Shopping Center in the City's Zoning Ordinance.

  The ITE Parking Generation Manual also provides additional data for the Shopping Centers studied for LUC 820 parking generation rates. The additional data indicates "The parking demand database includes data from strip, neighborhood, community, town center, and regional shopping centers. Some of the centers contain non-merchandising facilities, such as office buildings, movie theaters, restaurants, post offices, banks, health clubs, and recreational facilities". The Project's commercial tenants consist of retail, restaurant, health clubs, and indoor recreation facilities.

  Based on the ITE description and additional data, LUC 820 was used to generate the peak parking demand for the Project's commercial uses.

The following table summarizes the peak parking demand generated by the Project utilizing the ITE Manual:

ITE Parking Generation for Portsmouth Green Development						
ITE Code	**ITE - Use**	**Units**	**Average Parked Cars Mon. - Thur.**	**Average Parked Cars Friday**	**Average Parked Cars Saturday**	**Average Parked Cars Sunday**
820	Shopping Center	139,441 SF	272	364	406	**264**
221	Multifamily Housing (Mid Rise)	190 Dwelling Units	249	N/A	232	**390**
Total Parking Spaces Needed			**654**			
Total Parking Spaces Provided			**795**			

As depicted above the off-street parking provided by the Project exceeds peak parking demand.

Mode Share

The Project was designed under the GPD regulations of the prior Zoning Ordinance. The GPD regulations promoted sustainability by requiring that the Project demonstrate it was LEED Certifiable. As such, the Project has incorporated measures that promote alternative modes of transportation such as walking, bicycling, and public transportation that will further reduce parking demand. The following are examples of mode share incorporated by the Project:

- Bicycle storage facilities – The Project provides facilities for 108 bicycle parking spaces on-site which promotes the use of bicycles as an alternative mode of transportation to/from the Project.
- Multi-use path – The Project constructed a 10-foot wide, 1,500 LF multi-use path along the site's Constitution Avenue and Lafayette Road (Route 1) frontages. The multi-use path promotes the use of bicycles and walking as alternative modes of transportation to/from the Project. The multi-use path ultimately will become part of a larger network of pedestrian and bicycle facilities along Route 1 as part of the future NHDOT Route 1 Corridor Improvement Project. Based on a Public Advisory Committee Meeting conducted by NHDOT on July 11, 2019, the Route 1 Corridor Improvement Project is anticipated to begin design this year with the start of construction occurring in 2025.
- COAST Bus Stop – The Project constructed a new COAST bus stop along Constitution Avenue which includes a new bus shelter and vehicle pull off along the new multi-use path described above. This COAST Bus stop promotes the use of public transportation as an alternative mode of transportation to/from the Project.

Conclusions

Based on parking generation calculations that were performed utilizing the ITE Parking Generation Manual, the peak parking demand of 654 spaces was generated which is less than the 795 off-street parking spaces provided by the Project. The existing CUP was granted for a peak parking demand of 638 spaces and 760 off-street parking spaces provided. This proposal will result in a peak parking demand of 16 additional spaces, with 35 additional spaces being provided. In addition, the Project promotes alternative modes of transportation such as walking, bicycling, and public transportation by incorporating 108 bicycle storage spaces on-site, a 10-foot wide multi-use path along both frontages of Constitution Avenue and Lafayette Road (Route 1) and a COAST bus stop. The integration of these mode share facilities will help further reduce the off-street parking demand for the Project.

Attachments

Parking Generation Data

Current Site Plan with Change of Use

Prior Approved Site Plan

Minimum Parking Requirement per City Zoning Ordinance

Conditional Use Permit for Parking, dated August 20, 2019

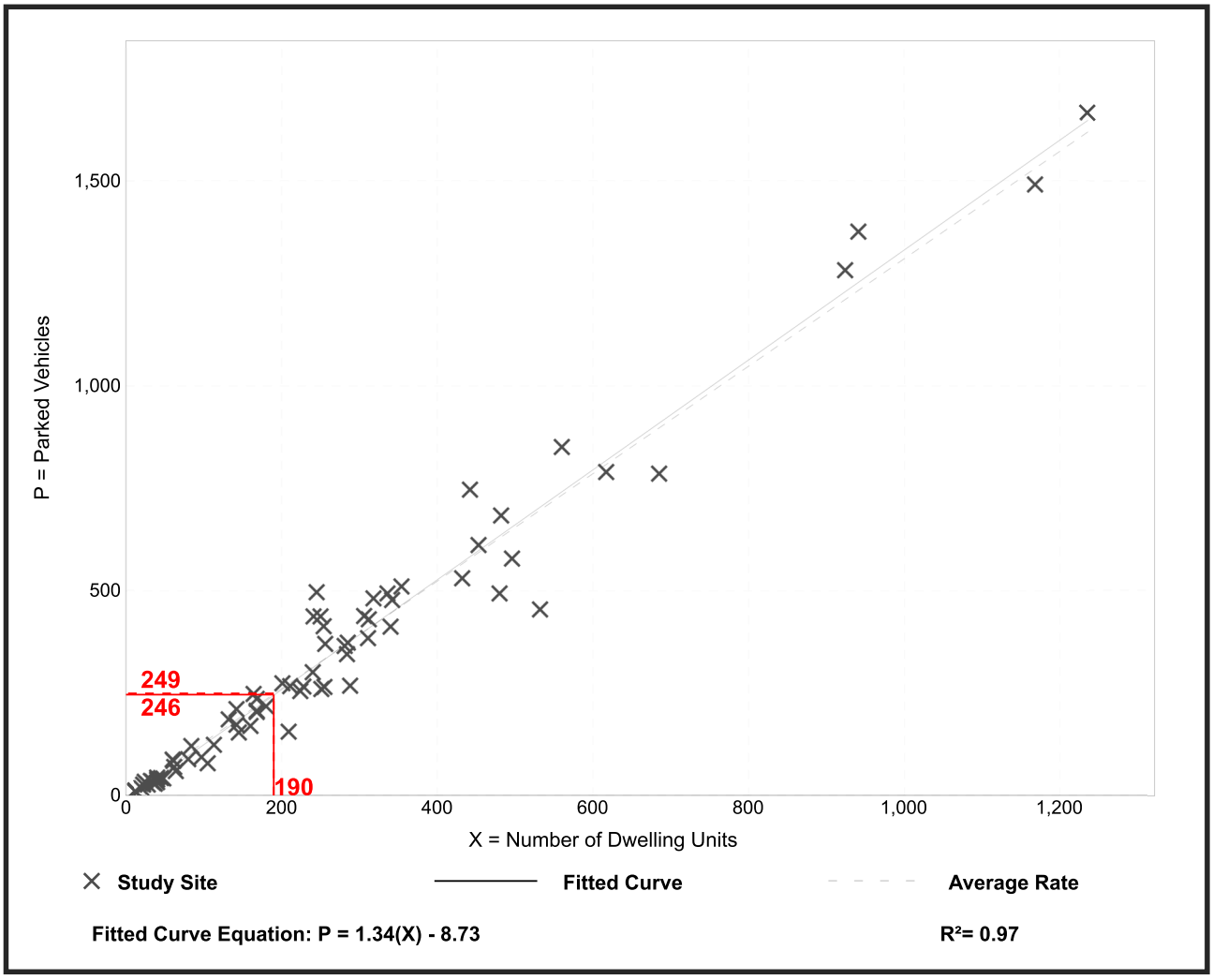
Multifamily Housing (Mid-Rise)
(221)

Peak Period Parking Demand vs: **Dwelling Units**
On a: **Weekday (Monday - Friday)**
Setting/Location: **General Urban/Suburban (no nearby rail transit)**
Peak Period of Parking Demand: **10:00 p.m. - 5:00 a.m.**
Number of Studies: 73
Avg. Num. of Dwelling Units: 261

Peak Period Parking Demand per Dwelling Unit

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
1.31	0.75 - 2.03	1.13 / 1.47	1.26 - 1.36	0.22 (17%)

Data Plot and Equation



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Multifamily Housing (Mid-Rise)
(221)

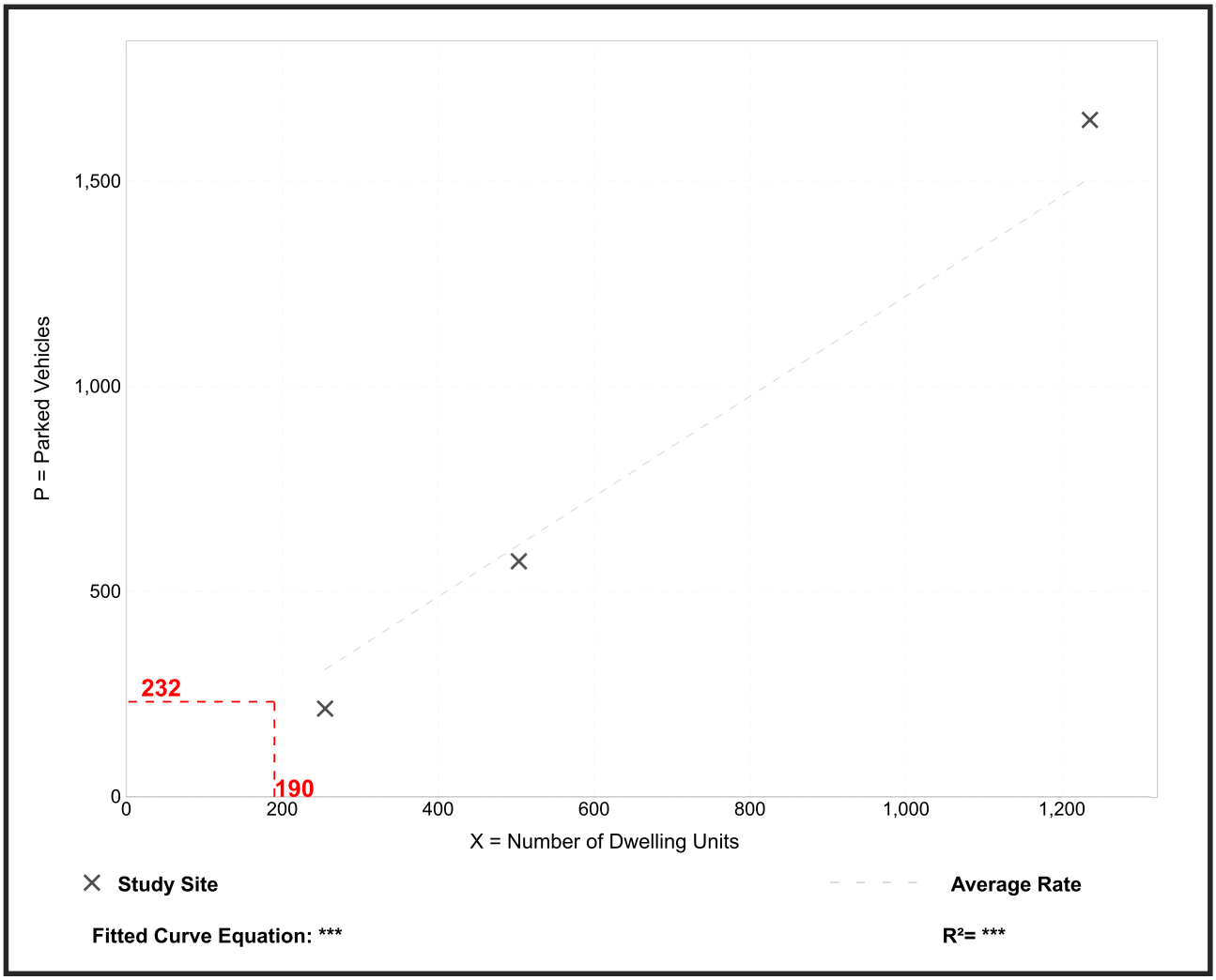
Peak Period Parking Demand vs: **Dwelling Units**
On a: **Saturday**
Setting/Location: **General Urban/Suburban (no nearby rail transit)**
Peak Period of Parking Demand: **11:00 p.m. - 7:00 a.m.**
Number of Studies: 3
Avg. Num. of Dwelling Units: 665

Peak Period Parking Demand per Dwelling Unit

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
1.22	0.84 - 1.33	0.94 / 1.33	***	0.20 (16%)

Data Plot and Equation

Caution – Small Sample Size



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Multifamily Housing (Mid-Rise)
(221)

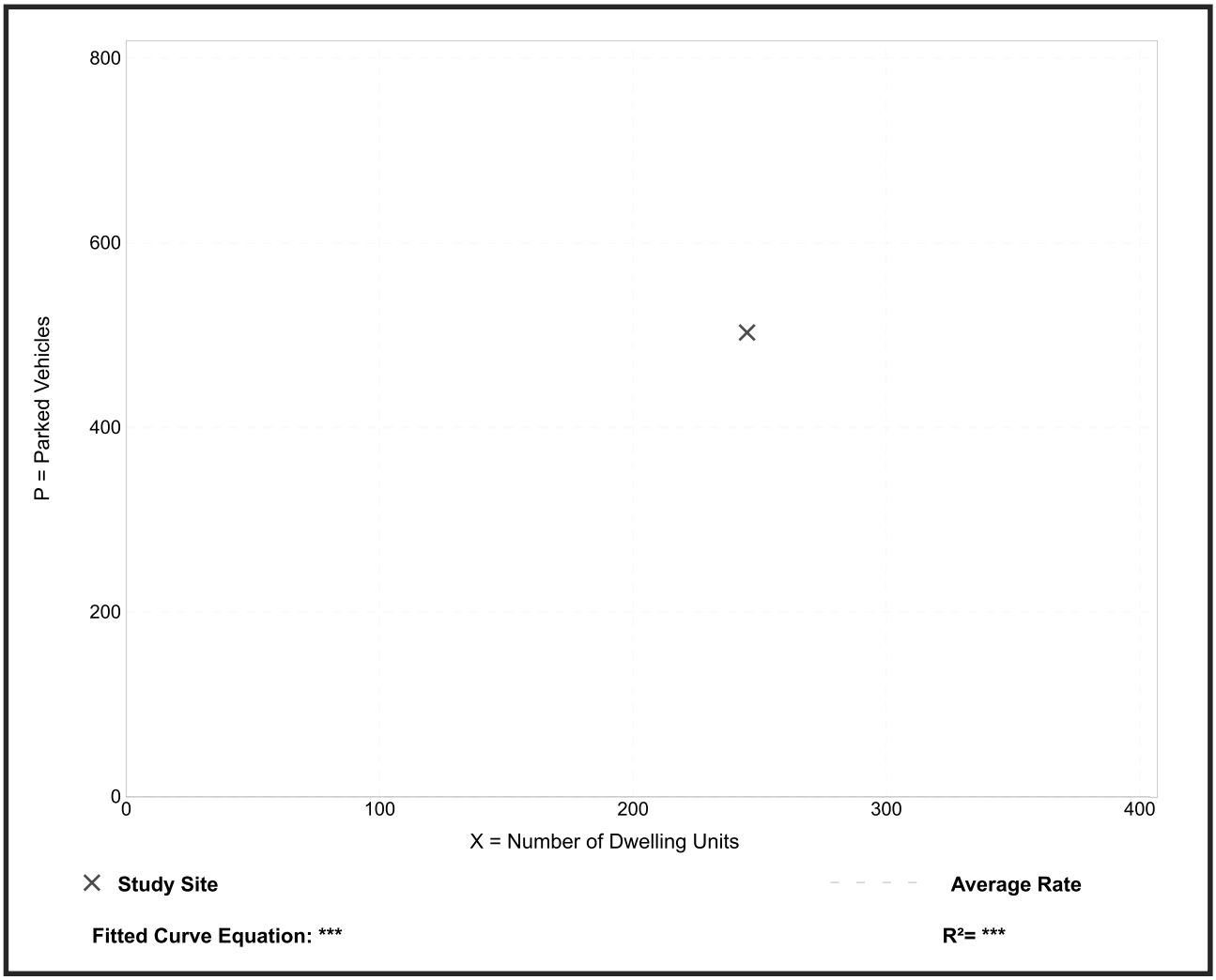
Peak Period Parking Demand vs: **Dwelling Units**
On a: **Sunday**
Setting/Location: **General Urban/Suburban (no nearby rail transit)**
Peak Period of Parking Demand: **11:00 p.m. - 7:00 a.m.**
Number of Studies: 1
Avg. Num. of Dwelling Units: 245

Peak Period Parking Demand per Dwelling Unit

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
2.05	2.05 - 2.05	*** / ***	***	***

Data Plot and Equation

Caution – Small Sample Size



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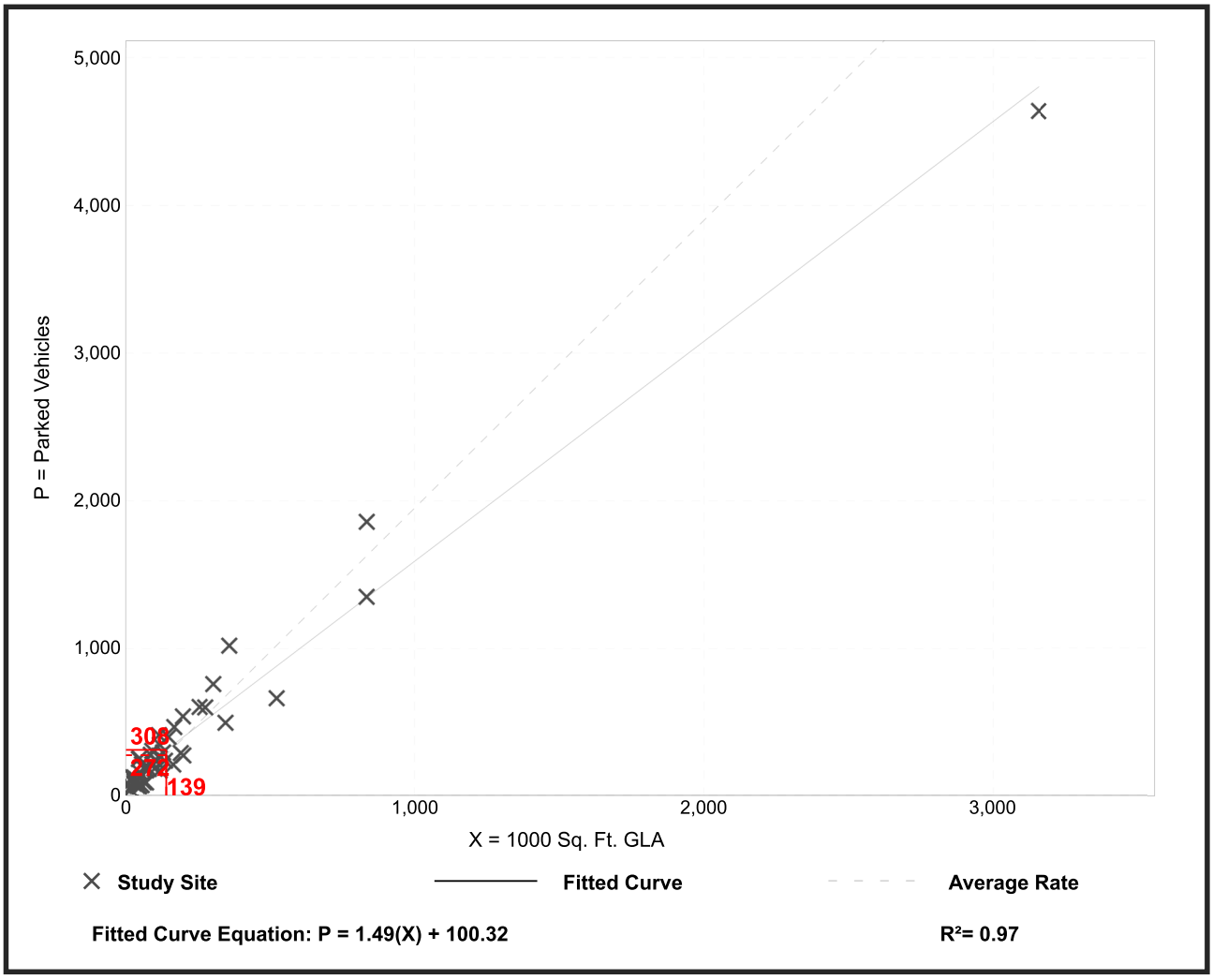
Shopping Center - Non-December
(820)

Peak Period Parking Demand vs: **1000 Sq. Ft. GLA**
On a: **Weekday (Monday - Thursday)**
Setting/Location: **General Urban/Suburban**
Peak Period of Parking Demand: **12:00 - 6:00 p.m.**
Number of Studies: 46
Avg. 1000 Sq. Ft. GLA: 218

Peak Period Parking Demand per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
1.95	1.27 - 7.98	1.99 / 3.68	1.73 - 2.17	0.75 (38%)

Data Plot and Equation



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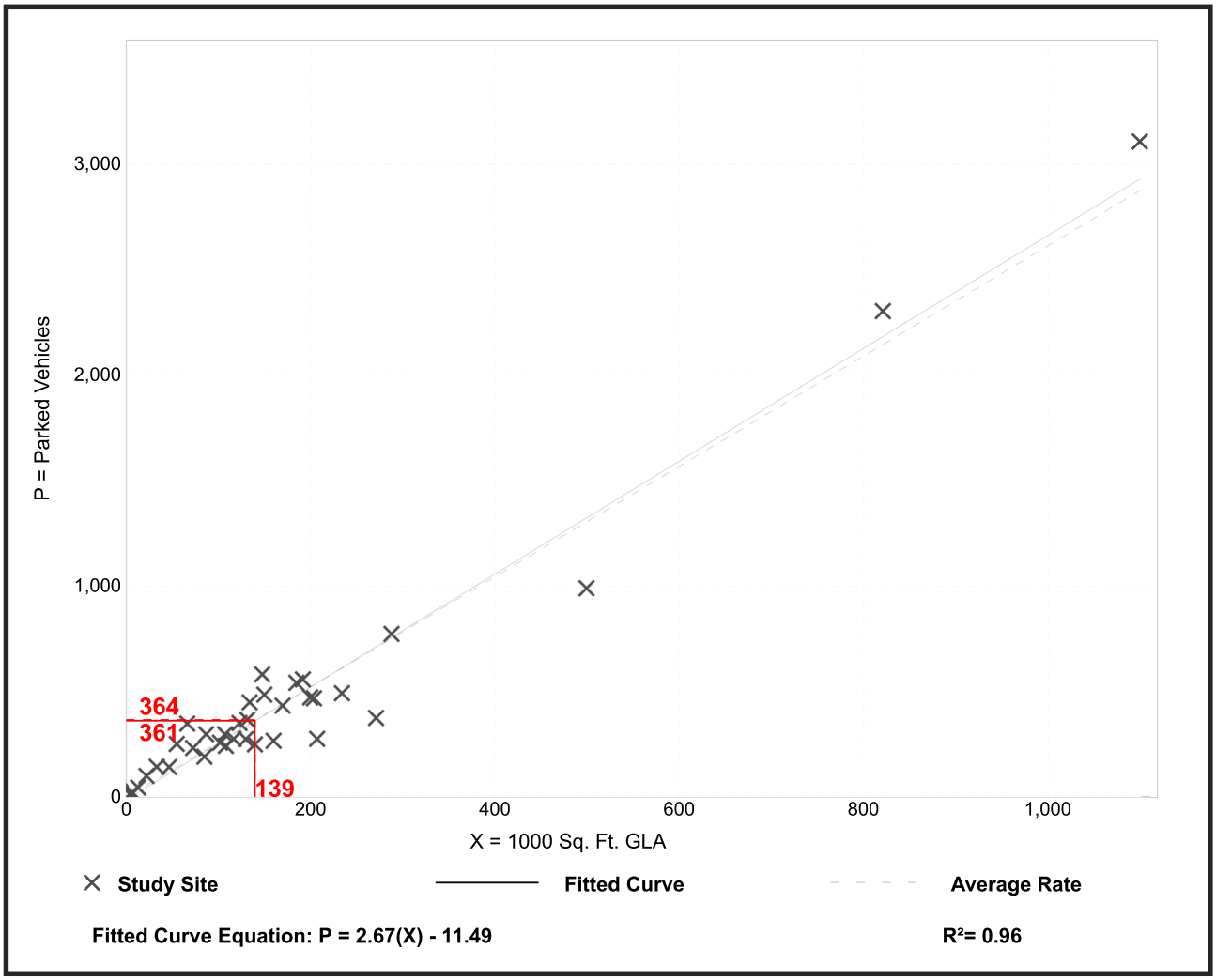
Shopping Center - Non-December
(820)

Peak Period Parking Demand vs: **1000 Sq. Ft. GLA**
On a: **Friday**
Setting/Location: **General Urban/Suburban**
Peak Period of Parking Demand: **12:00 - 6:00 p.m.**
Number of Studies: 37
Avg. 1000 Sq. Ft. GLA: 174

Peak Period Parking Demand per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
2.61	1.34 - 5.25	2.37 / 3.78	2.39 - 2.83	0.67 (26%)

Data Plot and Equation



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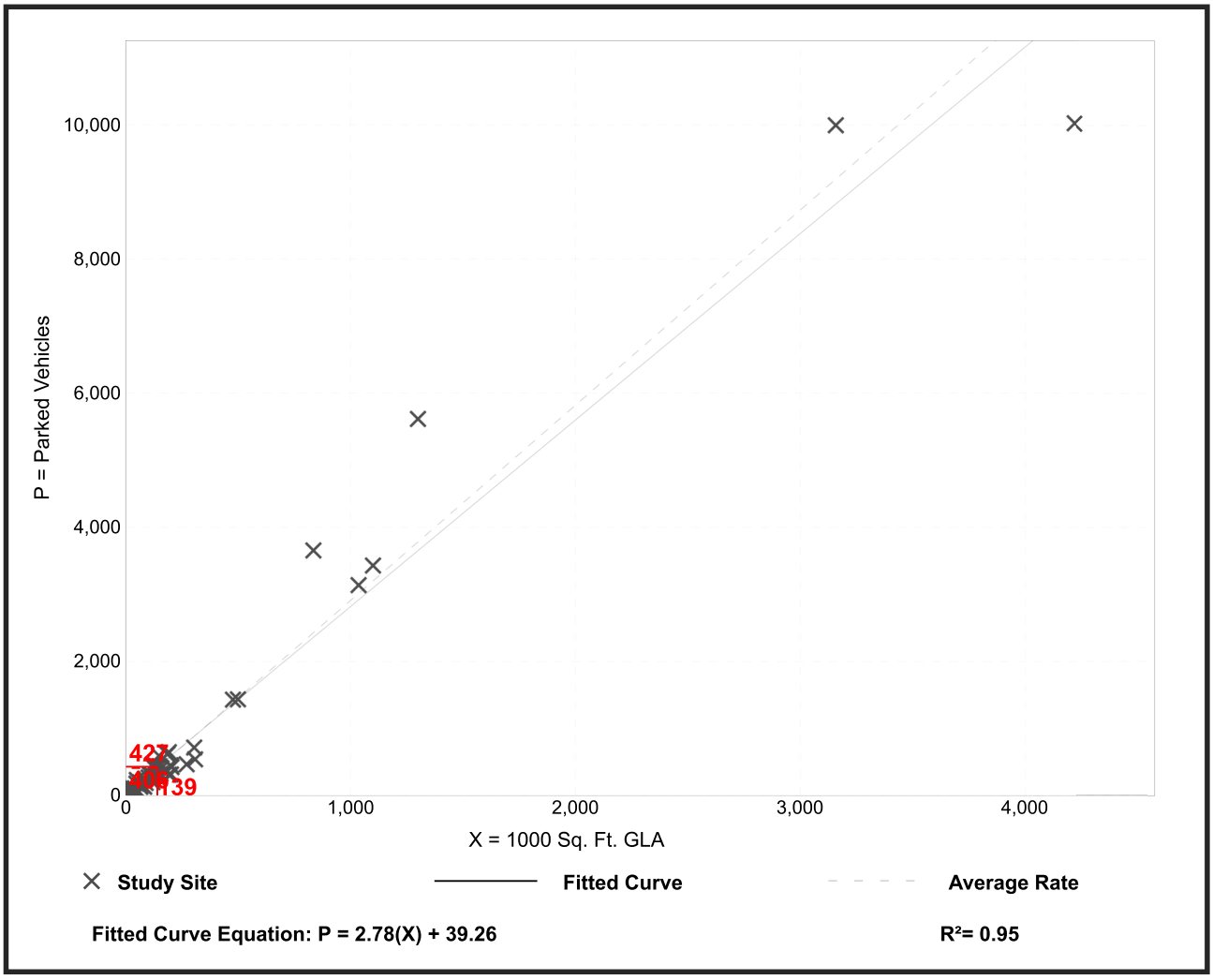
Shopping Center - Non-December
(820)

Peak Period Parking Demand vs: **1000 Sq. Ft. GLA**
On a: **Saturday**
Setting/Location: **General Urban/Suburban**
Peak Period of Parking Demand: **11:00 a.m. - 5:00 p.m.**
Number of Studies: 58
Avg. 1000 Sq. Ft. GLA: 313

Peak Period Parking Demand per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
2.91	1.15 - 4.72	2.27 / 3.74	2.72 - 3.10	0.74 (25%)

Data Plot and Equation



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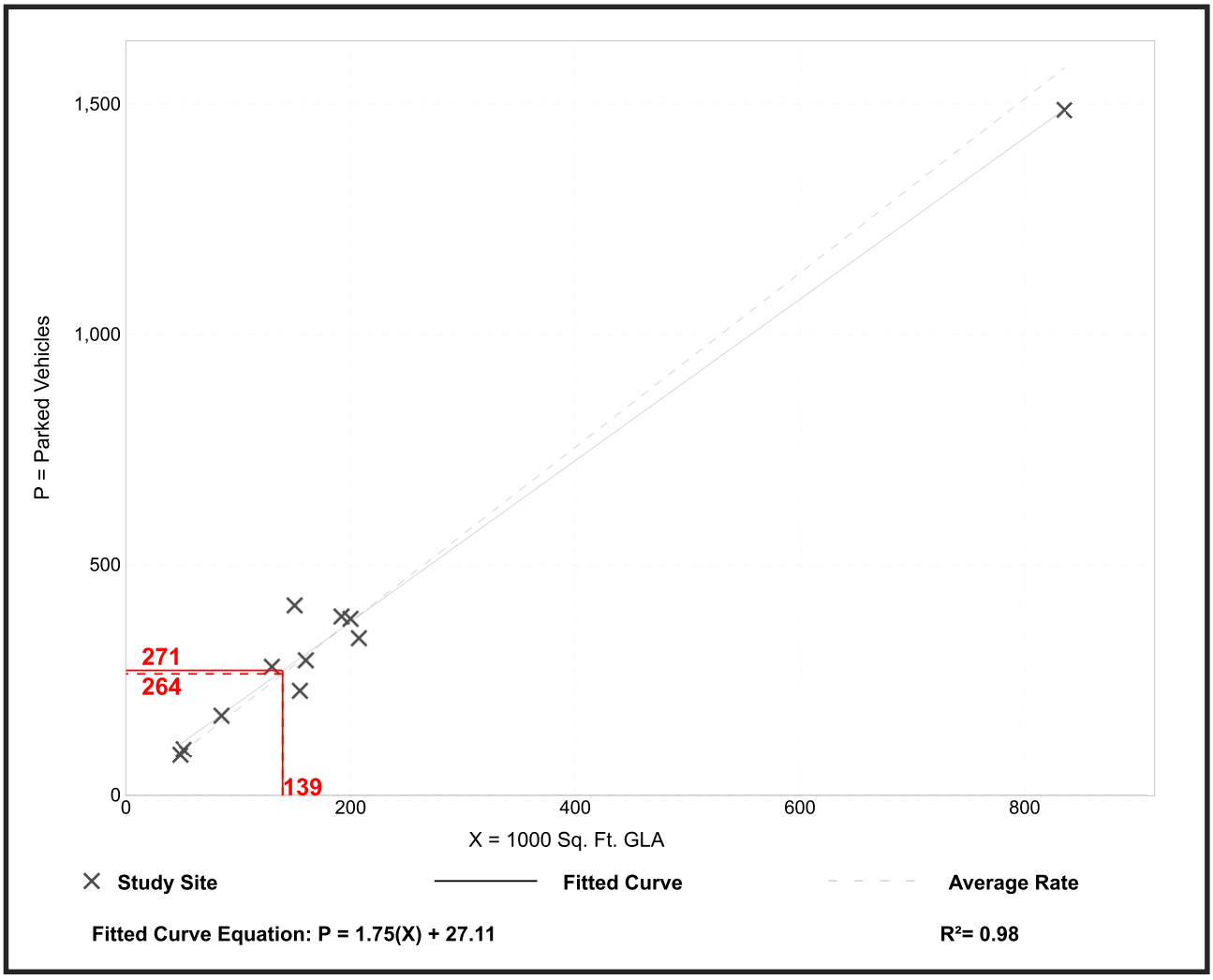
Shopping Center - Non-December
(820)

Peak Period Parking Demand vs: **1000 Sq. Ft. GLA**
On a: **Sunday**
Setting/Location: **General Urban/Suburban**
Peak Period of Parking Demand: **12:00 - 3:00 p.m.**
Number of Studies: 11
Avg. 1000 Sq. Ft. GLA: 201

Peak Period Parking Demand per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
1.89	1.47 - 2.75	1.81 / 2.27	***	0.30 (16%)

Data Plot and Equation



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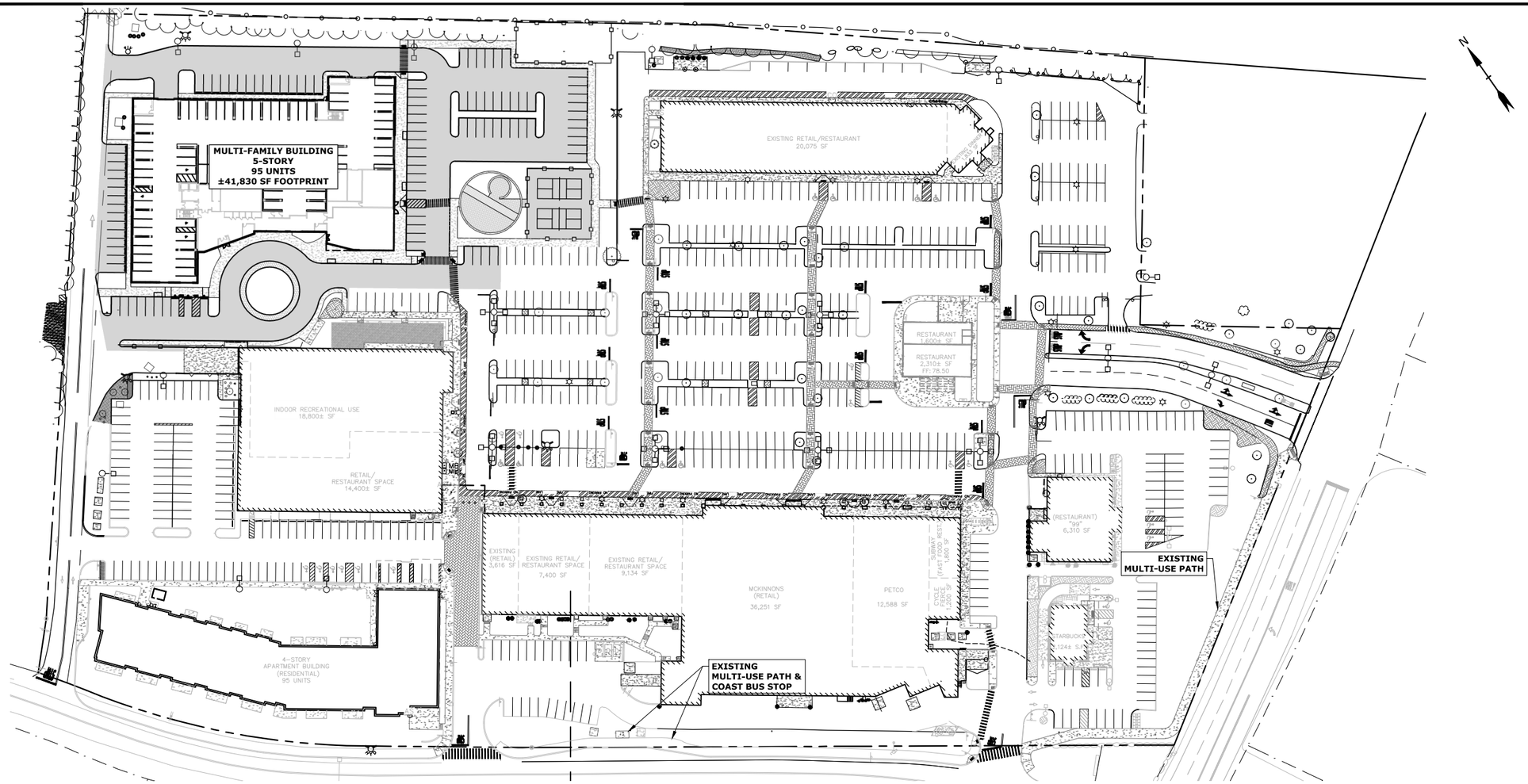


Tighe&Bond

0 60' 120'
GRAPHIC SCALE

LEGEND

	PROPERTY LINE
	PROPOSED PROPERTY LINE
	PROPOSED EDGE OF PAVEMENT
	PROPOSED CURB
	PROPOSED BUILDING
	PROPOSED PAVEMENT SECTION
	PROPOSED CONCRETE SIDEWALK
	PROPOSED BRICK SIDEWALK
•	PROPOSED BOLLARD
BLDG	BUILDING
TYP	TYPICAL
COORD	COORDINATE
30'R	PROPOSED CURB RADIUS
VGC	PROPOSED VERTICAL GRANITE CURB
SGC	PROPOSED SLOPED GRANITE CURB

SITE DATA:

LOCATION: TAX MAP 273, LOT 3

OWNER: 2422 LAFAYETTE ROAD ASSOCIATES, LLC
C/O WATERSTONE RETAIL
322 RESERVOIR STREET
NEEDHAM, MA 02494

ZONING DISTRICT: GATEWAY CORRIDOR (G1)

PROPOSED USE: SHOPPING CENTER/RESIDENTIAL

PROPOSED LOT SIZE: ±18.71 ACRES (±814,896 SF)

DEVELOPMENT SITE STANDARDS(1)

DEVELOPMENT STANDARDS (MIXED USE):	REQUIRED	PROPOSED
MINIMUM DEVELOPMENT SITE AREA	20,000 SF	±814,896 SF
MINIMUM SITE WIDTH:	100 FT	±721 FT
MINIMUM SITE DEPTH:	100 FT	±1,137 FT
MINIMUM PERIMETER BUFFER FROM RESIDENTIAL, MIXED RESIDENTIAL, OR CD4-L1 DISTRICTS:	75 FT	N/A
MAXIMUM DEVELOPMENT BLOCK DIMENSIONS:		
BLOCK LENGTH:	800 FT	±1,137 FT(2)
BLOCK PERIMETER:	2,200 LF	±3,780 LF(2)
MAXIMUM BUILDING COVERAGE:	70%	25.4%
MINIMUM OPEN SPACE COVERAGE:	20%	±21.7%
FRONT LOT LINE BUILDOUT:	75%	0%(2)
BUILDING DESIGN STANDARDS:		
MAXIMUM BUILDING HEIGHT:	5 STORIES(4) 60 FT(4)	5 STORIES <60 FT
MINIMUM STREET FACING FACADE HEIGHT:	24 FT	>24 FT
MAXIMUM FINISHED FLOOR SURFACE OF GROUND FLOOR ABOVE SIDEWALK GRADE:	36 IN	<36 IN
MAXIMUM BUILDING FOOTPRINT:	NR	
MAXIMUM FACADE MODULATION LENGTH:	50 FT	<50 FT
MINIMUM STREET FACING FACADE GLAZING:	20% GROUND FLOOR	>20%
DENSITY THRESHOLDS AND BONUSES:		
DWELLING UNITS PER ACRE:	20 UNITS	10.4 UNITS
DWELLING UNITS PER BUILDING:	36 UNITS	95 UNITS(3)
PLUS 1-STORY, MAX 10 FT	5 STORIES(4) 60 FT(4)	5 STORIES <60 FT

(1) - USE OF DEVELOPMENT SITE STANDARDS ALLOWED BY CONDITIONAL USE PERMIT PER 10.5B41.10 WITH APPROVAL FROM THE PLANNING BOARD.
(2) - EXISTING NON-CONFORMING CONDITION, MODIFICATION OF STANDARDS ALLOWED BY CONDITIONAL USE PERMIT PER 10.5B74.30 FOR THE DEVELOPMENT TO PROVIDE WORKFORCE HOUSING.
(3) - MODIFICATION OF STANDARDS ALLOWED BY CONDITIONAL USE PERMIT PER 10.5B74.30 FOR THE DEVELOPMENT TO PROVIDE WORKFORCE HOUSING.
(4) - ALLOWED BY CONDITIONAL USE PERMIT PER 10.5B73.10 FOR PROVIDING 20% WORKFORCE HOUSING.

PARKING REQUIREMENTS

PARKING CALCULATIONS:

RETAIL:	1 SPACE PER 300 GFA
RESTAURANT:	1 SPACE PER 100 GFA
INDOOR RECREATION:	1 SPACE PER 4 PERSONS
RESIDENTIAL:	0.5 SPACES PER UNIT <500 SF 1 SPACE PER UNIT 500 SF - 750 SF 1.3 SPACES PER UNIT >750 SF

LOADING CALCULATIONS:

RETAIL:	0 SPACES FOR 0 - 10,000 SF 1 SPACE FOR 10,001 - 25,000 SF 2 SPACES FOR 25,001 - 60,000 SF
OTHER NON-RESIDENTIAL:	0 SPACES FOR 0 - 10,000 SF 1 SPACE FOR 10,001 SF - 40,000 SF

SHOPPING CENTER:				LOADING SPACES:	
RETAIL:	AREA (SF):	MINIMUM	PROVIDED	MINIMUM	PROVIDED
PETCO	±12,588			1	1
CYCLE FIERCE	±1,200			0	1
EXISTING RETAIL/RESTAURANT	±20,075			0	1
EXISTING RETAIL/RESTAURANT (MUSE)	±3,616			0	1
EXISTING RETAIL/RESTAURANT (SHIO JAPANESE)	±7,400			0	1
PROPOSED RESTAURANT (OLD BIG LOTS)	±14,400			1	1
INDOOR RECREATIONAL (PINZ)	±18,800			1	1
SUBWAY	±1,800			0	0
THE 99	±6,310			0	1
McKINNON'S	±36,251			2	3
RETAIL	±9,134			0	1
DINER	±1,833			0	1
PROPOSED RESTAURANT	±1,600			1	0
PROPOSED RESTAURANT	±2,310			0	0
STARBUCKS	±2,124			0	1
TOTAL SHOPPING CENTER	±139,441	406 SPACES(1)		8	15
RESIDENTIAL:					
PROPOSED DWELLING UNITS	95 UNITS				
EXISTING DWELLING UNITS	95 UNITS				
VISITOR PARKING					
TOTAL:		654 SPACES(1)	795 SPACES	9	15

(1) - PER PARKING DEMAND ANALYSIS PERFORMED BY TIGHE & BOND DATED OCTOBER 18, 2021

	REQUIRED	PROVIDED
ACCESSIBLE SPACES (2% OF TOTAL):	15	32
VAN ACCESSIBLE SPACES (1 PER 6 ACCESSIBLE SPACES):	2	24
PARKING STALL SIZE:	8.5 FT X 19 FT	8.5 FT X 19 FT
DRIVE AISLE:	24 FT	24 FT, 26 FT

BIKE SPACES REQUIRED:

	REQUIRED	PROVIDED
SHOPPING CENTER:		
1 BIKE SPACE / 10 PARKING SPACES MAXIMUM OF 30 SPACES	30 SPACES	42 SPACES
RESIDENTIAL:		
EXISTING 95 DWELLING UNITS	19 SPACES	30 SPACES
PROPOSED 95 DWELLING UNITS	19 SPACES	20 SPACES

Multi-Family Development

Torrington Properties, Inc.

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	10/18/2021	TAC Submission
B	9/2/2021	Design Review - TAC WS
A	8/5/2021	PB Conceptual Consultation

PROJECT NO:	T-5047-001
DATE:	August 5, 2021
FILE:	T5047-001-C-DSGN.DWG
DRAWN BY:	NAH
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

OVERALL SITE PLAN

SCALE: AS SHOWN

C-102

Last Saved: 10/15/2021
Plotted: Oct 15, 2021-10:58am By: NAHansen
Tighe & Bond:J:\t\t5047 torrington properties\001 constitution ave, portsmouth nh\drawings_figures\autocad\sheet\T5047-001-C-DSGN.dwg

1. THE SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS
2. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR

ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS

REFERENCE PLAN #1

PROPOSED RESTAURANT 5,000± SF

EXISTING RETAIL/RESTAURANT 20,075 SF

EXISTING CINEMA 29,060 SF 1,279 SEATS

PROPOSED RESTAURANT 1,600± SF

PROPOSED RESTAURANT 2,310± SF FF: 78.50

PROPOSED INDOOR RECREATIONAL USE 18,800± SF

PROPOSED RESTAURANT 14,400± SF

STORAGE SHEDS

4-STORY APARTMENT BUILDING (RESIDENTIAL) 95 UNITS

EXISTING (RETAIL) 3,616 SF

EXISTING RETAIL/ RESTAURANT SPACE 7,400 SF

EXISTING RETAIL/ RESTAURANT SPACE 9,134 SF

MCKINNONS (RETAIL) 36,251 SF

PETCO 12,588 SF

SUBWAY (FAST FOOD REST.) 1,800 SF

CYCLE FIERCE 1,200 SF

(RESTAURANT) "99" 6,310 SF

STARBUCKS 1,124± SF

US ROUTE 1 LAFAYETTE ROAD

CONSTITUTION AVE.

LEGEND

SHEET A / SHEET B	MATCH LINE
	PROPERTY LINE
	ABUTTER LOT LINE
	BUILDING SETBACK
	EXISTING TREE LINE
	PROPOSED TREE LINE
	EXISTING STONE WALL
	EXISTING FENCE
	EXISTING CONCRETE SIDEWALK/PAD
	EXISTING PAVERS
	PROPOSED PAVERS
	PROPOSED STAMPED ASPHALT
	PROPOSED CONCRETE SIDEWALK/PAD
	PROPOSED BITUMINOUS CONCRETE
	EXISTING SIGN
	PROPOSED SIGN
	EXISTING LIGHT
	LIGHT POLE BASE
	EXISTING BOLLARD
	PROPOSED BOLLARD
	EXISTING TRAFFIC SIGNAL
	PROPOSED EDGE OF PAVEMENT
VGC	VERTICAL GRANITE CURBING
SGC	SLOPED GRANITE CURBING
MCC	MONOLITHIC CONCRETE CURB
CCB	CAPE COD BERM
3'R	RADIUS
DYCL	DOUBLE YELLOW CENTERLINE
SSWL	SINGLE SOLID WHITE LINE
SDWL	SINGLE DASHED WHITE LINE
(15) SPACES	PROPOSED PARKING SPACES
15 SPACES	EXISTING PARKING SPACES

LOADING CALCULATIONS:

RETAIL: 0 SPACES FOR 0 – 10,000 SF
1 SPACE FOR 10,001 – 25,000 SF
2 SPACES FOR 25,001 – 60,000 SF

OTHER NON-RESIDENTIAL: 0 SPACES FOR 0 – 10,000 SF
1 SPACE FOR 10,001 SF – 40,000 SF

PARKING CALCULATIONS:

SHOPPING CENTER: TENANT:	AREA (SF):	MIN REQ.'D	PROVIDED	LOADING SPACES: MIN REQ'D	PROVIDED
PETCO	±12,588			1	1
CYCLE FIERCE	±1,200			0	1
EXISTING RETAIL/RESTAURANT	±20,075			0	1
EXISTING RETAIL/RESTAURANT (FORMERLY LA BELLA)	±3,616			0	1
EXISTING RETAIL/RESTAURANT (SHIO JAPANESE)	±7,400			0	1
PROPOSED RESTAURANT (OLD BIG LOTS)	±14,400			1	1
PROPOSED INDOOR RECREATIONAL (OLD BIG LOTS)	±18,800			1	1
SUBWAY	±1,800			0	0
THE 99	±6,310			0	1
McKINNON'S	±36,251			2	3
RETAIL	±9,134			0	1
DINER	±1,833			0	1
CINEMA	±29,060			1	1
PROPOSED RESTAURANT	±5,000			2	1
PROPOSED RESTAURANT	±1,600			1	0
PROPOSED RESTAURANT	±2,310			0	0
STARBUCKS	±2,124			0	1
TOTAL SHOPPING CENTER	±173,501	522		8	15
RESIDENTIAL:					
DWELLING UNITS–FLOORS 1–4	95 UNITS	116			
TOTAL:		638 (1)	760	9	15

(1) – PER PARKING DEMAND ANALYSIS PERFORMED BY TIGHE & BOND DATED JULY 18, 2019

SITE DATA

LOCATION: 2454 LAFAYETTE ROAD, PORTSMOUTH, NEW HAMPSHIRE, MAP 273 LOT 3

ZONING DISTRICT: GATEWAY PLANNED DEVELOPMENT (GPD) IN GATEWAY DISTRICT (GW)

PERMITTED USE: SHOPPING CENTER/RESIDENTIAL

PARKING REQUIREMENTS:

	REQUIRED	MAX. ALLOWED	PROVIDED
TOTAL PARKING SPACES:	617	861	760*
ACCESSIBLE SPACES (2% OF TOTAL):	14		25
VAN ACCESSIBLE SPACES (1 PER 8 ACCESSIBLE SPACES):	3		16
PARKING STALL SIZE:	8.5 FT X 19 FT		9.0 FT X 19 FT
DRIVE AISLE:	24 FT		24 FT, 26 FT

* VARIANCE GRANTED BY BOARD OF ADJUSTMENT ON JULY 24, 2012 FOR UP TO 848 SPACES

LOADING REQUIREMENTS:

	REQUIRED	PROVIDED
TOTAL LOADING SPACES:	9	16
LOADING BERTH SIZE:		
FIRST REQUIRED BERTH:	12 FT X 20 FT	12 FT X 20 FT
ADDITIONAL REQUIRED BERTH:	12 FT X 45 FT	12 FT X 45 FT

DIMENSIONAL REQUIREMENTS:

	REQUIRED	PROVIDED
DEVELOPMENT INTENSITY:		
MAXIMUM FLOOR RATIO:	1.0	0.34 RESIDENTIAL = 104,528 SF NON-RESIDENTIAL = 173,501 SF (RATIO = 278,029 SF/ 814,896 SF)
MINIMUM LOT AREA PER DWELLING UNIT:	237,500 SF (95 UNITS X 2,500 SF/UNIT)	814,896 SF
RESIDENTIAL AREA RATIO:	30% –70%	38%
LOT REQUIREMENTS:		
MINIMUM CONTINUOUS STREET FRONTAGE:	100 FT	±450 FT
MAXIMUM BUILDING COVERAGE	75%	±22.6%
MINIMUM OPEN SPACE:	20%	±20.0%
MINIMUM PERCENT OF LOT FRONTAGE OPEN SPACE OR BUILDING:	60%	±84%
MINIMUM FRONT YARD FROM CENTERLINE OF LAFAYETTE:	70 FT	±151 FT
MAXIMUM FRONT YARD FROM CENTERLINE OF LAFAYETTE:	90 FT	±151 FT(1)
MAXIMUM BUILDING HEIGHT:	45 FT (1.5 x 30FT)	51'–7"(2)
SITE DESIGN STANDARDS:		
PEDESTRIAN ORIENTED SPACE:	9,874 SF (1% OF TOTAL LOT AREA + 1% OF NON-RESIDENTIAL GFA)	34,760 SF
PARKING SETBACKS:	50 FT	±21.9 FT(1)(2)
BICYCLE PARKING:	15% OF OFF-STREET PARKING 678 SPACES*0.15=102 SPACES	108 SPACES
PEDESTRIAN WALKWAY THROUGHOUT SITE:	8 FT	8 FT
WALKWAYS:	150 FT APART IN PARKING LOTS	

(1) EXISTING NON-CONFORMING
(2) WAIVER GRANTED ON APRIL 21, 2016

FILENAME: J:\W\W1725 WATERSTONE PORTSMOUTH, NH\ SOUTHGATE PLAZA\DWG-CAD\DESIGN\W-1725-4-DSGN.DWG
SAVE DATE: 7/18/2019 5:19 PM
PLOT DATE: 7/18/2019 5:20 PM

Tighe&Bond
Consulting Engineers
www.tighebond.com

Waterstone Retail Development

Southgate Plaza Redevelopment

Portsmouth, New Hampshire

Mark	Date	Description
F	7/18/19	Conditional Use Approval Request
E	6/7/19	Administrative Approval
D	1/3/19	Final Planning Board Approval Plans
C	12/10/18	PB Submission
B	12/4/18	Rev. per TAC Comments
A	11/19/18	TAC Submission

PROJECT NO:	W1725
FILE:	W-1725-4-DSGN.dwg
DRAWN BY:	NAH/CML
CHECKED:	PMC
APPROVED BY:	BLM/PMC

PLAZA OVERALL SITE PLAN

SCALE: AS SHOWN

C-3

	MINIMUM PARKING REQUIRED PER CITY ZONING ORDINANCE					
	Type of Use	Weekday		Weekend		Nighttime (Midnight– 6:00 AM)
		Daytime (8:00 AM – 5:00 PM)	Evening (6:00 PM– Midnight)	Daytime (8:00 AM– 5:00 PM)	Evening (6:00 PM– Midnight)	
	Residential	60%	100%	80%	100%	100%
	Retail/Service	60%	90%	100%	70%	5%
	Restaurant	70%	100%	80%	100%	10%
	Entertainment	40%	100%	80%	100%	10%
	Other Institutional	40%	100%	80%	100%	10%
Use	**Required Spaces per Section 10.1112.30**	**Required Shared Spaces per Section 10.1112.61**				
EXISTING RETAIL (PETCO)	42	26	38	42	30	3
EXISTING RETAIL (CYCLE FIERCE)	4	3	4	4	3	1
EXISTING RESTAURANT	40	28	40	32	40	4
EXISTING RETAIL	11	7	10	11	8	1
EXISTING HEATH CLUB / YOGA STUDIO (PURE BARRE)	7	5	7	7	5	1
EXISTING PERSONAL SERVICE (SALON No. 5)	5	3	5	5	4	1
EXISTING HEATH CLUB / YOGA STUDIO (ORANGE THEORY)	10	6	9	10	7	1
EXISTING RESTAURANT (PEACHEAVE)	22	16	22	18	22	3
EXISTING RETAIL (LINDA TAYLOR)	4	3	4	4	3	1
EXISTING PERSONAL SERVICE (LASH OUT BEAUTY)	4	3	4	4	3	1
EXISTING PERSONAL SERVICE (HAND & STONE)	9	6	9	9	7	1
EXISTING RETAIL (MUSE)	13	8	12	13	10	1
EXISTING RESTAURANT (SHIO)	74	52	74	60	74	8
PROPOSED RESTAURANT (former Big Lots)	144	101	144	116	144	15
PROPOSED INDOOR RECREATIONAL (PINZ)	112	45	112	90	112	12
EXISTING RESTAURANT (SUBWAY)	18	13	18	15	18	2
EXISTING RESTAURANT (THE 99)	64	45	64	52	64	7
EXISTING RETAIL (McKINNON'S)	121	73	109	121	85	7
EXISTING RETAIL	9	6	9	9	7	1
EXISTING RETAIL	23	14	21	23	17	2
EXISTING RESTAURANT (DINER)	19	14	19	16	19	2
PROPOSED RESTAURANT	16	12	16	13	16	2
EXISTING RESTAURANT (CHIPOTLE)	24	17	24	20	24	3
EXISTING RESTAURANT (STARBUCKS)	22	16	22	18	22	3
PROPOSED RESIDENTIAL UNITS >750 SF	124	75	124	100	124	124
EXISTING RESIDENTIAL UNITS < 500 SF	1	1	1	1	1	1
EXISTING RESIDENTIAL UNITS 500 - 750 SF	26	16	26	21	26	26
EXISTING RESIDENTIAL UNITS >750 SF	89	54	89	72	89	89
SPACES FOR RESIDENTIAL VISITORS	39	24	39	32	39	39
	Total Required Shared Spaces:	**692**	**1075**	**938**	**1023**	**362**
	Total Provided:	**795**				

CITY OF PORTSMOUTH
Planning Department
1 Junkins Avenue
Portsmouth, New
Hampshire 03801
(603) 610-7216

PLANNING BOARD

August 20, 2019

Neal Shalom
2422 Lafayette Road Associates, LLC
322 Reservoir Street
Needham, MA 02494

RE: Conditional Use Permit application for property located at 2454 Lafayette Road

Dear Property Owner:

The Planning Board, at its regularly scheduled meeting of Thursday, August 15, 2019, considered your application for a Conditional Use Permit in accordance with Section 10.1112.14 of the Zoning Ordinance to provide less than the required minimum number of off-street parking spaces. Said property is shown on Assessor Map 273 Lot 3 and lies within the Gateway Neighborhood Mixed Use Corridor District. As a result of said consideration, the Board voted to grant the request as follows:

1) To accept the findings of the applicant's parking demand analysis and to find that the provision of 760 off-street parking spaces provided will be adequate and appropriate for the proposed uses of the property.

2) To grant a conditional use permit pursuant to Section 10.112.14 of the Portsmouth Zoning Ordinance to provide less than the required minimum number of off-street parking spaces with the following stipulation:

2.1) The owner shall coordinate with new tenant, Pinz, to advertise COAST bus schedules and bus stop location.

The Board's decision may be appealed up to thirty (30) days after the vote. Any action taken by the applicant pursuant to the Board's decision during this appeal period shall be at the applicant's risk. Please contact the Planning Department for more details about the appeals process.

Unless otherwise indicated above, applicant is responsible for applying for and securing a building permit from the Inspection Department prior to starting any project work. All stipulations of approval must be completed prior to issuance of a building permit unless otherwise indicated above.

This approval shall expire unless a building permit is obtained within a period of one year from the date granted, unless otherwise stated in the conditions of approval. The Planning Board may, for good cause shown, extend such period by as much as one year if such extension is requested and acted upon prior to the expiration date. No other extensions may be requested.

The minutes and audio recording of this meeting are available by contacting the Planning

Department.

Very truly yours,

Dexter R. Legg, Chairman of the Planning Board

cc: Robert Marsilia, Chief Building Inspector
Rosann Maurice-Lentz, City Assessor

Bernard W. Pelech, Bosen & Associates, Inc.
Craig Langton, PE, Project Engineer, Tighe & Bond

T5047-001
November 22, 2021

Mr. Dexter Legg, Chair
City of Portsmouth Planning Board
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: **Conditional Use Permit Request for Density Bonus Incentives**
Proposed Multifamily Development, 2454 Lafayette Road, Portsmouth, NH

Dear Chairman Legg:

On behalf of 2422 Lafayette Road Associates, LLC (owner), and Torrington Properties Inc (applicant), this letter is to request that a Conditional Use Permit (CUP) be granted by the Planning Board to allow for increased housing density and for increased building height as allowed by Section 10.5B72 of the Zoning Ordinance.

PROJECT SUMMARY

Existing Conditions

The proposed project (Project) is located at 2454 Lafayette Road on property identified as Map 273 Lot 3 on the City of Portsmouth Tax Maps and is located in the Gateway Neighborhood Mixed Use Corridor, G1 District. The existing parcel is bound by Lafayette Road to south, Constitution Avenue to the west, Water Country Access Drive to the north and Water Country to the east. The overall existing site has been developed with several buildings of mixed retail, commercial, restaurant, and residential uses, with associated parking areas and stormwater management and treatment systems.

Proposed Redevelopment

The Project is in the location of the former Cinemagic movie theater and consists of the construction of a 5-story, 95-unit multifamily condominium building located in the northern corner of the Portsmouth Green Plaza, with ground floor parking, upper floor residential units, and associated site improvements. The proposed ±41,800 SF footprint will be located in the area of the existing 29,000 SF, 1,264 seat movie theater that will be demolished. Also, the previously approved 5,000 SF restaurant pad proposed for this area will not be constructed.

CONDITIONAL USE PERMIT

Under Section 10.5B72 Density Bonus Incentives "A conditional use permit may be granted by the Planning Board for increased housing density or for increased building height. Such conditional use permit shall be contingent upon satisfying the requirements of Section 10.5B73". The Project is requesting a CUP for increased dwelling units per building allowed under Section 10.5B72.10 and increased building height allowed under Section 10.5B72.30. In order to be eligible for multiple bonus incentives outlined in Section 10.5B72 a development shall include workforce housing according to the requirements of 10.5B73.10 and shall also provide public realm improvements according to the requirements of 10.5B73.20.

Conditional Use Permit Criteria

Based on the above described and enclosed materials, the following addresses how the Project warrants the granting of a Conditional Use Permit for Density Bonus Incentives by satisfying

the following requirements for approval in Section 10.5B73.10 and 10.5B73.20 of the Zoning Ordinance:

10.5B73.10 Workforce Housing Requirement: At least 20% of the dwelling units in the development, but no less than three units, shall be workforce housing units for sale or rent complying with the following criteria:

1) For sale units shall be at least the average gross floor area of the proposed units in the building or 1,000 sq. ft., whichever is greater.

All the proposed dwelling units will be for sale units. All the workforce housing units will be at least the average gross floor area of each unit type within in the building or 1,000 sq. ft. The workforce housing units have been identified on the floor plans included as part of the submission.

2) Rental units shall be at least the average gross floor area of the proposed units in the building or 800 sq. ft., whichever is greater.

All the proposed dwelling units will be for sale units.

3) The workforce housing units shall be distributed throughout the building wherever dwelling units are located.

All the workforce housing units shall be distributed throughout the building. The workforce housing units have been identified on the floor plans included as part of the submission.

10.5B73.20 Public Realm Improvements: All public realm improvements used for a density bonus shall be recommended in plans adopted by the City of Portsmouth including but not limited to the Master Plan, Bicycle and Pedestrian Plan, and Capital Improvement Program. Eligible improvements include the following:

1) Design and construction of an off-road trail or path that is at least equal to the linear public street frontage of the site and expands the Portsmouth Bicycle and Pedestrian Network consistent with the Portsmouth Bicycle and Pedestrian Plan. The trail or path shall be located on or adjacent to the project's building lot or development site, except as provided in (4) below.

A previously approved development on the lot designed, permitted and constructed a multi-use path along the entire frontage of the lot from the main entrance on Lafayette Road and down Constitution Avenue to the end of the lot. That multi-use path construction included the construction of a COAST bus stop on Constitution Avenue. As this work was part of a previous approval, public realm improvement cannot feasibly be provided on the same lot as the development. The applicant has prepared a design for an extension of the previously constructed multi-use path bringing it approximately 700 linear feet further down Constitution Avenue to the driveway of 199 Constitution Avenue. This extension of the multi-use path is consistent with the Portsmouth Bicycle and Pedestrian Plan. The design of the extension of the multi-use path has been included in the Site Plan Set as part of the submission. Additionally, the applicant has agreed to prepare design plans to the City of Portsmouth for the further extension of the multi-use path to Banfield Road.

4) The Planning Board may allow a proposed public realm improvement to be located on a different lot than the development it if finds that all of the following criteria will be met:

(a) An appropriate public realm improvement cannot feasibly be provided on the same lot as the development.

A discussed, the entire frontage of the lot has been previously developed with public realm improvements. As this work has already been completed, public realm improvement cannot feasibly be provided on the same lot as the development.

(b) The proposed public realm improvement is within the same Zoning District as the development.

This extension of the multi-use path is consistent with the Portsmouth Bicycle and Pedestrian Plan and is within the same Zoning District as the development.

APPROVAL OF DENSITY BONUS INCENTIVES

Per Section 10.5B74.10 Required Information: In order to be eligible for bonus incentives as described in 10.5B72, the following submissions must be included with an application for a Conditional Use Permit:

10.5B74.11 Workforce Housing:

1) A description of the workforce housing units, identifying quantity, location, and type;

All the proposed dwelling units will be for sale units. As required by Section 10.5B73.10 20% of the proposed dwelling units will be designated as workforce housing units. All the workforce housing units will be at least the average gross floor area of each unit type, or 1,000 sq. ft., and will be distributed throughout the building.

2) Documentation that the proposed units qualify as workforce housing units as defined by this Ordinance;

Documentation that the proposed units qualify as workforce housing units as defined by this Ordinance will be prepared in coordination with the City's legal department.

3) Proposed covenant or other legally binding documents that provide enforceable restrictions as to price and occupancy to ensure long-term availability and affordability of the units.

Workforce housing covenants that provide enforceable restrictions as to price and occupancy to ensure long-term availability and affordability of the units will be prepared in coordination with the City's legal department.

10.5B74.12 Public Realm Improvements:

1) A written description of the intended site development or District improvements, the relevant City plan, the public benefit provided, provision for design, construction, management and maintenance if required, and plans showing the location and type, size and extent of each of the eligible improvements.

The applicant has prepared a design for an extension of the previously constructed multi-use path bringing it approximately 700 linear feet further down Constitution Avenue to the driveway of 199 Constitution Avenue. This extension of the multi-use path is consistent with the Portsmouth Bicycle and Pedestrian Plan. Additionally, the

applicant has agreed to prepare design plans to the City of Portsmouth for the further extension of the multi-use path to Banfield Road.

2) A specific time frame for the completion of all required on-site and off-site improvements shall be incorporated as a condition of approval of the Planning Board.

The design of the 700 foot extension of the Constitution Avenue multi-use path has been completed and is included in the Site Plan Set as part of the overall site work and approval process for the Project.

3) A list of all permits and approvals required in connection with any proposed public realm improvements with the application. These approvals shall be obtained prior to approval of the development, unless authorized by the Planning Board.

The applicant will only need site design approval from the Planning Board in connection with the proposed public realm improvements.

10.5B74.13 Any requests by the applicant for the Planning Board to modify specific standards and requirements set forth in this Section 10.5B70 as allowed under Section 10.5B74.30 and a detailed justification for the requested modification.

The applicant is requesting additional modifications to specific standards and requirements set forth in this Section 10.5B70. A detailed justification for the requested modification is in the section below.

MODIFICATION OF STANDARDS

As allowed by Section 10.5B74.30 of the Zoning Ordinance, and in granting a conditional use permit, the Planning Board may modify specific standards and requirements set forth in Section 10.5B20, 10.5B30, 10.5B40 and 10.5B70 provided that the Planning Board finds such modification will promote design flexibility and overall project quality. As part of the granting of a CUP for Density Bonus Incentives the applicant is respectfully requesting the modification of the standards under 10.5B30, 10.5B40 and 10.5B70. The standards requested to be modified includes:

- **Sections 10.5B33.20, Front Lot Line Build Out & 10.5B34.40, Front Building Setback**

  Section 10.5B53.10 states that new buildings that are constructed on a lot or development site that includes one or more non-conforming buildings that existed prior to the effective date of Article 5B, shall comply with the standards for development sites as required by Section 10.5B40 except if the minimum front lot line buildout has not been met, new buildings must be placed within the minimum and maximum front building setback from the lot line. The development site includes one or more non-conforming buildings that existed prior to the effective date of Article 5B and minimum front lot line buildout has not been met. As such, the Project building is required to meet the Building Placement and Orientation standards in Section 10.5B33.

  Sections 10.5B33.20, Front Lot Line Build Out

  The Project will need to modify the standards of Section 10.5B33.20, Front Lot Line Build Out and Section 10.5B34.40, Front Building Setback. Section 10.5B33.20 requires that all buildings must have a front lot line build out of at least 50% for residential and community building types, and 75% for commercial and mixed-use buildings types. As the site is existing non-conforming it is required to meet the 75%

front lot line build out for commercial and mixed-use buildings types. As the Project building is being located in the rear of the site, the standard of Section 10.5B33.20 will need to be modified to allow for 0% front lot line build out, where 75% is required.

10.5B34.40, Front Building Setback

Section 10.5B34.40 requires a front building setback from the lot line of 10 ft minimum and 30 ft maximum. The Project building is being located in rear of the site in the location of an existing movie theater. As the remainder of the site has been previously developed there is not an alternate location on the development site to locate the Project building. The standard of Section 10.5B34.40 will need to be modified to allow for ±400 ft setback from the Constitution Avenue lot line, where a maximum of 30 ft is allowed.

- **Section 10.5B72.10, Dwelling Units Per Building**

  The Planning Board may, by conditional use permit, allow up to a maximum of 36 dwelling units per building. The applicant is requesting additional relief as allowed by Section 10.5B74.30 to allow 95 dwelling units per building. Having a 95-unit building is consistent with the existing use of the site as the Veridian apartment building contains 95 dwelling units. Additionally, the development is permitted to have 16 units per acre by right. With the lot size of 18.71 acres the applicant is permitted 299 dwelling units on the lot. Including the existing residential building, the lot would have 190 total dwelling units which equates to 10.15 units per acre. Due to the available area to be redeveloped, splitting the proposed 95 dwelling units into separate buildings does not allow for the creation of meaningful community space, or adequate parking to support the units.

CONCLUSION

We trust the above described and enclosed materials address the criteria to grant a Conditional Use Permit for Density Bonus Incentives for the proposed project. The proposed project meets requirements of the Zoning Ordinance for the granting of a CUP and the proposed project achieves the goals of City's Master Plan to encourage walkable mixed-use development, improve access to indoor and outdoor recreation facilities throughout the city, ensure that new development complements and enhances its surroundings, and to adapt housing stock to accommodate changing demographics and to accommodate the housing needs of low and moderate income residents.

The applicant respectfully requests a Conditional Use Permit for the use of the Density Bonus Incentives with the additional Modification of Standards be granted. If you have any questions or need any additional information, please contact Patrick Crimmins by phone at (603) 433-8818 or by email at pmcrimmins@tighebond.com.

Sincerely,
TIGHE & BOND, INC.

Patrick M. Crimmins, PE
Senior Project Manager

Neil A. Hansen, PE
Project Engineer

Copy: 2422 Lafayette Road Associates, LLC (via e-mail)
Torrington Properties Inc (via e-mail)
Gregg Mikolaities, August Consulting, PLLC (via e-mail)
John Bosen, Bosen & Associates, PLLC (via e-mail)

T5047-001
November 22, 2021

Mr. Dexter Legg, Chair
City of Portsmouth Planning Board
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: **Conditional Use Permit Request for Development Site Standards**
Proposed Multifamily Development, 2454 Lafayette Road, Portsmouth, NH

Dear Chairman Legg:

On behalf of 2422 Lafayette Road Associates, LLC (owner), and Torrington Properties Inc (applicant), this letter is to request that a Conditional Use Permit (CUP) be granted by the Planning Board to allow for the use of the Development Site Standards, Section 10.5B40 of the Zoning Ordinance.

PROJECT SUMMARY

Existing Conditions

The proposed project (Project) is located at 2454 Lafayette Road on property identified as Map 273 Lot 3 on the City of Portsmouth Tax Maps and is located in the Gateway Neighborhood Mixed Use Corridor, G1 District. The existing parcel is bound by Lafayette Road to south, Constitution Avenue to the west, Water Country Access Drive to the north and Water Country to the east. The overall existing site has been developed with several buildings of mixed retail, commercial, restaurant, and residential uses, with associated parking areas and stormwater management and treatment systems.

Proposed Redevelopment

The Project is in the location of the former Cinemagic movie theater and consists of the construction of a 5-story, 95-unit multifamily condominium building located in the northern corner of the Portsmouth Green Plaza, with ground floor parking, upper floor residential units, and associated site improvements. The proposed ±41,800 SF footprint will be located in the area of the existing 29,000 SF, 1,264 seat movie theater that will be demolished. Also, the previously approved 5,000 SF restaurant pad proposed for this area will not be constructed.

CONDITIONAL USE PERMIT

Under Section 10.5B41.10 Development Site Standards are "allowed by Conditional Use Permit approval from the Planning Board, a development site is any lot or group of contiguous lots owned or controlled by the same person or entity, assembled for the purpose of a single development and including more than one principal building or building type". Portsmouth Green meets the definition of a Development Site, as such a CUP to allow the use of the Development Site Standards is being requested for this proposed project.

Conditional Use Permit Criteria

Based on the above described and enclosed materials, the following addresses how the Project warrants the granting of a Conditional Use Permit for a Development Site by satisfying the following four (4) criteria for approval in Section 10.5B43.10 of the Zoning Ordinance:

(1) The development project is consistent with the Portsmouth Master Plan.

The Project along with the existing site as a whole is consistent with several goals identified in the Master Plan.

- Goal 1.2 is to encourage walkable mixed-use development along existing commercial corridors. As the site has been developed over the years, it has been designed to promote alternative modes of transportation such as walking, bicycling, and public transportation by incorporating bicycle storage spaces on-site, a multi-use path along both frontages of Constitution Avenue and Lafayette Road (Route 1) and a COAST bus stop.
- Goal 1.4 is to improve access to indoor and outdoor recreation facilities throughout the city. Action 1.4.1 under goal 1.4 says in part, that new recreational facilities should be added where appropriate. As part of the Project, pickleball courts are proposed to be included in the community space area. As the popularity of the game has increased over the last couple of years so has the demand for spaces to play. The addition of these courts will be a benefit to residents of the City and of the proposed development.
- Goal 2.1 is to ensure that new development complements and enhances its surroundings. The site already has a successful residential component, and the addition of more residents to the development site will further ensure the continued success of the commercial, retail and restaurants uses currently on site.
- Goal 3.1 and Goal 3.2 are to adapt housing stock to accommodate changing demographics and to accommodate the housing needs of low and moderate income residents. The Project will add an additional 95 residential units to the local housing stock. The Project will also be designating 20% of the units as workforce housing which will accommodate of residents across income levels.

(2) The development project has been designed to allow uses that are appropriate for its context and consistent with City's planning goals and objectives for the area.

The Project has been designed to be consistent with the existing uses already on the site. Residential buildings are an allowed use with the zone and the addition of housing stock and workforce housing is consistent with goals laid out in the City's Master Plan as described in criteria item 1.

(3) The project includes measures to mitigate or eliminate anticipated impacts on traffic safety and circulation, demand on municipal services, stormwater runoff, natural resources, and adjacent neighborhood character.

The Project will have a negligible or reduced impact on traffic due to the removal of the existing movie theater. The Project will generate fewer vehicle trips during the weekday PM and Saturday peak hour periods, with only a negligible increase during the weekday AM peak hour period.

The development site has been previously designed to mitigate stormwater runoff with the use of several filtration and infiltration stormwater treatment practices. The Project will use the existing stormwater treatment infrastructure and will result in a decrease in impervious surfaces on site.

The Project will also maintain the existing character of the neighborhood as the proposed use already exists on site.

(4) The project is consistent with the purpose and intent set forth in Section 10.5B11.

Section 10.5B11.10 states that *"The purpose of Article 5B is to implement and support the goals of the City's Master Plan and Housing Policy to encourage walkable mixed-use development and continued economic vitality in the City's primary gateway areas, ensure that new development complements and enhances its surroundings, provide housing stock that is suited for changing demographics, and accommodate the housing needs of the City's current and future workforce."*

The Project meets the standards outlined in Section 10.5B11.20 which are to:

a. ***Promote development that is consistent with the goals of the Master Plan to create vibrant, authentic, diverse, connected and resilient neighborhoods;*** Criteria 1 details that the proposed project is consistent with the goals of the Master Plan.

b. ***Encourage high quality housing for a variety of household types and income ranges.*** Designating that 20% of the proposed units will be sold at workforce housing rates will ensure that the Project will provide high quality housing for a variety of income ranges.

c. ***Guide the physical character of development by providing a menu of building and site development types that are based on established community design principles;*** As an existing mixed-use development, this project has the benefit of being located on a site that already has a variety of building types an uses which will complement and enhance this project.

d. ***Create quality places by allowing for whole site development with meaningful public spaces and neighborhood centers.*** The Project will enhance the whole-site development approach that has been previously used when developing this site, and will add meaningful public space to the site where none currently exists. This public space will include pickleball courts, a seating and gathering area, and a dog park.

MODIFICATION OF STANDARDS

As allowed by Section 10.5B74.30 of the Zoning Ordinance, and in granting a conditional use permit, the Planning Board may modify specific standards and requirements set forth in Section 10.5B20, 10.5B30, 10.5B40 and 10.5B70 provided that the Planning Board finds such modification will promote design flexibility and overall project quality. As part of the granting of a CUP for the use of the Development Site Standards the applicant is respectfully requesting the modification of the standards under 10.5B40. The standards requested to be modified include:

- **Section 10.5B42.20, Maximum Development Block Dimensions**

  Under 10.5B40 are the Development Standards for a Mixed-Use Development listed in 10.5B42.20. Due to the existing site not meeting the standards for the maximum development block dimensions, The Project will need to modify the maximum block length and maximum block perimeter. The Development Standards allow for a maximum block length of 800 ft where a block length of ±1,137 ft currently exists, and they allow for a maximum block perimeter of 2,200 linear ft where ±3,780 linear ft currently exist.

CONCLUSION

We trust the above described and enclosed materials address the criteria to grant a Conditional Use Permit for the proposed project. The proposed project meets requirements of the Zoning Ordinance for the granting of a CUP and the proposed project achieves the goals of City's Master Plan to encourage walkable mixed-use development, improve access to indoor and outdoor recreation facilities throughout the city, ensure that new development complements and enhances its surroundings, and to adapt housing stock to accommodate changing demographics and to accommodate the housing needs of low and moderate income residents.

The applicant respectfully requests a Conditional Use Permit for the use of the Development Site Standards with the additional Modification of Standards be granted. If you have any questions or need any additional information, please contact Patrick Crimmins by phone at (603) 433-8818 or by email at pmcrimmins@tighebond.com.

Sincerely,

TIGHE & BOND, INC.

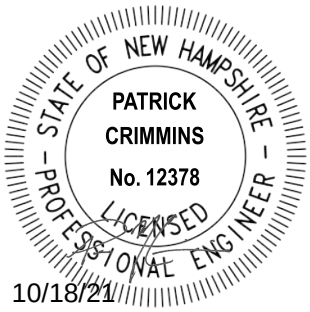
Patrick M. Crimmins, PE
Senior Project Manager

Neil A. Hansen, PE
Project Engineer

Copy: 2422 Lafayette Road Associates, LLC (via e-mail)
Torrington Properties Inc (via e-mail)
Gregg Mikolaities, August Consulting, PLLC (via e-mail)
John Bosen, Bosen & Associates, PLLC (via e-mail)

J:\T\T5047 Torrington Properties\001 Constitution Ave, Portsmouth NH\Report_Evaluation\Applications\City of Portsmouth\20211018 TAC Submission\T5047-001 Development Site CUP.docx

Drainage Analysis



TO: City of Portsmouth Technical Advisory Committee (TAC)

FROM: Neil A. Hansen, PE
Patrick M. Crimmins, PE

COPY: Torrington Properties, Inc.

DATE: October 18, 2021

1.0 Project Summary

This Drainage Analysis Memorandum was completed to review the proposed revisions to the stormwater management system that will result from the proposed redevelopment of the northern corner of the Portsmouth Green Plaza located at 2454 Lafayette Road, Portsmouth, New Hampshire.

The overall existing site has been developed with several buildings of mixed retail, commercial, restaurant, and residential uses, with associated parking areas and stormwater management and treatment systems. The site is approximately 18.7 acres and is bound by an access drive for Water County to the north, Water Country property to the east, Route One (Lafayette Road) to the south and Constitution Avenue to the west.

1.1 Project Description

The proposed project is in the location of the former Cinemagic movie theater and consists of the construction of a 5-story, 95-unit multifamily condominium building located in the northern corner of the Portsmouth Green Plaza. Also, the previously approved 5,000 SF restaurant pad proposed for this area will not be constructed.

Under previously approved and constructed projects various Best Management Practices (BMP's) for stormwater management and treatment were designed permitted and constructed. These BMP's include an underground infiltration system, three (3) water quality inlets and twelve (12) tree box filters located in the front parking area and an underground infiltration system and one (1) water quality inlet located in the rear of the site.

This project is anticipated to disturb approximately 3.45 acres. The proposed project will result in a decrease of approximately 3,764 SF of impervious area from the previously approved post development design.

2.0 Drainage Analysis

2.1 Calculation Methods

The design storms analyzed in this study are the 2-year, 10-year, 25-year and 50-year 24-hour duration storm events. The stormwater modeling system, HydroCAD 10.0 was utilized to predict the peak runoff rates from these storm events. The peak discharge rates were determined by analyzing Type III 24-hour storm events. The rainfall data for these storm events was obtained from the data published by the Northeast Regional Climate Center at Cornell University.

The time of concentration was computed using the TR-55 Method, which provides a means of determining the time for an entire watershed to contribute runoff to a specific location via sheet flows, shallow concentrated flow and channel flow. Runoff curve numbers were

calculated by estimating the coverage areas and then summing the curve number for the coverage area as a percent of the entire watershed.

References

1. HydroCAD Stormwater Modeling System, by HydroCAD Software Solutions LLC, Chocorua, New Hampshire.
2. New Hampshire Stormwater Management Manual, Volume 2, Post-Construction Best Management Practices Selection and Design, December 2008.
3. "Extreme Precipitation in New York & New England." Extreme Precipitation in New York & New England by Northeast Regional Climate Center (NRCC), 26 June 2012.

2.2 Pre- and Post-Development Calculations

The pre- and post-development watershed areas have been analyzed at the same four (4) Points of Analysis for the overall project. These Points of Analysis were held constant, while their contributing sub watershed areas were adjusted between the pre- and post-development conditions. These adjustments were made to reflect the differences between the existing and the proposed conditions drainage patterns. The overall areas analyzed as part of this report were held constant. Table 2.2.1 compares pre- and post-development peak runoff rates during each design storm event.

2.2.1 Peak Rate Comparisons

Table 2.2.1 summarizes and compares the pre- and post-development peak runoff rates for the 2-year, 10-year, 25-year and 50-year storm events.

Table 2.2.1 - Comparison of Pre- and Post-Development Flows (cfs)

	2-Year Storm	10-Year Storm	25-Year Storm	50-Year Storm
Pre-Development Watershed				
PA1	17.01	32.01	41.37	61.24
PA2	0.05	0.32	0.60	0.89
PA3	0.25	0.51	0.73	0.93
PA4	1.96	5.07	12.16	20.82
Post-Development Watershed				
PA1	16.74	31.31	40.60	59.73
PA2	0.05	0.31	0.59	0.89
PA3	0.18	0.36	0.52	0.66
PA4	20.14	12.07	5.05	1.96

As depicted in Table 2.2.1, post-development peak runoff rates are less than the pre-development condition for all Points of Analysis.

2.3 Stormwater Treatment

The stormwater management system was previously designed and constructed to provide stormwater treatment as required by the City of Portsmouth Site Review Regulations and NHDES AoT Regulations (Env-Wq 1500). Per NHDES AoT Regulation Env-Wq 1503.21(1) (5) modifications to a previously approved project are allowed if "No change is made to a stormwater management system that: a. Adds, removes, or relocates any treatment practice, pretreatment practice, groundwater recharge practice, or detention structure; or b. Increases the peak inflow rate to any treatment practice, pretreatment practice, groundwater

recharge practice, or detention structure during the 2-year 24-hour storm". The proposed project will be using the existing treatment and pre-treatment systems described in Section 1.1. Table 2.3.1 summarizes and compares the 2-year storm event pre- and post-development peak runoff rates for runoff flowing to each treatment system to demonstrate compliance with NHDES regulations.

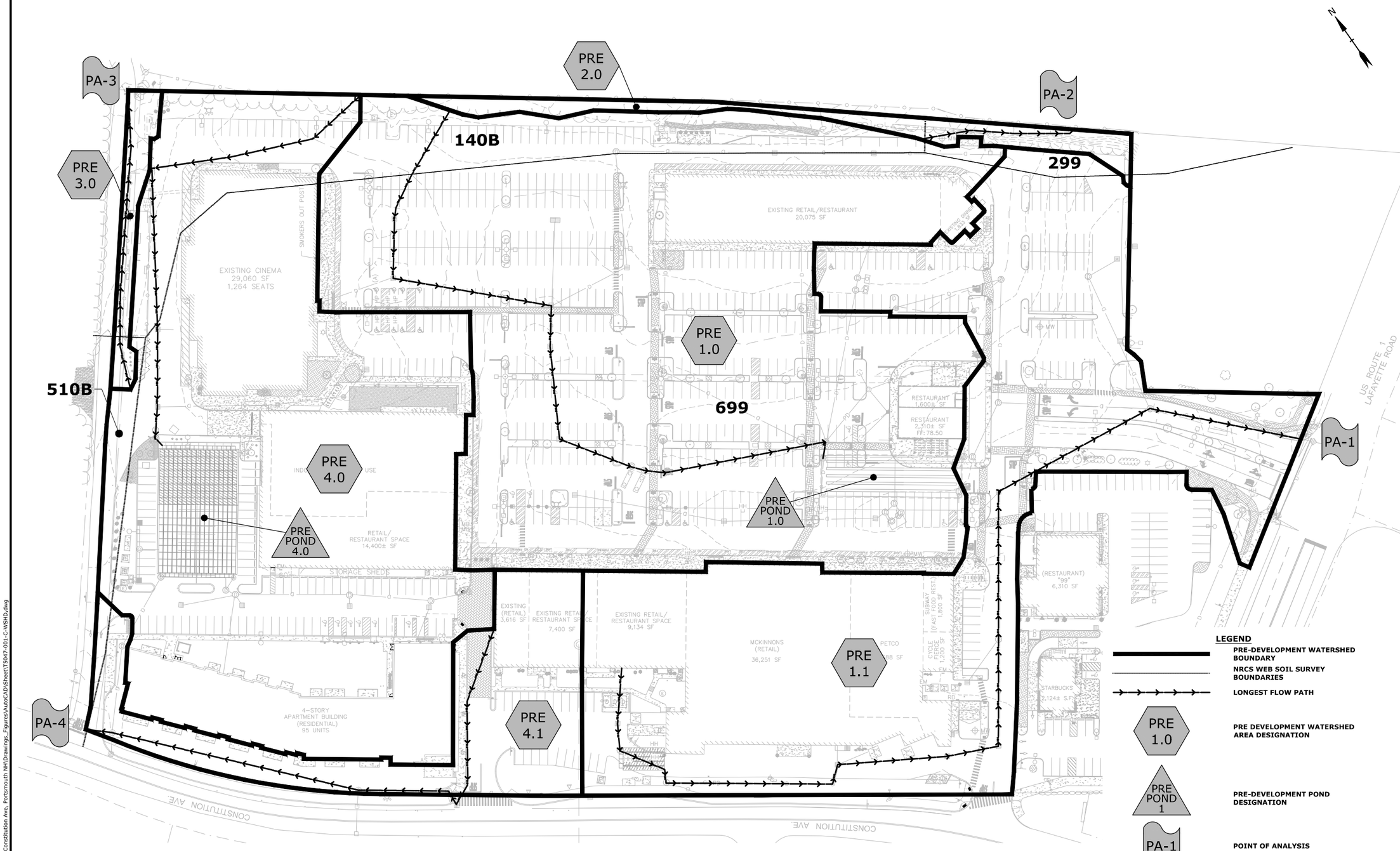
Table 2.3.1 - Comparison of Pre- and Post-Development Flows (cfs)

	2-Year Storm
Pre-Development	
Pond 1.0	17.66
Pond 4.0	13.56
Post-Development	
Pond 1.0	17.12
Pond 4.0	13.18

As depicted in Table 2.3.1, post-development peak runoff rates are less than the pre-development condition for each treatment system.

3.0 Conclusion

The proposed project will result in a reduction in post-development peak runoff rates from the pre-development condition. The impervious area be reduced by the proposed project. The project will require notifying NHDES of the modifications being made as required by Env-Wq 1503.21.



LEGEND

- **PRE-DEVELOPMENT WATERSHED BOUNDARY**
- **NRCS WEB SOIL SURVEY BOUNDARIES**
- **LONGEST FLOW PATH**
- PRE 1.0 — **PRE DEVELOPMENT WATERSHED AREA DESIGNATION**
- PRE POND 1 — **PRE-DEVELOPMENT POND DESIGNATION**
- PA-1 — **POINT OF ANALYSIS**

WEB SOIL SURVEY HYDROLOGIC SOIL GROUP (HSG) LEGEND

SYMBOL	SOIL TYPE, SLOPE RATING	HSG
140B	CHATFIELD-HOLLIS-CANTON COMPLEX, 3 TO 8 PERCENT SLOPES	B
299	UDORTHENTS	N/A
510B	HOOSIC GRAVELLY FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES	A
699	URBAN LAND	N/A

Tighe&Bond

0 50' 100'
GRAPHIC SCALE

Multi-Family Development

Torrington Properties, Inc.

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	10/18/2021	TAC Submission
B	9/2/2021	Design Review - TAC WS
A	8/5/2021	PB Conceptual Consultation

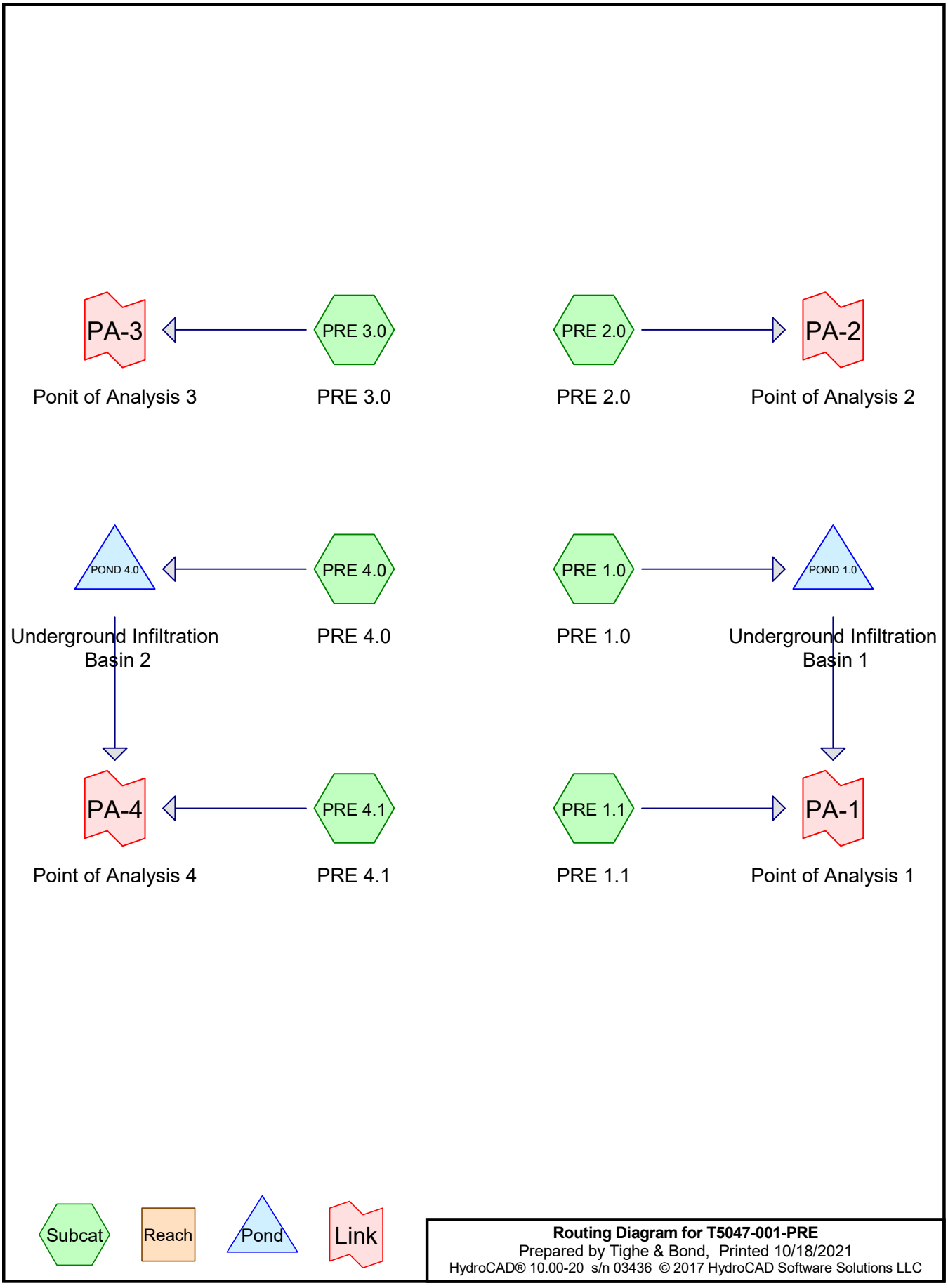
PROJECT NO:	T-5047-001
DATE:	August 5, 2021
FILE:	T5047-001-C-WSHD.DWG
DRAWN BY:	NAH
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

PRE DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-801

Last Saved: 10/14/2021
Printed: Oct 15, 2021-10:16am By: NAHansen
Tighe & Bond: J:\TYT5047 Torrington Properties\001 Constitution Ave, Portsmouth NH\Drawings_Figures\AutoCAD\Sheet\T5047-001-C-WSHD.dwg



Routing Diagram for T5047-001-PRE
Prepared by Tighe & Bond, Printed 10/18/2021
HydroCAD® 10.00-20 s/n 03436 © 2017 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.038	39	>75% Grass cover, Good, HSG A (PRE 3.0, PRE 4.0)
2.342	61	>75% Grass cover, Good, HSG B (PRE 1.0, PRE 1.1, PRE 2.0, PRE 3.0, PRE 4.0, PRE 4.1)
0.149	98	Paved parking, HSG A (PRE 3.0, PRE 4.0, PRE 4.1)
9.769	98	Paved parking, HSG B (PRE 1.0, PRE 1.1, PRE 3.0, PRE 4.0, PRE 4.1)
4.332	98	Roofs, HSG B (PRE 1.0, PRE 1.1, PRE 4.0, PRE 4.1)
0.307	55	Woods, Good, HSG B (PRE 1.0, PRE 2.0, PRE 4.0)
16.938	**92**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.188	HSG A	PRE 3.0, PRE 4.0, PRE 4.1
16.750	HSG B	PRE 1.0, PRE 1.1, PRE 2.0, PRE 3.0, PRE 4.0, PRE 4.1
0.000	HSG C	
0.000	HSG D	
0.000	Other	
16.938		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.04 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PRE 1.0: PRE 1.0 Runoff Area=266,042 sf 89.96% Impervious Runoff Depth>2.58"
Flow Length=800' Tc=5.8 min CN=94 Runoff=17.66 cfs 1.314 af

Subcatchment PRE 1.1: PRE 1.1 Runoff Area=198,589 sf 84.66% Impervious Runoff Depth>2.39"
Flow Length=1,796' Tc=5.6 min CN=92 Runoff=12.51 cfs 0.907 af

Subcatchment PRE 2.0: PRE 2.0 Runoff Area=12,433 sf 0.00% Impervious Runoff Depth>0.32"
Flow Length=294' Tc=3.9 min CN=57 Runoff=0.05 cfs 0.008 af

Subcatchment PRE 3.0: PRE 3.0 Runoff Area=6,909 sf 49.82% Impervious Runoff Depth>1.30"
Flow Length=454' Tc=4.6 min CN=78 Runoff=0.25 cfs 0.017 af

Subcatchment PRE 4.0: PRE 4.0 Runoff Area=208,187 sf 87.10% Impervious Runoff Depth>2.48"
Flow Length=528' Tc=5.5 min CN=93 Runoff=13.56 cfs 0.989 af

Subcatchment PRE 4.1: PRE 4.1 Runoff Area=45,640 sf 62.44% Impervious Runoff Depth>1.71"
Flow Length=769' Tc=7.8 min CN=84 Runoff=1.96 cfs 0.150 af

Pond POND 1.0: Underground Infiltration Peak Elev=72.07' Storage=12,567 cf Inflow=17.66 cfs 1.314 af
Discarded=0.95 cfs 0.777 af Primary=7.60 cfs 0.536 af Outflow=8.55 cfs 1.313 af

Pond POND 4.0: Underground Infiltration Peak Elev=71.78' Storage=13,529 cf Inflow=13.56 cfs 0.989 af
Discarded=1.76 cfs 0.989 af Primary=0.00 cfs 0.000 af Outflow=1.76 cfs 0.989 af

Link PA-1: Point of Analysis 1 Inflow=17.01 cfs 1.443 af
Primary=17.01 cfs 1.443 af

Link PA-2: Point of Analysis 2 Inflow=0.05 cfs 0.008 af
Primary=0.05 cfs 0.008 af

Link PA-3: Ponit of Analysis 3 Inflow=0.25 cfs 0.017 af
Primary=0.25 cfs 0.017 af

Link PA-4: Point of Analysis 4 Inflow=1.96 cfs 0.150 af
Primary=1.96 cfs 0.150 af

Total Runoff Area = 16.938 ac Runoff Volume = 3.384 af Average Runoff Depth = 2.40"
15.87% Pervious = 2.688 ac 84.13% Impervious = 14.250 ac

Time span=0.00-24.00 hrs, dt=0.04 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PRE 1.0: PRE 1.0 Runoff Area=266,042 sf 89.96% Impervious Runoff Depth>4.22"
Flow Length=800' Tc=5.8 min CN=94 Runoff=28.05 cfs 2.146 af

Subcatchment PRE 1.1: PRE 1.1 Runoff Area=198,589 sf 84.66% Impervious Runoff Depth>4.00"
Flow Length=1,796' Tc=5.6 min CN=92 Runoff=20.41 cfs 1.519 af

Subcatchment PRE 2.0: PRE 2.0 Runoff Area=12,433 sf 0.00% Impervious Runoff Depth>1.06"
Flow Length=294' Tc=3.9 min CN=57 Runoff=0.32 cfs 0.025 af

Subcatchment PRE 3.0: PRE 3.0 Runoff Area=6,909 sf 49.82% Impervious Runoff Depth>2.63"
Flow Length=454' Tc=4.6 min CN=78 Runoff=0.51 cfs 0.035 af

Subcatchment PRE 4.0: PRE 4.0 Runoff Area=208,187 sf 87.10% Impervious Runoff Depth>4.11"
Flow Length=528' Tc=5.5 min CN=93 Runoff=21.82 cfs 1.636 af

Subcatchment PRE 4.1: PRE 4.1 Runoff Area=45,640 sf 62.44% Impervious Runoff Depth>3.18"
Flow Length=769' Tc=7.8 min CN=84 Runoff=3.62 cfs 0.278 af

Pond POND 1.0: Underground Infiltration Peak Elev=73.45' Storage=19,008 cf Inflow=28.05 cfs 2.146 af
Discarded=0.95 cfs 1.031 af Primary=14.17 cfs 1.115 af Outflow=15.12 cfs 2.146 af

Pond POND 4.0: Underground Infiltration Peak Elev=72.86' Storage=22,215 cf Inflow=21.82 cfs 1.636 af
Discarded=1.76 cfs 1.416 af Primary=3.78 cfs 0.220 af Outflow=5.54 cfs 1.636 af

Link PA-1: Point of Analysis 1 Inflow=32.01 cfs 2.634 af
Primary=32.01 cfs 2.634 af

Link PA-2: Point of Analysis 2 Inflow=0.32 cfs 0.025 af
Primary=0.32 cfs 0.025 af

Link PA-3: Ponit of Analysis 3 Inflow=0.51 cfs 0.035 af
Primary=0.51 cfs 0.035 af

Link PA-4: Point of Analysis 4 Inflow=5.07 cfs 0.498 af
Primary=5.07 cfs 0.498 af

Total Runoff Area = 16.938 ac Runoff Volume = 5.639 af Average Runoff Depth = 3.99"
15.87% Pervious = 2.688 ac 84.13% Impervious = 14.250 ac

Summary for Subcatchment PRE 1.0: PRE 1.0

Runoff = 28.05 cfs @ 12.08 hrs, Volume= 2.146 af, Depth> 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-YR Rainfall=4.91"

Area (sf)	CN	Description
26,042	98	Roofs, HSG B
3,134	55	Woods, Good, HSG B
23,577	61	>75% Grass cover, Good, HSG B
213,289	98	Paved parking, HSG B
266,042	94	Weighted Average
26,711		10.04% Pervious Area
239,331		89.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	6	0.0300	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.24"
0.1	18	0.0300	2.60		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.0	138	0.0142	2.42		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	59	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.9	166	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.1	36	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.4	93	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.3	78	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.0	8	0.5000	42.03	74.28	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.1	18	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.6	167	0.0060	4.60	8.14	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.1	13	0.0010	2.28	7.15	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior

5.8 800 Total

Summary for Subcatchment PRE 1.1: PRE 1.1

Runoff = 20.41 cfs @ 12.08 hrs, Volume= 1.519 af, Depth> 4.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-YR Rainfall=4.91"

Area (sf)	CN	Description
61,623	98	Roofs, HSG B
30,457	61	>75% Grass cover, Good, HSG B
106,509	98	Paved parking, HSG B
198,589	92	Weighted Average
30,457		15.34% Pervious Area
168,132		84.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.20		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.24"
0.5	110	0.0050	4.03	4.95	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.4	71	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.8	157	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
0.6	130	0.0050	3.72	4.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
0.4	126	0.0055	4.78	8.44	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
2.2	1,152	0.0150	8.82	27.71	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
5.6	1,796	Total			

Summary for Subcatchment PRE 2.0: PRE 2.0

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.32 cfs @ 12.08 hrs, Volume= 0.025 af, Depth> 1.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-YR Rainfall=4.91"

Area (sf)	CN	Description
8,301	55	Woods, Good, HSG B
4,132	61	>75% Grass cover, Good, HSG B
12,433	57	Weighted Average
12,433		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	20	0.0200	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.24"
0.2	29	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	9	0.2200	7.55		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	37	0.1091	5.32		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	33	0.0610	3.98		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	76	0.0260	2.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	90	0.0900	4.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
3.9	294	Total			

Summary for Subcatchment PRE 3.0: PRE 3.0

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.51 cfs @ 12.07 hrs, Volume= 0.035 af, Depth> 2.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-YR Rainfall=4.91"

Area (sf)	CN	Description
403	39	>75% Grass cover, Good, HSG A
821	98	Paved parking, HSG A
3,064	61	>75% Grass cover, Good, HSG B
2,621	98	Paved parking, HSG B
6,909	78	Weighted Average
3,467		50.18% Pervious Area
3,442		49.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	75	0.0060	0.81		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.24"
3.1	379	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.6	454	Total			

Summary for Subcatchment PRE 4.0: PRE 4.0

Runoff = 21.82 cfs @ 12.08 hrs, Volume= 1.636 af, Depth> 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-YR Rainfall=4.91"

Area (sf)	CN	Description
1,271	39	>75% Grass cover, Good, HSG A
4,452	98	Paved parking, HSG A
91,769	98	Roofs, HSG B
1,949	55	Woods, Good, HSG B
23,639	61	>75% Grass cover, Good, HSG B
85,107	98	Paved parking, HSG B
208,187	93	Weighted Average
26,859		12.90% Pervious Area
181,328		87.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	28	0.0400	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.24"
1.2	200	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.6	300	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
5.5	528	Total			

Summary for Subcatchment PRE 4.1: PRE 4.1

Runoff = 3.62 cfs @ 12.11 hrs, Volume= 0.278 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-YR Rainfall=4.91"

Area (sf)	CN	Description
1,234	98	Paved parking, HSG A
9,247	98	Roofs, HSG B
17,142	61	>75% Grass cover, Good, HSG B
18,017	98	Paved parking, HSG B
45,640	84	Weighted Average
17,142		37.56% Pervious Area
28,498		62.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.05		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.24"
0.0	5	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	75	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.4	84	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
2.6	325	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.5	75	0.0030	2.69	2.11	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
2.3	105	0.0025	0.75		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.8	769	Total			

Summary for Pond POND 1.0: Underground Infiltration Basin 1

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=69)

Inflow Area = 6.107 ac, 89.96% Impervious, Inflow Depth > 4.22" for 10-YR event
Inflow = 28.05 cfs @ 12.08 hrs, Volume= 2.146 af
Outflow = 15.12 cfs @ 12.21 hrs, Volume= 2.146 af, Atten= 46%, Lag= 7.8 min
Discarded = 0.95 cfs @ 9.96 hrs, Volume= 1.031 af
Primary = 14.17 cfs @ 12.21 hrs, Volume= 1.115 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 73.45' @ 12.21 hrs Surf.Area= 5,874 sf Storage= 19,008 cf
Flood Elev= 75.65' Surf.Area= 5,874 sf Storage= 25,909 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 22.7 min (796.0 - 773.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	68.65'	10,139 cf	**44.50'W x 132.00'L x 7.00'H Field A** 41,118 cf Overall - 15,770 cf Embedded = 25,348 cf x 40.0% Voids
#2A	69.65'	15,770 cf	**CMP Round- 60** x 36 Inside #1 Effective Size= 60.0"W x 60.0"H => 19.59 sf x 20.00'L = 391.8 cf Overall Size= 60.0"W x 60.0"H x 20.00'L 6 Rows of 6 Chambers 42.50' Header x 19.59 sf x 2 = 1,665.2 cf Inside
		25,909 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	69.65'	**24.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 69.65' / 69.55' S= 0.0033 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	69.65'	**12.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	71.30'	**15.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	74.25'	**8.0' long x 1.85' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Discarded	68.65'	**7.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.95 cfs @ 9.96 hrs HW=68.73' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.95 cfs)

Primary OutFlow Max=14.13 cfs @ 12.21 hrs HW=73.44' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 14.13 cfs of 25.27 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 6.86 cfs @ 8.73 fps)
  ├**3=Orifice/Grate** (Orifice Controls 7.27 cfs @ 5.93 fps)
  └**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond POND 4.0: Underground Infiltration Basin 2

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 4.779 ac, 87.10% Impervious, Inflow Depth > 4.11" for 10-YR event
Inflow = 21.82 cfs @ 12.08 hrs, Volume= 1.636 af
Outflow = 5.54 cfs @ 12.45 hrs, Volume= 1.636 af, Atten= 75%, Lag= 22.0 min
Discarded = 1.76 cfs @ 11.52 hrs, Volume= 1.416 af
Primary = 3.78 cfs @ 12.45 hrs, Volume= 0.220 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 72.86' @ 12.45 hrs Surf.Area= 10,872 sf Storage= 22,215 cf
Flood Elev= 75.50' Surf.Area= 10,872 sf Storage= 30,208 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 64.6 min (842.5 - 777.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	69.50'	16,102 cf	**83.25'W x 130.60'L x 5.00'H Field A** 54,362 cf Overall - 14,106 cf Embedded = 40,256 cf x 40.0% Voids
#2A	71.00'	14,106 cf	**ADS_StormTech SC-740** x 306 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 17 rows
		30,208 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	71.95'	**24.0" Round Culvert** L= 205.0' CPP, end-section conforming to fill, Ke= 0.500

Inlet / Outlet Invert= 71.95' / 70.90' S= 0.0051 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2 Discarded 69.50' **7.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=1.76 cfs @ 11.52 hrs HW=69.57' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 1.76 cfs)

Primary OutFlow Max=3.77 cfs @ 12.45 hrs HW=72.86' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 3.77 cfs @ 3.98 fps)

Summary for Link PA-1: Point of Analysis 1

Inflow Area = 10.666 ac, 87.70% Impervious, Inflow Depth > 2.96" for 10-YR event
Inflow = 32.01 cfs @ 12.10 hrs, Volume= 2.634 af
Primary = 32.01 cfs @ 12.10 hrs, Volume= 2.634 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Summary for Link PA-2: Point of Analysis 2

Inflow Area = 0.285 ac, 0.00% Impervious, Inflow Depth > 1.06" for 10-YR event
Inflow = 0.32 cfs @ 12.08 hrs, Volume= 0.025 af
Primary = 0.32 cfs @ 12.08 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Summary for Link PA-3: Ponit of Analysis 3

Inflow Area = 0.159 ac, 49.82% Impervious, Inflow Depth > 2.63" for 10-YR event
Inflow = 0.51 cfs @ 12.07 hrs, Volume= 0.035 af
Primary = 0.51 cfs @ 12.07 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Summary for Link PA-4: Point of Analysis 4

Inflow Area = 5.827 ac, 82.66% Impervious, Inflow Depth > 1.03" for 10-YR event
Inflow = 5.07 cfs @ 12.40 hrs, Volume= 0.498 af
Primary = 5.07 cfs @ 12.40 hrs, Volume= 0.498 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Time span=0.00-24.00 hrs, dt=0.04 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PRE 1.0: PRE 1.0 Runoff Area=266,042 sf 89.96% Impervious Runoff Depth>5.52"
Flow Length=800' Tc=5.8 min CN=94 Runoff=36.18 cfs 2.810 af

Subcatchment PRE 1.1: PRE 1.1 Runoff Area=198,589 sf 84.66% Impervious Runoff Depth>5.29"
Flow Length=1,796' Tc=5.6 min CN=92 Runoff=26.58 cfs 2.011 af

Subcatchment PRE 2.0: PRE 2.0 Runoff Area=12,433 sf 0.00% Impervious Runoff Depth>1.82"
Flow Length=294' Tc=3.9 min CN=57 Runoff=0.60 cfs 0.043 af

Subcatchment PRE 3.0: PRE 3.0 Runoff Area=6,909 sf 49.82% Impervious Runoff Depth>3.78"
Flow Length=454' Tc=4.6 min CN=78 Runoff=0.73 cfs 0.050 af

Subcatchment PRE 4.0: PRE 4.0 Runoff Area=208,187 sf 87.10% Impervious Runoff Depth>5.41"
Flow Length=528' Tc=5.5 min CN=93 Runoff=28.27 cfs 2.153 af

Subcatchment PRE 4.1: PRE 4.1 Runoff Area=45,640 sf 62.44% Impervious Runoff Depth>4.41"
Flow Length=769' Tc=7.8 min CN=84 Runoff=4.96 cfs 0.385 af

Pond POND 1.0: Underground Infiltration Peak Elev=74.56' Storage=23,305 cf Inflow=36.18 cfs 2.810 af
Discarded=0.95 cfs 1.184 af Primary=21.87 cfs 1.626 af Outflow=22.82 cfs 2.810 af

Pond POND 4.0: Underground Infiltration Peak Elev=73.51' Storage=25,919 cf Inflow=28.27 cfs 2.153 af
Discarded=1.76 cfs 1.646 af Primary=9.52 cfs 0.507 af Outflow=11.28 cfs 2.153 af

Link PA-1: Point of Analysis 1 Inflow=41.37 cfs 3.637 af
Primary=41.37 cfs 3.637 af

Link PA-2: Point of Analysis 2 Inflow=0.60 cfs 0.043 af
Primary=0.60 cfs 0.043 af

Link PA-3: Ponit of Analysis 3 Inflow=0.73 cfs 0.050 af
Primary=0.73 cfs 0.050 af

Link PA-4: Point of Analysis 4 Inflow=12.16 cfs 0.892 af
Primary=12.16 cfs 0.892 af

Total Runoff Area = 16.938 ac Runoff Volume = 7.452 af Average Runoff Depth = 5.28"
15.87% Pervious = 2.688 ac 84.13% Impervious = 14.250 ac

Time span=0.00-24.00 hrs, dt=0.04 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment PRE 1.0: PRE 1.0 Runoff Area=266,042 sf 89.96% Impervious Runoff Depth>6.74"
Flow Length=800' Tc=5.8 min CN=94 Runoff=43.70 cfs 3.431 af

Subcatchment PRE 1.1: PRE 1.1 Runoff Area=198,589 sf 84.66% Impervious Runoff Depth>6.51"
Flow Length=1,796' Tc=5.6 min CN=92 Runoff=32.28 cfs 2.471 af

Subcatchment PRE 2.0: PRE 2.0 Runoff Area=12,433 sf 0.00% Impervious Runoff Depth>2.62"
Flow Length=294' Tc=3.9 min CN=57 Runoff=0.89 cfs 0.062 af

Subcatchment PRE 3.0: PRE 3.0 Runoff Area=6,909 sf 49.82% Impervious Runoff Depth>4.89"
Flow Length=454' Tc=4.6 min CN=78 Runoff=0.93 cfs 0.065 af

Subcatchment PRE 4.0: PRE 4.0 Runoff Area=208,187 sf 87.10% Impervious Runoff Depth>6.62"
Flow Length=528' Tc=5.5 min CN=93 Runoff=34.24 cfs 2.638 af

Subcatchment PRE 4.1: PRE 4.1 Runoff Area=45,640 sf 62.44% Impervious Runoff Depth>5.57"
Flow Length=769' Tc=7.8 min CN=84 Runoff=6.20 cfs 0.487 af

Pond POND 1.0: Underground Infiltration Peak Elev=75.35' Storage=25,214 cf Inflow=43.70 cfs 3.431 af
Discarded=0.95 cfs 1.304 af Primary=32.81 cfs 2.126 af Outflow=33.76 cfs 3.430 af

Pond POND 4.0: Underground Infiltration Peak Elev=74.28' Storage=29,236 cf Inflow=34.24 cfs 2.638 af
Discarded=1.76 cfs 1.834 af Primary=15.96 cfs 0.804 af Outflow=17.73 cfs 2.638 af

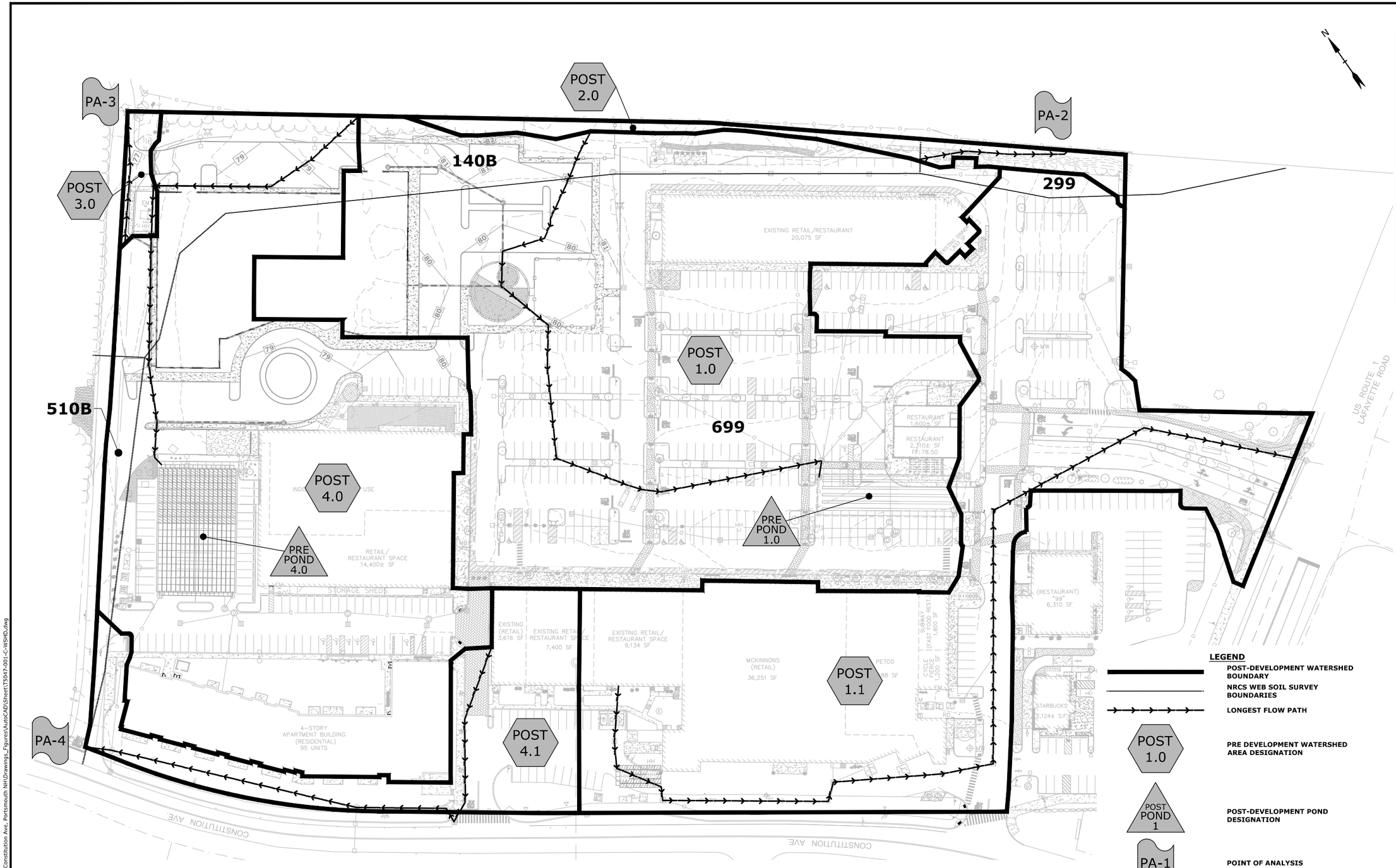
Link PA-1: Point of Analysis 1 Inflow=61.24 cfs 4.598 af
Primary=61.24 cfs 4.598 af

Link PA-2: Point of Analysis 2 Inflow=0.89 cfs 0.062 af
Primary=0.89 cfs 0.062 af

Link PA-3: Ponit of Analysis 3 Inflow=0.93 cfs 0.065 af
Primary=0.93 cfs 0.065 af

Link PA-4: Point of Analysis 4 Inflow=20.82 cfs 1.291 af
Primary=20.82 cfs 1.291 af

Total Runoff Area = 16.938 ac Runoff Volume = 9.153 af Average Runoff Depth = 6.49"
15.87% Pervious = 2.688 ac 84.13% Impervious = 14.250 ac



LEGEND

- POST-DEVELOPMENT WATERSHED BOUNDARY
- NRCS WEB SOIL SURVEY BOUNDARIES
- LONGEST FLOW PATH
- POST 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION
- POST POND 1 — POST-DEVELOPMENT POND DESIGNATION
- PA-1 — POINT OF ANALYSIS

WEB SOIL SURVEY HYDROLOGIC SOIL GROUP (HSG) LEGEND

SYMBOL	SOIL TYPE, SLOPE RATING	HSG
140B	CHATFIELD-HOLLIS-CANTON COMPLEX, 3 TO 8 PERCENT SLOPES	B
299	UDORTHENTS	N/A
510B	HOOSIC GRAVELLY FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES	A
699	URBAN LAND	N/A

Tighe&Bond

0 50' 100'
GRAPHIC SCALE

Multi-Family Development

Torrington Properties, Inc.

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
C	10/18/2021	TAC Submission
B	9/2/2021	Design Review - TAC WS
A	8/5/2021	PB Conceptual Consultation

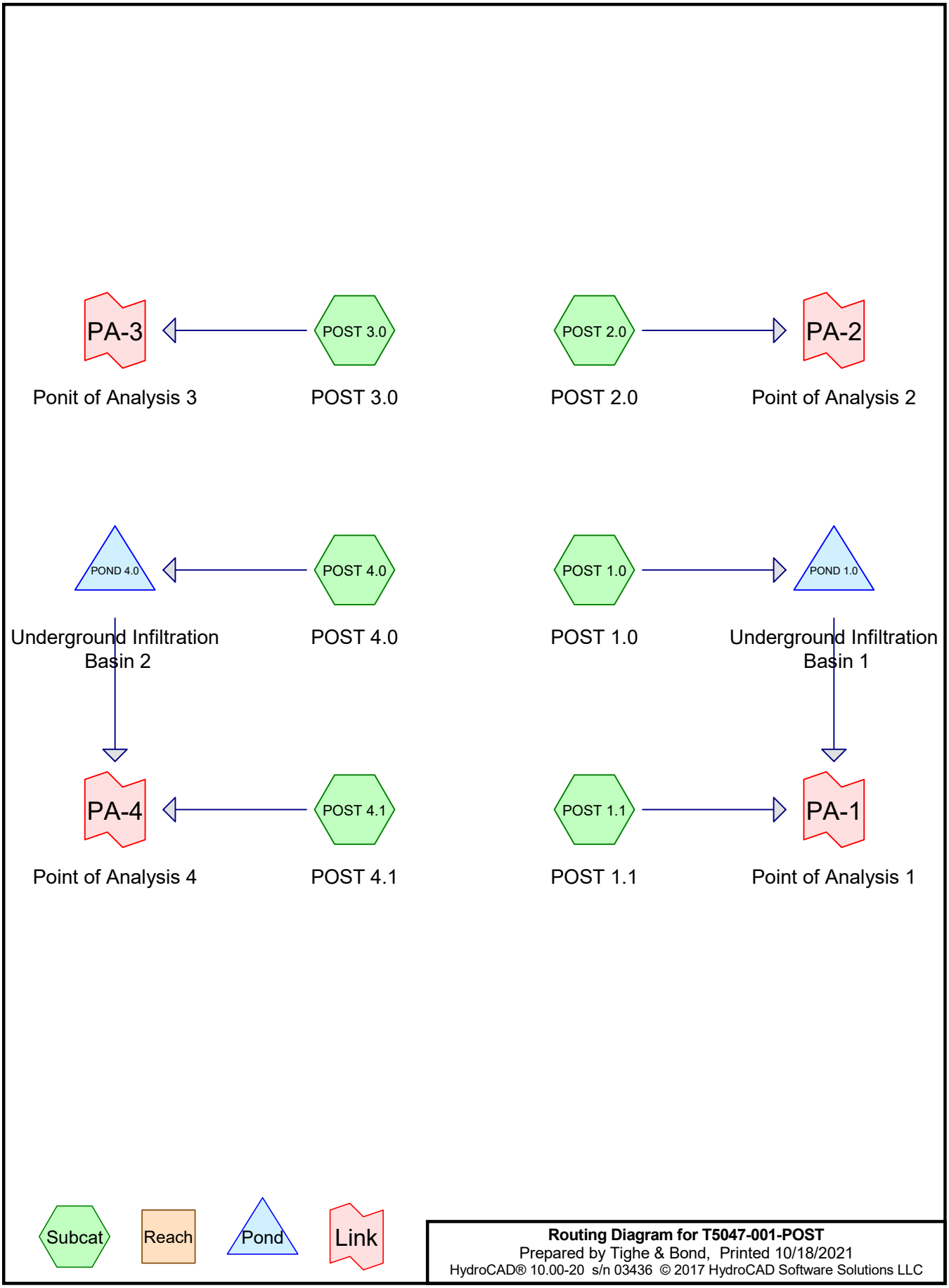
PROJECT NO:	T-5047-001
DATE:	August 5, 2021
FILE:	T5047-001-C-WSHD.DWG
DRAWN BY:	NAH
CHECKED BY:	NAH/PMC
APPROVED BY:	BLM

POST DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-802

Last Saved: 10/14/2021
Plotted: Oct 15, 2021-10:15am By: NAHansen
Tighe & Bond: J:\TYT5047 Torrington Properties\001 Constitution Ave, Portsmouth NH\Drawings_Figures\AutoCAD\Sheet\T5047-001-C-WSHD.dwg



Routing Diagram for T5047-001-POST
Prepared by Tighe & Bond, Printed 10/18/2021
HydroCAD® 10.00-20 s/n 03436 © 2017 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.037	39	>75% Grass cover, Good, HSG A (POST 4.0)
2.452	61	>75% Grass cover, Good, HSG B (POST 1.0, POST 1.1, POST 2.0, POST 3.0, POST 4.0, POST 4.1)
0.151	98	Paved parking, HSG A (POST 4.0, POST 4.1)
9.403	98	Paved parking, HSG B (POST 1.0, POST 1.1, POST 3.0, POST 4.0, POST 4.1)
4.611	98	Roofs, HSG B (POST 1.0, POST 1.1, POST 4.0, POST 4.1)
0.283	55	Woods, Good, HSG B (POST 1.0, POST 2.0, POST 4.0)
16.938	**92**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.188	HSG A	POST 4.0, POST 4.1
16.750	HSG B	POST 1.0, POST 1.1, POST 2.0, POST 3.0, POST 4.0, POST 4.1
0.000	HSG C	
0.000	HSG D	
0.000	Other	
16.938		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.04 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment POST 1.0: POST 1.0 Runoff Area=268,201 sf 88.24% Impervious Runoff Depth>2.58"
Flow Length=681' Tc=6.9 min CN=94 Runoff=17.12 cfs 1.324 af

Subcatchment POST 1.1: POST 1.1 Runoff Area=198,589 sf 84.66% Impervious Runoff Depth>2.39"
Flow Length=1,796' Tc=5.6 min CN=92 Runoff=12.51 cfs 0.907 af

Subcatchment POST 2.0: POST 2.0 Runoff Area=12,353 sf 0.00% Impervious Runoff Depth>0.32"
Flow Length=294' Tc=3.9 min CN=57 Runoff=0.05 cfs 0.008 af

Subcatchment POST 3.0: POST 3.0 Runoff Area=4,404 sf 48.18% Impervious Runoff Depth>1.37"
Flow Length=139' Tc=2.0 min CN=79 Runoff=0.18 cfs 0.012 af

Subcatchment POST 4.0: POST 4.0 Runoff Area=208,613 sf 87.05% Impervious Runoff Depth>2.48"
Flow Length=535' Tc=6.4 min CN=93 Runoff=13.18 cfs 0.991 af

Subcatchment POST 4.1: POST 4.1 Runoff Area=45,640 sf 62.44% Impervious Runoff Depth>1.71"
Flow Length=769' Tc=7.8 min CN=84 Runoff=1.96 cfs 0.150 af

Pond POND 1.0: Underground Infiltration Peak Elev=72.08' Storage=12,602 cf Inflow=17.12 cfs 1.324 af
Discarded=0.95 cfs 0.781 af Primary=7.65 cfs 0.543 af Outflow=8.60 cfs 1.324 af

Pond POND 4.0: Underground Infiltration Peak Elev=71.78' Storage=13,557 cf Inflow=13.18 cfs 0.991 af
Discarded=1.76 cfs 0.991 af Primary=0.00 cfs 0.000 af Outflow=1.76 cfs 0.991 af

Link PA-1: Point of Analysis 1 Inflow=16.74 cfs 1.450 af
Primary=16.74 cfs 1.450 af

Link PA-2: Point of Analysis 2 Inflow=0.05 cfs 0.008 af
Primary=0.05 cfs 0.008 af

Link PA-3: Ponit of Analysis 3 Inflow=0.18 cfs 0.012 af
Primary=0.18 cfs 0.012 af

Link PA-4: Point of Analysis 4 Inflow=1.96 cfs 0.150 af
Primary=1.96 cfs 0.150 af

Total Runoff Area = 16.938 ac Runoff Volume = 3.390 af Average Runoff Depth = 2.40"
16.37% Pervious = 2.773 ac 83.63% Impervious = 14.165 ac

Time span=0.00-24.00 hrs, dt=0.04 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment POST 1.0: POST 1.0 Runoff Area=268,201 sf 88.24% Impervious Runoff Depth>4.22"
Flow Length=681' Tc=6.9 min CN=94 Runoff=27.21 cfs 2.163 af

Subcatchment POST 1.1: POST 1.1 Runoff Area=198,589 sf 84.66% Impervious Runoff Depth>4.00"
Flow Length=1,796' Tc=5.6 min CN=92 Runoff=20.41 cfs 1.519 af

Subcatchment POST 2.0: POST 2.0 Runoff Area=12,353 sf 0.00% Impervious Runoff Depth>1.06"
Flow Length=294' Tc=3.9 min CN=57 Runoff=0.31 cfs 0.025 af

Subcatchment POST 3.0: POST 3.0 Runoff Area=4,404 sf 48.18% Impervious Runoff Depth>2.72"
Flow Length=139' Tc=2.0 min CN=79 Runoff=0.36 cfs 0.023 af

Subcatchment POST 4.0: POST 4.0 Runoff Area=208,613 sf 87.05% Impervious Runoff Depth>4.11"
Flow Length=535' Tc=6.4 min CN=93 Runoff=21.22 cfs 1.639 af

Subcatchment POST 4.1: POST 4.1 Runoff Area=45,640 sf 62.44% Impervious Runoff Depth>3.18"
Flow Length=769' Tc=7.8 min CN=84 Runoff=3.62 cfs 0.278 af

Pond POND 1.0: Underground Infiltration Peak Elev=73.45' Storage=18,982 cf Inflow=27.21 cfs 2.163 af
Discarded=0.95 cfs 1.034 af Primary=14.15 cfs 1.129 af Outflow=15.10 cfs 2.163 af

Pond POND 4.0: Underground Infiltration Peak Elev=72.87' Storage=22,243 cf Inflow=21.22 cfs 1.639 af
Discarded=1.76 cfs 1.417 af Primary=3.81 cfs 0.222 af Outflow=5.57 cfs 1.639 af

Link PA-1: Point of Analysis 1 Inflow=31.31 cfs 2.648 af
Primary=31.31 cfs 2.648 af

Link PA-2: Point of Analysis 2 Inflow=0.31 cfs 0.025 af
Primary=0.31 cfs 0.025 af

Link PA-3: Ponit of Analysis 3 Inflow=0.36 cfs 0.023 af
Primary=0.36 cfs 0.023 af

Link PA-4: Point of Analysis 4 Inflow=5.05 cfs 0.500 af
Primary=5.05 cfs 0.500 af

Total Runoff Area = 16.938 ac Runoff Volume = 5.647 af Average Runoff Depth = 4.00"
16.37% Pervious = 2.773 ac 83.63% Impervious = 14.165 ac

Summary for Subcatchment POST 1.0: POST 1.0

Runoff = 27.21 cfs @ 12.10 hrs, Volume= 2.163 af, Depth> 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-YR Rainfall=4.91"

Area (sf)	CN	Description
43,904	98	Roofs, HSG B
2,171	55	Woods, Good, HSG B
29,357	61	>75% Grass cover, Good, HSG B
192,769	98	Paved parking, HSG B
268,201	94	Weighted Average
31,528		11.76% Pervious Area
236,673		88.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	32	0.0200	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.24"
0.9	135	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	101	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.1	36	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.4	93	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.3	78	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.0	8	0.5000	42.03	74.28	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.1	18	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.6	167	0.0060	4.60	8.14	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.1	13	0.0010	2.28	7.15	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Corrugated PE, smooth interior
6.9	681	Total			

Summary for Subcatchment POST 1.1: POST 1.1

Runoff = 20.41 cfs @ 12.08 hrs, Volume= 1.519 af, Depth> 4.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-YR Rainfall=4.91"

Area (sf)	CN	Description
61,623	98	Roofs, HSG B
30,457	61	>75% Grass cover, Good, HSG B
106,509	98	Paved parking, HSG B
198,589	92	Weighted Average
30,457		15.34% Pervious Area
168,132		84.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.20		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.24"
0.5	110	0.0050	4.03	4.95	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.4	71	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.8	157	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
0.6	130	0.0050	3.72	4.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
0.4	126	0.0055	4.78	8.44	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
2.2	1,152	0.0150	8.82	27.71	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
5.6	1,796	Total			

Summary for Subcatchment POST 2.0: POST 2.0

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.31 cfs @ 12.08 hrs, Volume= 0.025 af, Depth> 1.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-YR Rainfall=4.91"

Area (sf)	CN	Description
8,221	55	Woods, Good, HSG B
4,132	61	>75% Grass cover, Good, HSG B
12,353	57	Weighted Average
12,353		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	20	0.0200	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.24"
0.2	29	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.0	9	0.2200	7.55		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	37	0.1091	5.32		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	33	0.0610	3.98		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.5	76	0.0260	2.60		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	90	0.0900	4.83		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
3.9	294	Total			

Summary for Subcatchment POST 3.0: POST 3.0

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.36 cfs @ 12.04 hrs, Volume= 0.023 af, Depth> 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-YR Rainfall=4.91"

Area (sf)	CN	Description
2,282	61	>75% Grass cover, Good, HSG B
2,122	98	Paved parking, HSG B
4,404	79	Weighted Average
2,282		51.82% Pervious Area
2,122		48.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	75	0.0060	0.81		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.24"
0.5	64	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.0	139	Total			

Summary for Subcatchment POST 4.0: POST 4.0

Runoff = 21.22 cfs @ 12.09 hrs, Volume= 1.639 af, Depth> 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-YR Rainfall=4.91"

Area (sf)	CN	Description
1,614	39	>75% Grass cover, Good, HSG A
5,333	98	Paved parking, HSG A
86,084	98	Roofs, HSG B
1,949	55	Woods, Good, HSG B
23,448	61	>75% Grass cover, Good, HSG B
90,185	98	Paved parking, HSG B
208,613	93	Weighted Average
27,011		12.95% Pervious Area
181,602		87.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	41	0.0400	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.24"
0.6	76	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.2	418	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
6.4	535	Total			

Summary for Subcatchment POST 4.1: POST 4.1

Runoff = 3.62 cfs @ 12.11 hrs, Volume= 0.278 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Type III 24-hr 10-YR Rainfall=4.91"

Area (sf)	CN	Description
1,234	98	Paved parking, HSG A
9,247	98	Roofs, HSG B
17,142	61	>75% Grass cover, Good, HSG B
18,017	98	Paved parking, HSG B
45,640	84	Weighted Average
17,142		37.56% Pervious Area
28,498		62.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.05		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.24"
0.0	5	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	75	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.4	84	0.0050	3.47	2.73	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
2.6	325	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.5	75	0.0030	2.69	2.11	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
2.3	105	0.0025	0.75		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.8	769	Total			

Summary for Pond POND 1.0: Underground Infiltration Basin 1

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=69)

Inflow Area = 6.157 ac, 88.24% Impervious, Inflow Depth > 4.22" for 10-YR event
Inflow = 27.21 cfs @ 12.10 hrs, Volume= 2.163 af
Outflow = 15.10 cfs @ 12.23 hrs, Volume= 2.163 af, Atten= 44%, Lag= 8.3 min
Discarded = 0.95 cfs @ 9.96 hrs, Volume= 1.034 af
Primary = 14.15 cfs @ 12.23 hrs, Volume= 1.129 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 73.45' @ 12.23 hrs Surf.Area= 5,874 sf Storage= 18,982 cf
Flood Elev= 75.65' Surf.Area= 5,874 sf Storage= 25,909 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 22.5 min (796.8 - 774.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	68.65'	10,139 cf	**44.50'W x 132.00'L x 7.00'H Field A** 41,118 cf Overall - 15,770 cf Embedded = 25,348 cf x 40.0% Voids
#2A	69.65'	15,770 cf	**CMP Round- 60** x 36 Inside #1 Effective Size= 60.0"W x 60.0"H => 19.59 sf x 20.00'L = 391.8 cf Overall Size= 60.0"W x 60.0"H x 20.00'L 6 Rows of 6 Chambers 42.50' Header x 19.59 sf x 2 = 1,665.2 cf Inside
		25,909 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	69.65'	**24.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 69.65' / 69.55' S= 0.0033 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	69.65'	**12.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	71.30'	**15.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	74.25'	**8.0' long x 1.85' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Discarded	68.65'	**7.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.95 cfs @ 9.96 hrs HW=68.73' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.95 cfs)

Primary OutFlow Max=14.14 cfs @ 12.23 hrs HW=73.44' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 14.14 cfs of 25.27 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 6.86 cfs @ 8.73 fps)
  ├**3=Orifice/Grate** (Orifice Controls 7.27 cfs @ 5.93 fps)
  └**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond POND 4.0: Underground Infiltration Basin 2

Inflow Area = 4.789 ac, 87.05% Impervious, Inflow Depth > 4.11" for 10-YR event
Inflow = 21.22 cfs @ 12.09 hrs, Volume= 1.639 af
Outflow = 5.57 cfs @ 12.46 hrs, Volume= 1.639 af, Atten= 74%, Lag= 22.1 min
Discarded = 1.76 cfs @ 11.52 hrs, Volume= 1.417 af
Primary = 3.81 cfs @ 12.46 hrs, Volume= 0.222 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs
Peak Elev= 72.87' @ 12.46 hrs Surf.Area= 10,872 sf Storage= 22,243 cf
Flood Elev= 75.50' Surf.Area= 10,872 sf Storage= 30,208 cf

Plug-Flow detention time= 64.7 min calculated for 1.636 af (100% of inflow)
Center-of-Mass det. time= 64.6 min (843.2 - 778.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	69.50'	16,102 cf	**83.25'W x 130.60'L x 5.00'H Field A** 54,362 cf Overall - 14,106 cf Embedded = 40,256 cf x 40.0% Voids
#2A	71.00'	14,106 cf	**ADS_StormTech SC-740** x 306 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 17 rows
		30,208 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	71.95'	**24.0" Round Culvert** L= 205.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 71.95' / 70.90' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

#2 Discarded 69.50' **7.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=1.76 cfs @ 11.52 hrs HW=69.56' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 1.76 cfs)

Primary OutFlow Max=3.79 cfs @ 12.46 hrs HW=72.86' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 3.79 cfs @ 3.99 fps)

Summary for Link PA-1: Point of Analysis 1

Inflow Area = 10.716 ac, 86.72% Impervious, Inflow Depth > 2.96" for 10-YR event
Inflow = 31.31 cfs @ 12.10 hrs, Volume= 2.648 af
Primary = 31.31 cfs @ 12.10 hrs, Volume= 2.648 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Summary for Link PA-2: Point of Analysis 2

Inflow Area = 0.284 ac, 0.00% Impervious, Inflow Depth > 1.06" for 10-YR event
Inflow = 0.31 cfs @ 12.08 hrs, Volume= 0.025 af
Primary = 0.31 cfs @ 12.08 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Summary for Link PA-3: Ponit of Analysis 3

Inflow Area = 0.101 ac, 48.18% Impervious, Inflow Depth > 2.72" for 10-YR event
Inflow = 0.36 cfs @ 12.04 hrs, Volume= 0.023 af
Primary = 0.36 cfs @ 12.04 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Summary for Link PA-4: Point of Analysis 4

Inflow Area = 5.837 ac, 82.63% Impervious, Inflow Depth > 1.03" for 10-YR event
Inflow = 5.05 cfs @ 12.41 hrs, Volume= 0.500 af
Primary = 5.05 cfs @ 12.41 hrs, Volume= 0.500 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.04 hrs

Time span=0.00-24.00 hrs, dt=0.04 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment POST 1.0: POST 1.0 Runoff Area=268,201 sf 88.24% Impervious Runoff Depth>5.52"
Flow Length=681' Tc=6.9 min CN=94 Runoff=35.09 cfs 2.832 af

Subcatchment POST 1.1: POST 1.1 Runoff Area=198,589 sf 84.66% Impervious Runoff Depth>5.29"
Flow Length=1,796' Tc=5.6 min CN=92 Runoff=26.58 cfs 2.011 af

Subcatchment POST 2.0: POST 2.0 Runoff Area=12,353 sf 0.00% Impervious Runoff Depth>1.82"
Flow Length=294' Tc=3.9 min CN=57 Runoff=0.59 cfs 0.043 af

Subcatchment POST 3.0: POST 3.0 Runoff Area=4,404 sf 48.18% Impervious Runoff Depth>3.89"
Flow Length=139' Tc=2.0 min CN=79 Runoff=0.52 cfs 0.033 af

Subcatchment POST 4.0: POST 4.0 Runoff Area=208,613 sf 87.05% Impervious Runoff Depth>5.41"
Flow Length=535' Tc=6.4 min CN=93 Runoff=27.50 cfs 2.157 af

Subcatchment POST 4.1: POST 4.1 Runoff Area=45,640 sf 62.44% Impervious Runoff Depth>4.41"
Flow Length=769' Tc=7.8 min CN=84 Runoff=4.96 cfs 0.385 af

Pond POND 1.0: Underground Infiltration Peak Elev=74.58' Storage=23,363 cf Inflow=35.09 cfs 2.832 af
Discarded=0.95 cfs 1.187 af Primary=22.36 cfs 1.645 af Outflow=23.32 cfs 2.832 af

Pond POND 4.0: Underground Infiltration Peak Elev=73.52' Storage=25,943 cf Inflow=27.50 cfs 2.157 af
Discarded=1.76 cfs 1.647 af Primary=9.57 cfs 0.510 af Outflow=11.33 cfs 2.157 af

Link PA-1: Point of Analysis 1 Inflow=40.60 cfs 3.655 af
Primary=40.60 cfs 3.655 af

Link PA-2: Point of Analysis 2 Inflow=0.59 cfs 0.043 af
Primary=0.59 cfs 0.043 af

Link PA-3: Ponit of Analysis 3 Inflow=0.52 cfs 0.033 af
Primary=0.52 cfs 0.033 af

Link PA-4: Point of Analysis 4 Inflow=12.07 cfs 0.895 af
Primary=12.07 cfs 0.895 af

Total Runoff Area = 16.938 ac Runoff Volume = 7.461 af Average Runoff Depth = 5.29"
16.37% Pervious = 2.773 ac 83.63% Impervious = 14.165 ac

Time span=0.00-24.00 hrs, dt=0.04 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment POST 1.0: POST 1.0 Runoff Area=268,201 sf 88.24% Impervious Runoff Depth>6.74"
Flow Length=681' Tc=6.9 min CN=94 Runoff=42.39 cfs 3.458 af

Subcatchment POST 1.1: POST 1.1 Runoff Area=198,589 sf 84.66% Impervious Runoff Depth>6.51"
Flow Length=1,796' Tc=5.6 min CN=92 Runoff=32.28 cfs 2.471 af

Subcatchment POST 2.0: POST 2.0 Runoff Area=12,353 sf 0.00% Impervious Runoff Depth>2.62"
Flow Length=294' Tc=3.9 min CN=57 Runoff=0.89 cfs 0.062 af

Subcatchment POST 3.0: POST 3.0 Runoff Area=4,404 sf 48.18% Impervious Runoff Depth>5.01"
Flow Length=139' Tc=2.0 min CN=79 Runoff=0.66 cfs 0.042 af

Subcatchment POST 4.0: POST 4.0 Runoff Area=208,613 sf 87.05% Impervious Runoff Depth>6.62"
Flow Length=535' Tc=6.4 min CN=93 Runoff=33.31 cfs 2.643 af

Subcatchment POST 4.1: POST 4.1 Runoff Area=45,640 sf 62.44% Impervious Runoff Depth>5.57"
Flow Length=769' Tc=7.8 min CN=84 Runoff=6.20 cfs 0.487 af

Pond POND 1.0: Underground Infiltration Peak Elev=75.17' Storage=24,789 cf Inflow=42.39 cfs 3.458 af
Discarded=0.95 cfs 1.308 af Primary=32.19 cfs 2.150 af Outflow=33.15 cfs 3.458 af

Pond POND 4.0: Underground Infiltration Peak Elev=74.26' Storage=29,170 cf Inflow=33.31 cfs 2.643 af
Discarded=1.76 cfs 1.835 af Primary=15.87 cfs 0.808 af Outflow=17.63 cfs 2.643 af

Link PA-1: Point of Analysis 1 Inflow=59.73 cfs 4.621 af
Primary=59.73 cfs 4.621 af

Link PA-2: Point of Analysis 2 Inflow=0.89 cfs 0.062 af
Primary=0.89 cfs 0.062 af

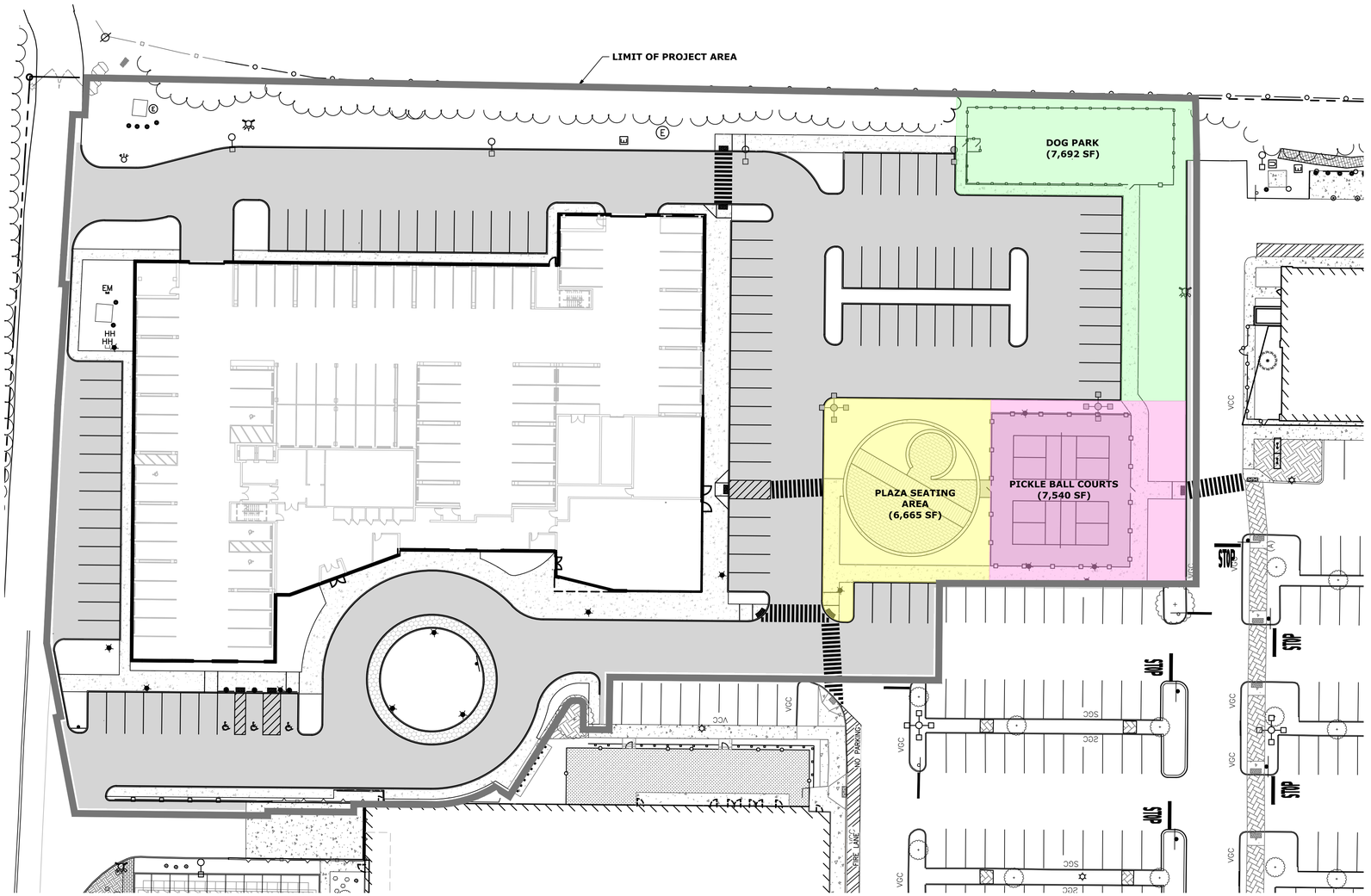
Link PA-3: Ponit of Analysis 3 Inflow=0.66 cfs 0.042 af
Primary=0.66 cfs 0.042 af

Link PA-4: Point of Analysis 4 Inflow=20.14 cfs 1.294 af
Primary=20.14 cfs 1.294 af

Total Runoff Area = 16.938 ac Runoff Volume = 9.163 af Average Runoff Depth = 6.49"
16.37% Pervious = 2.773 ac 83.63% Impervious = 14.165 ac

PROPOSED M□LTI-FAMIL□ DE□ELOPMENT
PORTSMO□TH, NEW HAMPSHIRE

COMM□NIT□SPACE E□HIBIT



COMMUNITY OPEN SPACE□		REQUIRED	PROVIDED
	DO□ PARK COMMUNITY SPACE		□□□□SF
	PICKLEBALL COURTS COMMUNITY SPACE		□□4□SF
	PLA□A SEATIN□ AREA COMMUNITY SPACE		□□□□SF
TOTAL PRO□ECT AREA□□□□□□□SF COMMUNITY SPACE □□□□ OF TOTAL□		□□□□□SF □□□	□□□□□□SF □4□□□

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GRAPHIC SCALE

Tighe&Bond

November 22, 2021
T5047-001-C-E□HIBIT.dwg

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Plot Date: Wednesday, November 17, 2021 Plotted By: Neil A. Hansen
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PROPOSED M□LTI-FAMIL□ DE□ELOPMENT
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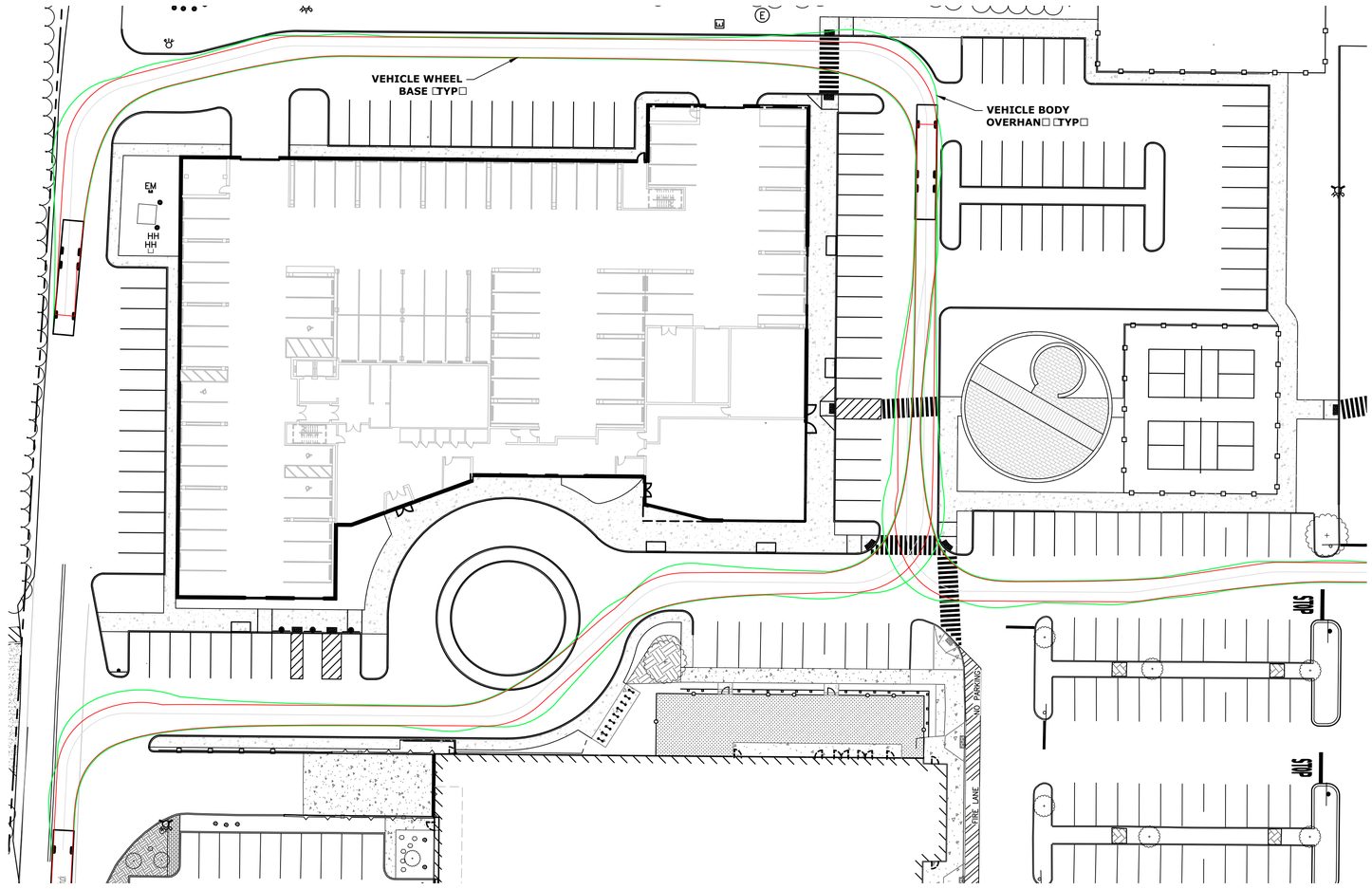
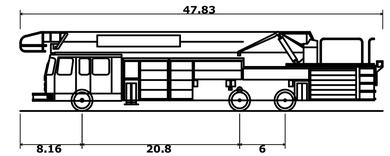




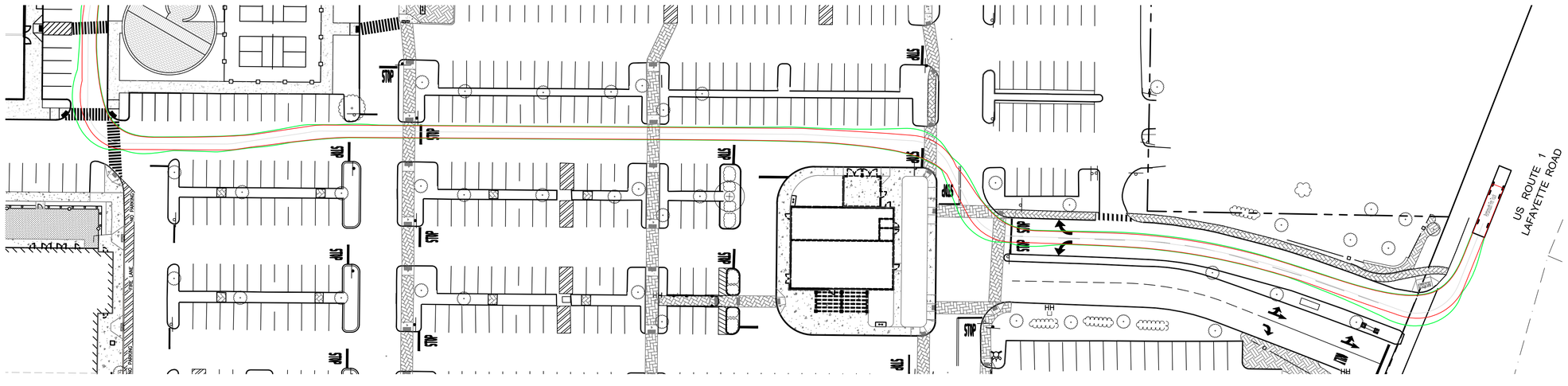
Portsmouth Fire Truck	
Overall Length	**47.830ft**
Overall Width	**8.500ft**
Overall Body Height	**10.432ft**
Min Body Ground Clearance	**0.862ft**
Track Width	**8.000ft**
Lock-to-lock time	**6.00s**
Max Steering Angle (Virtual)	**38.00°**

LEGEND

VEHICLE OVERHANG

VEHICLE WHEEL BASE

0 □□ 60□
GRAPHIC SCALE



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GRAPHIC SCALE

Tighe&Bond

October 18, 2021
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Plot Date: Friday, October 15, 2021 Plotted By: Neil A. Hansen
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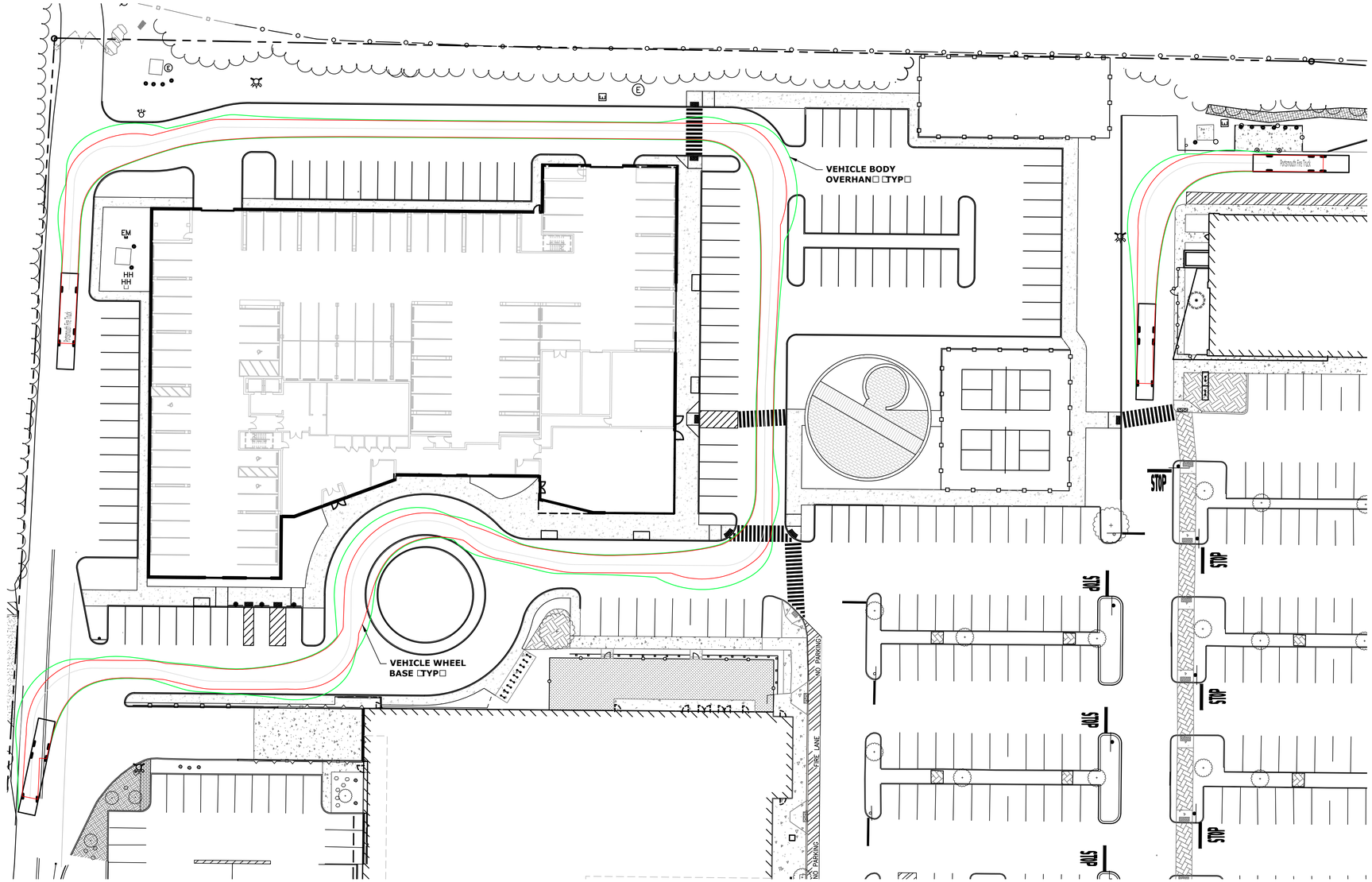
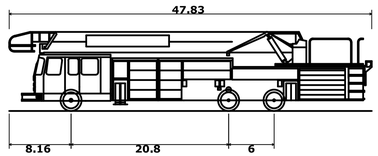
PROPOSED M□LTI-FAMIL□ DE□ELOPMENT
PORTSMO□TH, NEW HAMPSHIRE

FIRE TR□CK T□RNING E□HIBIT 2 o□2





Portsmouth Fire Truck	
Overall Length	47.830ft
Overall Width	8.500ft
Overall Body Height	10.432ft
Min Body Ground Clearance	0.862ft
Track Width	8.000ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	38.00°

LEGEND

VEHICLE OVERHANG

VEHICLE WHEEL BASE

N

0 □□ 60□

GRAPHIC SCALE

Tighe&Bond

October 18, 2021
T5047-001-C-E□HIBIT.dwg

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Stephen G. Pernaw & Company, Inc.
P.O. Box 1721 • Concord, NH 03302
tel: (603) 731-8500 • fax: (866) 929-6094 • sgp@ pernaw.com
Transportation: Engineering • Planning • Design

M E M O R A N D U M

Ref: 2147A

To: Gregg Mikolaities, P.E.
August Consulting, PLLC

From: Stephen G. Pernaw, P.E., PTOE

Subject: Proposed Multifamily Development
Portsmouth, New Hampshire

Date: September 20, 2021

On March 12, 2009 our office published the report entitled *"Traffic Evaluation-Proposed Southgate Plaza Expansion"* that addressed the traffic impacts associated with the redevelopment of that site, including Addendum One dated 5/29/2012 which addressed the impacts associated with the movie theater. The current development proposal calls for razing the multiplex movie theater at the rear of the site, and replacing it with a five-story, 100-unit multifamily condominium building. The purpose of this memorandum is to compare the trip generating characteristics of the former and proposed uses.

The following trip generation estimates are based upon the ITE trip generation rates and equations, using various independent variables associated with the multiplex movie theater (gross floor area, number of seats, number of screens) and the condominium building (number of dwelling units).

Table 1 on the following page clearly demonstrates that the proposed residential development will generate fewer vehicle-trips during the weekday PM and Saturday midday peak hour periods than the former movie theater. If we can be of further assistance in this matter, please advise.

Attachments

Table 1

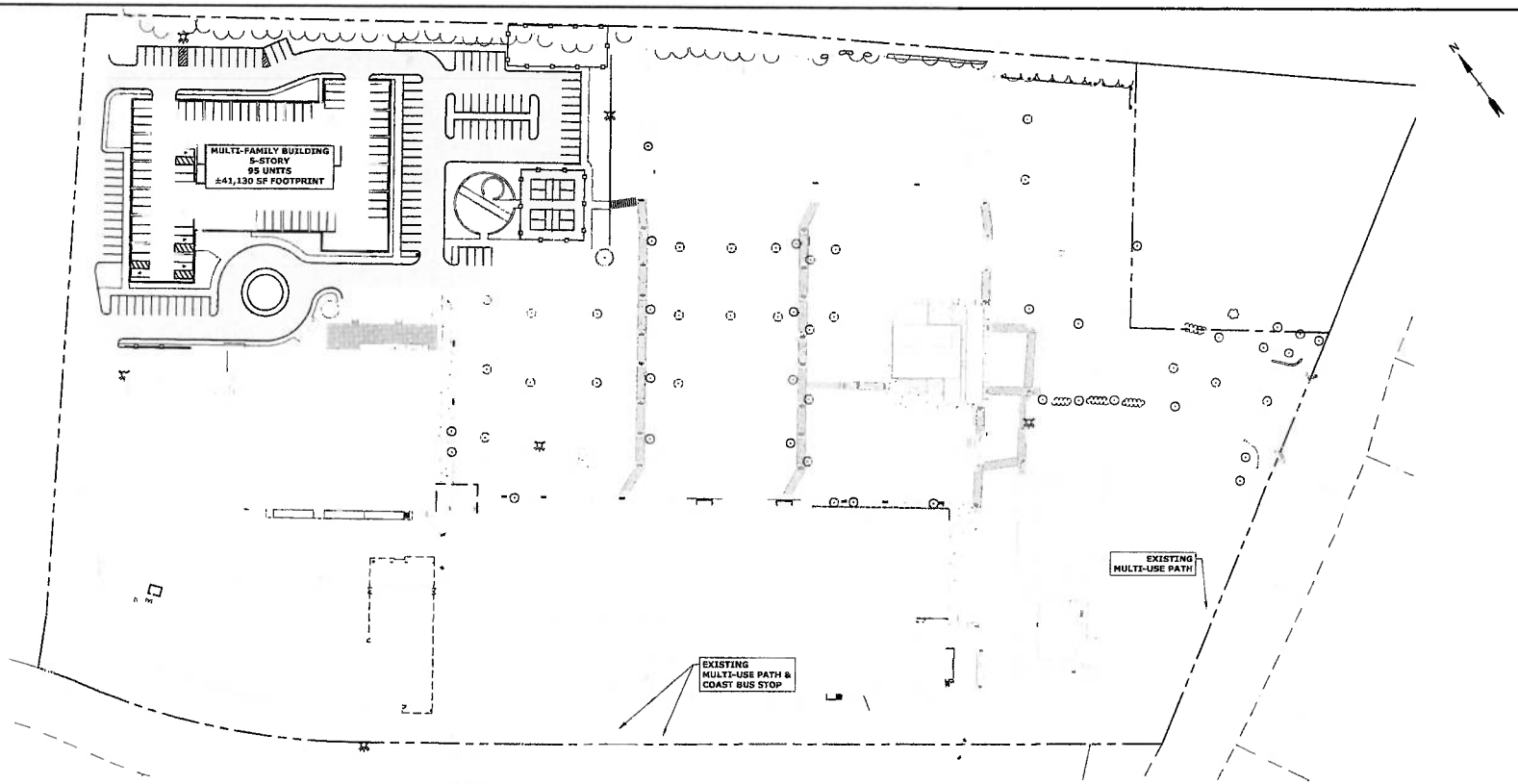
Trip Generation Comparison / Summary
(Former Cinemagic Theater vs. 100 Residential Apartments)

	Former Cinemagic Theater [1]					
	Estimate A GFA Method (28,270 sf)	Estimate B Screen Method (9 screens)	Estimate C Seat Method (1264 seats)	**ITE Average Estimate**	**Proposed Apartments [2]**	**Conclusions**
Weekday (24 Hour)						
Entering	-	-	-	NA	272 veh	
Exiting	-	-	-	NA	272 veh	
Total	-	-	-	NA	544 trips	
AM Peak Hour						
Entering	0 veh	0 veh	0 veh	0 veh	9 veh	Apartments will generate +34 **more** AM trips
Exiting	0 veh	0 veh	0 veh	0 veh	25 veh	
Total	0 trips	0 trips	0 trips	0 trips	34 trips	
PM Peak Hour						
Entering	NA	63 veh	36 veh	50 veh	27 veh	Apartments will generate -69 **fewer** PM trips
Exiting	NA	61 veh	65 veh	63 veh	17 veh	
Total	NA	124 trips	101 trips	113 trips	44 trips	
Friday PM Peak Hour						
Entering	86 veh	121 veh	76 veh	94 veh	NA	
Exiting	53 veh	84 veh	50 veh	62 veh	NA	
Total	139 trips	205 trips	126 trips	156 trips	NA	
Saturday Total						
Entering	-	-	-	NA	246 veh	
Exiting	-	-	-	NA	246 veh	
Total	-	-	-	NA	492 trips	
Saturday Peak Hour						
Entering	100 veh	130 veh	82 veh	104 veh	24 veh	Apartments will generate -93 **fewer** SAT peak trips
Exiting	33 veh	50 veh	32 veh	38 veh	25 veh	
Total	133 trips	180 trips	114 trips	142 trips	49 trips	

[1] ITE Land Use Code 445 - Multiplex Movie Theater

[2] ITE Land Use Code 221- Multifamily Housing (Mid-Rise) (100 Dwelling Units)

A T T A C H M E N T S



SITE DATA:

LOCATION: TAX MAP 273, LOT 3

OWNER: 2422 LAFAYETTE ROAD ASSOCIATES, LLC
C/O WATERSTONE RETAIL
322 RESERVOIR STREET
NEEDHAM, MA 02494

ZONING DISTRICT: GATEWAY CORRIDOR (G1)

PROPOSED USE: SHOPPING CENTER/RESIDENTIAL

PROPOSED LOT SIZE: ±18.71 ACRES (±814,896 SF)

DEVELOPMENT SITE STANDARDS[1]

DEVELOPMENT STANDARDS (MIXED USE):	REQUIRED	PROPOSED
MINIMUM DEVELOPMENT SITE AREA	20,000 SF	±814,896 SF
MINIMUM SITE WIDTH:	100 FT	±731 FT
MINIMUM SITE DEPTH:	100 FT	±1,137 FT
MINIMUM PERIMETER BUFFER FROM RESIDENTIAL, MIXED RESIDENTIAL, OR CD4-L1 DISTRICTS:	75 FT	N/A
MAXIMUM DEVELOPMENT BLOCK DIMENSIONS:		
BLOCK LENGTH:	500 FT	±1,137 FT[2]
BLOCK PERIMETER:	2,200 LF	±3,740 LF[2]
MAXIMUM BUILDING COVERAGE:	70%	25.4%
MINIMUM OPEN SPACE COVERAGE:	20%	±21.7%
FRONT LOT LINE BUILDOUT:	70%	0%[3]
BUILDING DESIGN STANDARDS:		
MAXIMUM BUILDING HEIGHT:	5 STORIES[4] / 60 FT[4]	5 STORIES / <60 FT
MINIMUM STREET FACING FACADE HEIGHT:	24 FT	>24 FT
MAXIMUM FINISHED FLOOR SURFACE OF GROUND FLOOR ABOVE SIDEWALK GRADE:	36 IN	<36 IN
MAXIMUM BUILDING FOOTPRINT:	NR	
MAXIMUM FACADE MODULATION LENGTH:	50 FT	<50 FT
MINIMUM STREET FACING FACADE GLAZING:	20% GROUND FLOOR	>20%
DENSITY THRESHOLDS AND BONUSES:		
DWELLING UNITS PER ACRE:	30 UNITS	10.4 UNITS
DWELLING UNITS PER BUILDING:	36 UNITS	95 UNITS[3]
PLUS 1-STORY, MAX 18 FT	5 STORIES[4] / 60 FT[4]	5 STORIES / <60 FT

(1) - USE OF DEVELOPMENT SITE STANDARDS ALLOWED BY CONDITIONAL USE PERMIT PER 10.5B41.10 WITH APPROVAL FROM THE PLANNING BOARD.
(2) - EXISTING NON-CONFORMING CONDITION, MODIFICATION OF STANDARDS ALLOWED BY CONDITIONAL USE PERMIT PER 10.5B74.30 FOR THE DEVELOPMENT TO PROVIDE WORKFORCE HOUSING.
(3) - MODIFICATION OF STANDARDS ALLOWED BY CONDITIONAL USE PERMIT PER 10.5B74.30 FOR THE DEVELOPMENT TO PROVIDE WORKFORCE HOUSING.
(4) - ALLOWED BY CONDITIONAL USE PERMIT PER 10.5B73.10 FOR PROVIDING 20% WORKFORCE HOUSING.

PARKING REQUIREMENTS

PARKING CALCULATIONS:

RETAIL:	1 SPACE PER 300 GFA
RESTAURANT:	1 SPACE PER 100 GFA
INDOOR RECREATION:	1 SPACE PER 4 PERSONS
RESIDENTIAL:	0.5 SPACES PER UNIT <500 SF 1 SPACE PER UNIT 500 SF - 750 SF 1.3 SPACES PER UNIT >750 SF

LOADING CALCULATIONS:

RETAIL:	0 SPACES FOR 0 - 10,000 SF 1 SPACE FOR 10,001 - 25,000 SF 2 SPACES FOR 25,001 - 60,000 SF 0 SPACES FOR 0 - 10,000 SF
OTHER NON-RESIDENTIAL:	1 SPACE FOR 10,001 SF - 40,000 SF

SHOPPING CENTER:

RETAIL:	AREA (SF):	MINIMUM	PROVIDED:	LOADING SPACES: MINIMUM	PROVIDED
PETCO	±13,588			1	1
CYCLE FIERCE	±1,200			0	1
EXISTING RETAIL/RESTAURANT	±20,075			0	1
EXISTING RETAIL/RESTAURANT (HUSE)	±3,618			0	1
EXISTING RETAIL/RESTAURANT (OHIO JAPANESE)	±7,400			0	1
PROPOSED RESTAURANT (OLD BIG LOTS)	±14,400			1	1
INDOOR RECREATIONAL (PINZ)	±18,800			1	1
RUBWAY	±1,800			0	0
THE 99	±6,310			0	1
McKINNON'S	±36,251			2	3
RETAIL	±9,134			0	1
DINER	±1,833			0	1
PROPOSED RESTAURANT	±1,800			1	0
PROPOSED RESTAURANT	±3,310			0	0
STARBUCKS	±2,124			0	1
TOTAL SHOPPING CENTER	±139,441	496 SPACES		6	15
RESIDENTIAL:					
PROPOSED DWELLING UNITS	95 UNITS				
EXISTING DWELLING UNITS	95 UNITS				
VISITOR PARKING					
TOTAL:		654[1]	813	9	15

(1) - PER PARKING DEMAND ANALYSIS PERFORMED BY TIGHE & BOND DATED JULY 18, 2021

	REQUIRED	PROVIDED
ACCESSIBLE SPACES (2% OF TOTAL):	15	32
VAN ACCESSIBLE SPACES (1 PER 6 ACCESSIBLE SPACES):	2	24
PARKING STALL SIZE:	8.5 FT X 19 FT	8.5 FT X 19 FT
DRIVE AISLE:	24 FT	24 FT, 26 FT

BIKE SPACES REQUIRED:

	REQUIRED	PROVIDED
SHOPPING CENTER: 1 BIKE SPACE / 10 PARKING SPACES MAXIMUM OF 30 SPACES	30 SPACES	42 SPACES
RESIDENTIAL:		
EXISTING 95 DWELLING UNITS	19 SPACES	30 SPACES
PROPOSED 95 DWELLING UNITS	19 SPACES	30 SPACES

LEGEND

	PROPERTY LINE
	PROPOSED PROPERTY LINE
	PROPOSED EDGE OF PAVEMENT
	PROPOSED CURB
	PROPOSED BUILDING
	PROPOSED PAVEMENT SECTION
	PROPOSED CONCRETE SIDEWALK
	PROPOSED BRICK SIDEWALK
•	PROPOSED BOLLARD
BLDG	BUILDING
TYP	TYPICAL
COORD	COORDINATE
30'R	PROPOSED CURB RADIUS
VGC	PROPOSED VERTICAL GRANITE CURB
SGC	PROPOSED SLOPED GRANITE CURB

Tighe&Bond

Multi-Family Development

Torrington Properties, Inc.

Portsmouth, New Hampshire

MARK	DATE	DESCRIPTION
D	9/2/2021	Design Review - TAC WS
A	8/5/2021	PB Conceptual Consultation

PROJECT NO:	T-5047-001
DATE:	August 5, 2021
FILE:	T5047-001-C-DSGN.DWG
DRAWN BY:	NAH
CHECKED BY:	NAU/PAC
APPROVED BY:	BLN

OVERALL SITE PLAN

SCALE: AS SHOWN

C-102

Attachment 1

Last Saved: 9/2/2021
Last Saved By: Nathan H. Stevenson
Tighe & Bond - J:\T5047 Torrington Properties\005 Construction Ass. Portsmouth NH\Drawings_Figures\Arch\C40\Sheet\T5047-001-C-DSGN.dwg

Trip Generation Summary

Alternative: Former Cinemagic Theater
Phase:
Project: 2147A

Open Date: 9/10/2021
Analysis Date: 9/10/2021

ITE	Land Use		Weekday PM Peak Hour of Adjacent Street Traffic			Friday PM Peak Hour of Adjacent Street Traffic			Saturday Peak Hour of Generator		
		*	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
445	THEATERMULTI 3		36	65	101	76	50	126	82	32	114
	1264 Seats										
445	THEATERMULTI 2		63	61	124	121	84	205	130	50	180
	9 Movie Screens										
445	THEATERMULTI 1				0	86	53	139	100	33	133
	28.27 1000 Sq. Ft. GFA										
Unadjusted Volume			99	126	225	283	187	470	312	115	427
Internal Capture Trips			0	0	0	0	0	0	0	0	0
Pass-By Trips			0	0	0	0	0	0	0	0	0
Volume Added to Adjacent Streets			99	126	225	283	187	470	312	115	427

Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent
Total Friday PM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent
Total Saturday Peak Hour of Generator Internal Capture = 0 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 10th Edition
TRIP GENERATION 10, TRAFFICWARE, LLC

Trip Generation Summary

Alternative: Proposed Apartments
Phase:
Project: 2147A

Open Date: 9/10/2021
Analysis Date: 9/10/2021

ITE	Land Use	*	Weekday Average Daily Trips Enter	Exit	Total	*	Weekday AM Peak Hour of Adjacent Street Traffic Enter	Exit	Total	*	Weekday PM Peak Hour of Adjacent Street Traffic Enter	Exit	Total
221	MID-RISE 1		272	271	543		9	25	34		27	17	44
	100 Dwelling Units												
Unadjusted Volume			272	271	543		9	25	34		27	17	44
Internal Capture Trips			0	0	0		0	0	0		0	0	0
Pass-By Trips			0	0	0		0	0	0		0	0	0
Volume Added to Adjacent Streets			272	271	543		9	25	34		27	17	44

Total Weekday Average Daily Trips Internal Capture = 0 Percent
Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent
Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 10th Edition
TRIP GENERATION 10, TRAFFICWARE, LLC

Trip Generation Summary

Alternative: Proposed Apartments
Phase:
Project: 2147A

Open Date: 9/10/2021
Analysis Date: 9/10/2021

ITE	Land Use		Saturday Average Daily Trips				Saturday Peak Hour of Generator			
		*	Enter	Exit	Total	*	Enter	Exit	Total
221	MID-RISE 1		246	245	491		24	25	49
	100 Dwelling Units								
Unadjusted Volume			246	245	491		24	25	49
Internal Capture Trips			0	0	0		0	0	0
Pass-By Trips			0	0	0		0	0	0
Volume Added to Adjacent Streets			246	245	491		24	25	49

Total Saturday Average Daily Trips Internal Capture = 0 Percent
Total Saturday Peak Hour of Generator Internal Capture = 0 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 10th Edition

October 18, 2021

Portsmouth Planning Board
Multi-Family Development at Portsmouth Green
Portsmouth, NH 03801

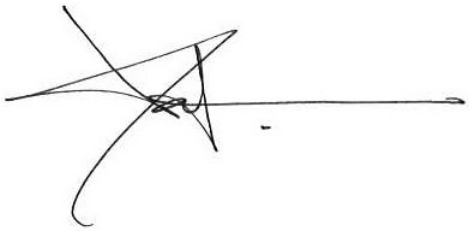
Green Building Statement

- Site/Landscape: Currently the site consists of an existing movie theater surrounded by parking and drive aisles. All of the existing site area is improved and includes predominantly impervious sufrcaes The proposed project will feature a planting buffer on 3 sides with an enlarged plaza with additional plantings (trees and shrubs) at the front entrance.
- Exterior Wall Systems: The exterior wall systems will meet or exceed the 2015 IECC standards for energy efficiency and will include a continuous air barrier and continuous insulation on the metal framed floors as well as insulation within the stud cavities. The exterior cladding materials will include a combination of masonry, metal panel rain screen systems and cementitious panel products that utilize an air space outboard of the insulation layer for efficient moisture management.
- Window Systems: All window systems in the project will meet or exceed 2015 IECC standards for u-value, shading coefficient and solar heat gain coefficient, including a thermally-broken frame and insulated, high-performance, low-E glazing to reduce thermal transfer. Large window expanses provide plenty of natural daylight to all building occupants.
- Roofing Systems: The roofing system will include a light-colored, reflective "cool roof" over continuous, sloped rigid insulation that meets or exceeds code requirements.
- HVAC Systems: The dwelling units will be provided with individualized systems providing either heating and cooling or both. System may include electric heat pumps or a hydronic gas fired heating system with gas fired domestic hot water heaters.

EMBARC | 580 Harrison Avenue – Suite 2W- Boston MA 02118 | 617.766.8330 | www.embarcdesign.com

- **Plumbing Systems:** All plumbing fixtures in the proposed project will be low-flow fixtures. Individual EnergyStar rated instantaneous hot water heaters will be used for domestic hot water and heating.
- **Lighting Systems:** Interior lighting systems will use LED fixtures throughout the building, including the use of occupancy sensors. Exterior lighting design will include energy-efficient LED cutoff fixtures to minimize light pollution.
- **Appliances:** All appliances for the project will be EnergyStar rated.

Sincerely,



Dartagnan Brown | Founder + CEO

EMBARC | 580 Harrison Avenue – Suite 2W- Boston MA 02118 | 617.766.8330 | www.embarcdesign.com

VERIDIAN **VIEW**

ROAD **VIEW**

PORTSMOUTH GREEN
McKinnon's
petco
DOUGH
DINER
BUFF+FEL
ATHLETA
CHIPOTLE
PASEK
DINER

PARKING **VIEW**

70 CONSTITUTION AVE

FITNESS

Planning Board: Conditional Use Permit

Parking Conditional Use Permit

November 22, 2021

10.1112.143

295 Maplewood Ave Unit 1 Portsmouth, NH 03801
Port City Barbers Barbershop (PCB)

Patrick P Lavoie
Lauren Grady

Hand Delivered
Stefanie Casella, Portsmouth Planning Department
One Junkins Ave
Portsmouth, New Hampshire 03801

Re: 295 Maplewood Ave Unit 1
Portsmouth, NH 03801
Port City Barbers Barbershop, LLC

Dear Planning Board,

As owner of 295 Maplewood Ave Unit 1 and Port City Barbers Barbershop we are pleased to submit this application in the hopes that the TAC may grant a conditional use permit if the committee finds that off-street parking spaces are not required and the permit will be adequate and appropriate for the proposed use of the property.

Port City Barbers Barbershop (PCB) is a sole proprietor business (1 employee: Patrick Lavoie) and has been in business for 10.5 years, last operating 2.5 years on Pleasant Street in Portsmouth NH and before that, 621 Islington St in Portsmouth NH for 8 years. It has been a great honor serving the community of Portsmouth and surrounding seacoast towns. My partner, Lauren Grady, and I closed on the 295 Maplewood Ave Unit 1 property at the beginning of November. PCB is operated by appointment only (online booking website) and appointments are booked in one hour increments, therefore there is no additional walk-ins that could increase traffic/parking surrounding the shop. I developed my appointment model in one hour increments to keep my clients and community safe during COVID and will continue with this model indefinitely. There is no overlap with clients, as haircuts generally take 30-40 minutes, my client exits and then I have adequate time to clean the space before the next client arrives. This model allows one parking space per hour, without the need for additional spaces. Jackson Hill Rd offers many public parking spaces, as well as the public boat launch parking at the end of the road. There is also public parking along Northwest Street, where Jackson House Museum resides, open to the public. Surrounding roads with deeded public spaces include the fork at Kane and Dennett Street and metered lot "Maplewood Ave, Raynes Ave, Vaughn Street Zone B" (please see below for all attached photographs). As I mentioned above, I serve the Portsmouth and surrounding seacoast community therefore I have many clients that walk or bike to their appointments, which eliminates the need for parking completely. The approval of this permit is extremely important to continue serving the community and operating the business that means everything to me, and my family. I appreciate your time and efforts in allowing a conditional use permit.

<u>Property/Parking Analysis</u>
295 Maplewood Ave Unit 1 is a commercial space within a mixed use condominium. The commercial space was previously used as an Insurance Company and functioned without on-site parking. The condominium has two residential units and the one commercial space. The requirements for the property state: spaces (6), requested spaces (0). The actual parking demand of a business supporting 1 employee (Patrick Lavoie) and customer traffic (appointment only booked one client per hour) is greater than the demand for residential use close to various municipal and private parking facilities is appropriate, even if no further on-site parking is available.

<u>CUP Requirements</u>

10.1112.14 The Planning Board may grant a conditional use permit to allow a building or use to provide less than the minimum number of off-street parking spaces required by Section 10.1112.30, Section 10.1112.61 or Section 10.1115.20, as applicable, or to exceed the maximum number of off-street parking spaces allowed by Section 10.1112.51.

10.1112.141 An application for a conditional use permit under this section shall include a parking demand analysis, which shall be reviewed by the City's Technical Advisory Committee prior to submission to the Planning Board, demonstrating that the proposed number of off-street parking spaces is sufficient for the proposed use.

10.1112.142 An application for a conditional use permit under this section shall identify permanent evidence-based measures to reduce parking demand, including but not limited to provision of rideshare/microtransit services or bikeshare station(s) servicing the property, proximity to public transit, car/van-pool incentives, alternative transit subsidies, provisions for teleworking, and shared parking on a separate lot subject to the requirements of 10.1112.62.

10.1112.143 The Planning Board may grant a conditional use permit only if it finds that the number of off-street parking spaces required or allowed by the permit will be adequate and appropriate for the proposed use of the property. In making this determination, the Board may accept, modify or reject the findings of the applicant's parking demand analysis.

10.1112.144 At its discretion, the Planning Board may require more off-street parking spaces than the minimum number requested by the applicant, or may allow fewer spaces than the maximum number requested by the applicant.

8:17

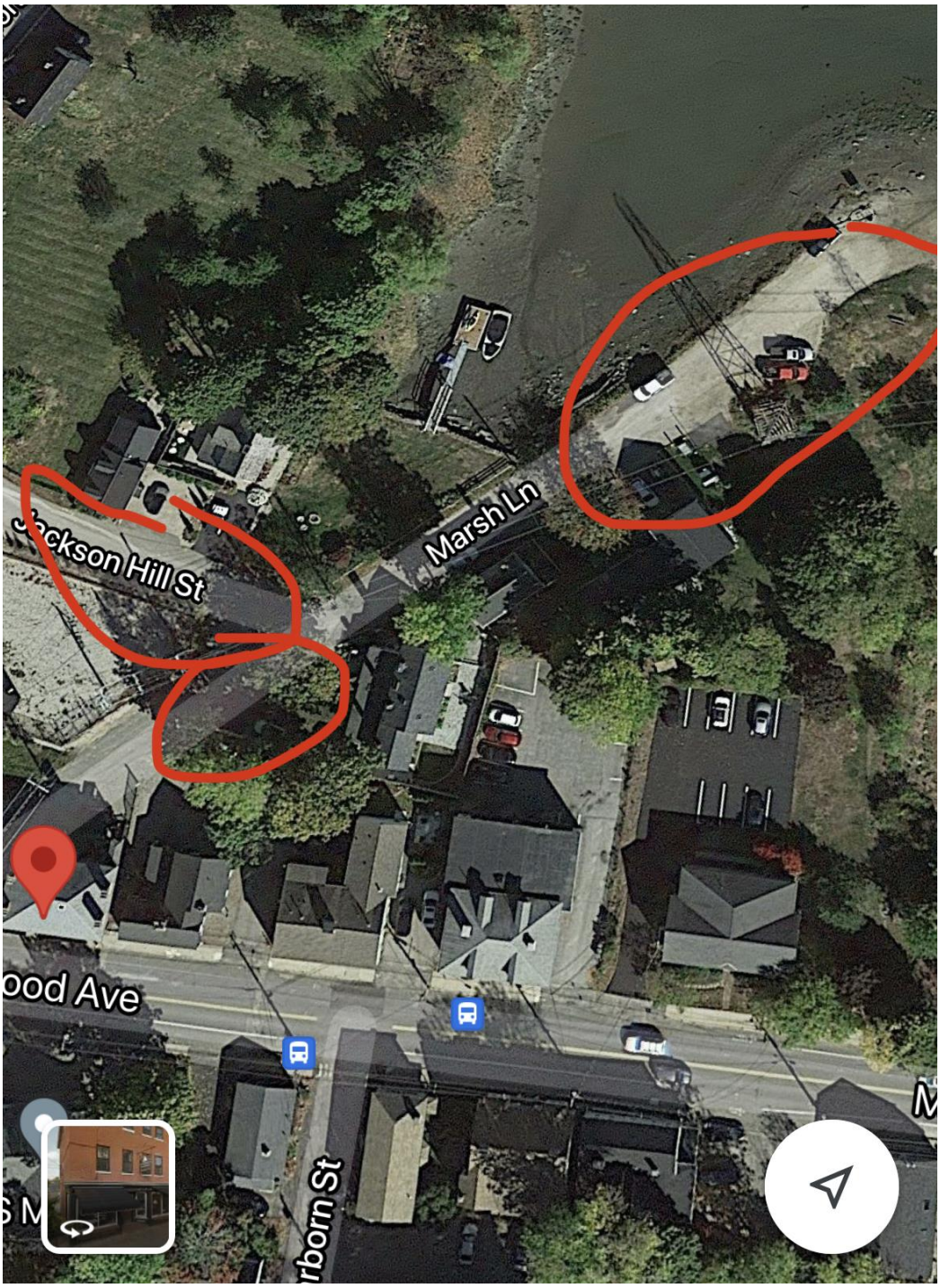
PARK PORTSMOUTH

Menu

LOCATIONS MAP & PRICING

Free Parking Location Lot with parking fee

cityofportsmouth.com


Marsh Ln
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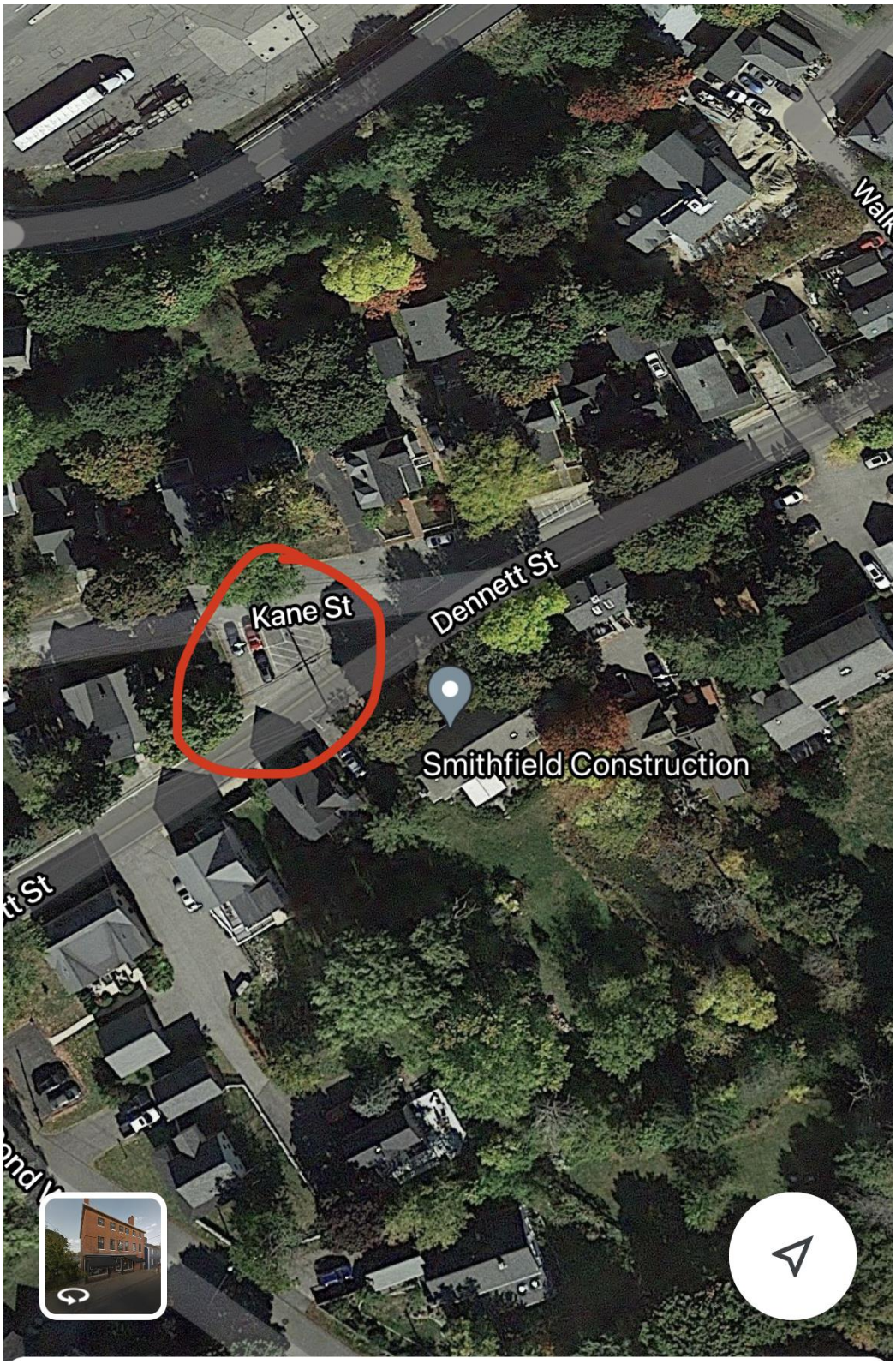
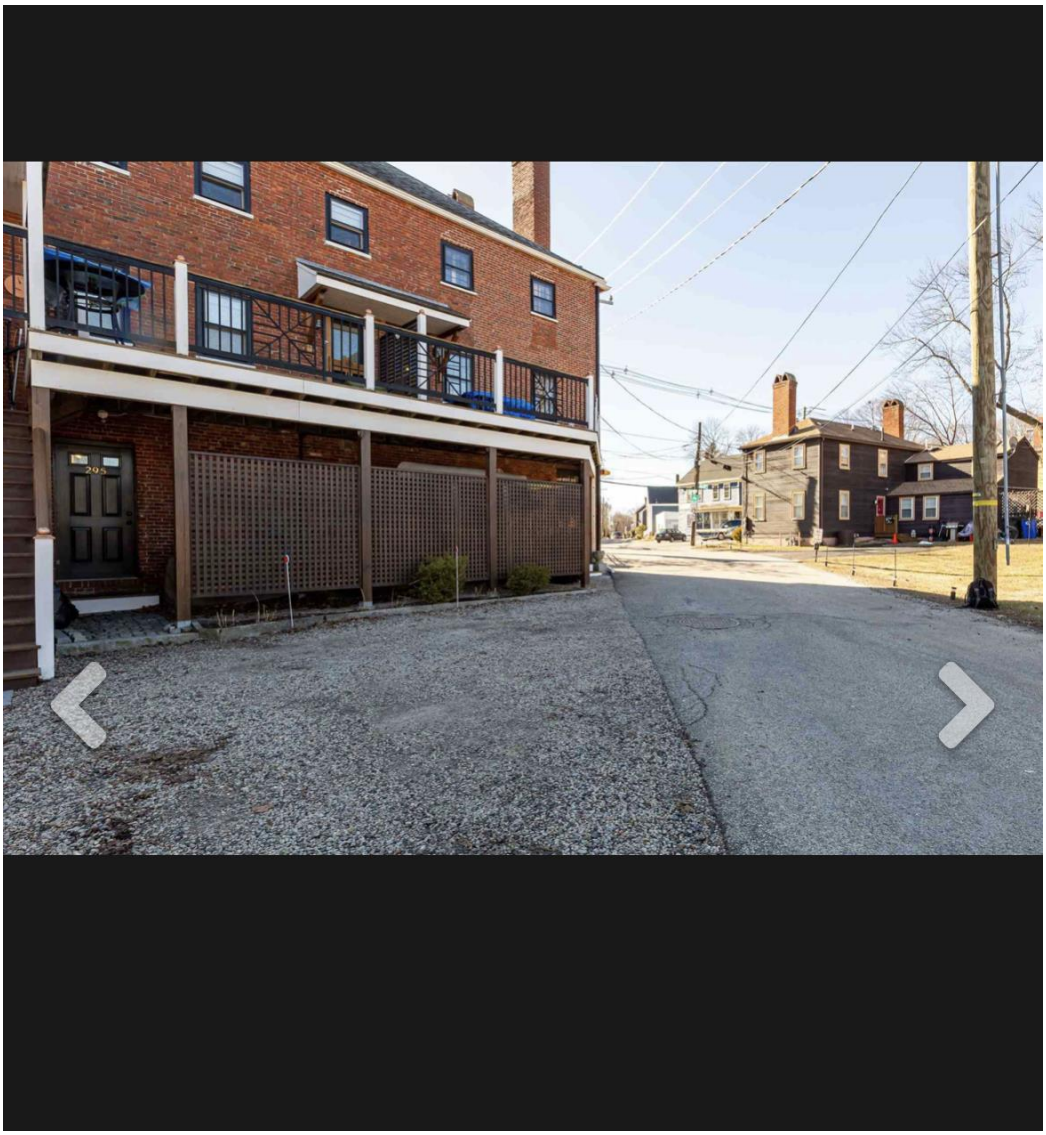
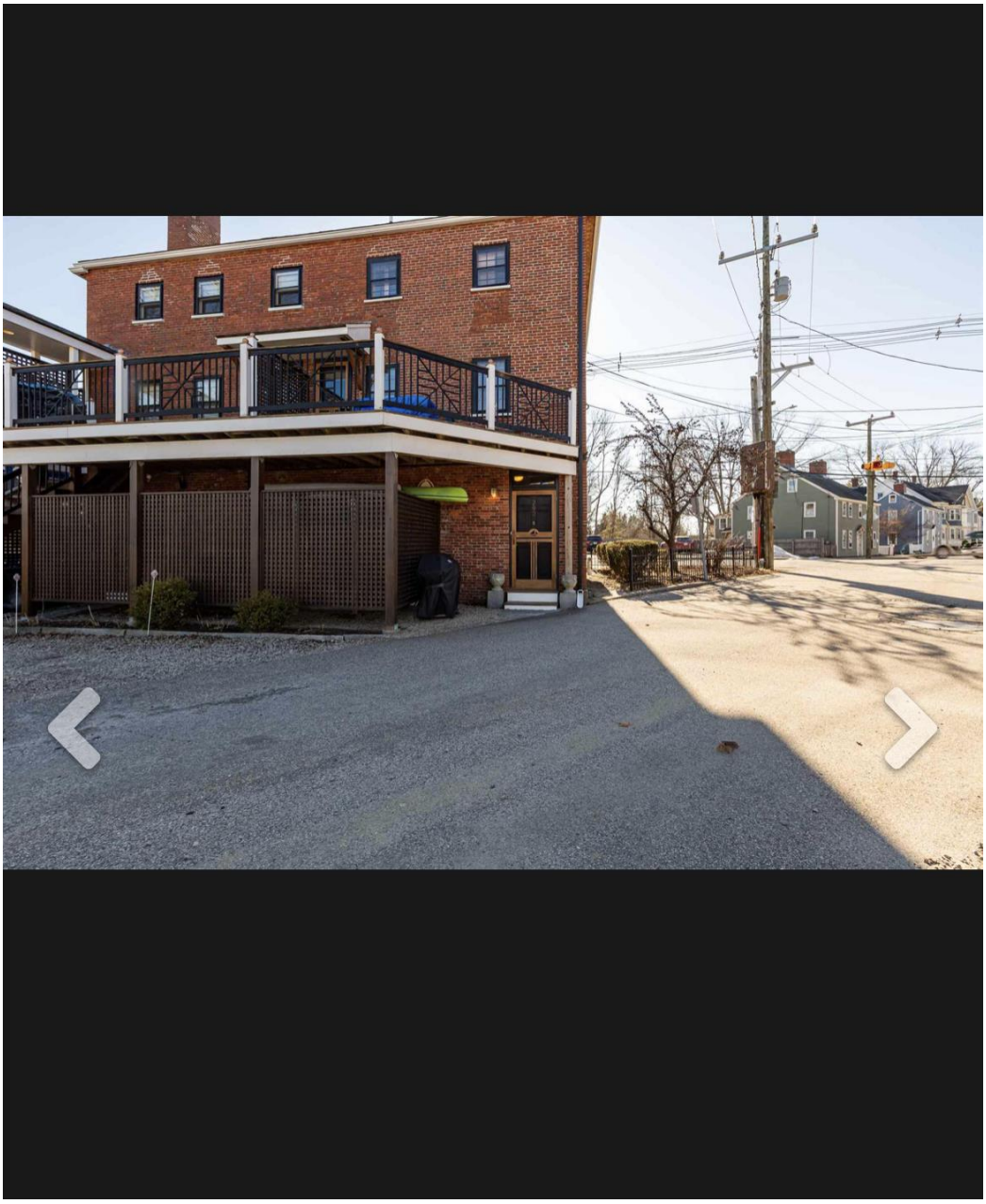

Kane St
Dennett St
Smithfield Construction





PCB
PCB
the treehouse book

PCB
PCB
PCB
PCB
the teelhouse book

Burma-Shave

NORTHWEST ST
JACKSON HILL ST
MARSH LN
MAPLEWOOD AVE
DENNETT ST
2
315
70'
105'(D)
65'
36'
32'
34.17'
8.41'
8.5'
88.41'
82.5'
293
287
259
21'
48.52'
44.25'
83.3'
64'
43'
48.92'
23.67'
51'
12
0
15
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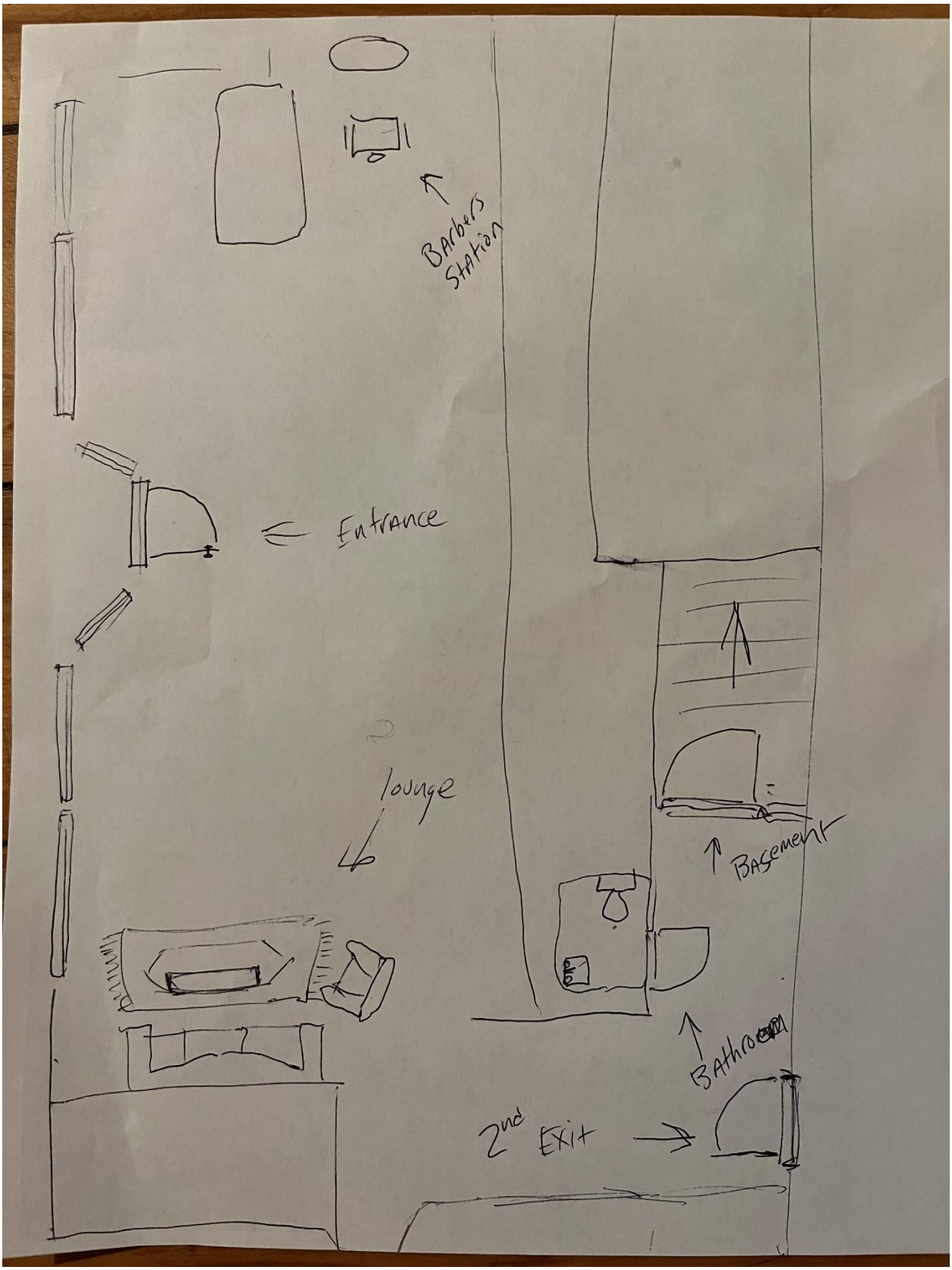

Barbers Station
Entrance
lounge
Basement
Bathroom
2nd EXit

Known for excellence.
Built on trust.

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION MANAGEMENT

5 Commerce Park North
Suite 201
Bedford, NH 03110
T: 603.623.3600
F: 603.624.9463
www.gza.com

November 16, 2021
File No. 04.0190999.64

City of Portsmouth
Planning Board
Attn: Dexter Legg, Chairman
1 Junkins Ave, 3rd Floor
Portsmouth, New Hampshire 03801

Re: Conditional Use Permit Application
Eversource Energy
2021 E194, U181, & 3135 Transmission Line Structure Replacement Project
Portsmouth, New Hampshire

Dear Chairman Legg:

This letter transmits a Conditional Use Permit Application on behalf of Public Service Company of New Hampshire doing business as Eversource Energy (Eversource), for the E194, U181, & 3135 Transmission Line Structure Replacement Project (see attached **Figure 1, Locus Plan**). On behalf of Eversource, GZA GeoEnvironmental, Inc. (GZA) is requesting consideration of a Conditional Use Permit Application for required impacts within the City of Portsmouth.

The proposed project includes the replacement of eight utility structures along the existing E194, U181, & 3135 Transmission Lines in Portsmouth, New Hampshire. The E194 and U181 Transmission Line ROW is approximately 5.5 miles in length, beginning at the Schiller Substation and ending at Ocean Road Substation in Portsmouth, New Hampshire, and has a width of approximately 300 feet. The 3135 Transmission Line ROW is approximately 12.8 miles in length, beginning at the Newington Substation in Newington, NH and ending at Timber Swamp Substation in Hampton, New Hampshire, and has a width of approximately 170-300 feet. The 3135 Transmission Line runs parallel to the U181 and E194 Transmission Lines through Newington and Portsmouth and breaks off just north of the Portsmouth and Greenland town line. See **Figure 2 – Access and Permitting Plans** for a depiction of the proposed project. The Site crosses through residential, commercial, and rural properties, as well as three public roads including Gosling Road, Borthwick Avenue, and Greenland Avenue. Natural cover within the ROW includes upland shrublands and wetland emergent and scrub-shrub habitats.

In total, the proposed project requires approximately 98,984 sq. ft. of temporary wetland impact for equipment access and work pad placement. The proposed project also requires 25,224 sq. ft. of temporary buffer impact in uplands for access and work pad placement. A summary of proposed wetland and buffer impacts is provided in the table below.

Table 1 – Summary of Wetland and Surface Water Buffer Impacts

Wetland ID	Classification	Temporary Wetland Impact (sq. ft.)	Temporary Upland Buffer Impact (sq. ft.)
PW-6	PEM1/5H	33,740	12,146
PW-11	PEM1E/PSS1E	52,229	11,447
PW-28	PEM1E/PSS1E	13,015	1,631
	Total	***98,984***	***25,224***

Key to classifications:

P = palustrine wetland system
SS = scrub-shrub, 1 = broad-leaved deciduous
EM = emergent, 1= persistent, 5 = Phragmites

Modifiers
E = nontidal, seasonally flooded/saturated
H = permanently flooded

The proposed project is necessary in order to support current and future electricity demands in the region. The proposed structure replacements were selected based on a line load modeling evaluation completed by Eversource. The existing wood structures will be replaced with wood equivalent steel structures in order to increase the long-term reliability of the line. There are no proposed expansions to the ROW or construction of new lines associated with this project. In addition, work is proposed within an existing and maintained utility ROW, and therefore tree removal is not anticipated as part of this project. Pole replacements will be on average 5-10-ft higher than existing poles due to updated National Electric Safety Code Standards. Work is proposed to begin in March 2022 and pending emergencies and weather-related delays, the proposed project will be completed by early summer 2022.

In addition to this Conditional Use Permit, Eversource will also be filing a Statutory Permit by Notification (SPN) with the Department of Environmental Services (DES) Wetlands Bureau.

Wetlands were delineated by GZA in 2016 and confirmed in 2021 in accordance with the United States Army Corps of Engineers (USACE) Wetlands Delineation Manual using the Routine Determinations Method, and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual as required by the New Hampshire Department of Environmental Services (NHDES) Wetlands Bureau and the USACE. GZA photographed resources and recorded data relevant to functions and values provided by these natural resources within the ROW in October 2021. GZA classified wetlands in accordance with the "Classification of Wetlands and Deepwater Habitats of United States" (Federal Geographic Committee, 2013).

Where proposed access and work pads are located within existing wetlands and adjacent 100-ft wetland buffer areas, timber matting will be utilized to minimize and prevent rutting and compaction within wetlands

and wetland buffers. Work will be conducted in accordance with NHDES Best Management Practices Manual for Utilities in and Adjacent to Wetlands and Waterbodies (March 2019). Prior to placement of timber matting within wetlands and wetland buffers, timber mats will be reviewed to ensure cleanliness to prevent spread of invasive plant species. Upon completion of work, timber matting will be removed and temporarily impacted wetlands and wetland buffers will be stabilized with straw and will be restored using a native herbaceous seed mix.

In accordance with the City of Portsmouth Zoning Ordinance, Article 10, section 10.1017.60, a Conditional Use Permit may be issued by the Planning Board for the construction of Public and Private Utilities within Rights-of-Ways in wetlands and wetland buffers provided that certain conditions are satisfied. The following section describes how the proposed project meets the stated conditions.

A. ***The proposed construction is in the public interest.*** The proposed project is necessary to maintain the power supply of the existing transmission line. The existing lines are approximately 67 years old and select poles mush be replaced due to horizontal splitting, rotting, and woodpecker holes. If the work is not conducted, the utility poles could eventually fail and prevent power transmission. The project will improve the existing transmission line and increase reliability. This project does not propose expansion of the existing utility line ROW and does not include the construction of new lines. The project is maintenance of existing infrastructure within an existing and maintained utility ROW.

B. ***Design, construction, and maintenance methods will utilize best management practices to minimize any detrimental impact of such use upon the wetland and will include restoration of the site as nearly as possible to its original grade, condition, and vegetated state.*** As previously mentioned, the proposed work will be conducted in accordance with NHDES Best Management Practices Manual for Utilities in and Adjacent to Wetlands and Waterbodies (March 2019). The access for the project has been sited to avoid prime wetlands and prime wetland buffers to the greatest extent feasible. In addition, the project utilizes existing access trails within the ROW to limit and prevent new disturbance. Where access ways temporarily cross a wetland or wetland buffer, the proposed project has been designed to minimize temporary wetland impacts through the use of timber matting. Matting will be temporarily placed in a narrow section of the wetland, to provide appropriate access and prevent rutting and compaction.

Best management practices that include the installation and maintenance of erosion and sediment barriers will be used during construction. In addition, timber matting will be reviewed prior to placement to prevent the spread of invasive plant species. Upon completion of work, temporarily impacted areas will be seeded and mulched with a native herbaceous seed mix to establish permanent vegetative cover, as necessary, to promote restoration as nearly as possible to its original grade, condition, and vegetated state.

C. ***No alternative feasible route exists which does not cross or alter a wetland or have a less detrimental impact on a wetland.*** There are no alternatives with less impact that maintain the safety and reliability of the existing transmission line. Access is sited within an existing and maintained utility ROW. In addition, the project has been designed to utilize existing historical access routes along the ROW, where possible, to minimize impacts to wetlands.

D. ***Alterations of natural vegetation or managed woodland will occur only to the extent necessary to achieve construction goals.*** The proposed project will utilize existing access trails within the ROW to limit

disturbance to wetlands and wetland buffers to the greatest extent feasible. Timber matting will be used to limit impacts on natural vegetation. Best management practices will be used to restore the site as nearly as possible to its original grade, condition and vegetated state. Permanent alterations of natural vegetation are proposed only where Eversource has identified utility structures which must be replaced in order to maintain current and projected future energy demands.

GZA conducted a wetland Function and Value Assessment in October 2021. Wetlands within the ROW corridor are typically capable of production export, nutrient removal, and groundwater recharge and discharge. Common principal functions and values include sediment and toxicant retention due to wetlands having close proximity to roadways, wildlife habitat, and floodflow alteration. It is not anticipated that the long-term functions and values of these wetlands will be impacted as a result of the proposed project. The project is maintenance of existing utility infrastructure.

Prior to daily construction activities, timber matting will be reviewed by personnel trained in wildlife identification and observed turtles and snakes will be safely relocated out of the active work zone, in similar nearby habitat. Observed turtles and snakes will be moved off of construction access roads to limit and prevent mortality to turtles and snakes during construction and will be reported to New Hampshire Fish and Game. Erosion control matting, if utilized, will consist of jute matting. Matting with plastic mesh will be avoided to limit unintentional mortality to snakes.

Should you have any questions, please contact Ms. Lindsey White at 603-232-8753 or at lindsey.white@gza.com.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Lindsey White

Lindsey White, CPSS
Project Manager

Deborah M. Zarta-Gier

Deborah M. Zarta-Gier
Consultant/Reviewer

Tracy L. Tarr, CWS, CESSWI
Associate Principal

LEW/TLT/DMZ: jc
P:\04JOBS\0190900S\04.0190999.00 - EE SITING PERMITTING 2019-2022\04.0190999.64 - E194 TRANSMISSION LINE STRUCTURE REPLACEMENT PROJECT\WORK\LOCAL PERMITTING\PORTSMOUTH CUP\DRAFT E194_U181_3135 STRUCTURE REPLACEMENTS PORTSMOUTH CUP NARRATIVE 101821.DOCX

Attachments: Conditional Use Permit Application Form - Online
List of Abutters
Photo Log
Wetland Function and Value Assessment
Table 1 – Wetland Buffer Review
Figure 1 – Locus Plan
Figure 2 – Access and Permitting Plans
Application Fee

Conditional Use Permit Application Form - Online

List of Abutters

E194, U181, 3135, & 369 Transmission Line Structure Replacement Project
Eversource Energy
Abutters List
Portsmouth, New Hampshire

Wetland Scientist
GZA GeoEnvironmental, Inc.
Attn: Tracy Tarr, CWS, CWB, CESSWI
5 Commerce Park North, Suite 201
Bedford, NH 03110

Owner/Applicant
Eversource Energy (a.k.a. PSNH)
PO Box 270
Hartford, CT 06141

Map 214-3
Public Service Company of New Hampshire, DBA Eversource Energy
PO Box 270
Hartford, CT 06141-0270

Map 234-7-3, Map 240-2-1001, Map 240-2-2001, Map 241-18, Map 259-27, Map 282-5, Map 278-2, Map 265-2E
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

Map 28-5
GSP 325 Gosling LLC.
431 River Road
Bow, NH 03304

Map 28-4
GSP Newington LLC.
431 River Road
Bow, NH 03304

Map 214-2
GSP Schiller LLC.
431 River Road
Bow, NH 03304

Map 215-1
Retrosi Properties LLC.
150 Gosling Street
Portsmouth, NH 03801

Map 215-9
Kelly Property Trust
PO Box 342
Rye Beach, NH 03871

Map 216-1
135 Commerce Way LLC.
210 Commerce Way, Suite 300
Portsmouth, NH 03801

Map 216-1-1
150 Commerce Way LLC.
210 Commerce Way, Suite 300
Portsmouth, NH 03801

Map 215-14
Cole BJ Portfolio LLC.
25 Research Drive
Westborough, MA 01581

Map 234-21
Davenport, Elijah Y.
34 Coakley Road
Portsmouth, NH 03801

Map 234-20
White, Garrett B.
38 Coakley Road
Portsmouth, NH 03801

Map 234-19
St. Martin, Brittany
42 Coakley Road
Portsmouth, NH 03801

Map 234-18
Barbin, Derek
46 Coakley Road
Portsmouth, NH 03801

Map 234-17
Gallmeyer, John
34 Coakley Road
Portsmouth, NH 03801

Map 234-16
Rice Family Irrevocable Trust
54 Coakley Road
Portsmouth, NH 03801

Map 234-15
Manougian, Richard J.
58 Coakley Road
Portsmouth, NH 03801

Map 234-14
Bowlen, Wayne T.
62 Coakley Road
Portsmouth, NH 03801

Map 234-13
Adams, Christopher
68 Coakley Road
Portsmouth, NH 03801

Map 234-12
Mariotta Family Trust
70 Coakley Road
Portsmouth, NH 03801

Map 234-11
Dorr, Leslie E. 2004 Trust
74 Coakley Road
Portsmouth, NH 03801

Map 234-10
Delvalle, Kathleen
644 Main Street
Rollingsford, NH 03869

E194, U181, 3135, & 369 Transmission Line Structure Replacement Project
Eversource Energy
Abutters List
Portsmouth, New Hampshire

Map 234-9
Hunkins, Joseph V.
PO Box 5
Greenland, NH 03840

Map 234-8
Cook, Samuel A.
426 Middle Street
Portsmouth, NH 03801

Map 234-7
Mitchell, Joseph R. 94 Trust
58 Fox Point Road
Newington, NH 03801

Map 234-7
Johnson, Paul R.
92 Coakley Road
Portsmouth, NH 03801

Map 234-31
Saulnier, Rose Marie
19 Coakley Road
Portsmouth, NH 03801

Map 234-32
Howard, Alfred Jr.
23 Coakley Road
Portsmouth, NH 03801

Map 234-33
Callahan, Keith S. Revocable Trust
60 Garland Road
Rye, NH 03870

Map 234-34
Wolf, John J.
4 Palm Drive
Greenland, NH 03840

Map 234-41
Sokorelis, Eli
15 Larry Lane
Portsmouth, NH 03801

Map 234-42
Mulkerin, Jos M. III
31 Coakley Road
Portsmouth, NH 03801

Map 234-43
Crowell, Cedric L.
35 Coakley Road
Portsmouth, NH 03801

Map 234-44
Lull, Seth
39 Coakley Road
Portsmouth, NH 03801

Map 234-7-4A, Map 240-2-1
HCA Realty Inc
PO Box 80610
Indianapolis, IN 46280

Map 240-2-2
Jackson Gray Condos Master Card
330 Borthwick Avenue
Portsmouth, NH 03801

Map 240-3, Map 240-1
Liberty Mutual
175 Berkeley Road
Boston, MA 02117

Map 165-14
Boston and Maine Corp.
Iron Horse Park High Street
North Billerica, MA 01862

Map 242-1, Map 258-54, Map 263-1-6
State of NH
11 Hazen Drive
Concord, NH 03301

Map 242-4
Stokel S. B. & N. A. Trust
83 Peverly Hill Road
Portsmouth, NH 03801

Map 242-5, Map 258-53
Roman Catholic Bishop of Manchester
153 Ash Street
Manchester, NH 03104

Map 258-1, Map 258-1-1
Foucher, Joli Ann
566 Greenland Road
Portsmouth, NH 03801

Map 258-3-1
Tooke, Kenneth M.
606 Greenland Road
Portsmouth, NH 03801

Map 258-2
Harding, Samuel C.
2450 Ocean Boulevard
Rye Beach, NH 03871

Map 258-12
Donohue, Kelly L.
144 Oxford Avenue
Portsmouth, NH 03801

Map 258-13
Scarlotto, Joseph W.
130 Oxford Avenue
Portsmouth, NH 03801

E194, U181, 3135, & 369 Transmission Line Structure Replacement Project
Eversource Energy
Abutters List
Portsmouth, New Hampshire

Map 258-34
Finam, Daniel S.
555 Greenland Road
Portsmouth, NH 03801

Map 258-35
Garand, Susan L.
551 Greenland Road
Portsmouth, NH 03801

Map 258-36, Map 278-1, Map 265-2D, Map 241-18
City of Portsmouth DPW
PO Box 628
Portsmouth, NH 03802

Map 258-51, Map 258-52
Thoma, Mark F. & Hans M.
PO Box 1148
Portsmouth, NH 03802

Map 263-1-5
Griffin Road Realty LLC.
304 Maplewood Avenue
Portsmouth, NH 03801

Photo Log

PHOTO LOG
E194, U181, & 3135 Transmission Line Structure Replacement Project
Portsmouth, New Hampshire

Photos Taken: October 26, 2021

Photograph No. 1: Southeasterly view of proposed access in the 100-foot wetland buffer of Wetland PW-28 from Gosling Road towards E194 Structure 3 to be replaced.

Photograph No. 2: Easterly view of E194 Structure 3 (center) to be replaced within Wetland PW-28.

PHOTO LOG
E194, U181, & 3135 Transmission Line Structure Replacement Project
Portsmouth, New Hampshire

Photos Taken: October 26, 2021

Photograph No. 3: Southwesterly view of proposed access and work area in the 100-foot wetland buffer of Wetland PW-11 for E194 Structure 34 to be replaced.

Photograph No. 4: Northeasterly view of E194 Structure 34 to be replaced within Wetland PW-11.

PHOTO LOG
E194, U181, & 3135 Transmission Line Structure Replacement Project
Portsmouth, New Hampshire

Photos Taken: October 26, 2021

Photograph No. 5: Southwesterly view of E194 Structure 35 (right) and U181 Structure 35 (left) to be replaced within Wetland PW-11.

Photograph No. 6: Westerly view of proposed access in the 100-foot wetland buffer of Wetland PW-11.

PHOTO LOG
E194, U181, & 3135 Transmission Line Structure Replacement Project
Portsmouth, New Hampshire

Photos Taken: October 26, 2021

Photograph No. 7: Easterly view of Wetland PW-11 (left) and U181 Structure 36 to be replaced.

Photograph No. 8: Northerly view of Wetland PW-11 from U181 Structure 36 to be replaced.

PHOTO LOG
E194, U181, & 3135 Transmission Line Structure Replacement Project
Portsmouth, New Hampshire

Photos Taken: October 26, 2021

Photograph No. 9: Westerly view of Wetland PW-11 (right) and E194 Structure 36 to be replaced.

Photograph No. 10: Southeasterly view of proposed access from Greenland Road for 3135 Structure 105 and 106 to be replaced.

PHOTO LOG
E194, U181, & 3135 Transmission Line Structure Replacement Project
Portsmouth, New Hampshire

Photos Taken: October 26, 2021

Photograph No. 11: Northeasterly view of Wetland PW-7 from proposed access route. There are no direct impacts to this wetland system.

Photograph No. 12: Southeasterly view of proposed access in the 100-foot wetland buffer of Wetland PW-6 for 3135 Structure 105 and 106 to be replaced.

PHOTO LOG
E194, U181, & 3135 Transmission Line Structure Replacement Project
Portsmouth, New Hampshire

Photos Taken: October 26, 2021

Photograph No. 13: Southwesterly view of 3135 Structure 106
to be replaced within Wetland PW-6.

Photograph No. 14: Northeasterly view of 3135 Structure 105
to be replaced within the 100-foot wetland buffer of Wetland PW-6.

Wetland Function and Value Assessment Forms

E194, U181, & 3135 TRANSMISSION LINE
PORTSMOUTH, NEW HAMPSHIRE

File No: 04.0190999.64	WETLAND FUNCTION – VALUE EVALUATION FORM	Date: 10/26/2021	
Wetland ID: Wetland PW-6 PEM1/PSS1Fg/R4SB		GZA Personnel: Peter Petkauskos, Tracy Tarr, CWS	

Function/Value	Capability Y	Capability N	Rationale (Reference #)	Summary	Principal Yes/No
Groundwater Recharge/Discharge	Y		1, 2, 4, 6, 7, 10	Wetland hydrology is supported by runoff and a high-water table. A portion of the wetland contains sandy soils (see NRCS Soils Overlay).	Y
Floodflow Alteration	Y		1, 3, 5, 6, 8, 9, 13, 18	The wetland receives and retains overland sheet flow from surrounding residential and commercial properties to the north and east.	Y
Fish and Shellfish Habitat	Y		1	An intermittent stream is present, however the size and depth of the watercourse limits habitat.	N
Sediment/Toxicant Retention	Y		1, 2, 3, 4, 5, 8	The wetland receives stormwater from Greenland Road and surrounding residences.	Y
Nutrient Removal	Y		1, 3, 4, 5, 7, 8, 9, 14	Dense vegetation is present, and the wetland contains very poorly drained soils.	Y
Production Export	Y		1, 2, 4, 5, 7, 12	The wetland contains dense vegetation and export is occurring through wildlife use in the wetland.	Y
Sediment/Shoreline Stabilization	Y		3, 4, 5, 7, 15	An intermittent stream is present, but no distinct ban is evident between the stream and the wetland.	N
Wildlife Habitat	Y		3, 4, 5, 6, 7, 8, 13, 14, 18, 19, 20, 21	The wetland is located in “supporting landscape” (see Wildlife Action Plan overlay). Several songbird species were observed in the emergent and scrub shrub wetland. Wetland is designated as a prime wetland and is located within a conservation easement area.	Y
Recreation	Y		4, 5, 7, 10	No water-based recreational opportunities are present. Walking trails are present.	N
Educational/Scientific Value	Y		2, 3, 5, 6, 8	The wetland is located within the “Great Bog” conservation area. Parking suitable for school buses is present. However, access and maintained trails are limited.	Y
Uniqueness/Heritage	Y		4, 9, 12, 15, 19	The wetland is designated as a prime wetland. The wetland is part of the “Great Bog” conservation area.	Y
Visual Quality/Aesthetics	Y		1, 2, 3, 5, 6, 8, 9, 11, 12	The wetland contains emergent marsh vistas and contains viewing locations from trails.	Y
ES Endangered Species Habitat	Y		Not Applicable	The NHB has records of hairy fruited sedge, a State endangered species, and tufted yellow-loosestrife, a State threatened species in the larger wetland system (see NHB memo dated NHB21-3200). species.	Y

Notes: Dominant plants within the herbaceous layer include sensitive fern, broad-leaf cattail, phragmites, purple loosestrife, Joe Pye weed, wool grass, boneset, and sphagnum moss. Dominant plants within the shrub/sapling/tree layer include speckled alder, bebb willow, glossy buckthorn, red osier dogwood, multiflora rose, and autumn olive.

E194, U181, & 3135 TRANSMISSION LINE
PORTSMOUTH, NEW HAMPSHIRE

File No: 04.0190999.64	WETLAND FUNCTION – VALUE EVALUATION FORM	Date: 10/26/2021	
Wetland ID: Wetland PW-7 PEM1/PSS1E		GZA Personnel: Peter Petkauskos, Tracy Tarr, CWS	

Function/Value	Capability Y	Capability N	Rationale (Reference #)	Summary	Principal Yes/No
Groundwater Recharge/Discharge	Y		4	Wetland hydrology is supported by runoff and a high-water table. The wetland contains sandy soils (see NRCS Soils Overlay). The wetland is not underlain by an aquifer (see Aquifer Transmissivity Overlay) or associated with a stream.	N
Floodflow Alteration	Y		3, 5, 6, 8, 9, 18	The wetland receives and retains stormwater from Greenland Road to the north.	N
Fish and Shellfish Habitat		N	Not Applicable	No streams or permanently flooded habitat are present in the assessment area.	N
Sediment/Toxicant Retention	Y		1, 2	The wetland receives stormwater from Greenland Road to the north.	Y
Nutrient Removal	Y		3, 5, 8, 9	Dense vegetation is present within the emergent and scrub shrub wetland.	N
Production Export	Y		7, 12	The wetland contains dense vegetation, and some export is occurring through wildlife use in the wetland.	N
Sediment/Shoreline Stabilization		N	Not Applicable	No streams or shoreline edges are associated with the wetland.	N
Wildlife Habitat	Y		4, 5, 7, 8	The wetland is not located in an area being mapped as “highest ranked habitat” or “supporting landscape” (see Wildlife Action Plan overlay).	N
Recreation	Y		4, 5, 10	No water-based recreational opportunities are present.	N
Educational/Scientific Value	Y		5, 6, 8	The wetland is located within the “Great Bog” conservation area. Parking suitable for school buses is present however, the wetland is dominated by invasive plants with limited educational opportunities compared to PW-6.	N
Uniqueness/Heritage		N	9	The wetland is not known to contain exemplary communities and is not designated as a prime wetland.	N
Visual Quality/Aesthetics		N	Not Applicable	The wetland does not contain open water or emergent marsh vistas.	N
ES Endangered Species Habitat		N	1, 2	The NHB does not have records of rare species (see NHB memo dated NHB21-3200).	N

Notes: Dominant plants within the herbaceous layer include purple loosestrife, phragmites, soft rush, sensitive fern, wool grass, golden rod, reed canary grass.
Dominant plants within the shrub/sapling/tree layer include glossy buckthorn, red osier dogwood, bebb willow, and meadowsweet.

E194, U181, & 3135 TRANSMISSION LINE
PORTSMOUTH, NEW HAMPSHIRE

File No: 04.0190999.64	WETLAND FUNCTION – VALUE EVALUATION FORM	Date: 10/26/2021	
Wetland ID: Wetland PW-11 PEM1/PSS1Fg		GZA Personnel: Peter Petkauskos, Tracy Tarr, CWS	

Function/Value	Capability Y	Capability N	Rationale (Reference #)	Summary	Principal Yes/No
Groundwater Recharge/Discharge	Y		4	Wetland hydrology is supported by runoff and a high-water table. The wetland is not underlain by an aquifer (see Aquifer Transmissivity Overlay).	N
Floodflow Alteration	Y		3, 4, 5, 6, 7, 8, 9, 18	The wetland receives and retains overland sheet flow from surrounding residential and commercial properties.	Y
Fish and Shellfish Habitat		N	Not Applicable	No streams or permanently flooded habitat are present in the assessment area.	N
Sediment/Toxicant Retention	Y		1, 2, 4, 5, 9	The wetland receives stormwater from I95, Coakley Road, Borthwick Ave, and Portsmouth Hospital.	Y
Nutrient Removal	Y		3, 4, 5, 6, 7, 8, 9	Dense vegetation is present, and the wetland contains very poorly drained organic soils.	Y
Production Export	Y		1, 2, 4, 7, 12	The wetland contains dense vegetation, and some export is occurring through wildlife use in the wetland.	N
Sediment/Shoreline Stabilization		N	Not Applicable	No streams or shoreline edges are associated with the wetland.	N
Wildlife Habitat	Y		8, 13, 19, 21	The wetland is located in “highest ranked habitat in NH” (see Wildlife Action Plan overlay).	Y
Recreation	Y		5	The wetland is located on City of Portsmouth conservation land. However, no water-based recreational opportunities are present.	N
Educational/Scientific Value	Y		5	The wetland is located on City of Portsmouth conservation land. However, access is limited and parking suitable for school buses is not present.	N
Uniqueness/Heritage	Y		Not Applicable	The wetland is not known to contain exemplary communities and is not designated as a prime wetland. However, a portion of the wetland is located within City of Portsmouth Conservation Land.	N
Visual Quality/Aesthetics	Y		2, 8	The wetland contains a large emergent marsh with overall views available from the surrounding uplands.	N
ES Endangered Species Habitat		N	1, 2	The NHB does not have records of rare species (see NHB memo dated NHB21-3200).	N

Notes: Dominant plants within the herbaceous layer include fringed sedge, cinnamon fern, sensitive fern, tussock sedge, broad-leaf cattail, phragmites, purple loosestrife, and Joe Pye weed. Dominant plants within the shrub/sapling/tree layer include glossy buckthorn, silky dogwood, red osier dogwood, speckled alder, bebb willow, meadowsweet, and multiflora rose.

E194, U181, & 3135 TRANSMISSION LINE
PORTSMOUTH, NEW HAMPSHIRE

File No: 04.0190999.64	WETLAND FUNCTION – VALUE EVALUATION FORM	Date: 10/26/2021	
Wetland ID: Wetland PW-28 PEM1/PSS1E		GZA Personnel: Peter Petkauskos, Tracy Tarr, CWS	

Function/Value	Capability Y	Capability N	Rationale (Reference #)	Summary	Principal Yes/No
Groundwater Recharge/Discharge	Y		4	Wetland hydrology is supported by runoff and a high-water table. A portion of the wetland contains sandy soils (see NRCS Soils Overlay). The wetland is not underlain by an aquifer (see Aquifer Transmissivity Overlay).	N
Floodflow Alteration	Y		3, 5, 6, 9, 18	The wetland receives and retains overland sheet flow from surrounding commercial properties to the east and west.	N
Fish and Shellfish Habitat		N	Not Applicable	No streams or permanently flooded habitat are present in the assessment area.	N
Sediment/Toxicant Retention	Y		1, 2	The wetland receives stormwater from Gosling Road and surrounding commercial properties.	Y
Nutrient Removal	Y		3, 4, 8, 9	Dense vegetation is present within the emergent and scrub shrub wetland.	N
Production Export	Y		1, 7, 12	The wetland contains dense vegetation, and some export is occurring through wildlife use in the wetland.	N
Sediment/Shoreline Stabilization		N	Not Applicable	No streams or shoreline edges are associated with the wetland.	N
Wildlife Habitat	Y		6, 7, 8, 13,	The wetland contains emergent/scrub-shrub cover and has landscape connectivity with a stream off-site.	Y
Recreation		N	5	No water-based recreational opportunities are present on-site.	N
Educational/Scientific Value		N	5	The wetland is located on private property and parking suitable for school buses is not present.	N
Uniqueness/Heritage		N	Not Applicable	The wetland is not known to contain exemplary communities and is not designated as a prime wetland.	N
Visual Quality/Aesthetics		N	Not Applicable	The wetland does not contain open water or emergent marsh vistas.	N
ES Endangered Species Habitat		N	1, 2	The NHB does not have records of rare species (see NHB memo dated NHB21-3200).	N

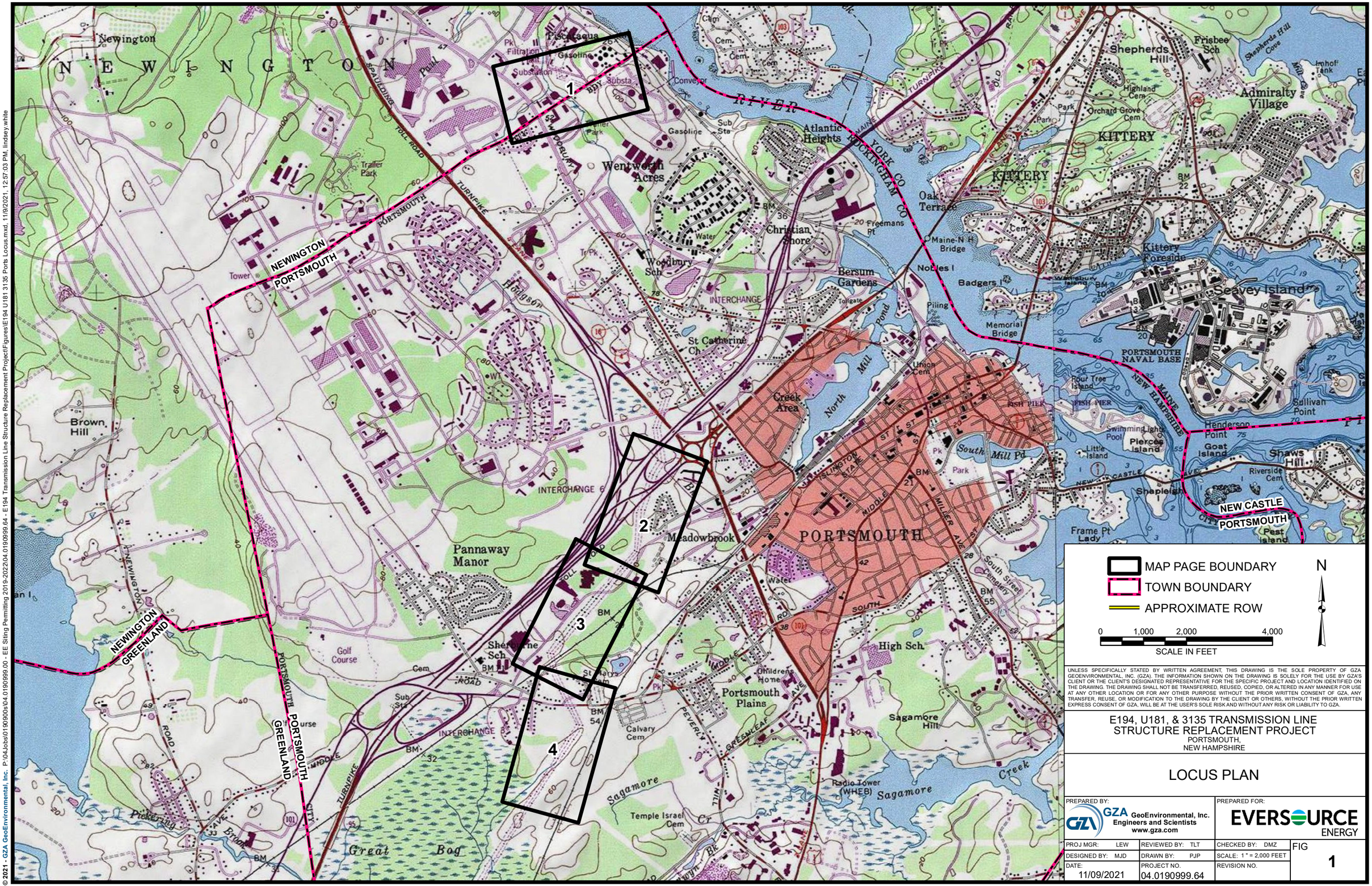
Notes: Dominant plants within the herbaceous layer include soft rush, golden rod, sensitive fern, sphagnum moss, fringed sedge, purple loosestrife, and Joe Pye weed.
Dominant plants within the shrub/sapling/tree layer include red osier dogwood, glossy buckthorn, bebb willow, winter berry, oriental bittersweet, and speckled alder.

Table 1 – Wetland Buffer Review

Table 1 - Wetland Buffer Review

Wetland ID	Temporary Buffer Impact (Sq. Ft.)	Vegetation in Buffer	Percent Invasive Species (%)	Percent Pavement(%)
PW-6	12,146	Goldenrod, purple crown vetch, milkweed, raspberry, glossy buckthorn	30%	0%
PW-11	11,447	Sweet fern, goldenrod, purple crown vetch, staghorn sumac, glossy buckthorn, raspberry, autumn olive	30%	25%
PW-28	1,631	Goldenrod, glossy buckthorn, staghorn sumac, raspberry, quaking aspen	25%	< 5%

Figure 1 – Locus Plan



© 2021 - GZA GeoEnvironmental, Inc. P:\04Jobs\0190900s\04.0190999.00 - EE Siting Permitting 2019-2022\04.0190999.64 - E194 Transmission Line Structure Replacement Project\Figures\E194 U181 3135 Ports Locus.mxd, 11/9/2021, 12:57:03 PM, lindsey.white

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E194, U181, & 3135 TRANSMISSION LINE
STRUCTURE REPLACEMENT PROJECT
PORTSMOUTH,
NEW HAMPSHIRE

LOCUS PLAN

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
EVERSOURCE ENERGY

PROJ MGR: LEW	REVIEWED BY: TLT	CHECKED BY: DMZ	FIG 1
DESIGNED BY: MJD	DRAWN BY: PJP	SCALE: 1 " = 2,000 FEET	
DATE: 11/09/2021	PROJECT NO. 04.0190999.64	REVISION NO.	

Figure 2 – Access and Permitting Plans

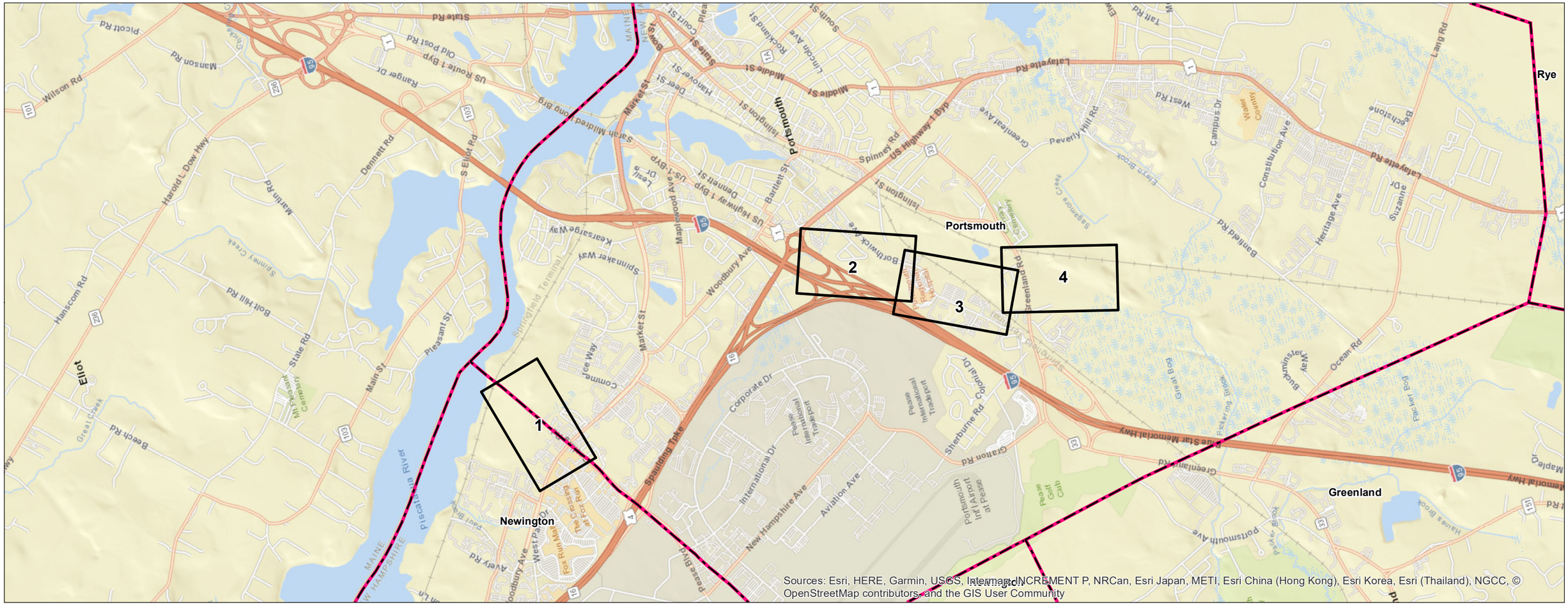
E194, U181 & 3135 Transmission Lines - Structure Replacement Project

PORTSMOUTH, NEW HAMPSHIRE

Environmental Resources Map

DRAFT MAP SET

Date: November 09, 2021



PREPARED FOR:

EVERSOURCE ENERGY

13 Legends Drive
Hooksett, NH 03106

0 0.25 0.5 1 Miles

INDEX OF FIGURES

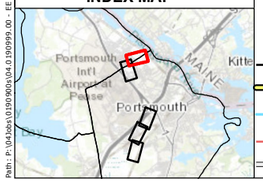
Title Sheet / Index Map
Map Sheets 1-4
Sheet 1 Notes
Sheet 2 Detail

NO.	DATE	REVISIONS

PREPARED BY:

GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

INDEX MAP



- PROPOSED STRUCTURE REPLACEMENT
- EXISTING STRUCTURE
- EXISTING STRUCTURE TO BE REPLACED
- RAIL ROAD OR RAIL TRAIL
- PROPOSED ACCESS
- NHD FLOWLINES
- EXISTING DISTRIBUTION LINE
- NHDOT ROAD
- APPROXIMATE ROW
- 100-FT WETLAND BUFFER TO BE RESTORED
- EXISTING TRANSMISSION LINE
- UPLAND MATTING
- WETLAND BUFFER IMPACT
- TEMPORARY WETLAND IMPACTS
- WORK PAD
- EROSION CONTROL
- EXISTING CONSERVATION LAND
- 2FT CONTOURS
- DELINEATED WETLAND
- WETLAND ADJACENT TO TIER 3+ STREAM
- PRIME WETLAND
- TOWN BOUNDARY
- PARCEL BOUNDARY
- EVERSOURCE OWNED PARCEL
- STATE OWNED PARCEL

This mapping product has been created to comply with submittal requirements to obtain certain regulatory approvals and, as such, there is no reliance on the information contained herein for any other purpose.

N

1 inch = 200 feet

0 50 100 200 Feet

NO.	DATE	REVISIONS

EVERSOURCE ENERGY

E194/U181/3135 Line Structure Replacement

Portsmouth/Newington, NH

MAP SHEET

Date: November, 2021

1 OF 4

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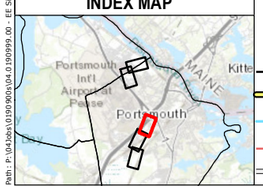
INDEX MAP



- PROPOSED STRUCTURE REPLACEMENT
- EXISTING STRUCTURE
- EXISTING STRUCTURE TO BE REPLACED
- RAIL ROAD OR RAIL TRAIL
- PROPOSED ACCESS
- NHD FLOWLINES
- EXISTING DISTRIBUTION LINE
- NHDOT ROAD
- APPROXIMATE ROW
- 100-FT WETLAND BUFFER TO BE RESTORED
- EXISTING TRANSMISSION LINE
- UPLAND MATTING
- WETLAND BUFFER IMPACT
- TEMPORARY WETLAND IMPACTS
- WORK PAD
- EROSION CONTROL
- EXISTING CONSERVATION LAND
- 2FT CONTOURS
- DELINEATED WETLAND
- WETLAND ADJACENT TO TIER 3+ STREAM
- PRIME WETLAND
- TOWN BOUNDARY
- PARCEL BOUNDARY
- EVERSOURCE OWNED PARCEL
- STATE OWNED PARCEL

This mapping product has been created to comply with submittal requirements to obtain certain regulatory approvals and, as such, there is no reliance on the information contained herein for any other purpose.

1 inch = 200 feet

0 50 100 200 Feet

NO.	DATE	REVISIONS

EVERSOURCE ENERGY

E194/U181/3135 Line Structure Replacement

Portsmouth, NH

MAP SHEET

Date: November, 2021

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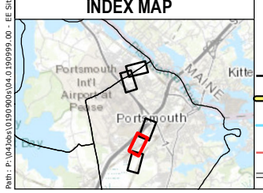

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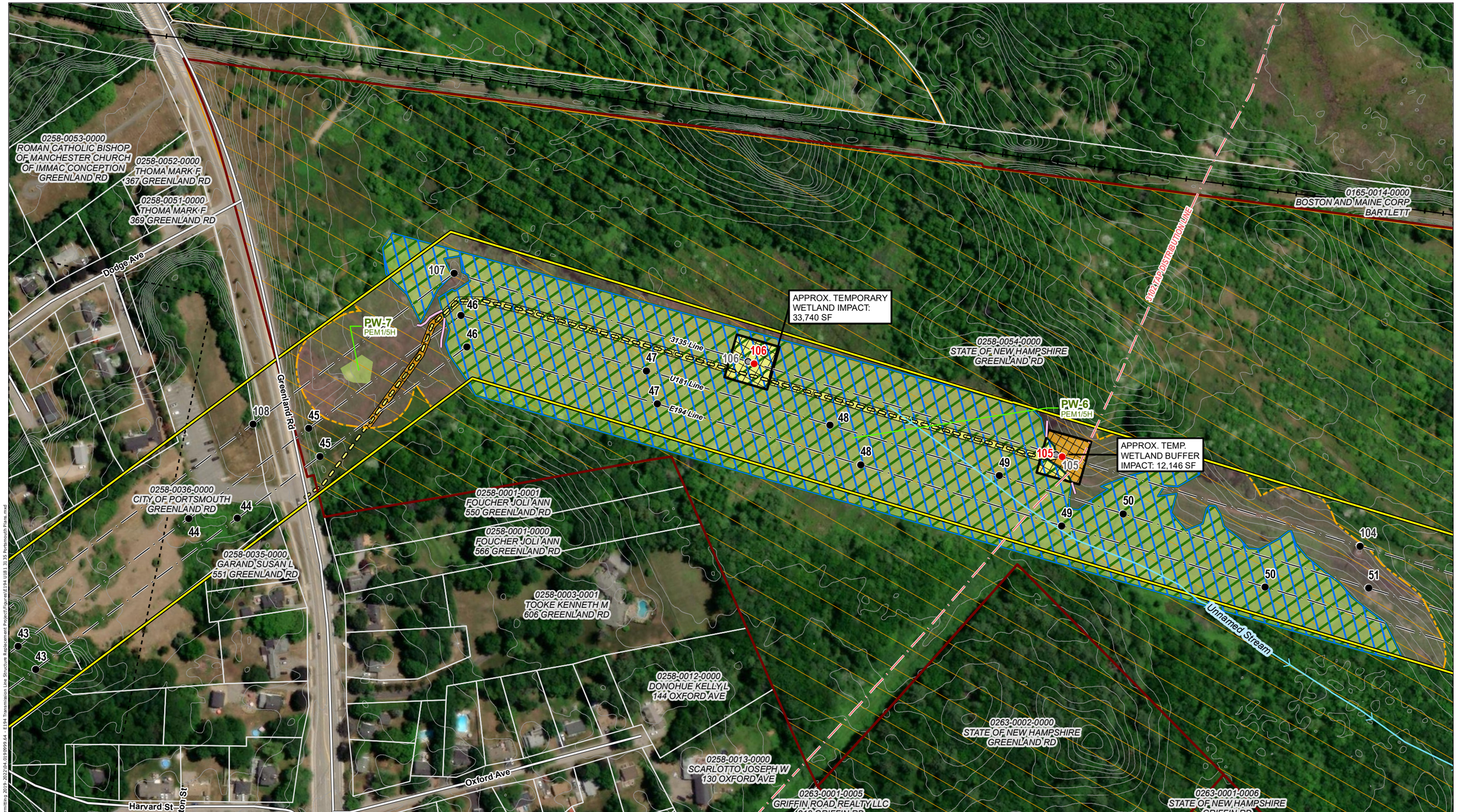

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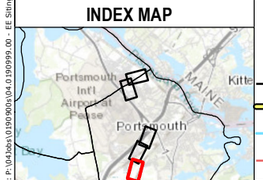

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CONSTRUCTION SEQUENCE:

1. WETLAND BOUNDARIES TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION.

2. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAIL PROVIDED, AS NECESSARY, AND CONSISTENT WITH THE NHDES MARCH 2019 BMP MANUAL FOR UTILITY MAINTENANCE.

3. WETLAND IMPACTS ASSOCIATED WITH WETLAND CROSSINGS ARE REQUIRED FOR ACCESS BETWEEN STRUCTURES WITHIN THE RIGHT OF WAY.

4. ADEQUATE PRECAUTION SHALL BE EXERCISED TO AVOID SPILLAGE OF FUEL OILS, CHEMICALS, OR SIMILAR SUBSTANCES; NO FUELS, LUBRICANTS, CHEMICALS OR SIMILAR SUBSTANCES SHALL BE STORED BENEATH TREES OR IN THE VICINITY OF ANY WETLANDS, RIVER, STREAM OR OTHER BODY OF WATER; OR IN THE VICINITY OF NATURAL OR MAN-MADE CHANNELS LEADING THERETO. NO POWER EQUIPMENT SHALL BE STORED, MAINTAINED, OR FUELED IN ANY AREA ADJACENT TO A WETLAND, RIVER, STREAM OR OTHER BODY OF WATER.

5. REMOVE COMPLETELY ALL CONTAMINATION FROM ANY SPILLAGE OF CHEMICALS OR PETROLEUM PRODUCT WITH COMPLETE REHABILITATION OF THE AFFECTED AREA.

6. ACCESS ROUTES HAVE BEEN SELECTED TO PREVENT DEGRADATION OF THE RIGHT-OF-WAY AND MINIMIZE ENVIRONMENTAL IMPACT. OPERATIONS SHALL BE CONFINED TO THE SPECIFIED ACCESS ROUTES WITHIN THE PROPOSED WETLAND IMPACT AREA. ACCESS ROUTES SHALL NOT EXCEED A 16 FOOT-WIDTH.

7. IMPACT TO VEGETATION WITHIN WETLANDS WILL BE LIMITED TO THE EXTENT NECESSARY TO PLACE THE SWAMP MATS WHERE REQUIRED.

8. LOW GROWING VARIETIES OF VEGETATION ADJACENT TO WETLANDS SHALL BE PRESERVED TO THE EXTENT POSSIBLE. STUMPS AND ROCKS SHALL NOT BE REMOVED, AND THERE SHALL BE NO EXCAVATIONS, FILLS OR GRADING DONE ADJACENT TO WETLANDS, UNLESS MINOR EXCAVATIONS IS NEEDED FOR ACCESS.

9. TIMBER MATS AND PERIMETER CONTROLS WILL BE USED ALONG ACCESS ROUTES AND WORK PADS WITHIN WETLAND AREAS. THESE MATS ARE CONSTRUCTED OF HEAVY TIMBERS OR COMPOSITE MATERIAL, BOLTED TOGETHER, AND ARE PLACED END-TO-END IN THE WETLAND TO SUPPORT HEAVY EQUIPMENT. ALL SWAMP MATS SHALL BE PLACED AND REMOVED SO AS NOT TO CAUSE ANY RUTS, CHANNELS OR DEPRESSIONS, OR OTHERWISE CAUSE ANY UNDUE DISTURBANCE TO WETLANDS.

10. IF TIMBER MAT BMP IS NOT SUFFICIENT DUE TO HIGH WATER, ADDITIONAL BMP'S MAY INCLUDE THE PLACEMENT OF GEOTEXTILE FABRIC, 3"-4" STONE, AND GRAVEL TO PROVIDE A SUITABLE ROAD BED. A TEMPORARY CULVERT MAY BE REQUIRED IN AREAS OF HIGH FLOW TO MAINTAIN HYDROLOGIC CONNECTIVITY. ALL MATERIAL WILL BE REMOVED FROM JURISDICTIONAL AREAS AFTER CONSTRUCTION COMPLETION.

11. NO MATERIAL SHALL BE PLACED IN ANY LOCATION OR IN ANY MANNER SO AS TO IMPAIR SURFACE WATER FLOW INTO, THROUGH OR OUT OF ANY WETLAND AREA. NO INSTALLATION SHALL CREATE AN IMPOUNDMENT THAT WILL IMPEDE THE FLOW OF WATER OR CAUSE FLOODING.

12. NO MATERIAL SHALL BE TAKEN FROM THE WETLANDS AREA EXCEPT THAT WHICH MUST NECESSARILY BE REMOVED FOR THE STRUCTURE OR FOUNDATION PLACEMENT OR STABILIZATION. ALL EXCESS MATERIAL TAKEN FROM THE WETLAND WILL BE REMOVED FROM THE SITE.

13. ANY PROPOSED SUPPORT FILLS SHALL BE CLEAN GRAVEL AND STONE, FREE OF WASTE METAL PRODUCTS, ORGANIC MATERIALS AND SIMILAR DEBRIS AND SHALL NOT EXCEED THE AMOUNT PERMITTED. THIS ALLOWABLE FILL IS THE ONLY FILL THAT MAY REMAIN IN THE WETLAND AFTER CONSTRUCTION. ALL CUT AND FILLS SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.

14. INSTALL NEW POLES IN THE LOCATIONS DESIGNATED ON THE PERMITTING PLANS.

15. CABLE INSTALLATION WILL BE PERFORMED IN A MANNER SO AS TO AVOID, OR LIMIT TO THE MAXIMUM EXTENT POSSIBLE, TRAVERSING WETLANDS WITH HEAVY EQUIPMENT. IN SOME CASES, A HELICOPTER MAY BE USED DURING THE INSTALLATION TO MINIMIZE IMPACTS.

16. REMOVAL OF THE OLD POLE WILL OCCUR ONCE THE CABLE HAS BEEN INSTALLED ON THE NEW STRUCTURE. THE OLD STRUCTURES WILL BE REMOVED FROM THE SITE. POLES WILL BE CUT AT THE GROUND SURFACE. FOOTINGS WILL BE ABANDONED IN PLACE TO MINIMIZE IMPACTS.

17. ALL TIMBER MATS, MATERIAL, AND DEBRIS WILL BE REMOVED FROM THE WORK AREA UPON THE COMPLETION OF CONSTRUCTION.

18. UPLAND DISTURBED AREAS SHALL BE RESTORED AND STABILIZED UPON COMPLETION OF CONSTRUCTION. WORK PAD RESTORATION SHOULD INCLUDE REDUCING THE WORK PAD TO A 30 BY 60 FOOT AREA, AND REDUCING SLOPES TO A MAXIMUM OF 25%. STOCKPILED MATERIAL SHOULD BE SPREAD TO REDUCE ANY UNNECESSARY SLOPES. GRAVEL WORK PADS AND SLOPES SHOULD BE SCARIFIED TO A MINIMUM OF 3" BEFORE SPREADING TOPSOIL/LOAM.

19. ALL TEMPORARY WETLAND IMPACTS WILL BE RE-GRADED TO ORIGINAL CONTOURS FOLLOWING CONSTRUCTION. NEW ENGLAND EROSION CONTROL/RESTORATION MIX, AVAILABLE THROUGH NEW ENGLAND WETLAND PLANTS, INC., 820 WEST STREET, AMHERST, MA 01002, 413-548-8000, OR EQUIVALENT SEED MIX SHALL BE APPLIED IN WETLAND AREAS THAT ARE NOT INUNDATED, AS NECESSARY.

20. MULCH USED FOR STABLIZATION SHALL CONSIST OF SEEDLESS STRAW.

21. SEDIMENT AND EROSION CONTROL MEASURES WILL BE EVALUATED AND REMOVED IF NECESSARY UPON THE COMPLETION OF CONSTRUCTION.

22. COMMERCIAL LOAM WILL NOT BE USED AS PART OF RESTORATION. ONLY IN-SITU TOPSOIL WILL BE USED TO RESTORE DISTURBED AREAS.

23. WHERE OPTIMAL TURTLE BREEDING AREAS OVERLAP WITH DISTURBANCE (AS DETERMINED BY AN ENVIRONMENTAL MONITOR), MINERAL SOILS WILL BE SCARIFIED TO ALLEVIATE COMPACTION AND BECOME MORE SUITED FOR TURTLE BREEDING.

24. NATURALLY VEGETATED LOCAL WETLAND BUFFER AREAS OUTSIDE OF EXISTING TRAILS MUST BE RESTORED UPON COMPLETION OF WORK.

WINTER CONSTRUCTION NOTES

1. PROP0SED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED. STABILIZATION METHODS SHALL INCLUDE SEEDING AND MULCH, AND INSTALLATION OF EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.

2. DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE TEMPORARILY STABILIZED WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.

3. AFTER NOVEMBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL (NHDOT 304.3).

GENERAL NOTES:

OWNER: EVERSOURCE ENERGY
13 LEGENDS DRIVE
HOOKSETT, NH 03106

1. BASE PLAN PROVIDED BY EVERSOURCE ENERGY. EVERSOURCE ENERGY PROVIDED THE WETLAND DATA. EVERSOURCE ENERGY PROVIDED THE UTILITY DESIGN.

2. JURISDICTIONAL WETLANDS WERE DELINEATED BY GZA GEOENVIRONMENTAL, INC. IN DECEMBER 2016 AND CONFIRMED IN 2021, IN ACCORDANCE WITH THE 1987 U.S. ARMY CORPS OF ENGINEERS' "WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1," AND REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTH CENTRAL AND NORTHEAST REGION," JANUARY 2012. WETLANDS WILL BE REVIEWED BY GZA GEOENVIRONMENTAL, INC. PRIOR TO START OF WORK.

3. GZA EVALUATED WETLANDS AS POTENTIAL VERNAL POOLS IN DECEMBER 2016 AND 2021 IN ACCORDANCE WITH "IDENTIFICATION AND DOCUMENTATION OF VERNAL POOLS IN NEW HAMPSHIRE," 2016, NEW HAMPSHIRE FISH AND GAME DEPARTMENT, NONGAME AND ANDANGERED WILDLIFE PROGRAM.

4. AS APPLICABLE, GZA WILL COMPLETE WETLANDS FUNCTION AND VALUES ASSESSMENT IN ACCORDANCE WITH THE ACOE'S "HIGHWAY METHODOLOGY WORKBOOK SUPPLEMENT," SEPTEMBER 1999.

5. SITE PLAN IS FOR PERMITTING PURPOSES ONLY AND DOES NOT REPRESENT A PROPERTY BOUNDARY SURVEY.

6. THE PROJECT WILL BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

7. IN ACCORANCE WITH ENV-WQ 1505.02, THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL EXCEED 5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
   - A MINIMUM 85 PERCENT VEGETATED GROWTH HAS BEEN ESTABLISHED
   - A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL HAS BEEN INSTALLED
   - OR, EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

8. IN THE EVENT THAT A RARE OR THREATENED SPECIES IS OBSERVED, THE NEW HAMPSHIRE FISH AND GAME AND NEW HAMPSHIRE NATURAL HERITAGE BUREAU WILL BE NOTIFIED. TURTLE NESTING SEASON EXTENDS FROM LATE MAY THROUGH THE BEGINNING OF JULY. IF WOOD, BLANDING'S OR SPOTTED TURTLES ARE FOUND LAYING EGGS IN THE WORK AREA, CONTACT MELISSA DOPERALSKI AT 603-271-1738 OR JOSH MEGYESY AT 603-271-1125 FOR FURTHER INSTRUCTIONS. OBSERVATIONS OF NORTHERN BLACK RACER SNAKES SEEN IN ANY AREA FROM THE END OF SEPTEMBER THROUGH THE MONTH OF APRIL MUST BE IMMEDIATELY REPORTED TO THE NHFG DEPARTMENT (BRENDAN CLIFFORD AT 603-271-0463 OR MELISSA DOPERALSKI AT 603-271-1738). IF NORTHERN BLACK RACER IS FOUND IN A WORK AREA FROM NOVEMBER THROUGH THE MONTH OF APRIL, WORK SHALL IMMEDIATELY CEASE AND THE OBSERVATION MUST BE REPORTED TO THE NHFG (BRENDAN CLIFFORD OR MELISSA DOPERALSKI).

EROSION CONTROL NOTES:

1. INSTALLATION OF EROSION CONTROL GRINDINGS AND/OR SILT FENCES SHALL BE COMPLETE PRIOR TO THE START OF WORK IN ANY GIVEN AREA. EROSION CONTROLS SHALL BE USED DURING CONSTRUCTION AND REMOVED WHEN ALL SLOPES HAVE A HEALTHY STAND OF VEGETATION COVER. EROSION CONTROL MEASURES SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER .25" OR GREATER RAINFALL EVENTS.

2. AS REQUIRED, CONSTRUCT TEMPORARY BERMS, SILTATION FENCES, SEDIMENT TRAPS, ETC. TO PREVENT EROSION & SEDIMENTATION OF WETLANDS.

3. THE WORK AREA SHALL BE GRADED AND OTHERWISE SHAPED IN SUCH A MANNER AS TO MINIMIZE SOIL EROSION, SILTATION OF DRAINAGE CHANNELS, DAMAGE TO EXISTING VEGETATION, AND DAMAGE TO PROPERTY OUTSIDE LIMITS OF THE WORK AREA. EROSION CONTROL GRINDINGS WILL BE NECESSARY TO ACCOMPLISH THIS END.

4. ANY STRIPPED TOPSOIL SHALL BE STOCKPILED, WITHOUT COMPACTION, AND STABILIZED WITH BMPS.

5. PERMANENT OR TEMPORARY COVER MUST BE IN PLACE BEFORE THE GROWING SEASON ENDS. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 15 TO SEPTEMBER 15. NO DISTURBED AREA SHALL BE LEFT EXPOSED DURING WINTER MONTHS, PLANT ANNUAL RYEGRASS PRIOR TO OCTOBER 15TH.

6. EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.

7. EROSION CONTROL MATTING, IF REQUIRED, WILL CONSIST OF JUTE MATTING. MATTING WITH WELDED PLASTIC OR 'BIODEGRADABLE PLASTIC' NETTING OR THREAD WILL BE AVOIDED TO LIMIT UNINTENTIONAL MORTALITY TO SNAKES.

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR THE USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

E194, U181, 3135, & 369 TRANSMISSION LINE STRUCTURE REPLACEMENT PROJECT

PORTSMOUTH, NEWINGTON, & HAMPTON,
NEW HAMPSHIRE

NOTES

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
EVERSOURCE ENERGY

PROJ MGR: LEW	REVIEWED BY: TLT	CHECKED BY: DMZ	SHEET 1 1 OF 2
DESIGNED BY: MJD	DRAWN BY: MJD	SCALE:	
DATE: 11/09/2021	PROJECT NO. 04.0190999.64	REVISION NO.	

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Best Management Practices (BMP's) for Straw wattles

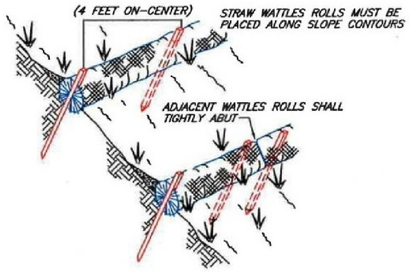
Definition and purpose:
Straw wattles are burlap rolls filled with straw that trap sediment and interrupt water flow by reducing slope lengths.

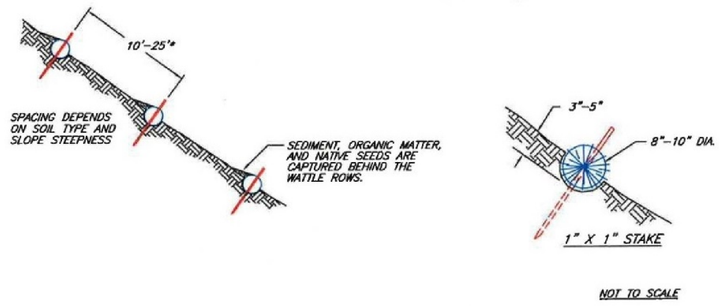
Applications:
* Along erodible or unstablizied slopes
* Spread overland waterflow
* Trap sediment
* Around storm drain inlets to slow water and settle out sediment
* **Overlap ends approximately 6 inches**

Installation:
Straw wattles are installed parallel to slope contours and perpendicular to sheet flow.

Spacing* - Dependent on slope length, soil steepness and soil type (general range 10 - 25').

Trenching - 2"-5" inch trench
Stacking - at each end and four foot on center (i.e. 25 foot wattle uses 6 stacks)





NOTES (SILT FENCE)

1. THE HEIGHT OF THE BARRIER SHALL NOT EXEED 36 INCHES.

2. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6—INCH OVERLAP, AND SECURELY SEALED. SEE MANUFACTURER'S RECOMMENDATIONS.

3 POSTS SHALL BE PLACED AT A MAXIMUM OF 10 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 12 INCHES). WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, POST SPACING SHALL BE AS MANUFACTURER RECOMMENDS.

4. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 6 INCHES WIDE AND 6 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE OF THE BARRIER IN ACCORDANCE WITH RECOMMENDATIONS

5. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE, AND WILL EXTEND A MINIMUM OF 8 INCHES INTO THE TRENCH. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.

6. THE TRENCH SHALL BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC.

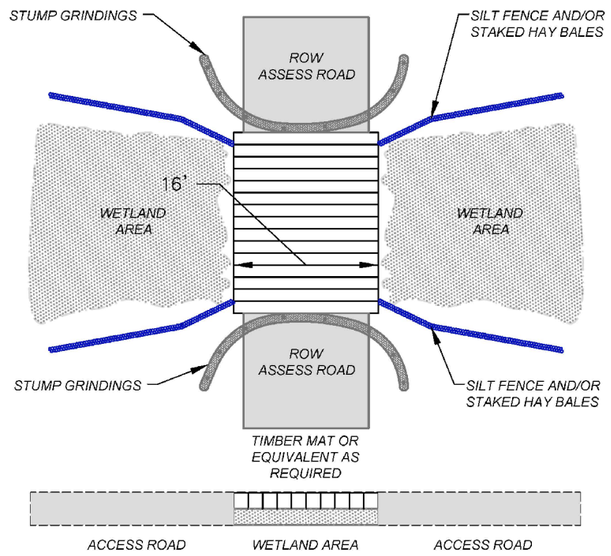
7. FABRIC BARRIERS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.

8. FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST ONCE DAILY DURING PROLONGED RAINFALL AND ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.

9. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.

10. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE—HALF THE HEIGHT OF THE BARRIER.

11. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.



TYPICAL WETLAND CROSSING
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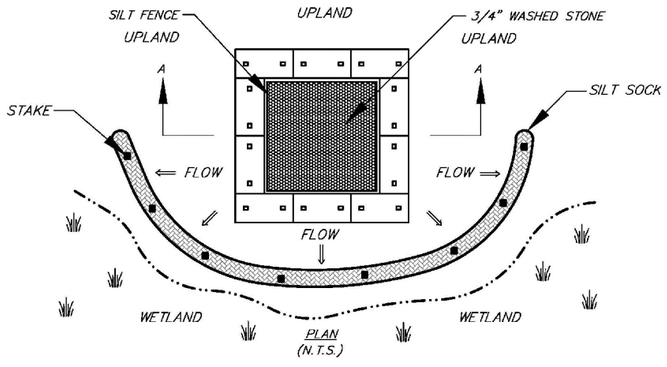

DEWATERING DETAIL
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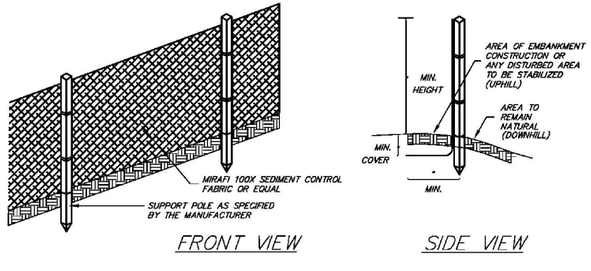
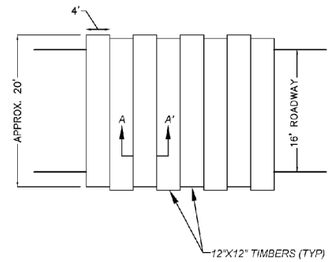
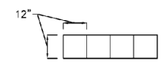


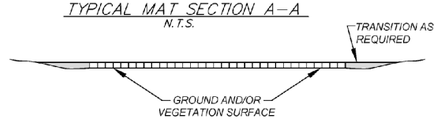
FRONT VIEW SIDE VIEW



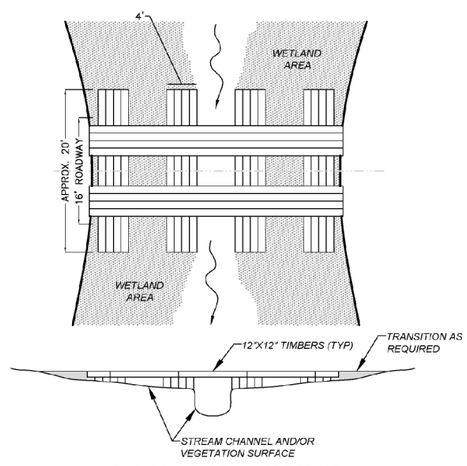
TYPICAL SWAMP MAT PLAN VIEW
N.T.S.



TYPICAL MAT SECTION A—A
N.T.S.



TYPICAL SWAMP MAT SECTION DETAIL
N.T.S.



TYPICAL STREAM CROSSING
N.T.S.

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E194, U181, 3135, A& 369 TRANSMISSION LINE
STRUCTURE REPLACEMENT PROJECT
PORTSMOUTH, NEWINGTON, & HAMPTON
NEW HAMPSHIRE

DETAILS

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR:	
PROJ MGR: LEW	REVIEWED BY: TLT	CHECKED BY: DMZ	SHEET 2
DESIGNED BY: MJD	DRAWN BY: MJD	SCALE:	
DATE: 10/05/2021	PROJECT NO. 04.0190999.64	REVISION NO.	

Application Fee

Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

NEW HAMPSHIRE 200

November 24, 2021

Dexter Legg, Chair
Portsmouth Planning Board
1 Junkins Ave, 3rd Floor
Portsmouth, NH 03801

RE: Planning Board Wetland CUP Application
325 Little Harbor Road, Portsmouth, NH – Tax Map 205 Lot 2

Dear Mr. Legg:

On behalf of our client, ADL 325 Little Harbor Road Trust, please find a Planning Board Wetland Conditional Use Permit (CUP) submission relative to the above-referenced project. The following materials have been submitted online and hard copies are also included in this submission:

- **Client Authorization Letter (1 copy);**
- **Wetland CUP Application (1 copy);**
- **Land Management Plan (1 copy); and**
- **Site Development Plans entitled "Site Development Plans, Tax Map 205 Lot 2, Lady Isle Site Renovations, 325 Little Harbor Road, Portsmouth New Hampshire", prepared by TFMoran, Inc., dated September 29, 2021, revised November 23, 2021 (1 copy at 22"x34").**

Project Description

The project includes the replacement of a single-family residence on 325 Little Harbor Road. The existing property is approximately 12.3 acres and currently contains a 2-story house, guest cottage, carriage house, barn, horse barn, horse paddock, and shed. The site is an island within the Rural Zoning District and surrounded by the Piscataqua River.

Renovations are proposed within a previously disturbed area and will replace existing structures. The remaining half of the island, which is wooded, will be maintained or enhanced with natural vegetation. No adverse impact on the wetland functional values of the site or surrounding properties are proposed. A Land Management Plan has been developed for the entire island to remove existing invasive species and restore the area, including the Buffer, with native species that will benefit the ecosystem around the Piscataqua River and enhance the existing ecology. The project does not propose any wetland impacts, only Tidal Wetland Buffer Impacts on the previously developed uplands of the island.

TFMoran, Inc.
48 Constitution Drive, Bedford, NH 03110
T(603) 472-4488 www.tfmoran.com

TFMoran, Inc. Seacoast Division
170 Commerce Way–Suite 102, Portsmouth, NH 03801
T(603) 431-2222

Planning Board Wetland CUP Application **November 24, 2021**
325 Little Harbor Road, Portsmouth, NH – Tax Map 205 Lot 2

The purpose of this proposal is to demolish the existing house, carriage house, and paddock and to construct a 2-story single-family home, garage, pool, pool cabana, playground, and utility connections via Little Harbor Road; renovate an existing barn and guest cottage; and replace an existing shed and barn with a new shed and barn. Associated improvements include and are not limited to access, grading, stormwater management systems, utilities, and landscaping. The project proposes a 6,227 SF, main, housing footprint and 31,965 SF of impervious area (6.3%) within the entire island area that is upland. There is approximately 145,007 SF of impact area proposed on the island. Below is a table comparing existing and proposed coverages within both the Tidal Wetland Buffer and Upland Area:

TABLE 1 COVERAGE AREA (SF)				
	Existing		Proposed	
	Tidal Wetland Buffer	Upland Area	Tidal Wetland Buffer	Upland Area
Impervious Area	24,060 (7.2%)	40,680 (8.1%)	22,809 (6.8%)	31,965 (6.3%)
Permeable Area	1,381 (0.4%)	8,029 (2.4%)	8,168 (2.4%)	13,433 (2.7%)
Grass/Landscape Area	176,573 (52.7%)	247,049 (73.8%)	145,986 (43.6%)	218,892 (43.3%)
Natural Woodland Area	132,911 (39.7%)	209,400 (62.5%)	157,962 (47.2%)	240,868 (47.7%)
Impact Area			86,085 (25.7%)	145,007 (28.7%)
Impact & Temporary Impact Area			176,212 (52.6%)	278,938 (55.2%)
Total Area			334,925	505,158

A portion of the development is proposed within the 100' Tidal Wetland Buffer, which is 334,925 SF in area. The total impact area within the Tidal Wetland Buffer is 86,085 SF, including disturbances for grading and removing or installing structures, and is approximately a quarter of the Wetland Buffer Area. The combined impact and temporary impact area within the Tidal Wetland Buffer is 176,212 SF, which is approximately half of the Wetland Buffer Area and maintains half of the island in its natural woodland state. Most of the disturbed area is temporary in order to convert areas from pavement and grass, using mechanized equipment, to open space, such as landscape areas or drought-tolerant, with the goal of establishing more vegetation. Alterations of woodland will occur only to the extent necessary to achieve construction goals.

The existing wetland buffer contains 132,911 SF (40%) of natural woodland area and will be enhanced to provide a total of 157,962 SF, accounting for 47% of the Buffer Area. There will also be maintained landscaping added within the Buffer Area, contributing 42,916 SF of landscape area that may have previously been grass or impervious surface, accounting for 13% of the Buffer Area. All proposed landscape areas propose native vegetation within the Buffer. The combined woodland, lawn, landscaped, and permeable area accounts for 93% of the Buffer Area, permitting approximately 7% of the Buffer as impervious, primarily from roofs and the sea wall. The project includes a net removal of 1,241 SF of impervious surfaces, resulting in a net loss of impervious surface within a jurisdictional wetland buffer. The proposed conditions more specifically reduce the impervious coverage within the Buffer from 7.2% to 6.8%.

The project has been reviewed by the Conservation Commission and will also be reviewed by NHDES Wetlands Bureau, NHDES Shoreland Program, NHDES Alteration of Terrain (AoT) Bureau, NH Fish & Game, NHDES Wastewater Bureau, and EPA's NOI for Construction General Permit.

The project has slightly been revised since the Conservation Commission approved the project. Revisions pertain to progressing the design with the project team and for conformance with NHDES permitting agencies. The included revisions do not expand building locations or setbacks within the Tidal Wetland Buffer and more accurately calculate disturbance and surface cover shown on the previously submitted plans.

We appreciate your consideration of these matters and look forward to presenting this project to at the December 16 Planning Board Meeting.

Respectfully,
TFMoran, Inc.

Corey Colwell, LLC
Division Manager | *Vice President*

Hannah Giovannucci, PE
Civil Project Manager

JCC/heg

cc: Anthony Dilorenzo, ADL 325 Little Harbor Road Trust (via e-mail)
Jim Youngblood, Youngblood Builders (via jim@youngbloodbuilders.com)
Mickey Benson, GPSchafer (via mbenson@gpschafer.com)
Matthew Cunningham, MCLD (via matthew@matthew-cunningham.com)
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Tracy Tarr, GZA Environmental (via tracy.tarr@gza.com)
Stephan Roberts, Hoefle, Phoenix, Gormley & Roberts (via sroberts@hpgrlaw.com)

LADY ISLE
SITE RENOVATIONS

325 LITTLE HARBOR ROAD
PORTSMOUTH, NEW HAMPSHIRE

SEPTEMBER 29, 2021
REVISED NOVEMBER 23, 2021

HORIZONTAL SCALE 1"=500'
500 250 0 500

OWNER/APPLICANT
MAP 205 LOT 2
ADL 325 LITTLE HARBOR ROAD TRUST
C/O STEPHEN H ROBERTS, ESQ
TRUSTEE
127 PARROT AVENUE
PORTSMOUTH, NH 03801

RESOURCE LIST

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PORTSMOUTH, NH 03801
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PETER BRITZ,
INTERIM PLANNING DIRECTOR

BUILDING DEPARTMENT
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PORTSMOUTH, NH 03801
603-610-7261
ROBERT MARSILIA,
CHIEF BUILDING INSPECTOR

PUBLIC WORKS
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PORTSMOUTH, NH 03801
603-427-1530
PETER RICE,
DIRECTOR OF PUBLIC WORKS

POLICE DEPARTMENT
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603-427-1500
MARK NEWPORT, INTERIM CHIEF

FIRE DEPARTMENT
170 COURT STREET
PORTSMOUTH, NH 03801
603-427-1515
TODD GERMAIN, CHIEF

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212-965-1355
MICKEY BENSON, PRINCIPAL

ECOLOGICAL SERVICES
PARTERRE ECOLOGICAL
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RYAN CORRIGAN, MSED, MCH

LANDSCAPE ARCHITECT
MATTHEW CUNNINGHAM LANDSCAPE
ARCHITECTURE DESIGN LLC
411 MAIN STREET
STONEHAM, MA 02180
617-905-2246
MATTHEW CUNNINGHAM, PRINCIPAL

WETLAND SCIENTIST
MARC JACOBS,
CERTIFIED WETLAND SCIENTIST
PO BOX 417
GREENLAND, NH
603-686-5097

WILDLIFE ASSESSOR
GZA GEOENVIRONMENTAL, INC.
5 COMMERCE PARK NORTH
BEDFORD, NH 03110
603-232-8739
TRACY TARR, ASSOCIATE PRINCIPAL

INDEX OF SHEETS

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S-01	EXISTING CONDITIONS PLAN
C-02	NHDES SHORELAND IMPACT PLAN
C-03	NHDES WETLAND IMPACT PLAN
C-04	WETLAND CONDITIONAL USE PERMIT PLAN
C-05	OVERLAY PLAN
C-06	SITE PREPARATION & DEMOLITION PLAN
C-07	SITE LAYOUT PLAN
C-08	GRADING & DRAINAGE PLAN
C-09 TO C-10	UTILITY PLAN
C-11	EROSION CONTROL PLAN
C-12	EROSION CONTROL NOTES
C-13 TO C-18	DETAILS
REFERENCE PLANS BY ASSOCIATED PROFESSIONALS	
-	FLOOR & EXTERIOR ELEVATIONS PLANS BY G.P. SCHAFER
L1.0 TO L1.4	LANDSCAPE ARCHITECTURE PLANS BY MCLD

PERMITS/APPROVALS

	NUMBER	APPROVED	EXPIRES
PORTSMOUTH PLANNING BOARD & CONSERVATION COMMISSION WETLAND CUP	-	-	-
PORTSMOUTH PLANNING BOARD CUP FOR DADU	-	-	-
NH FISH & GAME	-	-	-
NHDES WETLANDS & PERMIT AMENDMENT	2014-02662	2/15/2018 -	2/15/2023
NHDES SHORELAND & PERMIT AMENDMENT	2017-02665	2/26/2018 -	2/26/2023
NHDES ALTERATION OF TERRAIN	-	-	-
NHDES SEWER	-	-	-
EPA NPDES ENOI CGP & SWPPP	-	-	-

APPROVED BY THE CITY OF PORTSMOUTH PLANNING BOARD

ON _____

BOARD MEMBER _____ *AND*

BOARD MEMBER _____

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

COVER

LADY ISLE SITE RENOVATIONS
325 LITTLE HARBOR ROAD, PORTSMOUTH, NH
OWNED BY & PREPARED FOR
ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: NTS **SEPTEMBER 29, 2021**

DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANNUCCI
No. 15699
LICENSED PROFESSIONAL ENGINEER
11/23/2021

REV.	DATE	DESCRIPTION	DR	CK
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

Seacoast Division
TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431-2222
Fax (603) 431-0910
www.tfmoran.com

FILE	DR	HEG	FB	-	
47099.01	CK	JCC	CADFILE	47099-01_COVER_MAIN	C-00

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LEGEND

PROPOSED

- PROPERTY LINE
- ZONING LINE
- EASEMENT
- BASELINE
- FLOODPLAIN
- EDGE OF WATERBODY
- EDGE OF WETLAND
- SETBACK (WETLAND)
- SETBACK (STRUCTURE)
- SETBACK (PARKING)
- SETBACK (LANDSCAPE)
- GRAVEL ROAD
- EOP — EDGE OF PAVEMENT
- VGC — VERTICAL GRANITE CURB
- SGC — SLOPED GRANITE CURB
- CC — CONCRETE CURB
- ICC — INTEGRATED CONCRETE CURB
- BIT — BITUMINOUS ASPHALT CURB
- CCB — CAPE COD BERM
- SAWCUT
- BUILDING
- BUILDING ROOF OVERHANG
- BUILDING FOUNDATION
- BUILDING ENTRANCE
- OVERHEAD DOOR
- TREE LINE
- FENCE (CHAIN LINK)
- FENCE (WIRE)
- FENCE (STOCKADE)
- GUARDRAIL
- STONE WALL
- RETAINING WALL
- SILT FENCE
- SILT SOCK
- SOIL BOUNDARY
- LIMIT OF GRADING
- CONTOUR
- SPOT GRADE — TC100.50 / BC100.00 OR X 100.00
- PARKING COUNT — (##)
- DSLY — YELLOW DOUBLE SOLID LINE
- SSLY — YELLOW SINGLE SOLID LINE
- SSLW — WHITE SINGLE SOLID LINE
- SBLW — WHITE SINGLE BROKEN LINE
- STOP BAR
- CROSSWALK
- ACCESSIBLE PARKING SYMBOL
- PAVEMENT ARROW
- TRAFFIC FLOW ARROW (NOT PAINTED)
- SIGN (SINGLE POST)
- SIGN (DOUBLE POST)
- SIGN (PYLON)
- SIGN (MONUMENT)
- BOLLARD
- D — DUMPSTER PAD

PROPOSED

- CONCRETE
- GRAVEL
- HEAVY DUTY PAVEMENT
- LANDSCAPE AREA
- NATURAL WOODED AREA
- CONSTRUCTION ENTRANCE
- SNOW STORAGE
- RIPRAP
- INLET PROTECTION
- DRAIN LINE
- DRAINAGE SWALE
- STORMWATER BMP
- S — SEWER LINE
- FM — SEWER FORCE MAIN LINE
- W — WATER LINE
- G — GAS LINE
- OHE — OVERHEAD UTILITY LINE
- UGE — UNDERGROUND UTILITY LINE
- CATCH BASIN
- DRAIN INLET
- OUTLET CONTROL STRUCTURE
- ROOF DRAIN
- DRAIN CLEANOUT
- DRAIN MANHOLE
- FARED END SECTION
- SEWER CLEAN OUT
- SEWER MANHOLE
- SEWER VENT
- DRAIN/SEWER/WATER PLUG OR CAP
- HYDRANT
- FIRE DEPARTMENT CONNECTION
- WATER GATE VALVE
- WATER SHUTOFF
- THRUST BLOCK
- WATER METER
- WATER MANHOLE
- WELL
- GAS GATE VALVE
- GAS SHUT OFF
- GAS METER
- TELEPHONE MANHOLE
- ELECTRIC MANHOLE
- TRAFFIC CONTROL CABINET
- ELECTRIC HANDHOLE
- ELECTRIC PULL BOX
- ELECTRIC METER
- FLOOD LIGHT
- LIGHT POLE
- UTILITY POLE
- GUY POLE
- T — TRANSFORMER PAD
- B-# — BORING LOCATION
- TP-# — TEST PIT LOCATION
- IT-# — INFILTRATION TEST LOCATION
- MW-# — MONITORING WELL

ABBREVIATIONS

GENERAL

ABAN	ABANDON
AC	ACRES
ADJ	ADJUST
APPROX	APPROXIMATE
BC	BOTTOM OF CURB
BIT	BITUMINOUS
BK/PG	BOOK & PAGE
BLDG	BUILDING
BMP	BEST MANAGEMENT PRACTICE
BS	BOTTOM OF SLOPE
BW	BOTTOM OF WALL
CONC	CONCRETE
COORD	COORDINATE
CUP	CONDITIONAL USE PERMIT
DADU	DETACHED ACCESSORY DWELLING UNIT
DIA	DIAMETER
ELEV	ELEVATION
EP	EDGE OF PAVEMENT
EXIST	EXISTING
FFE	FINISHED FLOOR ELEVATION
FND	FOUNDATION
HP	HIGH POINT
INV	INVERT ELEVATION
IT	INFILTRATION TEST
L	LENGTH
LF	LINEAR FEET
LSA	LANDSCAPE AREA
MAX	MAXIMUM
MIN	MINIMUM
N/F	NOW OR FORMERLY
NHFG	NH FISH & GAME
NTS	NOT TO SCALE
NWA	NATURAL WOODLAND AREA
OC	ON CENTER
PAVE	PAVEMENT
PERF	PERFORATED
PROP	PROPOSED
R	RADIUS
R&D	REMOVE AND DISPOSE
R&R	REMOVE AND RESET
REM	REMOVE
RET	RETAIN
RIM	RIM ELEVATION
ROW	RIGHT OF WAY
S	SLOPE
SF	SQUARE FEET
SW	SIDEWALK
TBM	TEMPORARY BENCHMARK
TC	TOP OF CURB
TP	TEST PIT
TW	TOP OF WALL
TYP	TYPICAL
UG	UNDERGROUND
W/	WITH

UTILITIES

CA/TV	CABLE/TELEVISION
CB	CATCH BASIN
CIP	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
COND	CONDUIT
DIP	DUCTILE IRON PIPE
DMH	DRAIN MANHOLE
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FES	FLARED END SECTION
FM	FORCE MAIN
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HH	HANDHOLE
HW	HEADWALL
HYD	HYDRANT
LP	LIGHT POLE
OCS	OUTLET CONTROL STRUCTURE
PVC	POLYVINYL CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
SMH	SEWER MANHOLE
SOS	SEDIMENT OIL SEPARATOR
TSV	TAPPING SLEEVE, VALVE, AND BOX
UP	UTILITY POLE

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3. THE SITE LAYOUT PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
4. ALL IMPROVEMENTS SHOWN ON THE SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.
5. ALL WORK SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS OF THE CITY OF PORTSMOUTH, AND SHALL BE BUILT IN A WORKMANLIKE MANNER IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. ALL WORK TO CONFORM TO CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS. ALL WORK WITHIN THE RIGHT-OF-WAY OF THE CITY AND/OR STATE SHALL COMPLY WITH APPLICABLE STANDARDS. COORDINATE ALL WORK WITHIN THE RIGHT-OF-WAY WITH APPROPRIATE CITY, COUNTY, AND/OR STATE AGENCY.
6. THE SITE CONTRACTOR SHALL ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH APPLICABLE SECTIONS OF ENV-WQ 1500. THE SITE CONTRACTOR SHALL NOTIFY THE ENGINEER IN ADVANCE OF CONSTRUCTION OF EACH STORMWATER FACILITY TO COORDINATE REQUIRED INSPECTIONS. THE CONTRACTOR SHALL TAKE PROGRESS PHOTOS DURING CONSTRUCTION OF ALL STORMWATER DRAINAGE COMPONENTS AND SEND TO THE ENGINEER.
7. SEE EXISTING CONDITIONS PLAN FOR THE HORIZONTAL AND VERTICAL DATUM.
8. SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION. VERIFY TBM ELEVATIONS PRIOR TO CONSTRUCTION.
9. CONTACT EASEMENT OWNERS PRIOR TO COMMENCING ANY WORK WITHIN THE EASEMENTS.
10. PRIOR TO COMMENCING ANY SITE WORK, ALL LIMITS OF WORK SHALL BE CLEARLY MARKED IN THE FIELD.
11. SITE WORK SHALL BE CONSTRUCTED FROM A COMPLETE SET OF PLANS, NOT ALL FEATURES ARE DETAILED ON EVERY PLAN. THE ENGINEER IS TO BE NOTIFIED OF ANY CONFLICT WITHIN THIS PLAN SET.
12. TFMORAN, INC. ASSUMES NO LIABILITY FOR WORK PERFORMED WITHOUT AN ACCEPTABLE PROGRAM OF TESTING AND INSPECTION AS APPROVED BY THE ENGINEER OF RECORD.
13. TEMPORARY FENCING SHALL BE PROVIDED AND COVERED WITH A FABRIC MATERIAL TO CONTROL DUST MITIGATION.
14. ALL DEMOLITION SHALL INSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKWAYS, AND ANY OTHER ADJACENT OPERATING FACILITIES. PRIOR WRITTEN PERMISSION FROM THE OWNER/DEVELOPER AND LOCAL PERMITTING AUTHORITY IS REQUIRED IF CLOSURE/OBSTRUCTIONS TO ROADS, STREET, WALKWAYS, AND OTHERS IS DEEMED NECESSARY. CONTRACTOR TO PROVIDE ALTERNATE ROUTES AROUND CLOSURES/OBSTRUCTIONS PER LOCAL/STATE/FEDERAL REGULATIONS.
15. REFER TO ARCHITECTURAL PLANS FOR LAYOUT OF BUILDING FOUNDATIONS AND CONCRETE ELEMENTS WHICH ABUT THE BUILDING SUCH AS STAIRS, SIDEWALKS, LOADING DOCK RAMPS, PADS, AND COMPACTOR PADS. DO NOT USE SITE PLANS FOR LAYOUT OF FOUNDATIONS.
16. IN THE EVENT OF A CONFLICT BETWEEN PLANS, SPECIFICATIONS, AND DETAILS, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY FOR CLARIFICATION.
17. IF CONDITIONS AT THE SITE ARE DIFFERENT THAN SHOWN ON THE PLANS, THE ENGINEER SHALL BE NOTIFIED PRIOR TO PROCEEDING WITH THE AFFECTED WORK.
18. CONTRACTOR'S GENERAL RESPONSIBILITIES:
    - A. BID AND PERFORM THE WORK IN ACCORDANCE WITH ALL LOCAL, STATE, AND NATIONAL CODES, SPECIFICATIONS, REGULATIONS, AND STANDARDS AND CONDITIONS OF ALL PROJECT-SPECIFIC PERMITS AND APPROVALS AS LISTED ON THE COVER SHEET TO THESE PLANS OR OTHERWISE REQUIRED.
    - B. NOTIFY ENGINEER IN WRITING OF ANY DISCREPANCIES OF PROPOSED LAYOUT AND/OR EXISTING FEATURES.
    - C. EMPLOY A LICENSED SURVEYOR TO DETERMINE ALL LINES AND GRADES AND LAYOUT OF SITE ELEMENTS AND BUILDINGS.
    - D. THE CONTRACTOR SHALL BE RESPONSIBLE TO BECOME FAMILIAR WITH THE SITE AND ALL SURROUNDING CONDITIONS. THE CONTRACTOR SHALL ADVISE THE APPROPRIATE AUTHORITY OF INTENTIONS AT LEAST 48 HOURS IN ADVANCE.
    - E. TAKE APPROPRIATE MEASURES TO REDUCE, TO THE FULLEST EXTENT POSSIBLE, NOISE, DUST, AND UNSIGHTLY DEBRIS. CONSTRUCTION ACTIVITIES SHALL BE CARRIED OUT BETWEEN THE HOURS IN ACCORDANCE WITH THE APPLICABLE MUNICIPAL ORDINANCES AND REGULATIONS OF THE CITY OF PORTSMOUTH.
    - F. MAINTAIN EMERGENCY ACCESS TO ALL AREAS AFFECTED BY WORK AT ALL TIMES.
    - G. IN ACCORDANCE WITH RSA 430:53 AND AGR 3800, THE CONTRACTOR SHALL NOT TRANSPORT INVASIVE SPECIES OFF THE PROPERTY, AND SHALL DISPOSE OF INVASIVE SPECIES ON-SITE IN A LEGAL MANNER.
    - H. COORDINATE WITH ALL UTILITY COMPANIES AND CONTACT DIGSAFE (811 OR 888-344-7233) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION.
    - I. PROTECT NEW AND EXISTING BURIED UTILITIES DURING INSTALLATION OF ALL SITE ELEMENTS. DAMAGED UTILITIES SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE OWNER.
    - J. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY TFMORAN, INC., DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS, OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF THE SURVEYOR OR ENGINEER HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE US OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND/OR LOCAL REGULATIONS.
    - K. WRITTEN DIMENSIONS HAVE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN CASE OF CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWING AND/OR SPECIFICATION, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY FOR CLARIFICATIONS.
    - L. VERIFY LAYOUT OF PROPOSED BUILDING FOUNDATIONS WITH ARCHITECT AND THAT PROPOSED FOUNDATION MEETS PROPERTY LINE AND WETLAND SETBACKS PRIOR TO COMMENCING ANY FOUNDATION CONSTRUCTION.
    - M. PROVIDE AN AS-BUILT PLAN AT THE COMPLETION OF THE PROJECT TO THE PLANNING DIRECTOR AND PER CITY REGULATIONS.
    - N. IF ANY DEVIATIONS FROM THE APPROVED PLANS AND SPECIFICATIONS HAVE BEEN MADE, THE SITE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS STAMPED BY A LICENSED SURVEYOR OR QUALIFIED ENGINEER ALONG WITH A LETTER STAMPED BY A QUALIFIED ENGINEER DESCRIBING ALL SUCH DEVIATIONS, AND BEAR ALL COSTS FOR PREPARING AND FILING ANY NEW PERMITS OR PERMIT AMENDMENTS THAT MAY BE REQUIRED.

GENERAL NOTES (CONTINUED)

18. CONTRACTOR'S GENERAL RESPONSIBILITIES (CONTINUED):
    - O. THIS PROJECT IS SUBJECT TO THE AOT PERMIT LISTED ON THE COVER SHEET. THE CONTRACTOR SHALL CONFORM TO ALL CONDITIONS OF THE PERMIT AND PROVIDE THE FOLLOWING DOCUMENTATION TO OWNER AND ENGINEER:
        1) ADVANCE WRITTEN NOTICE AT LEAST ONE WEEK PRIOR TO COMMENCING ANY WORK UNDER THE PERMIT.
        2) IF ANY UNDERGROUND DETENTION SYSTEMS, INFILTRATION SYSTEMS, OR FILTERING SYSTEMS WERE INSTALLED, FOR EACH SUCH SYSTEM:
            - A) REPRESENTATIVE PHOTOGRAPHS OF THE SYSTEM AFTER COMPLETION BUT PRIOR TO BACKFILLING; AND
            - B) A LETTER SIGNED BY A QUALIFIED ENGINEER WHO OBSERVED THE SYSTEM PRIOR TO BACKFILLING, THAT THE SYSTEM CONFORMS TO THE APPROVED PLANS AND SPECIFICATIONS.
        3) UPON COMPLETION OF CONSTRUCTION, WRITTEN CERTIFICATION THAT:
            - A) ALL WORK UNDER THE PERMIT HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.
            - B) IF ANY DEVIATIONS FROM THE APPROVED PLANS WERE MADE, WRITTEN DESCRIPTIONS AND AS-BUILT DRAWINGS OF ALL SUCH DEVIATIONS, STAMPED BY A QUALIFIED ENGINEER, SHALL BE PROVIDED.

GRADING & DRAINAGE NOTES

1. THE CONTRACTOR SHALL ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF NHDES ENV-WQ 1500 AS APPLICABLE.
2. THE CONTRACTOR SHALL PREPARE, MAINTAIN, AND EXECUTE A S.W.P.P.P. IN ACCORDANCE WITH EPA REGULATIONS AND THE CONSTRUCTION GENERAL PERMIT.
3. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER TO SUBMIT AN eNOI AT LEAST 14 DAYS IN ADVANCE OF ANY EARTHWORK ACTIVITIES AT THE SITE.
4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CHECK THE ACCURACY OF THE TOPOGRAPHY AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO ANY EARTHWORK BEING PERFORMED ON THE SITE. NO CLAIM FOR EXTRA WORK WILL BE CONSIDERED FOR PAYMENT AFTER EARTHWORK HAS COMMENCED.
5. THE CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT FOR INFORMATION ABOUT SOIL AND GROUNDWATER CONDITIONS. THE CONTRACTOR SHALL FOLLOW THE GEOTECHNICAL ENGINEER'S RECOMMENDED METHODS TO ADDRESS ANY SOIL AND GROUNDWATER ISSUES THAT ARE FOUND ON SITE, INCLUDING AND NOT LIMITED TO DEWATERING METHODS, PERIMETER DRAINS AND TIE INTO STORMWATER MANAGEMENT SYSTEM, ETC.
6. COORDINATE WITH GEOTECHNICAL/STRUCTURAL PLANS FOR SITE PREPARATION AND OTHER BUILDING INFORMATION.
7. COORDINATE WITH ARCHITECTURAL PLANS FOR DETAILED GRADING AT BUILDING, AND SIZE AND LOCATION OF ALL BUILDING SERVICES.
8. COORDINATE WITH MECHANICAL AND PLUMBING PLANS FOR ROOF DRAIN INFORMATION.
9. LIMITS OF WORK ARE SHOWN AS APPROXIMATE. THE CONTRACTOR SHALL COORDINATE ALL WORK TO PROVIDE SMOOTH TRANSITIONS. THIS INCLUDES GRADING, PAVEMENT, CURBING, SIDEWALKS, AND ALIGNMENTS.
10. THE CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCE, RAMPS, AND LOADING AREAS.
11. THE SITE SHALL BE GRADED SO ALL FINISHED PAVEMENT HAS POSITIVE DRAINAGE AND SHALL NOT POND WATER DEEPER THAN 1/4" FOR A PERIOD OF MORE THAN 15 MINUTES AFTER FLOODING.
12. ALL ELEVATIONS SHOWN AT CURB ARE TO THE BOTTOM OF CURB UNLESS OTHERWISE NOTED. CURBS HAVE A 6" REVEAL UNLESS OTHERWISE NOTED.
13. ALL SIDEWALK AND OTHER CURB REVEALS SHALL BE 6" WITH A TOLERANCE OF PLUS OR MINUS 3/8". WHERE SIDEWALK IS TO BE FLUSH, THE PAVEMENT REVEAL SHALL BE 1/4" WITH A TOLERANCE OF 1/8".
14. THE FINISHED GRADE AT BOTTOM OF ALL ACCESSIBLE RAMPS SHALL BE FLUSH WITH PAVEMENT WITH A TOLERANCE OF PLUS OR MINUS 1/4".
15. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE PRIOR TO INSTALLATION OF FINISHED PAVEMENT.
16. ROAD AND DRAINAGE CONSTRUCTION SHALL CONFORM TO THE TYPICAL SECTIONS AND DETAILS SHOWN ON THE PLANS AND SHALL MEET LOCAL STANDARDS AND THE REQUIREMENTS OF THE LATEST NHDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGE CONSTRUCTION AND THE NHDOT STANDARD STRUCTURE DRAWINGS UNLESS OTHERWISE NOTED.
17. STORMWATER DRAINAGE SYSTEM SHALL BE CONSTRUCTED TO LINE AND GRADE AS SHOWN ON THE PLANS. CONSTRUCTION METHODS SHALL CONFORM TO NHDOT STANDARD SPECIFICATIONS, SECTION 603. CATCH BASINS AND DRAIN MANHOLES SHALL CONFORM TO SECTION 604. ALL CATCH BASIN GRATES SHALL BE TYPE B AND CONFORM TO NHDOT STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE NOTED.
18. NO FILL SHALL BE PLACED IN ANY WETLAND AREA.
19. ALL EXCAVATIONS SHALL BE THOROUGHLY SECURED ON A DAILY BASIS BY THE CONTRACTOR AT THE COMPLETION OF CONSTRUCTION OPERATIONS IN THE IMMEDIATE AREA.
20. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED, FERTILIZER, AND MULCH.
21. DENSITY REQUIREMENTS:

MINIMUM DENSITY*	LOCATION
95%	BELOW PAVED OR CONCRETE AREAS
95%	TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL
90%	BELOW LOAM AND SEED AREAS

*ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557, METHOD C. FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM D-1556 OR ASTM D-6938.

UTILITY NOTES

1. LENGTH OF PIPE IS FOR CONVENIENCE ONLY. ACTUAL PIPE LENGTH SHALL BE DETERMINED IN THE FIELD.
2. ALL PROPOSED UTILITY WORK, INCLUDING MATERIAL, INSTALLATION, TERMINATION, EXCAVATION, BEDDING, BACKFILL, COMPACTION, TESTING, CONNECTIONS, AND CONSTRUCTION SHALL BE COORDINATED WITH AND COMPLETED IN ACCORDANCE WITH THE APPROPRIATE REQUIREMENTS, CODES, AND STANDARDS OF ALL CORRESPONDING UTILITY ENTITIES AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND DETERMINING THE LOCATION, SIZE, AND ELEVATION OF ALL EXISTING UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS, PRIOR TO THE START OF ANY CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION BE AGREED TO BY THE ENGINEER BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT "DIGSAFE" (811) AT LEAST 72 HOURS BEFORE DIGGING.
4. COORDINATE ALL WORK ADJACENT TO PROPOSED BUILDINGS WITH ARCHITECTURAL BUILDING DRAWINGS. CONFIRM UTILITY PENETRATIONS AND INVERT ELEVATIONS ARE COORDINATED PRIOR TO INSTALLATION.
5. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES OWNING UTILITIES, EITHER OVERHEAD OR UNDERGROUND, WITHIN THE CONSTRUCTION AREA AND SHALL COORDINATE AS NECESSARY WITH THE UTILITY COMPANIES OF SAID UTILITIES. THE PROTECTION OR RELOCATION OF UTILITIES IS ULTIMATELY THE RESPONSIBILITY OF THE CONTRACTOR.
6. THE EXACT LOCATION OF NEW UTILITY CONNECTIONS SHALL BE DETERMINED BY THE CONTRACTOR IN COORDINATION WITH UTILITY COMPANY, COUNTY AGENCY, AND/OR PRIVATE UTILITY COMPANY.
7. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES, AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER THE UTILITY INSTALLATION COMPLETE AND OPERATIONAL.
8. ALL UTILITY COMPANIES REQUIRE INDIVIDUAL CONDUITS. CONTRACTOR TO COORDINATE WITH TELEPHONE, CABLE, AND ELECTRIC COMPANIES REGARDING NUMBER, SIZE, AND TYPE OF CONDUITS REQUIRED PRIOR TO INSTALLATION OF ANY CONDUIT.
9. SANITARY SEWER SHALL BE CONSTRUCTED TO THE STANDARDS AND SPECIFICATIONS AS SHOWN ON THESE PLANS. ALL SEWER MAINS AND FITTINGS SHALL BE PVC AND SHALL CONFORM TO ASTM F 679 (SDR 35 MINIMUM). FORCE MAINS AND FITTINGS SHALL CONFORM TO NH CODE OF ADMINISTRATIVE RULES ENV-WQ 700. ALL SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH NH CODE OF ADMINISTRATIVE RULES ENV-WQ 700. SANITARY MANHOLES SHALL CONFORM TO NHDES WATER DIVISION WASTEWATER ENGINEERING BUREAU STANDARDS AND SPECIFICATIONS SHOWN HEREON.
10. ON-SITE WATER DISTRIBUTION SHALL BE TO CITY OF PORTSMOUTH STANDARDS AND SPECIFICATIONS. WATER MAINS SHALL HAVE A MINIMUM OF 5.5' COVER. WHERE WATER PIPES CROSS SEWER LINES A MINIMUM OF 18" VERTICAL SEPARATION BETWEEN THE TWO OUTSIDE PIPE WALLS SHALL BE OBSERVED. HORIZONTAL SEPARATION BETWEEN WATER AND SEWER SHALL BE 10' MINIMUM. WHERE A SANITARY LINE CROSSES A WATER LINE, SEWER LINE MUST BE CONSTRUCTED OF FORCE MAIN MATERIALS (PER ENV-WQ 704.08) FROM BUILDING OR MANHOLE TO MANHOLE, OR SUBSTITUTE RUBBER-GASKETED PRESSURE PIPE FOR THE SAME DISTANCE. WHEN SANITARY LINES PASS BELOW WATER LINES, LAY PIPE SO THAT NO JOINT IN THE SANITARY LINE WILL BE CLOSER THAN 6' HORIZONTALLY TO THE WATER LINE.
11. THRUST BLOCKS SHALL BE PROVIDED AT ALL LOCATIONS WHERE WATER LINE CHANGES DIRECTIONS OR CONNECTS TO ANOTHER WATER LINE.
12. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR CONDUIT AND WIRING TO ALL SIGNS AND LIGHTS. CONDUIT TO BE A MINIMUM OF 24" BELOW FINISH GRADE.
13. ALL PROPOSED UTILITIES SHALL BE UNDERGROUND. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES.
14. THE CONTRACTOR SHALL ARRANGE AND PAY FOR ALL INSPECTIONS, TESTING, AND RELATED SERVICES AND SUBMIT COPIES OF ACCEPTANCE TO THE OWNER, UNLESS OTHERWISE INDICATED.
15. PROVIDE PERMANENT PAVEMENT REPAIR FOR ALL UTILITY TRENCHES IN EXISTING ROAD OR PAVEMENT TO REMAIN. SAW CUT TRENCH, PAVEMENT, AND GRANULAR BASE THICKNESS TO MATCH EXISTING PAVEMENT. OBTAIN ALL PERMITS REQUIRED FOR TRENCHING.
16. UNLESS OTHERWISE SPECIFIED, ALL UNDERGROUND STRUCTURES, PIPES, CHAMBERS, ETC. SHALL BE COVERED WITH A MINIMUM OF 18" OF COMPACTED SOIL BEFORE EXPOSURE TO VEHICLE LOADS.
17. THE PROPERTY WILL BE SERVICED BY THE FOLLOWING:

DRAINAGE	PRIVATE
SEWER	MUNICIPAL
WATER	MUNICIPAL
GAS	UNITIL
ELECTRIC	EVERSOURCE
TELEPHONE	COMCAST, CONSOLIDATED COMMUNICATIONS, ETC.
CABLE	COMCAST

DIG SAFE — IT'S THE LAW! — CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE — HANNAH E. GIOVANNUCCI No.15699 — LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	DR	CK
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

NOTES & LEGEND

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: NTS **SEPTEMBER 29, 2021**

Seacoast Division
TFM ©
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431-2222
Fax (603) 431-0910
www.tfmoran.com

FILE	DR	HEG	FB	–	
47099.01	CK	JCC	CADFILE	47099-01_NOTES-LEGEND_MAIN	C-01

LEGEND:

BK.PG.	BOOK/PAGE
ELEV.	ELEVATION
EP	EDGE OF PAVEMENT
FF	FINISHED FLOOR
NET	NEW ENGLAND TELEPHONE
PSNH	PUBLIC SERVICE COMPANY OF NEW ENGLAND
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.F.	SQUARE FEET
SL	SEPTIC LINE
UGU	UNDERGROUND UTILITIES
TBM	TEMPORARY BENCH MARK
TL	TIE LINE
444C	SOILS TYPE
	TREE LINE
OHU	OVERHEAD UTILITIES
18	EXISTING CONTOUR
	LIMIT OF SALT MARSH
UGU	UNDERGROUND UTILITIES
W	WATER LINE
	WOOD FENCE
	HIGHEST OBSERVABLE TIDE LINE
	HIGH WATER
	FLOOD ZONE LINE
	TIDAL BUFFER
	SOILS LINE
	UTILITY POLE
	DECIDUOUS TREE
	CONIFEROUS TREE
T	TRANSFORMER
	TELEPHONE PEDESTAL
E	ELECTRIC METER
EB	ELECTRIC BOX
	GUY POLE/WIRE
	WATER SHUT OFF
TP-1	TEST PIT
I-8	INFILTRATION TEST
	BRICK WALK
	PAVEMENT
	EASEMENT
	SALT MARSH

NOTES

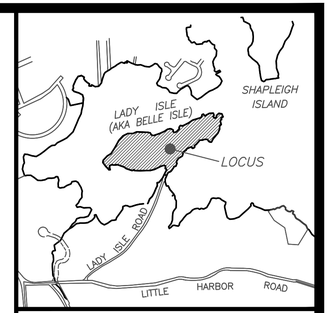
1. THE PARCEL IS LOCATED IN THE RURAL (R) ZONING DISTRICT.
2. THE PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 205 AS LOT 2.
3. THE PARCEL IS LOCATED IN FLOOD HAZARD ZONE AE (EL.8) AND ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), AS SHOWN ON NATIONAL FLOOD INSURANCE PROGRAM (NFIP) FLOOD INSURANCE RATE MAP (FIRM), ROCKINGHAM COUNTY, NEW HAMPSHIRE, PANEL 278, VERSION NUMBER 2.3.2.1 MAP NUMBER 33015C0278F, MAP REVISED: JANUARY 29, 2021.
   FLOOD ZONES DEPICTED ON THIS PLAN ESTABLISHED BY ELEVATION. THE DATUM IS NAVD88 BASED ON STATIC GPS OBSERVATIONS.
4. OWNER OF RECORD:
   THE ADL 325 LITTLE HARBOR ROAD TRUST
   STEPHEN H. ROBERTS ESQ., TRUSTEE
   127 PARROTT AVENUE
   PORTSMOUTH, NH 03801
   RCRD BK.5959 PG.1244
5. ZONING REQUIREMENTS:

MINIMUM LOT AREA:	5 ACRES (PER DWELLING UNIT)
MINIMUM STREET FRONTAGE:	N/A
DEPTH:	N/A
MINIMUM YARD SETBACKS:	
FRONT:	50 FEET
SIDE:	20 FEET
REAR:	40 FEET
MAXIMUM STRUCTURE HEIGHT:	35 FEET
MAXIMUM BUILDING COVERAGE:	5%
MINIMUM OPEN SPACE:	75%

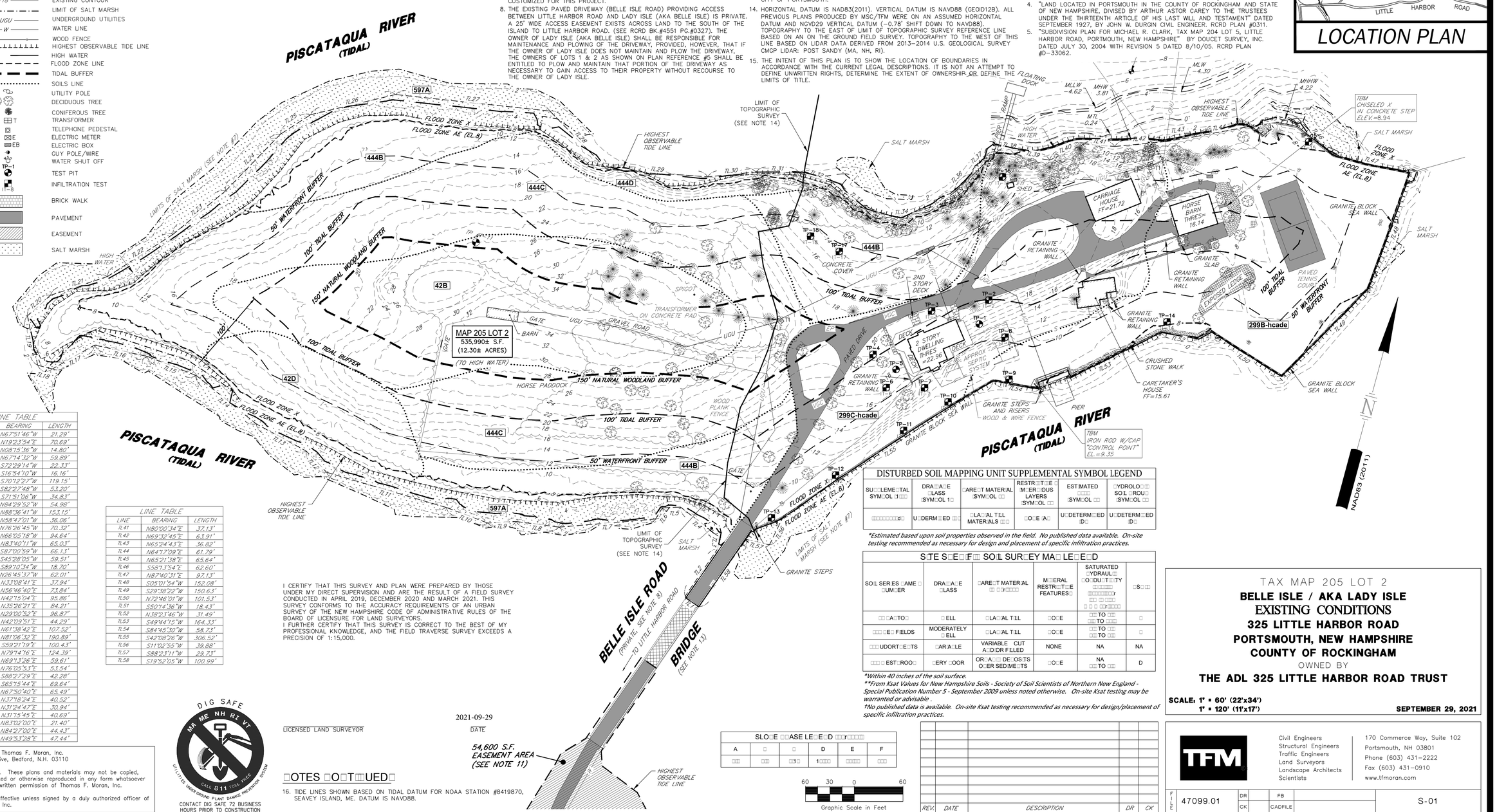
6. TOTAL PARCEL AREA:
   538,229± S.F.
   (12.36± ACRES)
7. HIGHEST OBSERVABLE TIDE LINE (HOTL) AND SALT MARSH WERE DELINEATED BY MARC JACOBS, CERTIFIED WETLAND SCIENTIST 090, ON MAY 24, 2019. SALT MARSH WAS DELINEATED BASED UPON THE EXTENT OF ROOTED EMERGENT SALT-TOLERANT VEGETATION OBSERVED DURING LOW TIDE. HOTL WAS DELINEATED BASED UPON THE CODE OF ADMINISTRATIVE RULES, NH DEPARTMENT OF ENVIRONMENTAL SERVICES – WETLANDS BUREAU – ENV WT 100-900, ESPECIALLY ENV-WT 101.49. COPIES OF SITE PLANS WHICH DEPICT THE DELINEATION THAT HAVE BEEN REVIEWED BY THE WETLAND SCIENTIST ARE INDIVIDUALLY STAMPED, SIGNED AND DATED. THIS NOTE HAS BEEN CUSTOMIZED FOR THIS PROJECT.
8. THE EXISTING PAVED DRIVEWAY (BELLE ISLE ROAD) PROVIDING ACCESS BETWEEN LITTLE HARBOR ROAD AND LADY ISLE (AKA BELLE ISLE) IS PRIVATE. A 25' WIDE ACCESS EASEMENT EXISTS ACROSS LAND TO THE SOUTH OF THE ISLAND TO LITTLE HARBOR ROAD. (SEE RCRD BK.#4551 PG.#0327). THE OWNER OF LADY ISLE (AKA BELLE ISLE) SHALL BE RESPONSIBLE FOR MAINTENANCE AND PLOWING OF THE DRIVEWAY, PROVIDED, HOWEVER, THAT IF THE OWNER OF LADY ISLE DOES NOT MAINTAIN AND PLOW THE DRIVEWAY, THE OWNERS OF LOTS 1 & 2 AS SHOWN ON PLAN REFERENCE #5 SHALL BE ENTITLED TO PLOW AND MAINTAIN THAT PORTION OF THE DRIVEWAY AS NECESSARY TO GAIN ACCESS TO THEIR PROPERTY WITHOUT RECOURSE TO THE OWNER OF LADY ISLE.
9. THE CONTRACTOR SHALL CONTACT "DIG SAFE" 72 HOURS PRIOR TO COMMENCING CONSTRUCTION. CALL 1-888-344-7233.
   THE BEST AVAILABLE INFORMATION WAS USED TO DETERMINE THE LOCATION, SIZE AND ELEVATION OF EXISTING UTILITIES. THE EXACT SIZE AND LOCATION OF UTILITIES SHALL BE CONFIRMED IN THE FIELD BY THE CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION. IT IS ALSO THE CONTRACTOR'S RESPONSIBILITY TO ANTICIPATE CONFLICTS AND REPAIR EXISTING UTILITIES AS NECESSARY TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL COORDINATE TERMINATION OF ALL UTILITIES WITH THE APPROPRIATE UTILITY COMPANY.
10. ALL USES AND CONSTRUCTION SHALL COMPLY WITH RSA 483-B, THE SHORELAND WATER QUALITY PROTECTION ACT (SWQPA). REFERENCE IS ALSO MADE TO ARTICLE 10 SECTION 10.1016 OF THE PORTSMOUTH ZONING ORDINANCE WHICH SPECIFIES THE PERMITTED USES IN THE 100' TIDAL BUFFER SHOWN HEREON.
11. THE CURRENT AND FUTURE OWNERS OF LADY ISLE HAVE THE BENEFIT OF A 54,600 S.F. "EASEMENT AREA" AS SHOWN ON PLAN REFERENCE #5 AND DESCRIBED IN RCRD BK.#4551 PG.#0327. THE EASEMENT AREA IS LOCATED TO THE SOUTH OF THE EXISTING BRIDGE.
12. PARCEL IS ON TOWN WATER. THE CURRENT AND FUTURE OWNERS OF LADY ISLE HAVE THE BENEFIT OF A PERMANENT EASEMENT FOR THE INSTALLATION, OPERATION, MAINTENANCE, REPAIR AND REPLACEMENT OF THE EXISTING WATER LINE RUNNING FROM LITTLE HARBOR ROAD TO AND ALONG THE 25' WIDE ACCESS EASEMENT SHOWN ON PLAN REFERENCE #5. SEE RCRD BK.#4551 PG.#0327.
13. SEE PRIVATE ROADWAY & BRIDGE MAINTENANCE AGREEMENT ON FILE WITH THE CITY OF PORTSMOUTH.
14. HORIZONTAL DATUM IS NAD83(2011). VERTICAL DATUM IS NAVD88 (GEOID12B). ALL PREVIOUS PLANS PRODUCED BY MSC/TFM WERE ON AN ASSUMED HORIZONTAL DATUM AND NGVD29 VERTICAL DATUM (-0.78' SHIFT DOWN TO NAVD88). TOPOGRAPHY TO THE EAST OF LIMIT OF TOPOGRAPHIC SURVEY REFERENCE LINE BASED ON AN ON THE GROUND FIELD SURVEY. TOPOGRAPHY TO THE WEST OF THIS LINE BASED ON LIDAR DATA DERIVED FROM 2013-2014 U.S. GEOLOGICAL SURVEY CMGP LIDAR: POST SANDY (MA, NH, RI).
15. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH THE CURRENT LEGAL DESCRIPTIONS. IT IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP OR DEFINE THE LIMITS OF TITLE.
16. THE PURPOSE OF THIS PLAN IS TO SHOW THE BOUNDARY LINES, TOPOGRAPHY AND CURRENT SITE FEATURES OF MAP 205 LOT 2.
17. EXISTING USE OF THE PROPERTY IS RESIDENTIAL.
18. FIELD SURVEY COMPLETED BY TCE IN APRIL 2019 USING A TOPCON DS103 AND TOPCON FC5000 DATA COLLECTOR AND UPDATED IN DECEMBER 2020 AND MARCH 2021 USING A LEICA TS-16 AND CARLSON RT-4 DATA COLLECTOR.
19. EASEMENTS, RIGHTS, AND RESTRICTIONS SHOWN OR IDENTIFIED ARE THOSE WHICH WERE FOUND DURING RESEARCH PERFORMED AT THE ROCKINGHAM COUNTY REGISTRY OF DEEDS. OTHER RIGHTS, EASEMENTS, OR RESTRICTIONS MAY EXIST WHICH A TITLE EXAMINATION OF SUBJECT PARCEL(S) WOULD DETERMINE.

PLAN REFERENCES

1. "BOUNDARY PLAN FOR BELLE ISLE PARTNERS TRUST, LITTLE HARBOR ROAD/BELLE ISLE, COUNTY OF ROCKINGHAM, PORTSMOUTH, NH." DATED MARCH 30, 1995, BY RICHARD P. MILLETTE & ASSOCIATES.
2. "SUBDIVISION OF LAND FOR J.P. GRIFFIN, OFF LITTLE HARBOR ROAD COUNTY OF ROCKINGHAM, PORTSMOUTH, NH" DATED NOVEMBER 1980, BY RICHARD P. MILLETTE & ASSOCIATES. RCRD PLAN #D-10554.
3. "PLAN OF A LOT OF LAND BELONGING TO WM. H. & ADELAIDE E. KEEPERS, PORTSMOUTH, NH" BY A.C. HOYT SURVEYOR. RCRD PLAN #0674.
4. "LAND LOCATED IN PORTSMOUTH IN THE COUNTY OF ROCKINGHAM AND STATE OF NEW HAMPSHIRE, DIVISED BY ARTHUR ASTOR CAREY TO THE TRUSTEES UNDER THE THIRTEENTH ARTICLE OF HIS LAST WILL AND TESTAMENT" DATED SEPTEMBER 1927, BY JOHN W. DURGIN CIVIL ENGINEER. RCRD PLAN #0311.
5. "SUBDIVISION PLAN FOR MICHAEL R. CLARK, TAX MAP 204 LOT 5, LITTLE HARBOR ROAD, PORTMOUTH, NEW HAMPSHIRE" BY DOUCET SURVEY, INC. DATED JULY 30, 2004 WITH REVISION 5 DATED 8/10/05. RCRD PLAN #D-33062.



LOCATION PLAN



LINE TABLE		
LINE	BEARING	LENGTH
TL1	N67°51'46"W	21.29'
TL2	N19°23'54"E	70.69'
TL3	N08°15'36"W	14.80'
TL4	N67°14'32"W	59.89'
TL5	S72°29'14"W	22.33'
TL6	S16°54'10"W	16.16'
TL7	S70°12'22"W	119.16'
TL8	S82°27'48"W	53.20'
TL9	S71°51'06"W	34.83'
TL10	N84°29'52"W	54.98'
TL11	N88°36'41"W	153.15'
TL12	N58°47'01"W	36.06'
TL13	N76°26'45"W	70.32'
TL14	N66°05'18"W	94.64'
TL15	N83°40'11"W	65.03'
TL16	S87°10'59"W	66.13'
TL17	S45°28'05"W	59.51'
TL18	S89°10'34"W	18.70'
TL19	N26°45'37"W	62.01'
TL20	N33°08'41"E	37.94'
TL21	N56°46'40"E	73.84'
TL22	N42°15'04"E	95.86'
TL23	N35°26'21"E	84.21'
TL24	N29°00'52"E	96.87'
TL25	N42°09'51"E	44.29'
TL26	N61°38'42"E	107.52'
TL27	N81°06'32"E	190.89'
TL28	S59°21'19"E	100.43'
TL29	N79°14'16"E	124.39'
TL30	N69°13'26"E	59.61'
TL31	N76°05'53"E	51.54'
TL32	S88°27'29"E	42.28'
TL33	S65°15'44"E	69.64'
TL34	N67°50'40"E	65.49'
TL35	N37°18'24"E	40.52'
TL36	N31°24'47"E	30.94'
TL37	N31°15'45"E	40.69'
TL38	N83°02'20"E	21.40'
TL39	N84°27'00"E	44.43'
TL40	N49°53'28"E	47.44'

LINE TABLE		
LINE	BEARING	LENGTH
TL41	N80°00'34"E	37.13'
TL42	N69°32'45"E	63.91'
TL43	N65°24'43"E	36.82'
TL44	N64°17'09"E	61.79'
TL45	N65°21'38"E	65.64'
TL46	S58°13'54"E	62.60'
TL47	N87°40'31"E	97.13'
TL48	S05°01'54"W	152.08'
TL49	S29°38'22"W	150.63'
TL50	N72°46'01"W	101.53'
TL51	S50°14'56"W	18.43'
TL52	N38°23'46"W	31.49'
TL53	S49°44'15"W	164.33'
TL54	S84°45'30"W	58.73'
TL55	S42°08'26"W	306.52'
TL56	S11°02'55"W	39.88'
TL57	S88°23'11"W	29.73'
TL58	S19°52'05"W	100.99'

I CERTIFY THAT THIS SURVEY AND PLAN WERE PREPARED BY THOSE UNDER MY DIRECT SUPERVISION AND ARE THE RESULT OF A FIELD SURVEY CONDUCTED IN APRIL 2019, DECEMBER 2020 AND MARCH 2021. THIS SURVEY CONFORMS TO THE ACCURACY REQUIREMENTS OF A URBAN SURVEY OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS.
I FURTHER CERTIFY THAT THIS SURVEY IS CORRECT TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, AND THE FIELD TRAVERSE SURVEY EXCEEDS A PRECISION OF 1:15,000.

LICENSED LAND SURVEYOR

2021-09-29
DATE

NOTES CONTINUED

16. TIDE LINES SHOWN BASED ON TIDAL DATUM FOR NOAA STATION #8419870, SEAVEY ISLAND, ME. DATUM IS NAVD88.

DIG SAFE
NH ME RI VT
811 TOLL FREE
CALL 811 TOLL FREE
UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

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DISTURBED SOIL MAPPING UNIT SUPPLEMENTAL SYMBOL LEGEND

SU□□LEME□TAL SYM□OL □□□	DRA□A□E □LASS SYM□OL 1□	□ARE□T MATER□AL SYM□OL □□	RESTR□T□E □ M□ER□OUS LAYERS SYM□OL □□	EST□MATED □□□□ SYM□OL □□	□YDROLO□□ SO□L □ROU□ SYM□OL □□
□□□□□□□□d□	U□DERM□ED □□□	□LA□□AL T□L MATER□ALS □□□	□O□E □A□	U□DETERM□ED □D□	U□DETERM□ED □D□

**Estimated based upon soil properties observed in the field. No published data available. On-site testing recommended as necessary for design and placement of specific infiltration practices.*

S□TE S□E□F□ SO□L SUR□EY MA□ LE□E□D

SO□L SER□ES □AME □ □UM□ER	DRA□A□E □LASS	□ARE□T MATER□AL □□ □r□□□□	M□ERAL RESTR□T□E FEATURES□	SATURATED □YDRAUL□□ □O□DU□T□□TY □□□□□□□ □□□□□□□□r □□ □□ □□□ □ □ □ □□r□□□	□S□□
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**Within 40 inches of the soil surface.*
***From Ksat Values for New Hampshire Soils - Society of Soil Scientists of Northern New England - Special Publication Number 5 - September 2009 unless noted otherwise. On-site Ksat testing may be warranted or advisable .*
†No published data is available. On-site Ksat testing recommended as necessary for design/placement of specific infiltration practices.

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60 30 0 60
Graphic Scale in Feet

REV.	DATE	DESCRIPTION	DR	CK

TAX MAP 205 LOT 2
BELLE ISLE / AKA LADY ISLE
EXISTING CONDITIONS
325 LITTLE HARBOR ROAD
PORTSMOUTH, NEW HAMPSHIRE
COUNTY OF ROCKINGHAM
OWNED BY
THE ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: 1" = 60' (22'x34')
1" = 120' (11'x17')
SEPTEMBER 29, 2021

TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431-2222
Fax (603) 431-0910
www.tfmoran.com

FILE	47099.01	DR		FB		S-01
		CK		CADFILE		

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F:\MS□ □r□□□□□□□□□□□□\L□□□ □□r Rd □ □□□r Rd □□□ □□□□□□□□□□□□\1 □DL□r□□□ □□□L□□□ □□r Rd □□□ S□r□D □□□□□□□□□□□□\1 □E□□□□□□□□□□□□\F□□□r□□□□d

NOTES

1. SEE NOTES ON SHEET C-01.

LEGEND

- HIGHEST OBSERVABLE TIDE LINE (HOT)
- 100' TIDAL WETLAND BUFFER BOUNDARY
- TIDAL WETLAND BUFFER AREA
- TIDAL WETLAND BUFFER IMPACT AREA
- LIMIT OF ALTERATION
- IMPERVIOUS SURFACE
- PERVIOUS PAVERS
- GRAVEL SURFACE

EXISTING IMPERVIOUS AREA	TIDAL WETLAND BUFFER	TOTAL UPLAND AREA
TOTAL IMPERVIOUS AREA	24,060 SF (7.2%)	40,680 SF (8.1%)
TOTAL PERMEABLE AREA	1,381 SF (0.4%)	8,029 SF (2.4%)

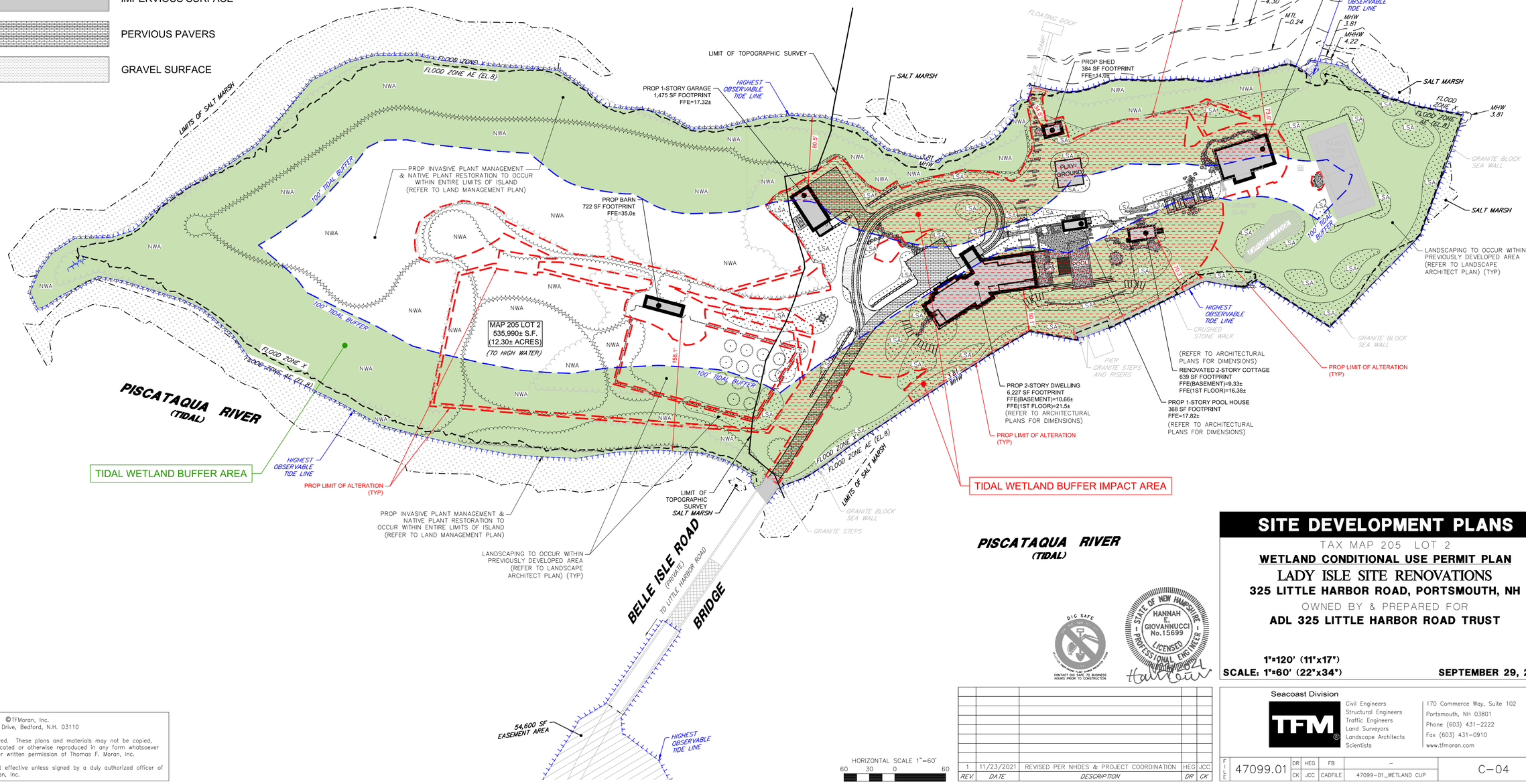
EXISTING VEGETATED AREA	TIDAL WETLAND BUFFER	TOTAL UPLAND AREA
TOTAL GRASS/LANDSCAPE AREA	176,573 SF (52.7%)	247,049 SF (73.8%)
TOTAL NATURAL WOODLAND AREA	132,911 SF (39.7%)	209,400 SF (62.5%)

TOTAL AREA	TIDAL WETLAND BUFFER	TOTAL UPLAND AREA
TOTAL AREA	334,925 SF	505,158 SF

PROPOSED IMPERVIOUS AREA	TIDAL WETLAND BUFFER	TOTAL UPLAND AREA
TOTAL IMPERVIOUS AREA	22,809 SF (6.8%)	31,965 SF (6.3%)
TOTAL PERMEABLE AREA	8,168 SF (2.4%)	13,433 SF (2.7%)

PROPOSED VEGETATED AREA	TIDAL WETLAND BUFFER	TOTAL UPLAND AREA
TOTAL GRASS AREA	103,070 SF (30.8%)	162,697 SF (32.2%)
TOTAL LANDSCAPE AREA	42,916 SF (12.8%)	56,195 SF (11.1%)
TOTAL NATURAL WOODLAND AREA	157,962 SF (47.2%)	240,868 SF (47.7%)

PROPOSED IMPACT AREA	TIDAL WETLAND BUFFER	TOTAL UPLAND AREA
TOTAL IMPACT AREA	86,085 SF (25.7%)	145,007 SF (28.7%)



HORIZONTAL SCALE 1"=60'
60 30 0 60

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

WETLAND CONDITIONAL USE PERMIT PLAN

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

1"=120' (11"x17")

SCALE: 1"=60' (22"x34") **SEPTEMBER 29, 2021**

DIG SAFE — CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE — HANNAH E. GIOVANNUCCI No.15699 — LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	DR	CK
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

Seacoast Division

TFM

Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
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170 Commerce Way, Suite 102
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www.tfmoran.com

FILE		DR	HEG	FB	–	
	47099.01	CK	JCC	CADFILE	47099-01_WETLAND CUP	C-04

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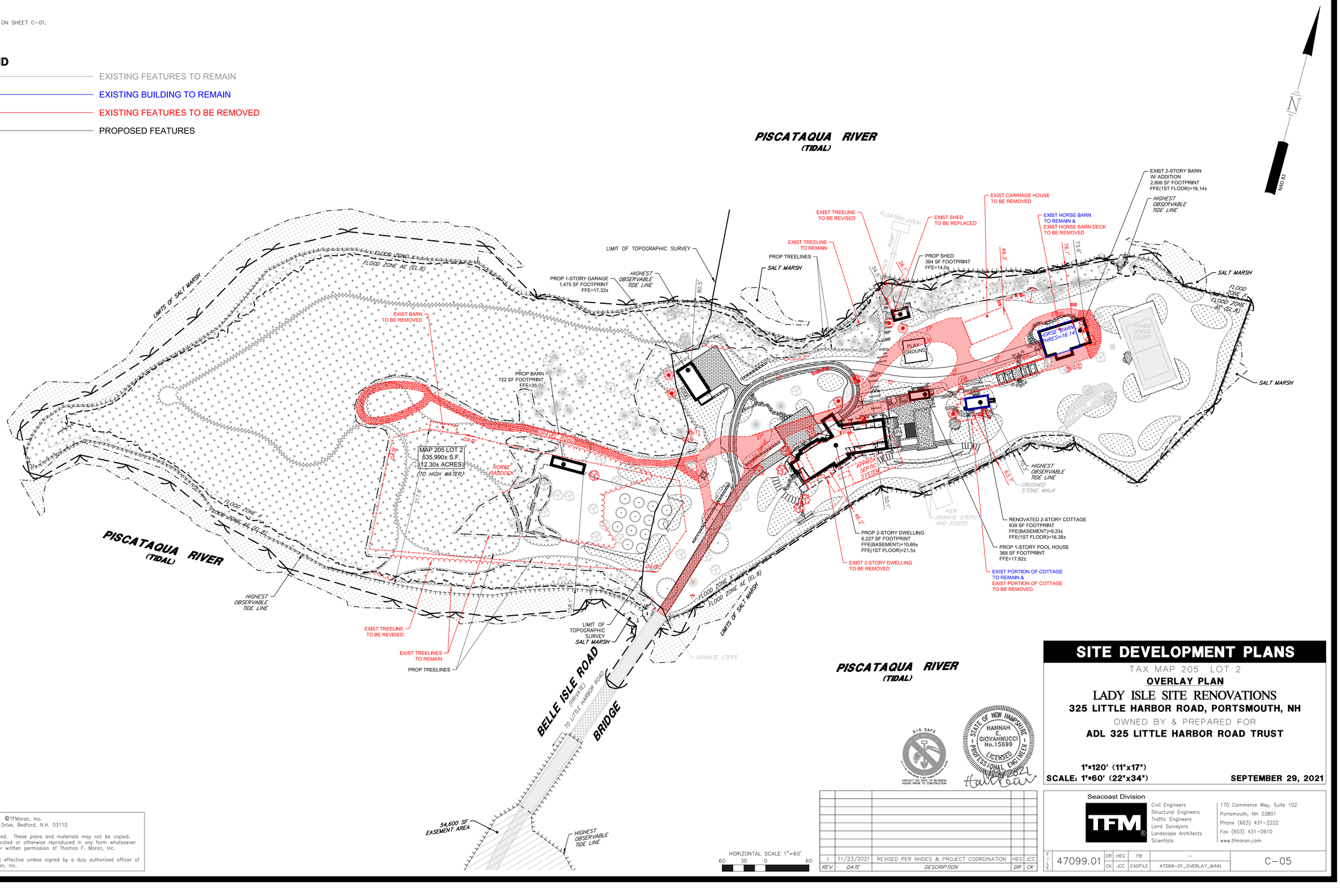
NOTES

1. SEE NOTES ON SHEET C-01.

LEGEND

- EXISTING FEATURES TO REMAIN
- EXISTING BUILDING TO REMAIN
- EXISTING FEATURES TO BE REMOVED
- PROPOSED FEATURES



HORIZONTAL SCALE 1"=60'
60 30 0 60

REV.	DATE	DESCRIPTION	DR	CK
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANINUCCI
No. 15699
LICENSED PROFESSIONAL ENGINEER

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

OVERLAY PLAN

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

1"=120' (11"x17")
SCALE: 1"=60' (22"x34")

SEPTEMBER 29, 2021

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FILE	DR	HEG	FB	–	
47099.01	CK	JCC	CADFILE	47099-01_OVERLAY_MAIN	C-05

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CONSTRUCTION SEQUENCE NOTES

TO MINIMIZE EROSION AND SEDIMENTATION DUE TO CONSTRUCTION, CONSTRUCTION SHALL FOLLOW THIS GENERAL CONSTRUCTION SEQUENCE.

MODIFICATIONS TO THE SEQUENCE NECESSARY DUE TO THE CONTRACTOR'S SCHEDULE SHALL INCLUDE APPROPRIATE TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL MEASURES.

THE CONTRACTOR SHALL SCHEDULE WORK SUCH THAT ANY CONSTRUCTION AREA IS STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE EXCEPT AS NOTED BELOW. NO MORE THAN 5 ACRES OF DISTURBED LAND SHALL BE UNSTABILIZED AT ANY ONE TIME.

THE PROJECT SHALL BE MANAGED SO THAT IT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER ARC 3800 RELATIVE TO INVASIVE SPECIES.

DO NOT TRAFFIC EXPOSED SOIL SURFACE OF INFILTRATION SYSTEMS WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.

DO NOT DISCHARGE SEDIMENT–LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF, WATER FROM EXCAVATIONS) TO STORMWATER BMP'S. STORMWATER RUNOFF MUST BE DIRECTED TO TEMPORARY PRACTICES UNTIL STORMWATER BMP'S ARE STABILIZED.

DO NOT PLACE STORMWATER BMP'S INTO SERVICE UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.

AFTER THE INFILTRATION SYSTEM IS EXCAVATED TO THE FINAL DESIGN ELEVATION, THE FLOOR SHOULD BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW TO RESTORE THE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.

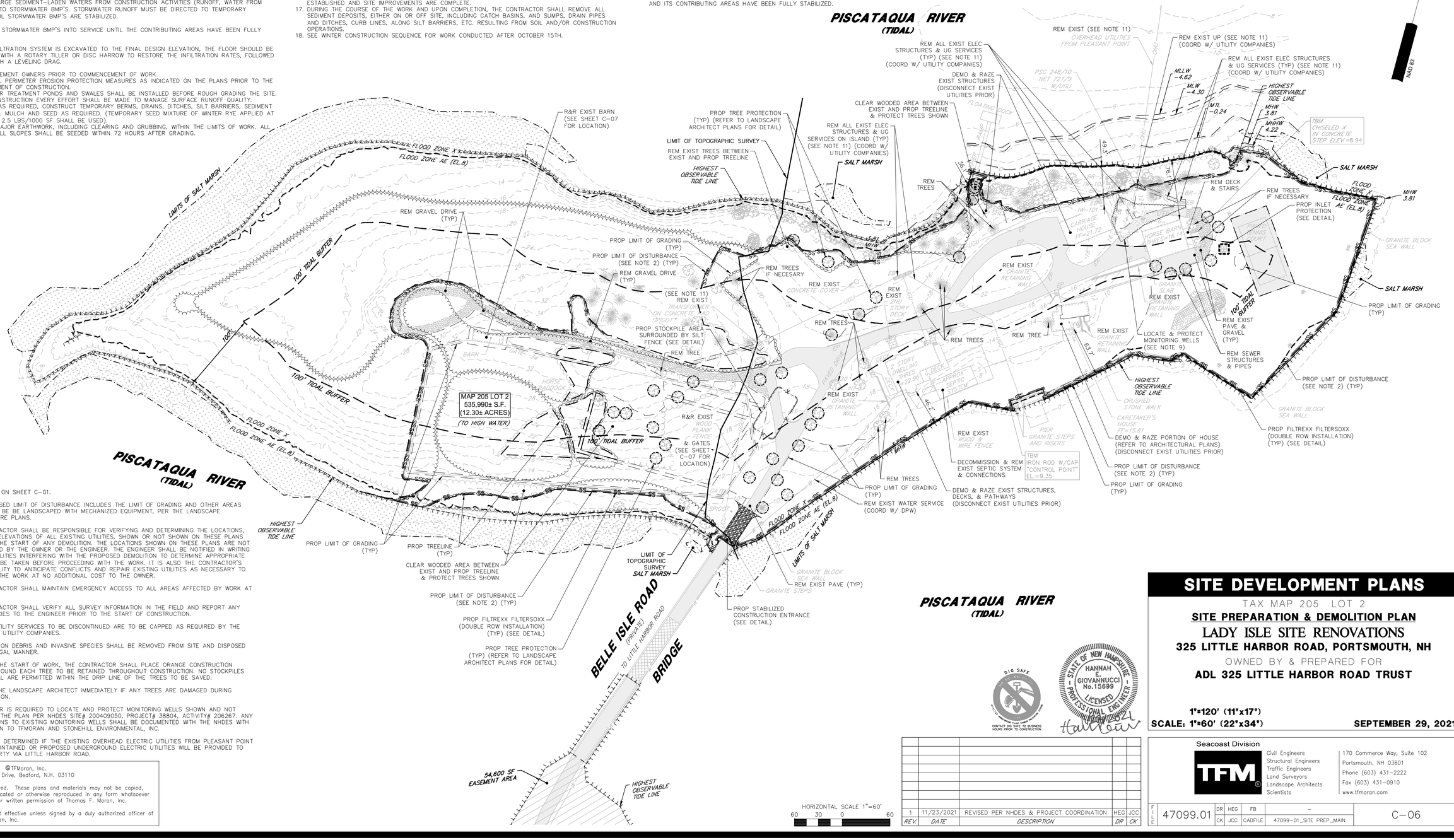
1. NOTIFY EASEMENT OWNERS PRIOR TO COMMENCEMENT OF WORK.
2. INSTALL ALL PERIMETER EROSION PROTECTION MEASURES AS INDICATED ON THE PLANS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
3. STORMWATER TREATMENT PONDS AND SWALES SHALL BE INSTALLED BEFORE ROUGH GRADING THE SITE.
4. DURING CONSTRUCTION EVERY EFFORT SHALL BE MADE TO MANAGE SURFACE RUNOFF QUALITY.
5. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, SILT BARRIERS, SEDIMENT TRAPS, ETC. MULCH AND SEED AS REQUIRED. (TEMPORARY SEED MIXTURE OF WINTER RYE APPLIED AT A RATE OF 2.5 LBS/1000 SF SHALL BE USED).
6. CONDUCT MAJOR EARTHWORK, INCLUDING CLEARING AND GRUBBING, WITHIN THE LIMITS OF WORK. ALL CUT AND FILL SLOPES SHALL BE SEEDED WITHIN 72 HOURS AFTER GRADING.

CONSTRUCTION SEQUENCE NOTES (CONTINUED)

7. ALL STRIPPED TOPSOIL AND OTHER EARTH MATERIALS SHALL BE STOCKPILED OUTSIDE THE IMMEDIATE WORK AND WETLAND AREAS. A SILT BARRIER SHALL BE CONSTRUCTED AROUND THESE PILES IN A MANNER TO PROVIDE ACCESS AND AVOID SEDIMENT OUTSIDE OF THE WORK AREA.
8. CONSTRUCT BUILDING PAD AND COMMENCE NEW BUILDING CONSTRUCTION.
9. CONSTRUCT TEMPORARY CULVERTS AND DIVERSIONS AS REQUIRED.
10. BEGIN PERMANENT AND TEMPORARY INSTALLATION OF SEED AND MULCH.
11. PERFORM EARTHWORK NECESSARY TO ESTABLISH ROUGH GRADING AROUND PARKING FIELDS AND ACCESS DRIVES. MANAGE EXPOSED SOIL SURFACES TO AVOID TRANSPORTING SEDIMENTS INTO WETLANDS. PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
12. INSTALL SUBSURFACE UTILITIES (WATER, SEWER, GAS, ELECTRIC, COMMUNICATIONS, DRAINAGE, DRAINAGE FACILITIES, ETC.).
13. CONSTRUCT PROPOSED ROADWAY, RAIN GARDENS, GRAVEL WETLANDS AND DRAINAGE SWALES. ALL DITCHES, SWALES, AND GRAVEL WETLANDS SHALL BE FULLY STABILIZED PRIOR TO DIRECTING FLOW TO THEM.
14. COMPLETE BUILDING AND ALL OFF–SITE IMPROVEMENTS.
15. COMPLETE SEEDING AND MULCHING. SEED TO BE APPLIED WITH BROADCAST SPREADER OR BY HYDRO–SEEDING, THEN ROLLED, RAKED, OR DRAGGED TO ASSURE SEED/SOIL CONTACT.
16. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDED AREAS HAVE BECOME FIRMLY ESTABLISHED AND SITE IMPROVEMENTS ARE COMPLETE.
17. DURING THE COURSE OF THE WORK AND UPON COMPLETION, THE CONTRACTOR SHALL REMOVE ALL SEDIMENT DEPOSITS, EITHER ON OR OFF SITE, INCLUDING CATCH BASINS, AND SUMPS, DRAIN PIPES AND DITCHES, CURB LINES, ALONG SILT BARRIERS, ETC. RESULTING FROM SOIL AND/OR CONSTRUCTION OPERATIONS.
18. SEE WINTER CONSTRUCTION SEQUENCE FOR WORK CONDUCTED AFTER OCTOBER 15TH.

CONSTRUCTION SEQUENCE NOTES (FOR ALTERATION OF TERRAIN)

1. DO NOT DISCHARGE SEDIMENT–LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF, WATER FROM EXCAVATIONS) TO BMP'S DURING ANY STAGE OF CONSTRUCTION.
2. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.
3. AFTER INFILTRATION SYSTEMS ARE EXCAVATED TO THE FINAL DESIGN ELEVATION, THE FLOOR SHOULD BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW TO RESTORE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.
4. DO NOT PLACE STORMWATER BMP'S INTO SERVICE UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
5. DO NOT PLACE STORMWATER BMP'S INTO SERVICE UNTIL THE BMP HAS BEEN PLANTED, IF NECESSARY, AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.


PISCATAQUA RIVER
(TIDAL)
LIMITS OF SALT MARSH
FLOOD ZONE X
FLOOD ZONE AE (EL.8)
100' TIDAL BUFFER
R&R EXIST BARN (SEE SHEET C–07 FOR LOCATION)
REM GRAVEL DRIVE (TYP)
PROP LIMIT OF GRADING (TYP)
PROP LIMIT OF DISTURBANCE (SEE NOTE 2) (TYP)
(SEE NOTE 11) REM EXIST TRANSFORMER ON CONCRETE PAD SPIGOT
PROP STOCKPILE AREA SURROUNDED BY SILT FENCE (SEE DETAIL)
REM TREE
MAP 205 LOT 2
535,990± S.F.
(12.30± ACRES)
(TO HIGH WATER)
R&R EXIST WOOD PLANK FENCE & GATES (SEE SHEET C–07 FOR LOCATION)
HIGHEST OBSERVABLE TIDE LINE
PROP LIMIT OF GRADING (TYP)
PROP TREELINE (TYP)
CLEAR WOODED AREA BETWEEN EXIST AND PROP TREELINE & PROTECT TREES SHOWN
PROP LIMIT OF DISTURBANCE (SEE NOTE 2) (TYP)
PROP FILTREXX FILTERSOXX (DOUBLE ROW INSTALLATION) (TYP) (SEE DETAIL)
PROP TREE PROTECTION (TYP) (REFER TO LANDSCAPE ARCHITECT PLANS FOR DETAIL)
BELLE ISLE ROAD (PRIVATE)
TO LITTLE HARBOR ROAD
BRIDGE
54,600 SF EASEMENT AREA
HIGHEST OBSERVABLE TIDE LINE
PROP TREE PROTECTION (TYP) (REFER TO LANDSCAPE ARCHITECT PLANS FOR DETAIL)
LIMIT OF TOPOGRAPHIC SURVEY
REM EXIST TREES BETWEEN EXIST AND PROP TREELINE
SALT MARSH
REM ALL EXIST ELEC STRUCTURES & UG SERVICES ON ISLAND (TYP) (SEE NOTE 11) (COORD W/ UTILITY COMPANIES)
REM TREES
REM TREES IF NECESARY
REM EXIST CONCRETE COVER
REM EXIST 2ND STORY DECK
REM EXIST GRANITE RETAINING WALL
REM TREES
REM TREE
REM EXIST WOOD & WIRE FENCE
DECOMMISSION & REM EXIST SEPTIC SYSTEM & CONNECTIONS
TBM IRON ROD W/CAP "CONTROL POINT" EL.=9.35
DEMO & RAZE EXIST STRUCTURES, DECKS, & PATHWAYS (DISCONNECT EXIST UTILITIES PRIOR)
REM EXIST WATER SERVICE (COORD W/ DPW)
REM TREES
PROP LIMIT OF GRADING (TYP)
REM EXIST PAVE (TYP)
PROP STABILIZED CONSTRUCTION ENTRANCE (SEE DETAIL)
GRANITE BLOCK SEA WALL
GRANITE STEPS
LIMIT OF TOPOGRAPHIC SURVEY
SALT MARSH
FLOOD ZONE X
FLOOD ZONE AE (EL.8)
LIMITS OF SALT MARSH
PISCATAQUA RIVER
(TIDAL)
REM EXIST (SEE NOTE 11) OVERHEAD UTILITIES FROM PLEASANT POINT
REM EXIST UP (SEE NOTE 11) (COORD W/ UTILITY COMPANIES)
REM ALL EXIST ELEC STRUCTURES & UG SERVICES (TYP) (SEE NOTE 11) (COORD W/ UTILITY COMPANIES)
DEMO & RAZE EXIST STRUCTURES (DISCONNECT EXIST UTILITIES PRIOR)
CLEAR WOODED AREA BETWEEN EXIST AND PROP TREELINE & PROTECT TREES SHOWN
PSC 248/10 NET 72T/9 W/UGU
MLLW -4.62
MLW -4.30
MTL -0.24
HIGHEST OBSERVABLE TIDE LINE
MHW 3.81
MHHW 4.22
TBM CHISELED X IN CONCRETE STEP ELEV.=8.94
SALT MARSH
FLOOD ZONE X
FLOOD ZONE AE (EL.8)
MHW 3.81
REM TREES
REM DECK & STAIRS
REM TREES IF NECESSARY
PROP INLET PROTECTION (SEE DETAIL)
GRANITE BLOCK SEA WALL
SALT MARSH
PROP LIMIT OF GRADING (TYP)
REM EXIST GRANITE RETAINING WALL
100' TIDAL BUFFER
REM EXIST PAVE & GRAVEL (TYP)
REM SEWER STRUCTURES & PIPES
LOCATE & PROTECT MONITORING WELLS (SEE NOTE 9)
REM TREE
REM EXIST GRANITE RETAINING WALL
HIGHEST OBSERVABLE TIDE LINE
PROP LIMIT OF DISTURBANCE (SEE NOTE 2) (TYP)
GRANITE BLOCK SEA WALL
PROP FILTREXX FILTERSOXX (DOUBLE ROW INSTALLATION) (TYP) (SEE DETAIL)
CRUSHED STONE WALK
CARETAKER'S HOUSE FF=15.61
DEMO & RAZE PORTION OF HOUSE (REFER TO ARCHITECTURAL PLANS) (DISCONNECT EXIST UTILITIES PRIOR)
PROP LIMIT OF DISTURBANCE (SEE NOTE 2) (TYP)
PROP LIMIT OF GRADING (TYP)
PIER
GRANITE STEPS AND RISERS
GRANITE STEPS
GRANITE SLAB RETAINING WALL
BARRIER FREE RAMP
GRANITE RETAINING WALL
PAVED DRIVE
2 STORY DWELLING FF=22.96
DECK
APPROX SEPTIC SYSTEM
BARN
HORSE PADDOCK
GRAVEL DRIVE
CARRIAGE HOUSE FF=21.72
HORSE BARN FF=16.18
PLANTING PIT
GRAVEL DRIVE
GRAVEL PARKING
GRAVEL DRIVE
GRAVEL WETLAND
GRAVEL DRIVE
GRAVEL WETLAND
GRAVEL DRIVE
GRAVEL WETLAND

SITE DATA

OWNER OF RECORD OF MAP 205 LOT 2: THE ADL 325 LITTLE HARBOR ROAD TRUST
STEPHEN H. ROBERTS ESQ., TRUSTEE
127 PARROTT AVENUE
PORTSMOUTH, NH 03801

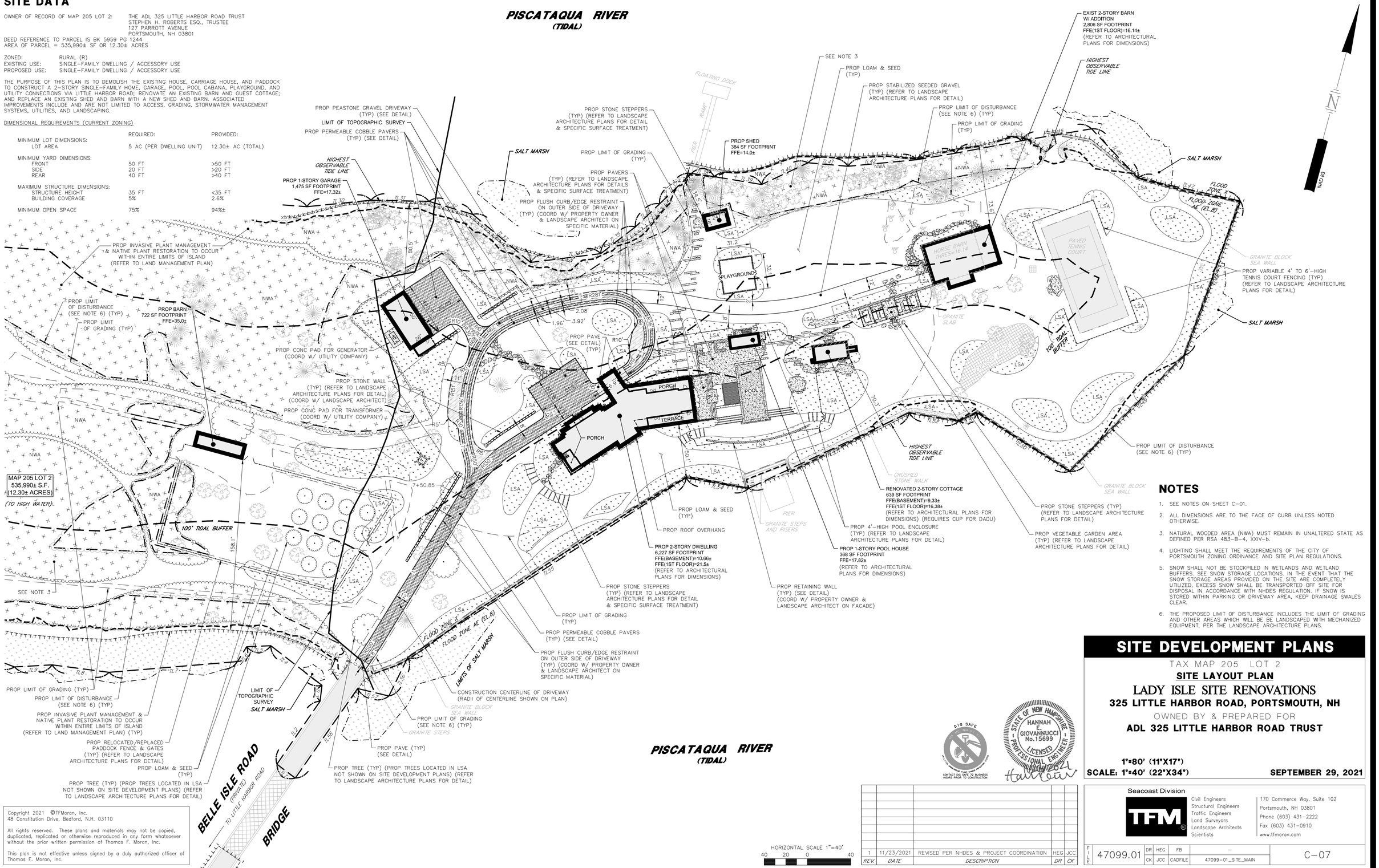
DEED REFERENCE TO PARCEL IS BK 5959 PG 1244
AREA OF PARCEL = 535,990± SF OR 12.30± ACRES

ZONED: RURAL (R)
EXISTING USE: SINGLE-FAMILY DWELLING / ACCESSORY USE
PROPOSED USE: SINGLE-FAMILY DWELLING / ACCESSORY USE

THE PURPOSE OF THIS PLAN IS TO DEMOLISH THE EXISTING HOUSE, CARRIAGE HOUSE, AND PADDOCK TO CONSTRUCT A 2-STORY SINGLE-FAMILY HOME, GARAGE, POOL, POOL CABANA, PLAYGROUND, AND UTILITY CONNECTIONS VIA LITTLE HARBOR ROAD; RENOVATE AN EXISTING BARN AND GUEST COTTAGE; AND REPLACE AN EXISTING SHED AND BARN WITH A NEW SHED AND BARN. ASSOCIATED IMPROVEMENTS INCLUDE AND ARE NOT LIMITED TO ACCESS, GRADING, STORMWATER MANAGEMENT SYSTEMS, UTILITIES, AND LANDSCAPING.

DIMENSIONAL REQUIREMENTS (CURRENT ZONING)

	REQUIRED:	PROVIDED:
MINIMUM LOT DIMENSIONS:		
LOT AREA	5 AC (PER DWELLING UNIT)	12.30± AC (TOTAL)
MINIMUM YARD DIMENSIONS:		
FRONT	50 FT	>50 FT
SIDE	20 FT	>20 FT
REAR	40 FT	>40 FT
MAXIMUM STRUCTURE DIMENSIONS:		
STRUCTURE HEIGHT	35 FT	<35 FT
BUILDING COVERAGE	5%	2.6%
MINIMUM OPEN SPACE	75%	94%±



NOTES

1. SEE NOTES ON SHEET C-01.
2. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS NOTED OTHERWISE.
3. NATURAL WOODED AREA (NWA) MUST REMAIN IN UNALTERED STATE AS DEFINED PER RSA 483-B-4, XXIV-b.
4. LIGHTING SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH ZONING ORDINANCE AND SITE PLAN REGULATIONS.
5. SNOW SHALL NOT BE STOCKPILED IN WETLANDS AND WETLAND BUFFERS. SEE SNOW STORAGE LOCATIONS. IN THE EVENT THAT THE SNOW STORAGE AREAS PROVIDED ON THE SITE ARE COMPLETELY UTILIZED, EXCESS SNOW SHALL BE TRANSPORTED OFF SITE FOR DISPOSAL IN ACCORDANCE WITH NHDES REGULATION. IF SNOW IS STORED WITHIN PARKING OR DRIVEWAY AREA, KEEP DRAINAGE SWALES CLEAR.
6. THE PROPOSED LIMIT OF DISTURBANCE INCLUDES THE LIMIT OF GRADING AND OTHER AREAS WHICH WILL BE BE LANDSCAPED WITH MECHANIZED EQUIPMENT, PER THE LANDSCAPE ARCHITECTURE PLANS.

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HORIZONTAL SCALE 1"=40'
40 20 0 40

REV.	DATE	DESCRIPTION	DR	CK
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANNUCCI
No.15699
LICENSED PROFESSIONAL ENGINEER

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

SITE LAYOUT PLAN

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

1"=80' (11"X17")
SCALE: 1"=40' (22"X34")
SEPTEMBER 29, 2021

Seacoast Division
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Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
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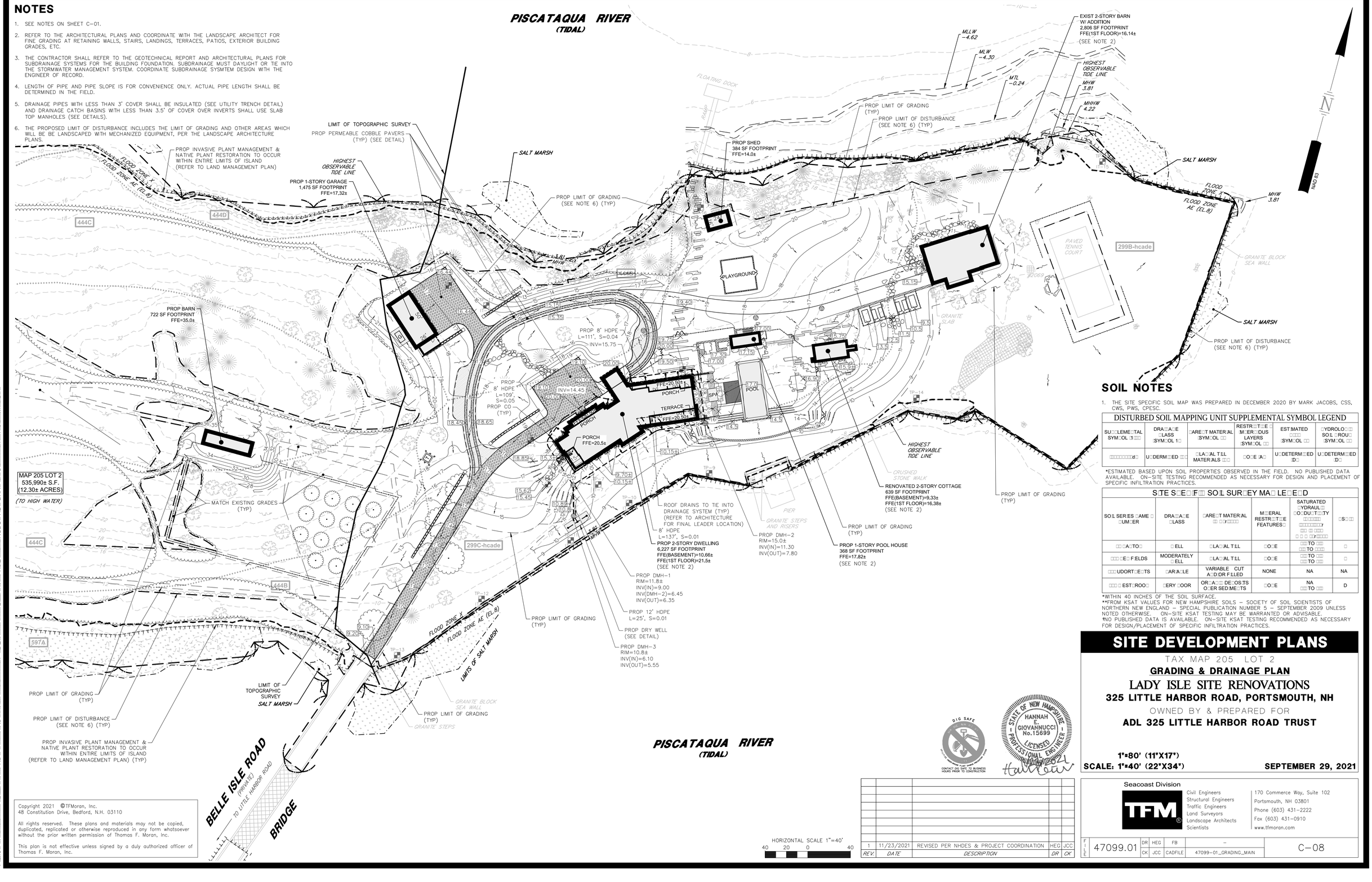
FILE		DR	HEG	FB	–	
47099.01		CK	JCC	CADFILE	47099-01_SITE_MAIN	C-07

NOTES

1. SEE NOTES ON SHEET C-01.
2. REFER TO THE ARCHITECTURAL PLANS AND COORDINATE WITH THE LANDSCAPE ARCHITECT FOR FINE GRADING AT RETAINING WALLS, STAIRS, LANDINGS, TERRACES, PATIOS, EXTERIOR BUILDING GRADES, ETC.
3. THE CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT AND ARCHITECTURAL PLANS FOR SUBDRAINAGE SYSTEMS FOR THE BUILDING FOUNDATION. SUBDRAINAGE MUST DAYLIGHT OR TIE INTO THE STORMWATER MANAGEMENT SYSTEM. COORDINATE SUBDRAINAGE SYSMTEM DESIGN WITH THE ENGINEER OF RECORD.
4. LENGTH OF PIPE AND PIPE SLOPE IS FOR CONVENIENCE ONLY. ACTUAL PIPE LENGTH SHALL BE DETERMINED IN THE FIELD.
5. DRAINAGE PIPES WITH LESS THAN 3' COVER SHALL BE INSULATED (SEE UTILITY TRENCH DETAIL) AND DRAINAGE CATCH BASINS WITH LESS THAN 3.5' OF COVER OVER INVERTS SHALL USE SLAB TOP MANHOLES (SEE DETAILS).
6. THE PROPOSED LIMIT OF DISTURBANCE INCLUDES THE LIMIT OF GRADING AND OTHER AREAS WHICH WILL BE BE LANDSCAPED WITH MECHANIZED EQUIPMENT, PER THE LANDSCAPE ARCHITECTURE PLANS.



SOIL NOTES

1. THE SITE SPECIFIC SOIL MAP WAS PREPARED IN DECEMBER 2020 BY MARK JACOBS, CSS, CWS, PWS, CPESC.

DISTURBED SOIL MAPPING UNIT SUPPLEMENTAL SYMBOL LEGEND

SU□□LEME□TAL SYM□OL 1□□	DRA□A□E □LASS SYM□OL 1□	□ARE□T MATER□AL SYM□OL □□	RESTR□□T□□E M□ER□□OUS LAYERS SYM□OL □□	EST□MATED □□□□ SYM□OL □□	□YDROLO□□□ SO□L □ROU□ SYM□OL □□
□□□□□□□□d□	U□DERM□ED □□	□LA□AL T□L MATER□ALS □□	□O□E □A□	U□DETERM□ED □D□	U□DETERM□ED □D□

*ESTIMATED BASED UPON SOIL PROPERTIES OBSERVED IN THE FIELD. NO PUBLISHED DATA AVAILABLE. ON-SITE TESTING RECOMMENDED AS NECESSARY FOR DESIGN AND PLACEMENT OF SPECIFIC INFILTRATION PRACTICES.

S□TE S□E□F□ SO□L SUR□EY MA□ LE□E□D

SO□L SER□ES □AME □ □UM□ER	DRA□A□E □LASS	□ARE□T MATER□AL □□ □□ □□□□	M□□ERAL RESTR□□T□E FEATURES□	SATURATED □YDRAUL□□ □O□DU□T□□TY □□□□□□□□ □□□□□□□□r □□□ □□ □□□□ □ □ □ □□T□□□□	□S□□□
□□ □A□TO□	□ ELL	□LA□AL T□L	□O□E	□□□ TO □□□ □□□ TO □□□□	□
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□□□UDORT□E□TS	□AR□A□LE	VARIABLE □CUT A□D/OR F□LLED	NONE	NA	NA
□□□ □ EST□ROO□	□ERY □OOR	OR□A□□ DE□OS□TS O□ER SED□ME□TS	□O□E	NA □□□ TO □□□	D

*WITHIN 40 INCHES OF THE SOIL SURFACE.
**FROM KSAT VALUES FOR NEW HAMPSHIRE SOILS – SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND – SPECIAL PUBLICATION NUMBER 5 – SEPTEMBER 2009 UNLESS NOTED OTHERWISE. ON-SITE KSAT TESTING MAY BE WARRANTED OR ADVISABLE.
†NO PUBLISHED DATA IS AVAILABLE. ON-SITE KSAT TESTING RECOMMENDED AS NECESSARY FOR DESIGN/PLACEMENT OF SPECIFIC INFILTRATION PRACTICES.

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

GRADING & DRAINAGE PLAN

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

1"=80' (11"X17")
SCALE: 1"=40' (22"X34")

SEPTEMBER 29, 2021

HORIZONTAL SCALE 1"=40'
40 20 0 40

REV.	DATE	DESCRIPTION	DR	CK
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANNUCCI
No. 15699
LICENSED PROFESSIONAL ENGINEER

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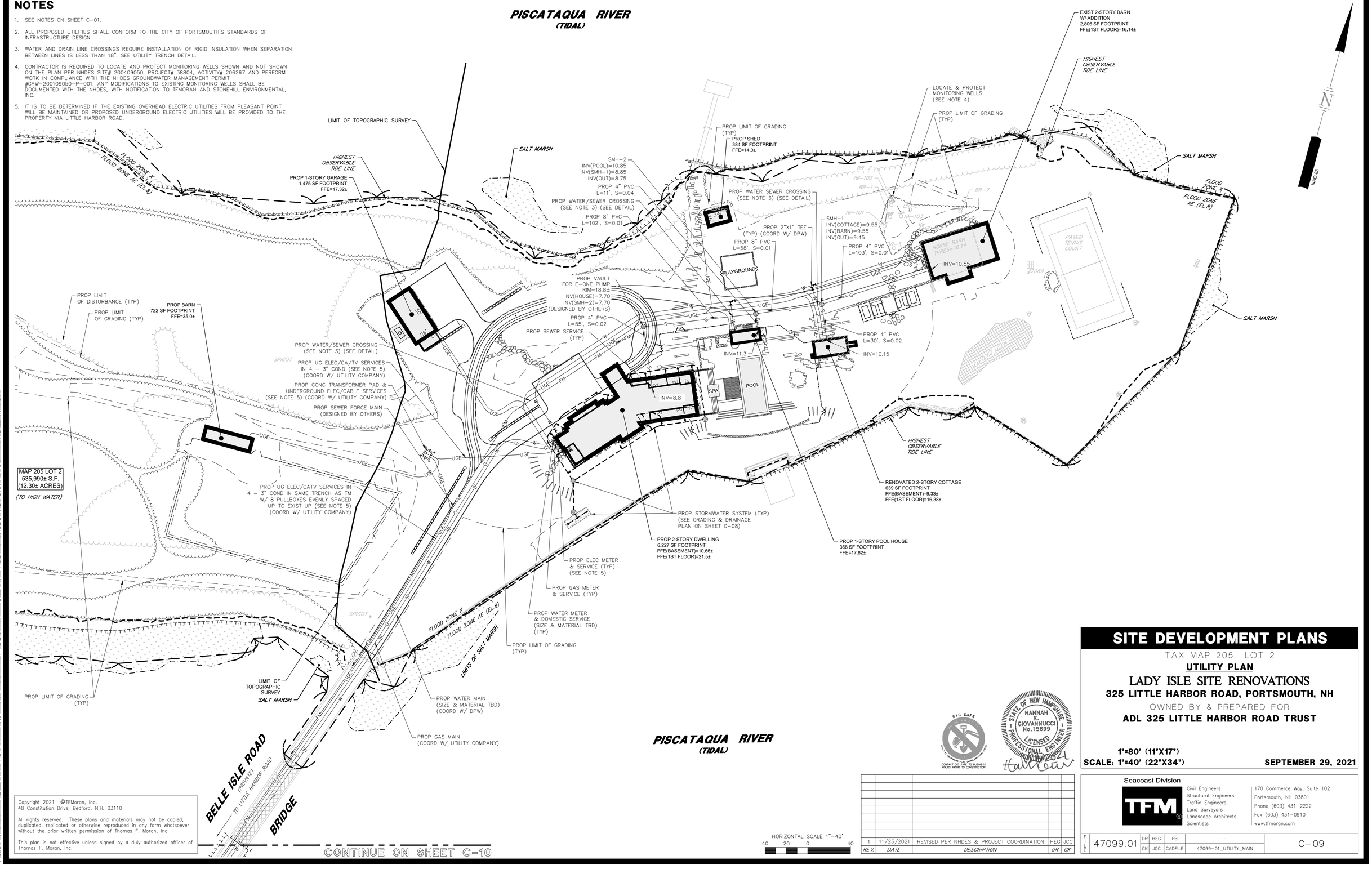
47099.01	CK	JCC	CADFILE	47099-01_GRADING_MAIN	C-08

NOTES

1. SEE NOTES ON SHEET C-01.
2. ALL PROPOSED UTILITIES SHALL CONFORM TO THE CITY OF PORTSMOUTH'S STANDARDS OF INFRASTRUCTURE DESIGN.
3. WATER AND DRAIN LINE CROSSINGS REQUIRE INSTALLATION OF RIGID INSULATION WHEN SEPARATION BETWEEN LINES IS LESS THAN 18". SEE UTILITY TRENCH DETAIL.
4. CONTRACTOR IS REQUIRED TO LOCATE AND PROTECT MONITORING WELLS SHOWN AND NOT SHOWN ON THE PLAN PER NHDES SITE# 200409050, PROJECT# 38804, ACTIVITY# 206267 AND PERFORM WORK IN COMPLIANCE WITH THE NHDES GROUNDWATER MANAGEMENT PERMIT #GPW-200109050-P-001. ANY MODIFICATIONS TO EXISTING MONITORING WELLS SHALL BE DOCUMENTED WITH THE NHDES, WITH NOTIFICATION TO TFMORAN AND STONEHILL ENVIRONMENTAL, INC.
5. IT IS TO BE DETERMINED IF THE EXISTING OVERHEAD ELECTRIC UTILITIES FROM PLEASANT POINT WILL BE MAINTAINED OR PROPOSED UNDERGROUND ELECTRIC UTILITIES WILL BE PROVIDED TO THE PROPERTY VIA LITTLE HARBOR ROAD.



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CONTINUE ON SHEET C-10

HORIZONTAL SCALE 1"=40'
40 20 0 40

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STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANNUCCI
No.15699
LICENSED
PROFESSIONAL ENGINEER

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

UTILITY PLAN

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

1"=80' (11"X17")
SCALE: 1"=40' (22"X34") **SEPTEMBER 29, 2021**

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TFM
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Structural Engineers
Traffic Engineers
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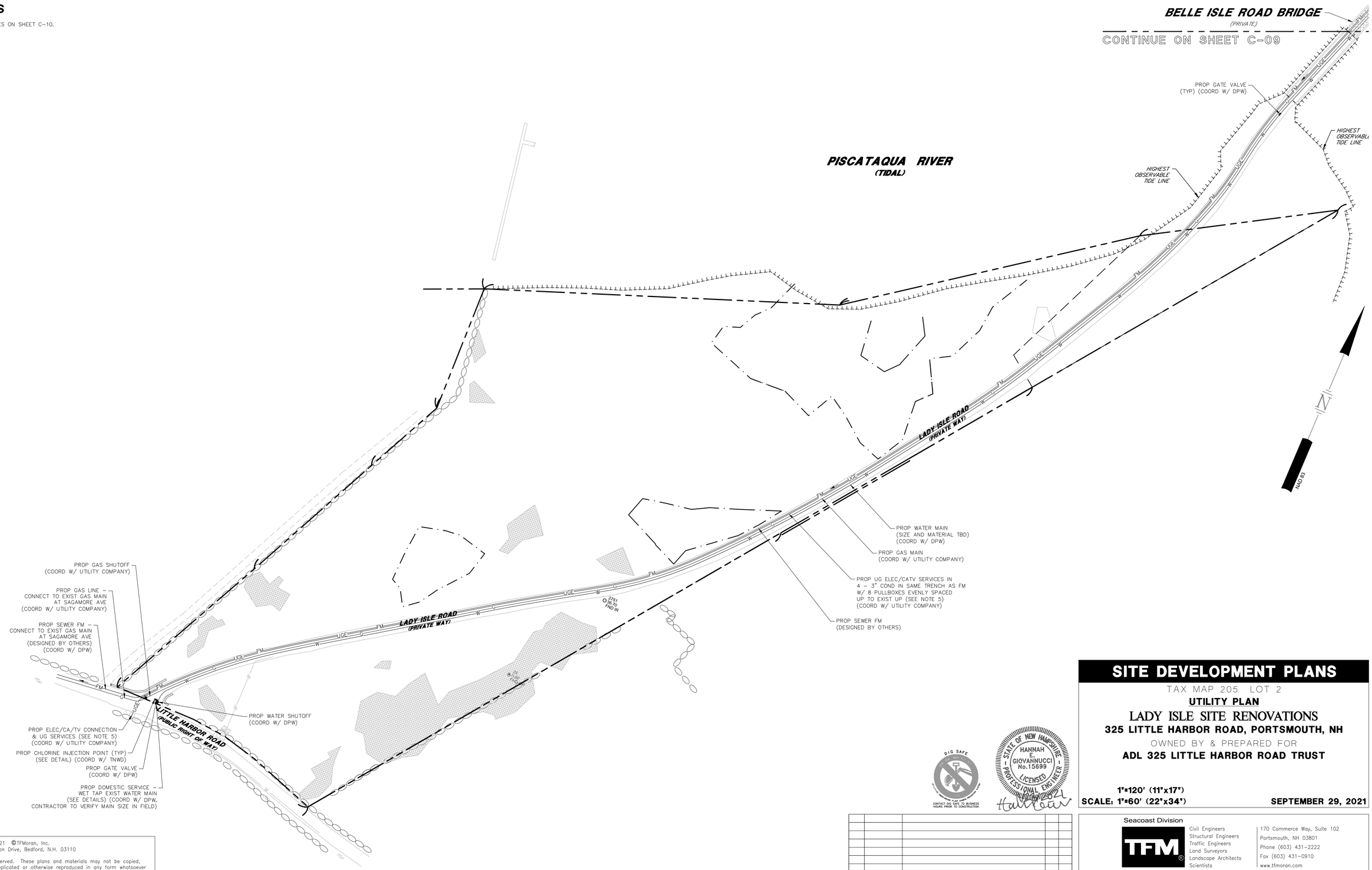
FILE	DR	HEG	FB	–	C-09
47099.01	CK	JCC	CADFILE	47099-01_UTILITY_MAIN	

NOTES

1. SEE NOTES ON SHEET C-10.



HORIZONTAL SCALE 1"=60'
60 30 0 60

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STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANNUCCI
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LICENSED PROFESSIONAL ENGINEER

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

UTILITY PLAN

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

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1"=120' (11"x17")
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SEPTEMBER 29, 2021

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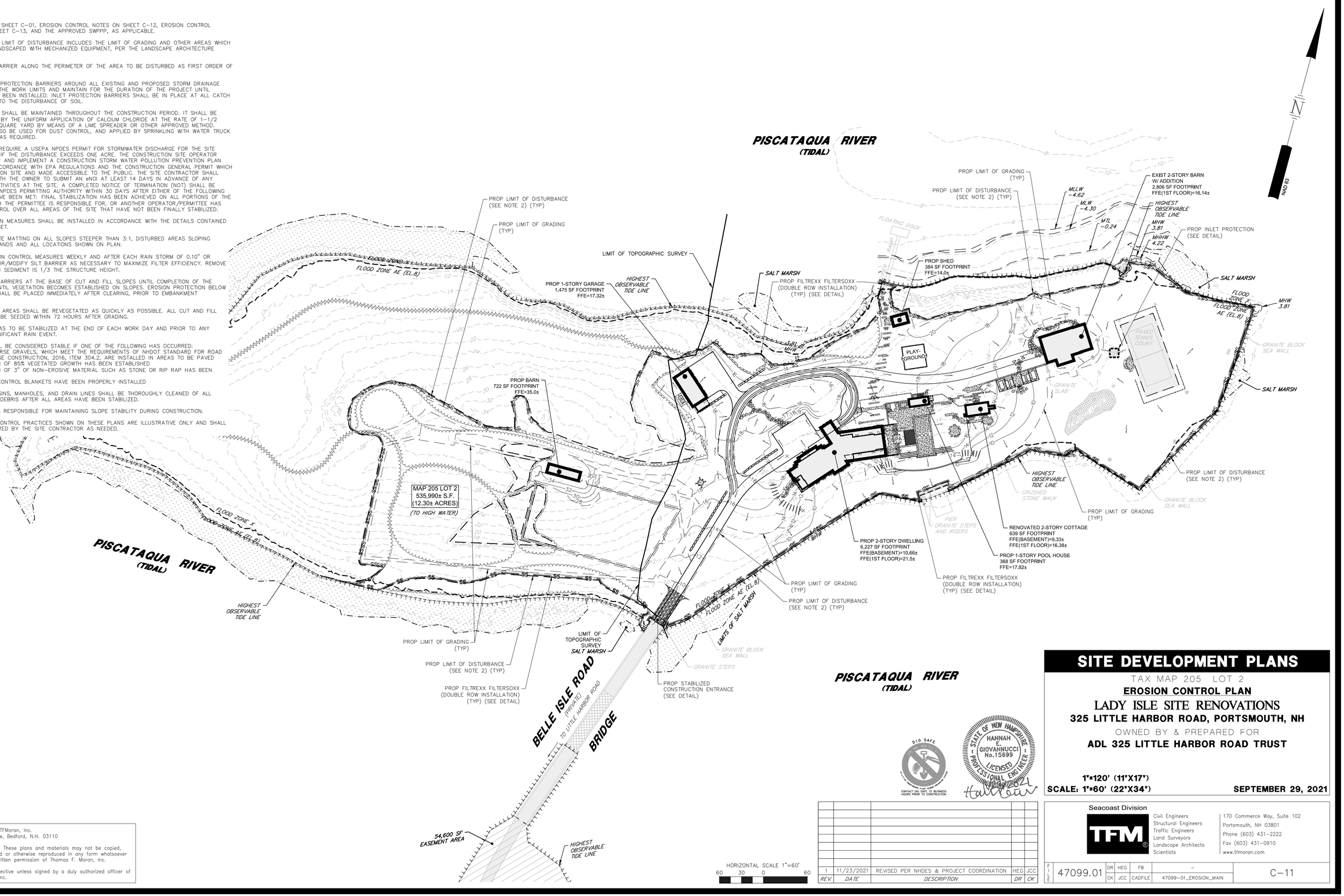
NOTES

1. SEE NOTES ON SHEET C-01, EROSION CONTROL NOTES ON SHEET C-12, EROSION CONTROL DETAILS ON SHEET C-13, AND THE APPROVED SWPPP, AS APPLICABLE.
2. THE PROPOSED LIMIT OF DISTURBANCE INCLUDES THE LIMIT OF GRADING AND OTHER AREAS WHICH WILL BE BE LANDSCAPED WITH MECHANIZED EQUIPMENT, PER THE LANDSCAPE ARCHITECTURE PLANS.
3. INSTALL SILT BARRIER ALONG THE PERIMETER OF THE AREA TO BE DISTURBED AS FIRST ORDER OF WORK.
4. PROVIDE INLET PROTECTION BARRIERS AROUND ALL EXISTING AND PROPOSED STORM DRAINAGE INLETS WITHIN THE WORK LIMITS AND MAINTAIN FOR THE DURATION OF THE PROJECT UNTIL PAVEMENT HAS BEEN INSTALLED. INLET PROTECTION BARRIERS SHALL BE IN PLACE AT ALL CATCH BASINS PRIOR TO THE DISTURBANCE OF SOIL.
5. DUST CONTROL SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. IT SHALL BE ACCOMPLISHED BY THE UNIFORM APPLICATION OF CALCIUM CHLORIDE AT THE RATE OF 1-1/2 POUNDS PER SQUARE YARD BY MEANS OF A LIME SPREADER OR OTHER APPROVED METHOD. WATER MAY ALSO BE USED FOR DUST CONTROL, AND APPLIED BY SPRINKLING WITH WATER TRUCK DISTRIBUTORS, AS REQUIRED.
6. THE SITE WILL REQUIRE A USEPA NPDES PERMIT FOR STORMWATER DISCHARGE FOR THE SITE CONSTRUCTION IF THE DISTURBANCE EXCEEDS ONE ACRE. THE CONSTRUCTION SITE OPERATOR SHALL DEVELOP AND IMPLEMENT A CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH EPA REGULATIONS AND THE CONSTRUCTION GENERAL PERMIT WHICH SHALL REMAIN ON SITE AND MADE ACCESSIBLE TO THE PUBLIC. THE SITE CONTRACTOR SHALL COORDINATE WITH THE OWNER TO SUBMIT AN eNOI AT LEAST 14 DAYS IN ADVANCE OF ANY EARTHWORK ACTIVITIES AT THE SITE. A COMPLETED NOTICE OF TERMINATION (NOT) SHALL BE SUBMITTED TO NPDES PERMITTING AUTHORITY WITHIN 30 DAYS AFTER EITHER OF THE FOLLOWING CONDITIONS HAVE BEEN MET: FINAL STABILIZATION HAS BEEN ACHIEVED ON ALL PORTIONS OF THE SITE FOR WHICH THE PERMITTEE IS RESPONSIBLE FOR, OR ANOTHER OPERATOR/PERMITTEE HAS ASSUMED CONTROL OVER ALL AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED.
7. SILT PROTECTION MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS CONTAINED IN THIS PLAN SET.
8. CONSTRUCT JUTE MATTING ON ALL SLOPES STEEPER THAN 3:1, DISTURBED AREAS SLOPING TOWARDS WETLANDS AND ALL LOCATIONS SHOWN ON PLAN.
9. INSPECT EROSION CONTROL MEASURES WEEKLY AND AFTER EACH RAIN STORM OF 0.10" OR GREATER. REPAIR/MODIFY SILT BARRIER AS NECESSARY TO MAXIMIZE FILTER EFFICIENCY. REMOVE SEDIMENT WHEN SEDIMENT IS 1/3 THE STRUCTURE HEIGHT.
10. PROVIDE SILT BARRIERS AT THE BASE OF CUT AND FILL SLOPES UNTIL COMPLETION OF THE PROJECT OR UNTIL VEGETATION BECOMES ESTABLISHED ON SLOPES. EROSION PROTECTION BELOW FILL SLOPES SHALL BE PLACED IMMEDIATELY AFTER CLEARING, PRIOR TO EMBANKMENT CONSTRUCTION.
11. ALL DISTURBED AREAS SHALL BE REVEGETATED AS QUICKLY AS POSSIBLE. ALL CUT AND FILL SLOPES SHALL BE SEEDED WITHIN 72 HOURS AFTER GRADING.
12. ALL WORK AREAS TO BE STABILIZED AT THE END OF EACH WORK DAY AND PRIOR TO ANY PREDICTED SIGNIFICANT RAIN EVENT.
13. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    A. BASE COURSE GRAVELS, WHICH MEET THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2, ARE INSTALLED IN AREAS TO BE PAVED
    B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
    C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED
    D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED
14. ALL CATCH BASINS, MANHOLES, AND DRAIN LINES SHALL BE THOROUGHLY CLEANED OF ALL SEDIMENT AND DEBRIS AFTER ALL AREAS HAVE BEEN STABILIZED.
15. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING SLOPE STABILITY DURING CONSTRUCTION.
16. THE EROSION CONTROL PRACTICES SHOWN ON THESE PLANS ARE ILLUSTRATIVE ONLY AND SHALL BE SUPPLEMENTED BY THE SITE CONTRACTOR AS NEEDED.



HORIZONTAL SCALE 1"=60'
60 30 0 60

REV.	DATE	DESCRIPTION	DR	CK
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DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANINUCCI No.15699
LICENSED PROFESSIONAL ENGINEER
9/29/2021

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

EROSION CONTROL PLAN

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

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47099.01	CK	JCC	CADFILE	47099-01_EROSION_MAIN	C-11

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F:\MS\...\Site\Erosion Control\...\Rd\...\Rd\...\Rd\...\Dr\...\Dr\...\Rd\...\ROUTE\...\DRAWING\...\SHEET

SOIL CHARACTERISTICS

THE SOIL IN THE VICINITY OF THE SITE CONSIST OF UDORTHENTS (UNKNOWN, BUT ASSUMED TO BE HSG D), NEWFIELDS (HSG B), AND CANTON (HSG B). THESE SOILS ARE CLASSIFIED AS VARIABLE, MODERATELY DRAINED, AND WELL-DRAINED, RESPECTIVELY.

DISTURBED AREA

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 278,938 SQUARE FEET (6.4± ACRES). CONSTRUCTION SHALL BE PHASED TO LIMIT DISTURBED AREAS TO LESS THAN 5 ACRES.

CRITICAL NOTE: THIS DRAWING IS PROVIDED FOR GENERAL GUIDANCE. ALL SPECIAL EROSION CONTROL MEASURES MUST BE EXECUTED IN ACCORDANCE WITH APPLICABLE CURRENT STATE AND LOCAL REGULATIONS, APPROVED SWPPP, AND PERMIT REQUIREMENTS.

SEQUENCE OF MAJOR ACTIVITIES

1. INSTALL PERIMETER CONTROLS, STABILIZED CONSTRUCTION ENTRANCE, AND TEMPORARY EROSION CONTROL MEASURES PER APPROVED SITE DEVELOPMENT PLANS, PERMITS, OR SWPPP IF REQUIRED, PRIOR TO EARTH MOVING OPERATIONS.
2. DEMOLISH EXISTING SITE WORK DESIGNATED FOR REMOVAL.
3. INSTALL STORMWATER TREATMENT PONDS AND SWALES BEFORE ROUGH GRADING THE SITE.
4. COMPLETE MAJOR GRADING OF SITE.
5. CONSTRUCT BUILDING PAD, STORMWATER SYSTEM, AND SITE UTILITIES.
6. CONSTRUCT PARKING AREAS.
7. WHEN ALL CONSTRUCTION ACTIVITY IS COMPLETE AND SITE IS STABILIZED, REMOVE ALL INLET PROTECTION, SILT BARRIERS, AND SEDIMENT THAT HAS BEEN TRAPPED BY THESE DEVICES.
8. CONSULT APPLICABLE REGULATIONS, PERMITS, CONDITIONS, AND APPROVED SWPPP FOR CONDITIONS RELATED TO NOTICE OF TERMINATION, IF REQUIRED.

EROSION AND SEDIMENT CONTROLS AND STABILIZATION PRACTICES

STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES AND DISTURBED AREAS WHERE CONSTRUCTION ACTIVITY WILL NOT OCCUR FOR MORE THAN TWENTY ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:

1. BASE COURSE GRAVELS, WHICH MEET THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2, HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
2. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
3. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED; OR
4. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILT BARRIERS. ALL STORM DRAIN INLETS SHALL BE PROVIDED WITH BARRIER FILTERS. STONE RIPRAP SHALL BE PROVIDED AT THE OUTLETS OF DRAINAGE PIPES WHERE EROSIVE VELOCITIES ARE ENCOUNTERED.

OFF SITE VEHICLE TRACKING

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED.

INSTALLATION, MAINTENANCE, AND INSPECTION OF EROSION AND SEDIMENT CONTROLS

A. GENERAL

THESE ARE THE GENERAL INSPECTION AND MAINTENANCE PRACTICES THAT WILL BE USED TO IMPLEMENT THE PLAN.

1. STABILIZATION OF ALL SWALES, DITCHES, AND PONDS IS REQUIRED PRIOR TO DIRECTING FLOW TO THEM.
2. THE SMALLEST PRACTICAL PORTION OF THE SITE WILL BE DENUDED AT ONE TIME. (5 AC MAX)
3. ALL CONTROL MEASURES WILL BE INSPECTED IN ACCORDANCE WITH APPLICABLE REGULATIONS, PERMITS, AND CONDITIONS AND FOR PROJECTS REQUIRING A NHDES AOT PERMIT AND NHPDES EPA GCP, DISCHARGING TO A NON-SENSITIVE WATERBODY, AT LEAST EVERY 7 DAYS AND AFTER A 0.5 INCH RAIN EVENT OR GREATER, AND INSPECTIONS SHALL BE CONDUCTED BY THE ENVIRONMENTAL MONITOR IF ONE IS REQUIRED, PURSUANT TO ENV-WQ 1505.03(B) OR FOR PROJECTS REQUIRING A NHDES AOT PERMIT AND NHPDES EPA GCP, DISCHARGING TO A SENSITIVE WATERBODY, AT LEAST EVERY 7 DAYS AND AFTER A 0.25 INCH RAIN EVENT OR GREATER, AND INSPECTIONS SHALL BE CONDUCTED BY THE ENVIRONMENTAL MONITOR IF ONE IS REQUIRED, PURSUANT TO ENV-WQ 1505.03(B).
4. ALL MEASURES WILL BE MAINTAINED IN GOOD WORKING ORDER. IF A REPAIR IS NECESSARY, IT WILL BE INITIATED WITHIN 24 HOURS OF REPORT.
5. BUILT UP SEDIMENT WILL BE REMOVED FROM SILT BARRIER WHEN IT HAS REACHED ONE THIRD THE HEIGHT OF THE BARRIER.
6. ALL DIVERSION DIKES WILL BE INSPECTED AND ANY BREACHES PROMPTLY REPAIRED.
7. TEMPORARY SEEDING AND PLANTING WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND UNHEALTHY GROWTH.
8. A MAINTENANCE INSPECTION REPORT WILL BE MADE AFTER EACH INSPECTION.
9. THE CONTRACTOR WILL BE RESPONSIBLE FOR ENSURING AN ENVIRONMENTAL MONITOR, IF ONE IS REQUIRED, PURSUANT TO ENV-WQ 1505.03(B), IS CONTRACTED.

B. FILTERS / BARRIERS

1. SILT SOCKS

   A. KNOTTED MESH NETTING MATERIAL SHALL BE DELIVERED TO SITE IN A 5 MIL CONTINUOUS, TUBULAR, HDPE 3/8" MATERIAL, FILLED WITH COMPOST CONFORMING TO THE FOLLOWING REQUIREMENTS:

PHYSICAL PROPERTY	TEST	REQUIREMENTS
PH	TMECC 04.11-A	5.0 TO 8.0
PARTICLE SIZE	TMECC 02.02-B	2" SIEVE AND MIN. 60% GREATER THAN THE ⅜" SIEVE
MOISTURE CONTENT		STND TESTING < 60%

   MATERIAL SHALL BE RELATIVELY FREE OF INERT OR FOREIGN MAN-MADE MATERIALS

   MATERIAL SHALL BE WEED FREE AND DERIVED FROM A WELL-DECOMPOSED SOURCE OF ORGANIC MATTER, FREE FROM ANY REFUSE, CONTAMINANTS OR OTHER MATERIALS TOXIC TO PLANT GROWTH.

   B. SEDIMENT COLLECTED AT THE BASE OF THE SILT SOCK SHALL BE REMOVED ONCE IT HAS REACHED 1/3 OF THE EXPOSED HEIGHT OF THE SILT SOCK.

   C. SILT BARRIER SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREAS HAS BEEN PERMANENTLY STABILIZED.

2. SEQUENCE OF INSTALLATION

   SEDIMENT BARRIERS SHALL BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM.

3. MAINTENANCE

   A. SILT BARRIERS SHALL BE INSPECTED WEEKLY AND IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. THEY SHALL BE REPAIRED IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THEM. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, SEDIMENT BARRIERS SHALL BE REPLACED WITH A TEMPORARY CHECK DAM.

   B. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL IS NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.

   C. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE THIRD (1/3) THE HEIGHT OF THE BARRIER.

   D. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.

C. MULCHING

1. TIMING

   IN ORDER FOR MULCH TO BE EFFECTIVE, IT MUST BE IN PLACE PRIOR TO MAJOR STORM EVENTS. THERE ARE TWO (2) TYPES OF STANDARDS WHICH SHALL BE USED TO ASSURE THIS:

   A. APPLY MULCH PRIOR TO ANY STORM EVENT.

   THIS IS APPLICABLE WHEN WORKING WITHIN 100' OF WETLANDS. IT WILL BE NECESSARY TO CLOSELY MONITOR WEATHER PREDICTIONS, USUALLY BY CONTACTING THE NATIONAL WEATHER SERVICE, TO HAVE ADEQUATE WARNING OF SIGNIFICANT STORMS.

   B. REQUIRED MULCHING WITHIN A SPECIFIED TIME PERIOD.

   THE TIME PERIOD CAN RANGE FROM 14 TO 21 DAYS OF INACTIVITY ON AN AREA, WHERE THE LENGTH OF TIME VARIES WITH SITE CONDITIONS. PROFESSIONAL JUDGMENT SHALL BE USED TO EVALUATE THE INTERACTION OF SITE CONDITIONS (SOIL ERODIBILITY, SEASON OF YEAR, EXTENT OF DISTURBANCE, PROXIMITY TO SENSITIVE RESOURCES, ETC.) AND THE POTENTIAL IMPACT OF EROSION ON ADJACENT AREAS TO CHOOSE AN APPROPRIATE TIME RESTRICTION.

2. GUIDELINES FOR WINTER MULCH APPLICATION.

   WHEN MULCH IS APPLIED TO PROVIDE PROTECTION OVER WINTER (PAST THE GROWING SEASON) IT SHALL BE AT A RATE OF 6,000 POUNDS OF HAY OR STRAW PER ACRE. A TACKIFIER MAY BE ADDED TO THE MULCH.

3. MAINTENANCE

   ALL MULCHES MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS, TO CHECK FOR RILL EROSION. IF LESS THAN 90% OF THE SOIL SURFACE IS COVERED BY MULCH, ADDITIONAL MULCH SHALL BE IMMEDIATELY APPLIED.

D. VEGETATIVE PRACTICE

1. AFTER ROUGH GRADING OF THE SUBGRADE HAS BEEN COMPLETED AND APPROVED, THE SUB GRADE SURFACE SHALL BE SCARIFIED TO A DEPTH OF 4". THEN, FURNISH AND INSTALL A LAYER OF LOAM PROVIDING A ROLLED THICKNESS AS SPECIFIED IN THESE PLANS. ANY DEPRESSIONS WHICH MAY OCCUR DURING ROLLING SHALL BE FILLED WITH ADDITIONAL LOAM, REGRADED AND REROLLED UNTIL THE SURFACE IS TRUE TO THE FINISHED LINES AND GRADES. ALL LOAM NECESSARY TO COMPLETE THE WORK UNDER THIS SECTION SHALL BE SUPPLIED BY THE SITE SUBCONTRACTOR.
2. ALL LARGE STIFF CLODS, LUMPS, BRUSH, ROOTS, DEBRIS, GLASS, STUMPS, LITTER, AND OTHER FOREIGN MATERIAL, AS WELL AS STONES OVER 1" IN DIAMETER, SHALL BE REMOVED FROM THE LOAM AND DISPOSED OF OFF SITE. THE LOAM SHALL BE RAKED SMOOTH AND EVEN.
3. THE LOAM SHALL BE PREPARED TO RECEIVE SEED BY REMOVING STONES, FOREIGN OBJECTS AND GRADING TO ELIMINATE WATER POCKETS AND IRREGULARITIES PRIOR TO PLACING SEED. FINISH GRADING SHALL RESULT IN STRAIGHT UNIFORM GRADES AND SMOOTH, EVEN SURFACES WITHOUT IRREGULARITIES TO LOW POINTS.
4. SHAPE THE AREAS TO THE LINES AND GRADES REQUIRED. THE SITE SUBCONTRACTOR'S ATTENTION IS DIRECTED TO THE SCHEDULING OF LOAMING AND SEEDING OF GRADED AREAS TO PERMIT SUFFICIENT TIME FOR THE STABILIZATION OF THESE AREAS. IT SHALL BE THE SITE SUBCONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE AREAS DURING THE CONSTRUCTION PERIOD AND REGRADE, LOAM AND RESEED ANY DAMAGED AREAS.
5. ALL AREAS DISTURBED BY CONSTRUCTION WITHIN THE PROPERTY LINES AND NOT COVERED BY STRUCTURES, PAVEMENT, OR MULCH SHALL BE LOAMED AND SEEDED.
6. LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF 2 TONS PER ACRE IN ORDER TO PROVIDE A PH VALUE OF 5.5 TO 6.5.
7. IF PERMITTED PER LOCAL AND STATE REGULATIONS, FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 500 POUNDS PER ACRE OF 10-20-20 FERTILIZER.
8. SOIL CONDITIONERS AND FERTILIZER SHALL BE APPLIED AT THE RECOMMENDED RATES AND SHALL BE THOROUGHLY WORKED INTO THE LOAM. LOAM SHALL BE RAKED UNTIL THE SURFACE IS FINELY PULVERIZED, SMOOTH AND EVEN, AND THEN COMPACTED TO AN EVEN SURFACE CONFORMING TO THE REQUIRED LINES AND GRADES WITH APPROVED ROLLERS WEIGHING BETWEEN 4 1/2 POUNDS AND 5 1/2 POUNDS PER INCH OF WIDTH.
9. SEED SHALL BE SOWN AT THE RATE SHOWN BELOW. SOWING SHALL BE DONE ON A CALM, DRY DAY, PREFERABLY BY MACHINE, BUT IF BY HAND, ONLY BY EXPERIENCED WORKMEN. IMMEDIATELY BEFORE SEEDING, THE SOIL SHALL BE LIGHTLY RAKED. ONE HALF THE SEED SHALL BE SOWN IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE ORIGINAL DIRECTION. IT SHALL BE LIGHTLY RAKED INTO THE SOIL TO A DEPTH NOT OVER 1/4" AND ROLLED WITH A HAND ROLLER WEIGHING NOT OVER 100 POUNDS PER LINEAR FOOT OF WIDTH.
10. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AT A RATE OF 1.5 TO 2 TONS PER ACRE. MULCH THAT BLOWS OR WASHES AWAY SHALL BE REPLACED IMMEDIATELY AND ANCHORED USING APPROPRIATE TECHNIQUES FROM THE EROSION AND SEDIMENT CONTROL HANDBOOK.
11. THE SURFACE SHALL BE WATERED AND KEPT MOIST WITH A FINE SPRAY AS REQUIRED, WITHOUT WASHING AWAY THE SOIL, UNTIL THE GRASS IS WELL ESTABLISHED. ANY AREAS WHICH ARE NOT SATISFACTORILY COVERED WITH GRASS SHALL BE RESEEDED, AND ALL NOXIOUS WEEDS REMOVED.
12. THE SITE SUBCONTRACTOR SHALL PROTECT AND MAINTAIN THE SEEDED AREAS UNTIL ACCEPTED, INCLUDING CUTTING, AS SPECIFIED HEREIN AFTER UNDER MAINTENANCE AND PROTECTION.
13. UNLESS OTHERWISE APPROVED, SEEDING SHALL BE DONE DURING THE APPROXIMATE PERIODS OF EARLY SPRING TO SEPTEMBER 30, WHEN SOIL CONDITIONS AND WEATHER ARE SUITABLE FOR SUCH WORK. IN NO CASE SHALL THE WEED CONTENT EXCEED 1 PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH STATE AND FEDERAL SEED LAWS. FOR TEMPORARY PLANTINGS AFTER SEPTEMBER 30, TO EARLY SPRING AND FOR TEMPORARY PROTECTION OF DISTURBED AREAS:

   A. FOLLOW ABOVE SLOPE, LOAM DEPTH AND GRADING REQUIREMENTS.
   B. FERTILIZER SHALL BE SPREAD AND WORKED INTO THE SURFACE AT A RATE OF 500 POUNDS PER ACRE.

   MULCHING AND SEEDING SHALL BE APPLIED AT THE FOLLOWING RATES:

WINTER RYE (FALL SEEDING)	2.5 LBS/1,000 SF
OATS (SPRING SEEDING)	2.0 LBS/1,000 SF
MULCH	1.5 TONS/ACRE

E. CATCH BASIN INLET PROTECTION

1. INLET BASKET STRUCTURE

   A. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY PRIOR TO DISTURBING PAVEMENT AND SHALL REMAIN IN PLACE AND MAINTAINED UNTIL PAVEMENT BINDER COURSE IS COMPLETE.

   B. MOLD 6X6, 42 LB. WIRE SUPPORT AROUND INLET FRAME AND GRATE AND EXTEND 6" BEYOND SIDES. SECURE FILTER FABRIC TO WIRE SUPPORT.

   C. THE FILTER FABRIC SHALL BE A GEOTEXTILE FABRIC; POLYESTER, POLYPROPYLENE, STABILIZED NYLON, POLYETHYLENE OR POLYVINYLIDENE CHLORIDE MEETING THE FOLLOWING SPECIFICATIONS:

      GRAB STRENGTH: 45 LB. MINIMUM IN ANY PRINCIPAL DIRECTION (ASTM D1682)
      MULLEN BURST STRENGTH: MIN. 60PSI (ASTM D774)

   D. THE FABRIC SHALL HAVE AN OPENING NO GREATER THAN A NUMBER 20 U.S. STANDARD SIEVE AND A MINIMUM PERMEABILITY OF 120 GPM.

   E. THE INLET PROTECTION SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING.

   F. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.

F. WINTER CONSTRUCTION SEQUENCE

1. ALL PROPOSED POST-DEVELOPMENT LANDSCAPED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1 AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE PLACEMENT OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENT.
2. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
3. AFTER OCTOBER 15TH, INCOMPLETE PARKING AREAS WHERE ACTIVE CONSTRUCTION HAS STOPPED FOR THE WINTER, ALL TRAVEL SURFACES SHALL BE PROTECTED WITH A MINIMUM OF 3" OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOWFALL AFTER EACH STORM EVENT.

TIMING OF CONTROLS/MEASURES

AS INDICATED IN THE SEQUENCE OF MAJOR ACTIVITIES, SILT BARRIERS SHALL BE INSTALLED PRIOR TO COMMENCING ANY CLEARING OR GRADING OF THE SITE. STRUCTURAL CONTROLS SHALL BE INSTALLED CONCURRENTLY WITH THE APPLICABLE ACTIVITY. AREAS WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASES FOR MORE THAN TWENTY ONE (21) DAYS WILL BE STABILIZED WITH A TEMPORARY SEED AND MULCH WITHIN FOURTEEN (14) DAYS OF THE LAST DISTURBANCE. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN AREA, SILT BARRIERS AND ANY EARTH/DIKES WILL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.

WASTE DISPOSAL

1. WASTE MATERIALS
   ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN A DUMPSTER. NO CONSTRUCTION WASTE MATERIALS WILL BE BURIED ON SITE. ALL PERSONNEL WILL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE
   ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER. SITE PERSONNEL WILL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE
   ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

SPILL PREVENTION

1. MATERIAL MANAGEMENT PRACTICES
   THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT WILL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES DURING CONSTRUCTION TO STORMWATER RUNOFF:

   GOOD HOUSEKEEPING:
   THE FOLLOWING GOOD HOUSEKEEPING PRACTICES WILL BE FOLLOWED ON SITE DURING THE CONSTRUCTION PROJECT:

   A. AN EFFORT WILL BE MADE TO STORE ONLY SUFFICIENT AMOUNTS OF PRODUCTS TO DO THE JOB.

   B. ALL MATERIALS STORED ON SITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE.

   C. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED.

   D. THE SITE SUPERINTENDENT WILL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS.

   E. SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.

   F. WHENEVER POSSIBLE ALL OF A PRODUCT WILL BE USED UP BEFORE DISPOSING OF THE CONTAINER.

   HAZARDOUS PRODUCTS:
   THE FOLLOWING PRACTICES WILL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:

   A. PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE.

   B. ORIGINAL LABELS AND MATERIAL SAFETY DATA WILL BE RETAINED FOR IMPORTANT PRODUCT INFORMATION.

   C. SURPLUS PRODUCT THAT MUST BE DISPOSED OF WILL BE DISCARDED ACCORDING TO THE MANUFACTURER'S RECOMMENDED METHODS OF DISPOSAL.

2. PRODUCT SPECIFICATION PRACTICES
   THE FOLLOWING PRODUCT SPECIFIC PRACTICES WILL BE FOLLOWED ON SITE:

   PETROLEUM PRODUCTS:
   ALL ON SITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE LEAKAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED SUBSTANCES USED ON SITE WILL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

   FERTILIZERS:
   FERTILIZERS USED WILL BE APPLIED ONLY IN THE MINIMUM AMOUNTS DIRECTED BY THE SPECIFICATIONS. ONCE APPLIED, FERTILIZER WILL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER. STORAGE WILL BE IN A COVERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER WILL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.

   PAINTS:
   ALL CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM BUT WILL BE DISPOSED OF PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.

   CONCRETE TRUCKS:
   CONCRETE TRUCKS WILL DISCHARGE AND WASH OUT SURPLUS CONCRETE OR DRUM WASH WATER IN A CONTAINED AREA DESIGNATED ON SITE.

SPILL CONTROL PRACTICES

IN ADDITION TO GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTION THE FOLLOWING PRACTICES WILL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:

A. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND SITE PERSONNEL WILL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.

B. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS WILL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST, AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE.

C. ALL SPILLS WILL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY.

D. THE SPILL AREA WILL BE KEPT WELL VENTILATED AND PERSONNEL WILL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE.

E. SPILLS OF TOXIC OR HAZARDOUS MATERIAL WILL BE REPORTED TO THE APPROPRIATE STATE OR LOCAL GOVERNMENT AGENCY, REGARDLESS OF THE SIZE.

F. THE SPILL PREVENTION PLAN WILL BE ADJUSTED TO INCLUDE MEASURES TO PREVENT THIS TYPE OF SPILL FROM RECURRING AND HOW TO CLEANUP THE SPILL IF IT RECURS. A DESCRIPTION OF THE SPILL, ITS CAUSE, AND THE CLEANUP MEASURES WILL BE INCLUDED.

G. THE SITE SUPERINTENDENT RESPONSIBLE FOR DAY-TO-DAY SITE OPERATIONS WILL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.

DUST CONTROL

THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST THROUGHOUT THE CONSTRUCTION PERIOD. DUST CONTROL METHODS SHALL INCLUDE, BUT NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING. DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.

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CALL BEFORE YOU DIG
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STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANNUCCI No.15699
LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	DR	CK
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

EROSION CONTROL NOTES

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

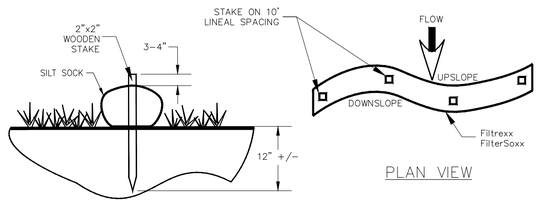
OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

1"=80' (11"X17")
SCALE: 1"=40' (22"X34") **SEPTEMBER 29, 2021**

Seacoast Division
TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431-2222
Fax (603) 431-0910
www.tfmoran.com

FILE	DR	HEG	FB	–	
47099.01	CK	JCC	CADFILE	47099-01_EROSION_MAIN	C-12



SECTION VIEW

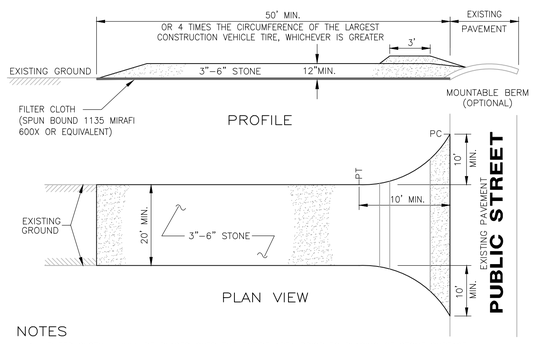
PLAN VIEW

NOTES:

1. SILT SOCK SHALL BE FILTREXX™ SILTSOXX™ NATURAL ORIGINAL OR APPROVED EQUIVALENT.
2. ALL MATERIAL AND SIZES TO MEET FILTREXX SPECIFICATIONS.
3. COMPOST MATERIAL SHALL BE DISPERSED ON SITE, AS DETERMINED BY THE ENGINEER.
4. SILT SOCK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS, AND REPAIR OR REPLACEMENT SHALL BE PERFORMED AS NEEDED.

FILTREXX FILTERSOXX STAKING

NOT TO SCALE



PROFILE

PLAN VIEW

NOTES

1. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE SURFACE.
2. WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
3. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
4. WASHING – WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS–OF–WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
5. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN STORM EVENT.

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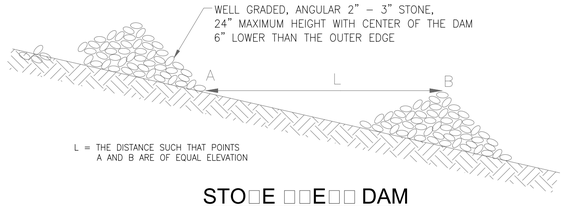

L = THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION

STO□E □□E□□ DAM

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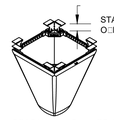
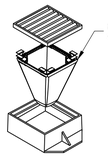


TYPICAL RECTANGULAR INLET FILTER



NOTES:

1. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
2. INSPECTION SHOULD OCCUR FOLLOWING ANY RAIN EVENT > ½".
3. EMPTY THE SEDIMENT BAG PER MANUFACTURER'S SPECIFICATIONS.
4. REMOVED CAKED ON SILT FROM SEDIMENT BAG AND FLUSH WITH MEDIUM SPRAY WITH OPTIMAL FILTRATION.
5. REPLACE BAG IF TORN OR PUNCTURED TO > ½" DIAMETER ON LOWER HALF OF BAG.

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A DIVISION OF ADS, INC.
WWW.INLETFILTERS.COM
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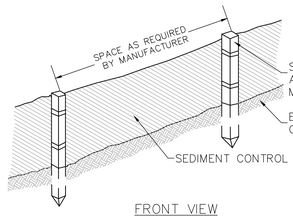
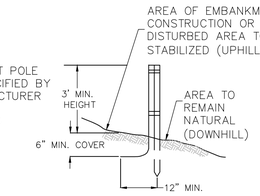


FRONT VIEW



SIDE VIEW

NOTES

1. THE GEOTEXTILE FABRIC SHALL MEET THE DESIGN CRITERIA FOR BEST MANAGEMENT PRACTICE FOR SILT FENCES, OF THE NEW HAMPSHIRE STORMWATER MANUAL, DECEMBER 2008.
2. THE HEIGHT OF THE BARRIER SHALL NOT EXCEED 36 INCHES.
3. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6–INCH OVERLAP, AND SECURELY SEALED. SEE MANUFACTURER'S RECOMMENDATIONS.
4. POSTS SHALL BE SPACED A MAXIMUM OF 10 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 16 INCHES). WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, POST SPACING SHALL BE AS MANUFACTURER RECOMMENDS.
5. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 6 INCHES WIDE AND 6 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER IN ACCORDANCE WITH RECOMMENDATIONS.
6. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE, AND WILL EXTEND TO A MINIMUM OF 8 INCHES INTO THE TRENCH. FILTER FABRIC SHALL NOT BE STAPLED INTO EXISTING TREES.
7. THE TRENCH SHALL BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC.
8. FILTER BARRIERS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
9. FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL, AND AT LEAST DAILY DURING PROLONGED RAINFALL, ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
10. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
11. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE–THIRD THE HEIGHT OF THE BARRIER.
12. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED, SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

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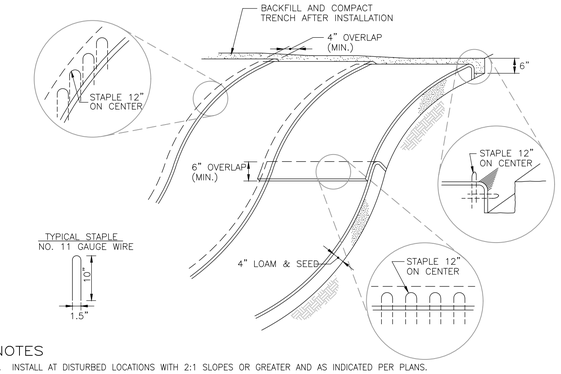

NOTES

1. INSTALL AT DISTURBED LOCATIONS WITH 2:1 SLOPES OR GREATER AND AS INDICATED PER PLANS.
2. BEGIN AT THE TOP OF BLANKET INSTALLATION AREA BY ANCHORING BLANKET IN A 6" DEEP TRENCH. BACKFILL AND COMPACT TRENCH AFTER STAPLING.
3. ROLL THE BLANKET DOWN THE SLOPE OR SWALE IN THE DIRECTION OF THE WATER FLOW.
4. THE EDGES OF BLANKETS MUST BE STAPLED WITH APPROX. 4 INCH OVERLAP WHERE 2 OR MORE STRIP WIDTHS ARE REQUIRED.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SWALE, PLACE BLANKET END OVER END WITH 6 INCH (MIN.) OVERLAP AND ANCHOR DOWN SLOPE BLANKET IN A 6 INCH DEEP TRENCH.
6. BLANKET SHALL BE NORTH AMERICAN GREEN C125BN, EAST COAST EROSION CONTROL ECC–2B, AMERICAN EXCELSIOR COMPANY CURLEX III FIBRENET, ROLANKA GEONATURAL EROSION & SEDIMENT CONTROL MATTE JUTEMAT OR BIOD–OCF 30, OR APPROVED EQUAL.
7. BLANKET SHALL BE PLACED WITHIN 24–HRS AFTER SOWING SEE IN THE AREA BEING COVERED

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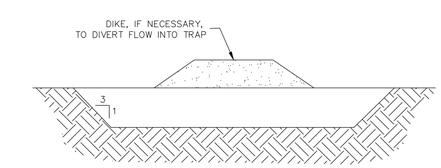
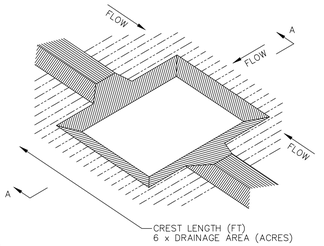


SECTION A–A

NOTES

1. SEDIMENT TRAP TO BE USED AS NECESSARY TO CONTAIN RUNOFF UNTIL BASINS/PONDS ARE STABILIZED. IF IT IS DETERMINED THAT CONSTRUCTION OF A SEDIMENT TRAP IS WARRANTED, CONSULT WITH ENGINEER TO DETERMINE APPROPRIATE NUMBER AND DIMENSIONS.
2. 3,600 CF OF BASIN STORAGE IS REQUIRED FOR EVERY ACRE OF CONTRIBUTING DRAINAGE AREA.



SEDIMENT TRAP – ISOMETRIC VIEW

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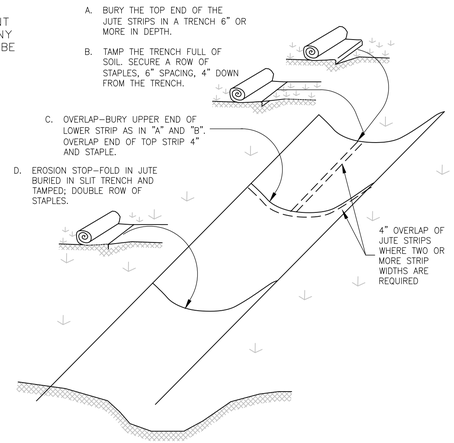

NOTES

1. MATTING SHALL BE INSTALLED PER MANUFACTURERS SPECIFICATIONS, INCLUDING STAPLE PATTERNS.
2. STAPLES SHALL BE BIODEGRADABLE.

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DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANNUCCI No.15699
LICENSED PROFESSIONAL ENGINEER

1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC
REV.	DATE	DESCRIPTION	DR	CK

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

DETAILS

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: NTS **SEPTEMBER 29, 2021**

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Structural Engineers
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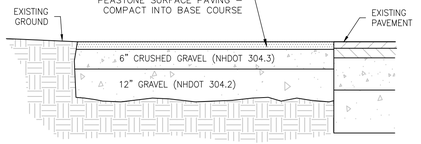

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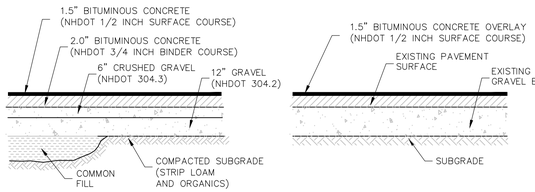

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NOTES

1. SEE GRADING & EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
2. PROVIDE CLEAN BUTT TO EXISTING PAVEMENT- USE TACK COAT. A TACK COAT SHALL ALSO BE PLACED BETWEEN GRAVEL COURSE AND SUCCESSIVE LAYERS OF BITUMINOUS CONCRETE. SPECIFICALLY, A TACK COAT SHALL BE PLACED ATOP THE BINDER COURSE PAVEMENT PRIOR TO PLACING THE WEARING COURSE.
3. REMOVE ALL LOAM AND/OR YIELDING MATERIAL BELOW PAVEMENT.
4. BITUMINOUS MATERIALS SHALL CONFORM TO NHDOT SPECIFICATION SECTION 401.
5. BITUMINOUS CONCRETE SHALL BE COMPACTED TO AT LEAST 92.5% OF THEORETICAL MAXIMUM DENSITY AS DETERMINED BY ASTM D2041 OR AASHTO T209. PLACEMENT TEMPERATURES OF BITUMINOUS CONCRETE MIXES, IN GENERAL, RANGE BETWEEN 270 AND 310 DEGREES FAHRENHEIT.
6. PAVEMENT BASE COURSE AGGREGATE SHALL CONFORM TO NHDOT SPECIFICATION SECTION 304, ITEM 304.3 AND COMPACTED TO A MINIMUM OF 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY.
7. PAVEMENT SUBBASE COURSE AGGREGATE AND AGGREGATE FOR SUBGRADE REPAIR AREAS SHALL BE SUITABLE FOR USE AS STRUCTURAL FILL AND BE PROOF ROLLED AND COMPACTED TO 95% MODIFIED PROCTOR MAXIMUM DRY DENSITY.
8. THE EXPOSED SOIL SUBGRADE SHOULD BE PROOF ROLLED PRIOR TO THE PLACEMENT OF SUBBASE GRAVEL, AND SOFT AREAS SHOULD BE REPAIRED AND REPLACED.
9. ALL PARKING SPACES SHALL BE STANDARD DUTY. ALL OTHER LOCATIONS SHALL BE HEAVY DUTY.

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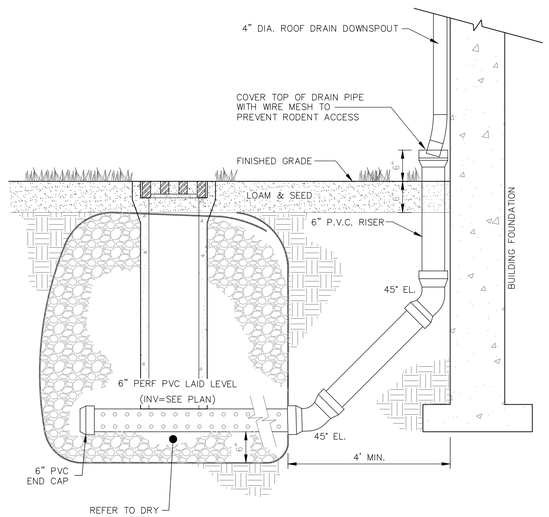

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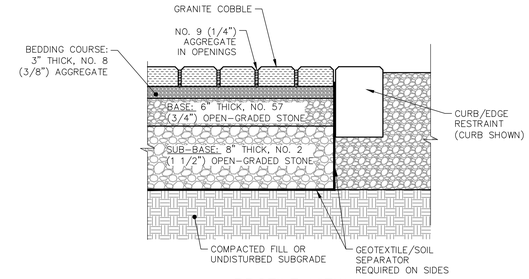

PROFILE VIEW

NOTES:

1. REFER TO LANDSCAPE ARCHITECTURE FOR ADDITIONAL DETAIL AND SPECIFIC SURFACE TREATMENT.
2. PERMEABLE PAVERS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
3. INSTALLATION OF PERMEABLE PAVER SECTION SHALL BEGIN AT LOWEST GRADE AND END AT HIGHEST GRADE.

MAINTENANCE:

1. PERMEABLE PAVERS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. PERMEABLE PAVERS FUNCTION AS AN EFFECTIVE STORMWATER TREATMENT SYSTEM AND REMAIN CLOG-FREE FOR YEARS WITH REASONABLE GOOD HOUSEKEEPING PRACTICES.
2. KEEP THE PAVEMENT FREE OF LEAVES, WEEDS, AND SEDIMENT.
3. AVOID THE USE OF SAND IN THE WINTER; IF USED, SPREAD SPARINGLY.
4. PERIODICALLY SWEEP THE OPENINGS TO REMOVE CRUST THAT FORMS ON THE SURFACE. A STIFF BRISTLE BROOM WORKS WELL FOR RESIDENTIAL WALKS AND DRIVEWAYS.
5. IF PUDDLES RESULT FROM CLOGGING, INFILTRATION RATES CAN BE RESTORED TO 100% CAPACITY BY REMOVING THE AGGREGATE FROM THE OPENINGS AND REPLACING IT WITH CLEAN MATERIAL.
6. DO NOT PRESSURE WASH.
7. MINIMIZE APPLICATION OF SALT FOR ICE CONTROL.
8. INSPECT ANNUALLY FOR PAVER DETERIORATION.
9. MONITOR PERIODICALLY TO ENSURE THAT THE PAVERS DRAIN EFFECTIVELY AFTER STORMS.
10. PERIODICALLY ADD JOINT MATERIAL TO REPLACE LOST MATERIAL.
11. MAJOR CLOGGING MAY NECESSITATE REPLACEMENT OF PAVERS AND POSSIBLY FILTER COURSE AND SUB-BASE COURSE.

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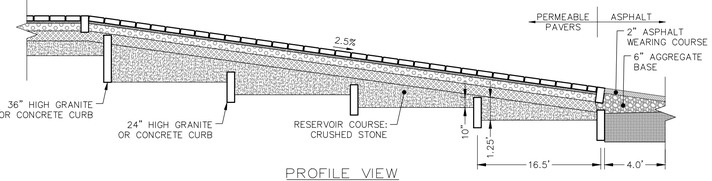

PROFILE VIEW

MAINTENANCE:

- PERMEABLE PAVERS FUNCTION AS AN EFFECTIVE STORMWATER TREATMENT SYSTEM AND REMAIN CLOG-FREE FOR YEARS WITH REASONABLE GOOD HOUSEKEEPING PRACTICES.
- KEEP THE PAVEMENT FREE OF LEAVES, WEEDS, AND SEDIMENT.
- AVOID THE USE OF SAND IN THE WINTER; IF USED, SPREAD SPARINGLY.
- PERIODICALLY SWEEP THE OPENINGS TO REMOVE CRUST THAT FORMS ON THE SURFACE. A STIFF BRISTLE BROOM WORKS WELL FOR RESIDENTIAL WALKS AND DRIVEWAYS.
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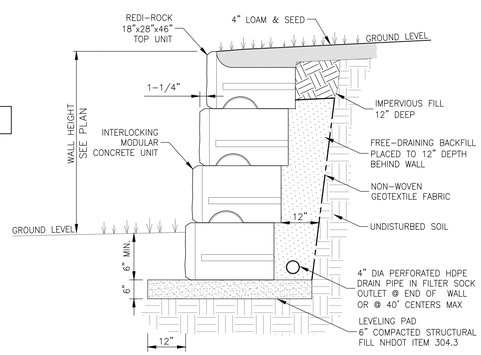

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GENERAL NOTES

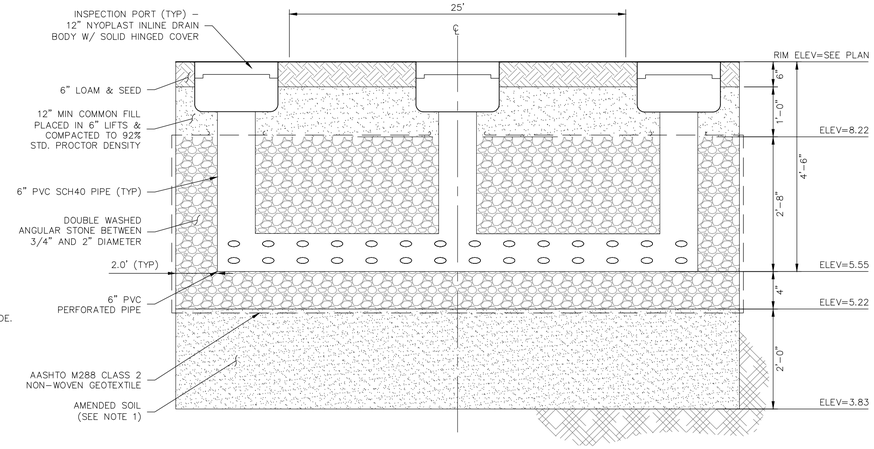
1. THIS DETAIL IS ONLY FOR WALLS LESS THAN 4 FEET IN HEIGHT.
2. WALL DESIGNS SHALL CONSIDER EFFECTS OF SLOPE, TRAFFIC LOADS, AND/OR BUILDING LOADS AS REQUIRED.
3. BLOCK COLOR SHALL BE DETERMINED BY OWNERS REPRESENTATIVE.
4. FINAL WALL DESIGN SHALL BE SUBJECT TO THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER.
5. IF CONDITIONS ARE DIFFERENT THAN THOSE STATED IN THESE DRAWINGS AND SPECIFICATIONS, THE CONTRACTOR MUST CONTACT THE DESIGN ENGINEER PRIOR TO PROCEEDING WITH THE CONSTRUCTION OF THE WALL.

MANUFACTURER'S DESIGN

1. DESIGN SHALL BE FROM THE WALL MANUFACTURER.
2. DESIGN CALCULATIONS AND PLANS SHALL BE SUBMITTED TO THE OWNER AND ENGINEER OF RECORD FOR APPROVAL.
3. DESIGN CALCULATIONS TO INCLUDE SAFETY FACTORS AGAINST OVERTURNING, SLIDING, BEARING CAPACITY, GEOGRID PULLOUT AND GLOBAL STABILITY. MINIMUM FACTORS OF SAFETY ARE INDICATED BELOW.
4. THE WALL DESIGN ENGINEER SHALL COMPLETE SUFFICIENT INSPECTIONS DURING CONSTRUCTION TO CERTIFY WORK IS COMPLETE IN ACCORDANCE WITH DESIGN.

DRAINAGE NOTES

1. CONTRACTOR SHALL DIRECT SURFACE RUNOFF AWAY FROM THE WALL DURING CONSTRUCTION.
2. ANY SURFACE DRAINAGE FEATURES, FINISH GRADING, PAVEMENT OR OTHER SURFACE TREATMENT SHALL BE INSTALLED IN THE AREA OF THE WALL CONCURRENTLY WITH WALL CONSTRUCTION



NOTES:

1. THE INFILTRATION RATE FOR THE AMENDED SOIL BENEATH THE SYSTEM SHALL NOT BE MORE THAN 10 INCHES PER HOUR, AS DETERMINED BY LABORATORY MEASUREMENTS METHODS DESCRIBED IN ENV-WQ 1504.14(e).

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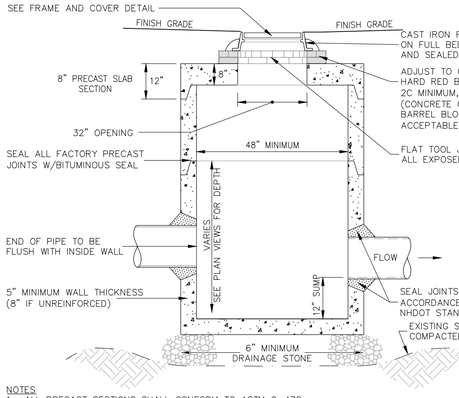

NOTES

1. ALL PRECAST SECTIONS SHALL CONFORM TO ASTM C-478
2. MANHOLES SHALL MEET NHDOT SPECIFICATIONS.
3. ALL COMPONENTS SHALL BE DESIGNED FOR HS-20 LOADING
4. REINFORCING SHALL CONFORM TO ASTM 185 OR ASTM 1497 & ASTM A615, GRADE 60.
5. ALL CONCRETE SHALL BE NHDOT CLASS A.

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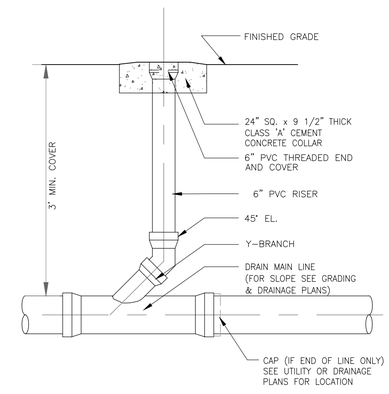

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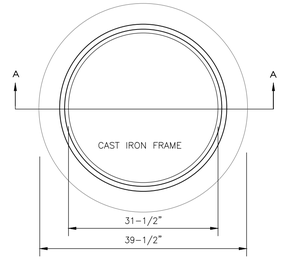
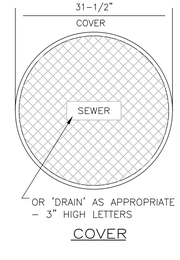


PLAN VIEW



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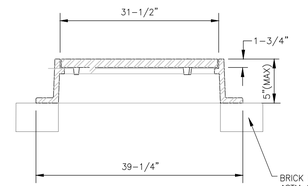

SECTION A–A

NOTES

1. FRAMES AND COVERS SHALL BE MANUFACTURED FROM DUCTILE IRON IN ACCORDANCE WITH ISO 1083.
2. COVERS SHALL BE ON MAN OPERABLE USING STANDARDS TOOLS AND SHALL BE CAPABLE OF WITHSTANDING A TEST LOAD OF 120,000 LBS (H20 REQUIREMENT).
3. FRAME SHALL INCORPORATE A SEATING GASKET.
4. FLANGE SHALL INCORPORATE BEDDING SLOTS AND BOLT HOLES.
5. ALL COMPONENTS SHALL BE BLACK COATED.
6. MANHOLE FRAME AND COVER SHALL BE PER TOWN OF TILTON STANDARDS.

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DIG SAFE – CALL BEFORE YOU DIG – CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE – HANNAH E. GIOVANNUCCI No.15699 – LICENSED PROFESSIONAL ENGINEER – 11/23/2021

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

DETAILS

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: NTS **SEPTEMBER 29, 2021**

REV.	DATE	DESCRIPTION	DR	CK
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

Seacoast Division

TFM

Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists

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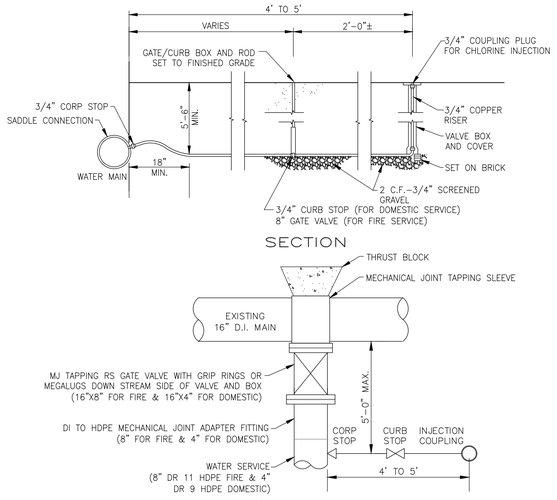

NOTES
1. ALL MATERIAL, INSTALLATION PROCEDURES, MANUFACTURERS, AND DIMENSIONAL REQUIREMENTS SHALL CONFORM TO PORTSMOUTH'S INFRASTRUCTURE DESIGN STANDARDS AND PORTSMOUTH DPW'S ESTABLISHED RULES AND PROCEDURES.
2. CHLORINATION AND TESTING SHALL CONFORM TO AWWA C651.
3. DOMESTIC LINE MUST BE FLUSHED AND DISINFECTED BEFORE THE LINES ENTER THE BUILDING.

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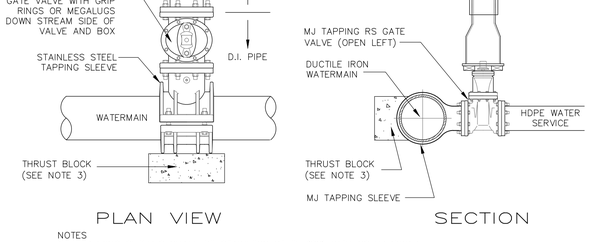

NOTES
1. TAPPING SLEEVES SHALL BE STAINLESS STEEL (SS) WITH SS HARDWARE.
2. ALL PIPE SHOULD HAVE A MINIMUM DEPTHS OF 6' FROM TOP OF PIPE TO FINISH GRADE PER NHDOT REQUIREMENTS WITHIN THE RIGHT OF WAY.
3. PRECAST CONCRETE THRUST BLOCK TO BE USED, SIZE TO BE BASED ON SIZE OF FITTING AND PRESSURE IN WATERMAIN.

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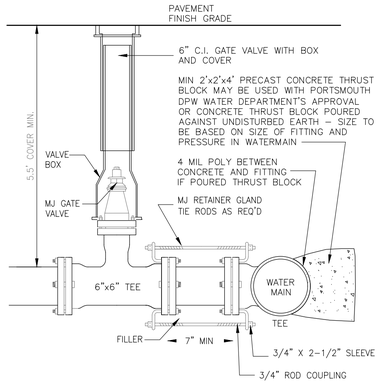

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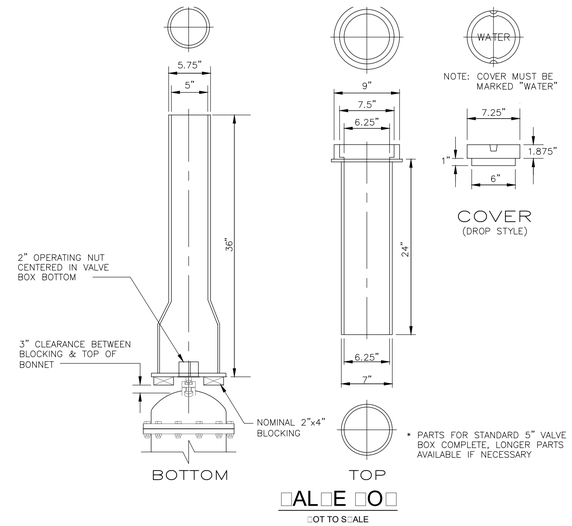

* PARTS FOR STANDARD 5" VALVE BOX COMPLETE, LONGER PARTS AVAILABLE IF NECESSARY

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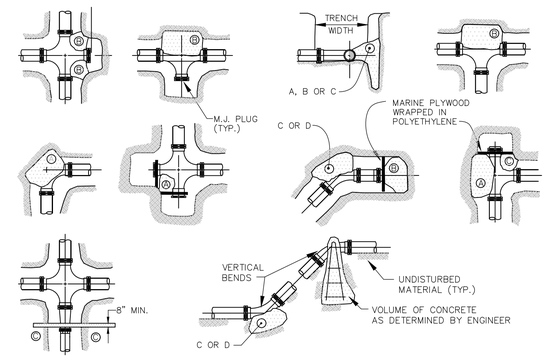


BEARING AREA REQUIRED, SQUARE FEET

TYPE OF BEARING MATERIAL AND ALLOWABLE LOADS, pfs	4" AND LESS DEGREE BEND				6" AND 8" DEGREE BEND				10" AND 12" DEGREE BEND			
	11 1/4	22 1/2	45	90	11 1/4	22 1/2	45	90	11 1/4	22 1/2	45	90
LOOSE SAND OR MEDIUM CLAY - 2,000	1.0	2.0	2.7	4.0	1.5	3.0	6.0	10.0	3.0	6.2	12.0	22.0
PACKED GRAVEL AND SAND - 4,000	1.0	1.0	1.5	2.0	1.0	1.5	3.0	5.0	1.5	3.1	6.0	11.0
ROCK - 10,000	1.0	1.0	1.0	1.0	1.0	1.0	1.2	2.0	1.0	1.3	2.4	4.4

BEARING AREA REQUIRED, SQUARE FEET

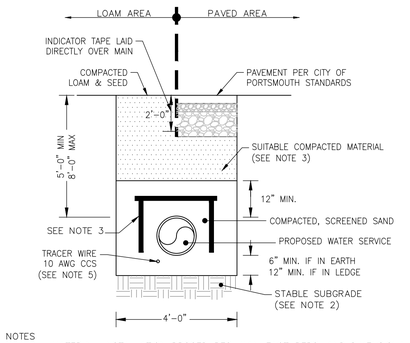
TYPE OF BEARING MATERIAL AND ALLOWABLE LOADS, pfs	14" AND 16" DEGREE BEND OR DEFLECTION				18" AND 20" DEGREE BEND OR DEFLECTION			
	11 1/4	22 1/2	45	90	11 1/4	22 1/2	45	90
LOOSE SAND OR MEDIUM CLAY - 2,000	6.0	12.0	22.5	40.0	9.5	19.0	37.0	67.0
PACKED GRAVEL AND SAND - 4,000	3.0	6.0	11.3	20.0	4.8	9.5	18.5	33.5
ROCK - 10,000	1.2	2.4	4.5	8.0	2.0	3.8	7.4	13.5

NOTES

1. ALL MATERIAL, INSTALLATION PROCEDURES, MANUFACTURERS, AND DIMENSIONAL REQUIREMENTS SHALL CONFORM TO PORTSMOUTH'S INFRASTRUCTURE DESIGN STANDARDS AND PORTSMOUTH DPW'S ESTABLISHED RULES AND PROCEDURES.
2. A PRECAST CONCRETE THRUST BLOCK IS PREFERRED BY PORTSMOUTH DPW AND MUST CONFORM TO PORTSMOUTH DPW'S INFRASTRUCTURE DESIGN STANDARDS.
3. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL, WHERE TRENCH WALL HAS BEEN DISTURBED. EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO PIPE JOINTS SHALL BE COVERED WITH CONCRETE.
4. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
5. PLACE BOARD IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCKS. PLACE ROOFING FELT AROUND HYDRANT ELBOW BEFORE POURING THRUST BLOCKS AND ENSURE CONCRETE DOES NOT PLUG HYDRANT DRAIN PORTS.

T□RUST □LO□□S

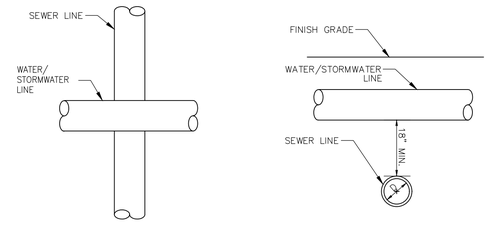
NOT TO SCALE



NOTES
1. ALL MATERIAL, INSTALLATION PROCEDURES, MANUFACTURERS, AND DIMENSIONAL REQUIREMENTS SHALL CONFORM TO PORTSMOUTH'S INFRASTRUCTURE DESIGN STANDARDS AND PORTSMOUTH DPW'S ESTABLISHED RULES AND PROCEDURES.
2. IN LOCATIONS WITH EXISTING FILL SOILS, CONSULT WITH THE GEOTECHNICAL ENGINEER FOR METHODS TO PREPARE STABLE SUBGRADE AND REMOVAL OF MATERIAL IF NECESSARY.
3. SUITABLE MATERIAL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER 6" IN THE LARGEST DIMENSION, OR ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION. SUITABLE MATERIAL SHALL BE PLACED IN 12" LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
4. RIGID STYROFOAM INSULATION (DOW HI-40 OR EQUAL) WITH 6" CLEAN SAND BLANKET AROUND WATER PIPE WHERE WATER AND DRAIN PIPE SEPARATION IS LESS THAN 18".
5. TRACER WIRE SPECIFIED FOR NON-METALLIC WATER LINES SHALL BE INSTALLED BELOW AND TO THE SIDE OF THE PIPE AND PER THE MANUFACTURER REQUIREMENTS. TRACER WIRE PRODUCT SHALL BE SELECTED FOR OPEN CUT INSTALLATION TECHNIQUE.

□ ATER TRE□□□

NOT TO SCALE



NOTES:

1. A 10 FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPERATION SHALL BE PROVIDED BETWEEN ALL WATER/STORMWATER AND SANITARY SEWER LINES. AN 18" MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/STORMWATER AND SANITARY SEWER CROSSINGS.
2. PROTECTION OF WATER SUPPLIES
   1. THERE SHALL BE NO PHYSICAL CONNECTION BETWEEN A PUBLIC OR PRIVATE POTABLE WATER SUPPLY SYSTEM AND A SEWER OR SEWER APPURTENANCE WHICH WOULD PERMIT THE PASSAGE OF SEWAGE OR POLLUTED WATER INTO THE POTABLE SUPPLY. NO WATER PIPE SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF A SEWER OR SEWER MANHOLE.
   2. NO SEWER SHALL BE LOCATED WITHIN THE WELL PROTECTED RADII ESTABLISHED IN ENV-WS 300 FOR ANY PUBLIC WATER SUPPLY WELLS OR WITHIN 100 FEET OF ANY PRIVATE WATER SUPPLY WELL.
   3. SEWERS SHALL BE LOCATED AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN.
   4. A DEVIATION FROM THE SEPARATION REQUIREMENTS OF (2) OR (3) ABOVE SHALL BE ALLOWED WHERE NECESSARY TO AVOID CONFLICT WITH SUBSURFACE STRUCTURES, UTILITY CHAMBERS, AND BUILDING FOUNDATIONS, PROVIDED THAT THE SEWER IS CONSTRUCTED IN ACCORDANCE WITH THE FORCE MAIN CONSTRUCTION REQUIREMENTS SPECIFIED IN ENV-WQ 704.06.
   5. WHENEVER SEWERS MUST CROSS WATER MAINS, THE SEWER SHALL BE CONSTRUCTED AS FOLLOWS:
      1. VERTICAL SEPARATION OF THE SEWER AND WATER MAIN SHALL BE NOT LESS THAN 18 INCHES, WITH WATER ABOVE SEWER; AND
      2. SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM THE WATER MAIN.

□ ATER□STORM□ ATER □ SE□ ER □ROSS□□□

NOT TO SCALE

DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANNUCCI No.15699
LICENSED PROFESSIONAL ENGINEER

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

DETAILS

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: NTS **SEPTEMBER 29, 2021**

REV.	DATE	DESCRIPTION	DR	CK
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

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FILE	DR	HEG	FB	–	
47099.01	CK	JCC	CADFILE	47099-01_DETAILS_MAIN	C-15

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GENERAL NOTES

1. IT IS THE INTENTION THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE, STRENGTH AND LEAKPROOF QUALITIES CONSIDERED NECESSARY FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS, SHALL BE AS SHOWN ON THE DRAWING. MANHOLES SHALL BE AN ASSEMBLY OF PRECAST SECTIONS, WITH STEEL REINFORCEMENT, WITH ADEQUATE JOINTING, OR CONCRETE CAST MONOLITHICALLY IN PLACE WITH REINFORCEMENT. IN ANY APPROVED MANHOLE, THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS (H-20 LOADING) WITHOUT FAILURE AND PREVENT LEAKAGE IN EXCESS OF ONE GALLON PER DAY PER VERTICAL FOOT OF MANHOLE, CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE. A PERIOD GENERALLY IN EXCESS OF 25 YEARS IS TO BE UNDERSTOOD IN BOTH CASES.
2. BARRELS, CONE SECTIONS AND CONCRETE GRADE RINGS SHALL BE PRECAST REINFORCED CONCRETE AND SHALL CONFORM ENV-WQ 704.12 & 704.13.
3. PRECAST CONCRETE BARREL SECTIONS, CONES AND BASES SHALL CONFORM TO ASTM C478-06.
4. BASE SECTIONS SHALL BE OF MONOLITHIC CONSTRUCTION TO A POINT AT LEAST 6 INCHES ABOVE THE CROWN OF THE INCOMING PIPE.
5. MANHOLE CONE SECTIONS SHALL BE ECCENTRIC IN SHAPE.
6. ALL PRECAST SECTIONS AND BASES SHALL HAVE THE DATE OF MANUFACTURE AND THE NAME OR TRADEMARK OF THE MANUFACTURER IMPRESSED OR INDELIBLY MARKED ON THE INSIDE WALL.
7. ALL PRECAST SECTIONS AND BASES SHALL BE COATED ON THE EXTERIOR WITH A BITUMINOUS DAMP-PROOFING COATING.
8. SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H-20 LOADS.
9. HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF AN OVERLAPPING TYPE, SEALED FOR WATERTIGHTNESS USING A DOUBLE ROW OF AN ELASTOMERIC OR MASTIC-LIKE SEALANT. APPROVED ELASTOMERIC SEALANTS ARE:

   SIKAFLEX-12-SL

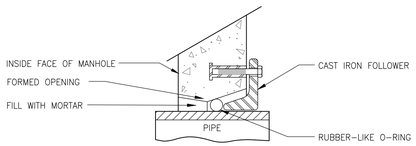
   SONNEBORN BUILING PRODUCTS-SONOLASTIC SL-1
10. THE MINIMUM INTERNAL DIAMETER OF MANHOLES SHALL BE 48 INCHES. FOR SEWERS LARGER THAN 24-INCH DIAMETER. MANHOLE DIAMETERS SHALL BE INCREASED SO AS TO PROVIDE AT LEAST 12-INCHES OF SHELF ON EACH SIDE OF THE SEWER.
11. LEAKAGE TEST SHALL BE PERFORMED IN ACCORDANCE TO ENV-WQ 704.17.
    (a) ALL MANHOLES SHALL BE TESTED FOR LEAKAGE USING A VACUUM TEST IN ACCORDANCE WITH THE ASTM C1244 STARNDARD IN EFFECT WHEN THE TESTING IS PERFORMED.
    (b) THE MANHOLE VACUUM TEST SHALL CONFORM TO THE FOLLOWING:
        1. THE INITIAL VACUUM GUAGE TEST PRESSURE SHALL BE 10 INCHES Hg.
        2. THE MINIMUM ACCEPTABLE TEST HOLD TIME FOR 1-INCH Hg PRESSURE DROP TO 9 INCHES SHALL BE:
           A. NOT LESS THAN 2 MINUTES FOR MANHOLES LESS THAN 10 FEET DEEP.
           B. NOT LESS THAN 2.5 MINUTES FOR MANHOLES 10 TO 15 FEET DEEP.
           C. NOT LESS THAN 3 MINUTES FOR MANHOLES MORE THAN 15 FEET DEEP.
    (c) THE MANHOLE SHALL BE REPAIRED AND RETESTED IF THE TEST HOLD TIMES FAIL TO ACHIEVE THE ACCEPTANCE LIMITS SPECIFIED IN (b) ABOVE.
    (d) INVERTS AND SHELVES SHALL NOT BE INSTALLED UNTIL AFTER SUCCESSFUL TESTING IS COMPLETE.
    (e) FOLLOWING COMPLETION OF THE LEAKAGE TEST, THE FRAME AND COVER SHALL BE PLACED ON TOP OF THE MANHOLE OR SOME OTHER MEANS USED TO PREVENT
12. ACCIDENTAL ENTRY BY UNAUTHORIZED PERSONS, CHILDREN OR ANIMALS, UNTIL THE CONTRACTOR IS READY TO MAKE FINAL ADJUSTMENT TO GRADE.
13. BRICK MASONRY FOR SHELF, INVERT AND GRADE ADJUSTMENT SHALL COMPLY WITH ASTM C32-05, CLAY OR SHALE, FOR GRADE SS HARD BRICK.

    MORTAR SHALL BE COMPOSED OF PORTLAND CEMENT AND SAND WITH OR WITHOUT HYDRATED LIME ADDITION. PROPORTIONS IN MORTAR OF PARTS BY VOLUMES SHALL BE:
    (a) 4.5 PARTS SAND AND 1.5 PARTS CEMENT; OR
    (b) 4.5 PARTS SAND, 1 PART CEMENT AND 0.5 PART HYDRATED LIME

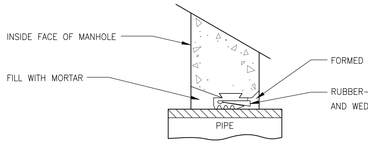
    CEMENT SHALL BE TYPE II PORTLAND CEMENT CONFORMING TO ASTM C150-05. HYDRATED LIME SHALL BE TYPE S CONFORMING TO ASTM C207-06 "STANDARD SPECIFICATIONS FOR HYDRATED LIME FOR MASONRY PURPOSES". SAND SHALL CONSIST OF INERT NATURAL SAND CONFORMING TO ASTM C33-03 "STANDARD SPECIFICATIONS FOR CONCRETE, FINE AGGREGATES".
14. INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED OR PRECAST CONCRETE SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF THE PIPE AND FLOW. AT CHANGES IN DIRECTIONS, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY.
15. FRAMES AND COVERS: MANHOLES FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN, CLASS 30, CONFORMING TO ASTM A48/48M AND PROVIDE A 30-INCH CLEAR OPENING. 3-INCH WORD (MINIMUM HEIGHT) LETTERS "SEWER" SHALL BE PLAINLY CAST INTO THE TOP SURFACE. THE CASTING SHALL BE OF EVEN GRAINED CAST IRON, SMOOTH, AND FREE FROM SCALE, LUMPS, BLISTERS, SAND HOLES AND DEFECTS. CONTACT SURFACES OF COVERS AND FRAMES SHALL BE MACHINED AT THE FOUNDRY TO PREVENT ROCKING OF COVERS IN ANY ORIENTATION.
16. BEDDING: PRECAST BASES SHALL BE PLACED ON A 6-INCH LAYER OF COMPACTED BEDDING MATERIAL THAT CONFORMS TO ASTM C33-03 NO. 67 STONE AND FREE FROM CLAY, LOAM AND ORGANNIC MATTER. THE EXCAVATION SHALL BE PROPERLY DEWATERED WHILE PLACING BEDDING MATERIAL AND SETTING OF THE BASE OR POURING CONCRETE. WATER-STOPS SHALL BE USED AT THE HORIZONTAL JOINT OF THE CAST-IN-PLACE MANHOLES.

100% PASSING	1" SCREEN
90-100% PASSING	3/4" SCREEN
20-55% PASSING	3/8" SCREEN
0-10% PASSING	#4 SIEVE
0-5% PASSING	#8 SIEVE

17. FLEXIBLE JOINT: A FLEXIBLE JOINT SHALL BE PROVIDED WIbHIN THE FOLLOWING DISTANCES FROM ANY MANHOLE CONNECTION: (a) WITHIN 48 INCHES FOR REINFORCED CONCRETE PIPE (RCP). (b) WITHIN 60 INCHES FOR PVC PIPE LARGER THAN 15" DIAMETER.
18. NO FLEXIBLE JOINT SHALL BE REQUIRED FOR DUCTILE IRON PIPE OR PVC PIPE UP THROUGH 15-INCH DIAMETER.
19. PIPE TO MANHOLE JOINTS SHALL BE ONLY AS FOLLOWS:
    A. ELASTOMERIC, RUBBER SLEEVE WITH WATERTIGHT JOINTS AT THE MANHOLE OPENING AND PIPE SURFACES.
    B. CAST INTO WALL OR SECUREED WITH STAINLESS STEEL CLAMPS.
    C. ELASTOMERIC SEALING RING CAST IN THE MANHOLE OPENING WITH THE SEAL FORMED ON THE SURFACE OF THE PIPE BY COMPRESSION OF THE RING.
    D. ON-SHRINK GROUTED JOINTS WHERE WATERTIGHT BONDING TO THE MANHOLE AND PIPE CAN BE OBTAINED.
20. THE INVERT OF THE INCOMING PIPE SHALL BE NO MORE THAN 6 INCHES ABOVE THE OUTGOING PIPE UNLESS A DROP ENTRY IS USED.



RES-SEAL
(OR ACCEPTABLE SUBSTITUTE)



PRESS-WEDGE II
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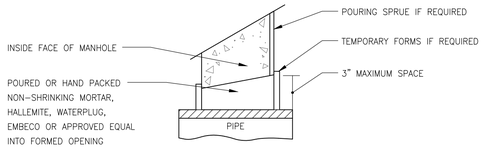
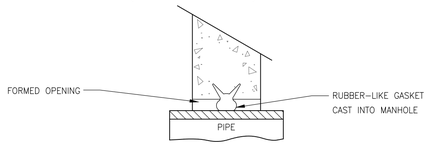


NON-SHRINKING MORTAR
(OR ACCEPTABLE SUBSTITUTE)



A-LOK
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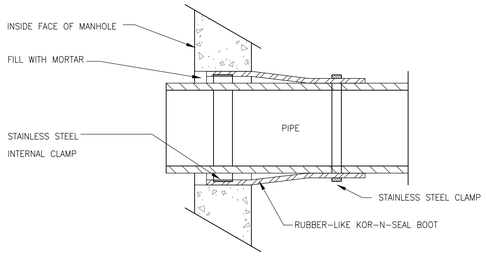

KOR-N-SEAL JOINT SLEEVE
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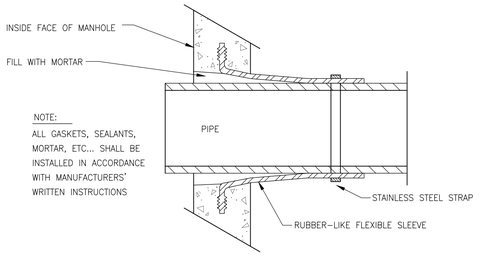
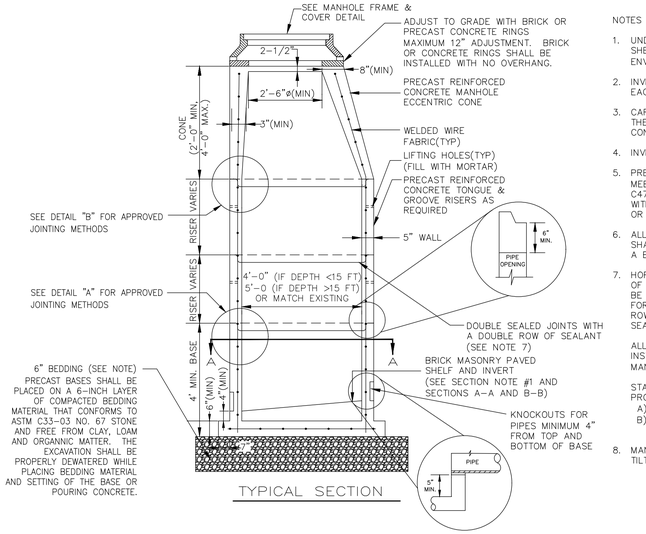


LOCK-JOINT FLEXIBLE MANHOLE SLEEVE
(OR ACCEPTABLE SUBSTITUTE)

DETAIL "A" – PIPE TO MANHOLE JOINTS



TYPICAL SECTION

NOTES

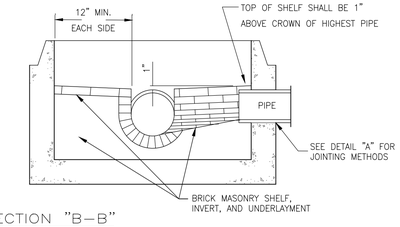
1. UNDERLAYMENT OF MANHOLE INVERT AND SHELF SHALL BE BRICK MASONRY PER ENV-WQ 704.12(K).
2. INVERT AND SHELF TO BE PLACED AFTER EACH LEAKAGE TEST.
3. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT.
4. INVERT BRICKS SHALL BE LAID ON EDGE.
5. PRECAST CONCRETE MANHOLES SHALL MEET AASHTO M199-93/ ASTM C478-90B, RATED FOR HS-20 LOADING WITH CONCRETE STRENGTH OF 4000 PSI OR GREATER.
6. ALL PRECAST SECTIONS AND BASES SHALL BE COATED ON THE EXTERIOR WITH A BITUMINOUS DAMP-PROOFING COATING.
7. HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF AN OVERLAPPING TYPE, SEALED FOR WATERTIGHTNESS USING A DOUBLE ROW OF AN ELASTOMERIC OR MASTIC-LIKE SEALANT.

   ALL GASKETS AND SEALANTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS.

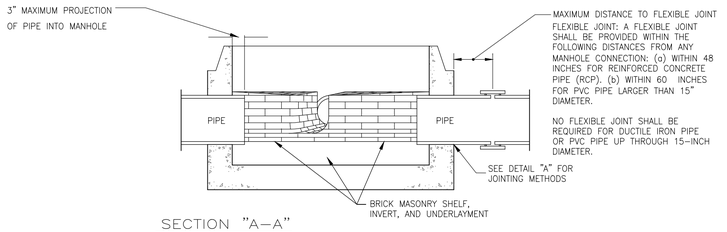
   STATE OF NEW HAMPSHIRE APPROVED PRODUCTS
   A) SIKAFLEX-12-SL
   B) SONNEBORN BUILDING PRODUCTS SONOLASTIC SL-1
8. MANHOLE STEPS ARE PROHIBITED BY TILTON SEWER COMMISSION.

NOTES:

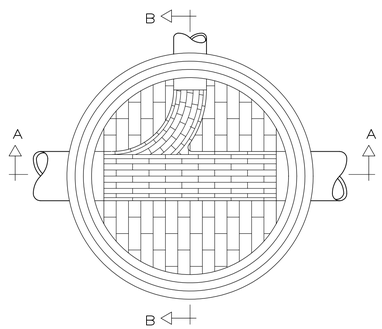
1. INVERT AND SHELF TO BE PLACED AFTER LEAKAGE TEST.
2. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT. INVERT BRICKS SHALL BE LAID ON EDGE.
3. BASE SECTION TO BE FULL WALL THICKNESS AND MONOLITHIC TO A POINT 6" ABOVE THE PIPE CROWN.



SECTION "B-B"



SECTION "A-A"



TYPICAL MANHOLE – PLAN VIEW

STA□DARD MA□□OLE
NOT TO SCALE

NOTE
1. CONSTRUCT SECTION FOR ALL SANITARY SEWERS AND SOLID DRAINAGE PIPES.

UTILITY TRE□□□
NOT TO SCALE

DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE – HANNAH E. GIOVANNUCCI No.15699 – LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	DR	CK
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

DETAILS

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: NTS **SEPTEMBER 29, 2021**

Seacoast Division
TFM
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Structural Engineers
Traffic Engineers
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FILE	47099.01	DR	HEG	FB	–	C-16
		CK	JCC	CADFILE	47099-01_DETAILS_MAIN	

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SEWER SERVICE NOTES

1) MINIMUM SIZE PIPE FOR SEWER SERVICE SHALL BE FOUR INCHES.

2) PIPE AND JOINT MATERIALS:
   A. PLASTIC SEWER PIPE
      1. PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

ASTM STANDARDS	GENERIC PIPE MATERIAL	SIZES APPROVED
D3034	*PVC (SOLID WALL)	8" THROUGH 15" (SDR 35)
F679	PVC (SOLID WALL)	18" THROUGH 27" (T-1 & T-2)
F789	PVC (SOLID WALL)	4" THROUGH 18" (T-1 TO T-3)
F794	PVC (RIBBED WALL)	8" THROUGH 36"
D2680	*ABS (COMPOSITES WALL)	8" THROUGH 15"

*PVC: POLY VINYL CHLORIDE
*ABS: ACRYLONITRILE-BUTADIENE-STYRENE

      2. JOINTS SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D-3212 AND SHALL BE PUSH-ON, BELL AND SPIGOT TYPE.

      ABS TRUSS PIPE AND FITTINGS SHALL CONFORM TO ASTM D-2680, POLYMER COMPOUNDING SHALL BE TO ASTM D-1788 (CLASS 322).

      JOINTS FOR ABS TRUSS PIPE SHALL BE CHEMICAL WELDED COUPLINGS TYPE SC IN ACCORDANCE WITH ASTM D-2680, FORMING A CHEMICAL WELDED JOINT.

   B. DUCTILE-IRON PIPE, FITTINGS AND JOINTS.

      1. DUCTILE IRON PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING STANDARDS OF THE AMERICAN WATER WORKS ASSOCIATION (AWWA).
         A21.50 THICKNESS DESIGN OF DUCTILE IRON PIPE AND WITH ASTM A-536 DUCTILE IRON CASTINGS.
         A21.51 DUCTILE IRON PIPE, CENTRIFUGALLY CAST IN METAL MOLDS OR SAND-LINED MOLDS FOR WATER OR OTHER LIQUIDS.
      2. JOINTS SHALL BE OF THE MECHANICAL OR PUSH-ON TYPE. JOINTS AND GASKETS SHALL CONFORM TO:
         A21.11 RUBBER GASKETS JOINTS FOR CAST IRON PRESSURE PIPE & FITTINGS

3) DAMAGED PIPE SHALL BE REJECTED AND REMOVED FROM THE JOB SITE.

4) JOINTS SHALL BE DEPENDENT UPON A NEOPRENE OR ELASTOMERIC GASKET FOR WATER-TIGHTNESS. ALL JOINTS SHALL BE PROPERLY MATCHED WITH THE PIPE MATERIALS USED. WHERE DIFFERING MATERIALS ARE TO BE CONNECTED, AS AT THE STREET SEWER WYE OR AT THE FOUNDATION WALL, APPROPRIATE MANUFACTURED ADAPTERS SHALL BE USED.

5) TEES AND WYES: WHERE A TEE OR WYE IS NOT AVAILABLE IN THE EXISTING STREET SEWER, AN APPROPRIATE CONNECTION SHALL BE MADE, FOLLOWING MANUFACTURERS' INSTRUCTIONS USING A BOLTED, CLAMPED OR EPOXY-CEMENTED SADDLE TAPPED INTO A SMOOTHLY DRILLED OR SAWN OPENING IN THE SEWER. THE PRACTICE OF BREAKING AN OPENING WITH A SLEDGE HAMMER, STUFFING CLOTH OR OTHER SUCH MATERIAL AROUND THE JOINT, OR APPLYING MORTAR TO HOLD THE CONNECTION, AND ANY OTHER SIMILAR CRUDE PRACTICES OR INEPT OR HASTY IMPROVISATIONS WILL NOT BE PERMITTED. THE CONNECTION SHALL BE CONCRETE ENCASED AS SHOWN IN THE DETAIL UP TO AND INCLUDING 15" DIAMETER.

6) SEWER SERVICE INSTALLATION: THE PIPE SHALL BE HANDLED, PLACED AND JOINTED IN ACCORDANCE WITH INSTALLATION GUIDES OF THE APPROPRIATE MANUFACTURER. IT SHALL BE CAREFULLY BEDDED ON A 6 INCH LAYER OF CRUSHED STONE AND/OR GRAVEL AS SPECIFIED IN NOTE 10. BEDDING AND RE-FILL FOR DEPTH OF 12 INCHES ABOVE THE TOP OF THE PIPE SHALL BE CAREFULLY AND THOROUGHLY TAMPED BY HAND OR WITH APPROPRIATE MECHANICAL DEVICES.

   THE PIPE SHALL BE LAID AT A CONTINUOUS AND CONSTANT GRADE FROM THE STREET SEWER CONNECTION TO THE FOUNDATION AT A GRADE OF NOT LESS THAN 1/8" INCH PER FOOT. PIPE JOINTS MUST BE MADE UNDER DRY CONDITIONS. IF WATER IS PRESENT, ALL NECESSARY STEPS SHALL BE TAKEN TO DEWATER THE TRENCH.

7) TESTING: THE COMPLETED SEWER SERVICE SHALL BE SUBJECTED TO A THIRD PARTY LEAKAGE TEST IN ANY OF THE FOLLOWING MANNERS: (PRIOR TO BACKFILLING)

   A. AN OBSERVATION TEE SHALL BE INSTALLED AS SHOWN AND WHEN READY FOR TESTING, AN INFLATABLE BLADDER OR PLUG SHALL BE INSERTED JUST UPSTREAM FROM THE OPENING IN THE TEE. AFTER INFLATION, WATER SHALL BE INTRODUCED INTO THE SYSTEM ABOVE THE PLUG TO A HEIGHT OF 5 FEET ABOVE THE LEVEL OF THE PLUG.

   B. THE PIPE SHALL BE LEFT EXPOSED AND LIBERALLY HOSED WITH WATER, TO SIMULATE, AS NEARLY AS POSSIBLE, WET TRENCH CONDITIONS OR, IF TRENCH IS WET, THE GROUND WATER SHALL BE PERMITTED TO RISE IN THE TRENCH OVER THE PIPE. INSPECTIONS FOR LEAKS SHALL BE MADE THROUGH THE CLEANOUT WITH A FLASHLIGHT.

   C. DRY FLUORESCENE DYE SHALL BE SPRINKLED INTO THE TRENCH OVER THE PIPE. IF THE TRENCH IS DRY, THE PIPE SHALL BE LIBERALLY HOSED WITH WATER, OR IF THE TRENCH IS WET, GROUND WATER SHALL BE PERMITTED TO RISE IN THE TRENCH OVER THE PIPE. OBSERVATION FOR LEAKS SHALL BE MADE IN THE FIRST DOWN-STREAM MANHOLE.

   LEAKAGE OBSERVED IN ANY ONE OF THE ABOVE ALTERNATE TESTS SHALL BE CAUSE FOR NON-ACCEPTANCE AND THE PIPE SHALL BE DUG-UP IF NECESSARY AND RE-LAID SO AS TO ASSURE WATER TIGHTNESS.

8) ILLEGAL CONNECTIONS: NOTHING BUT SANITARY WASTE FLOW FROM TOILETS, SINKS, LAUNDRY ETC. SHALL BE PERMITTED. ROOF LEADERS, FOOTING DRAINS, SUMP PUMPS OR OTHER SIMILAR CONNECTIONS CARRYING RAIN WATER, DRAINAGE OR GROUND WATER SHALL NOT BE PERMITTED.

9) WATER SERVICE SHALL NOT BE LAID IN SAME TRENCH AS SEWER SERVICE.

10) BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATERIAL AND MEETING ASTM C33-67.

100% PASSING	1 INCH SCREEN
90%-100% PASSING	3/4 INCH SCREEN
20%-55% PASSING	3/8 INCH SCREEN
0%-10% PASSING	#4 SIEVE
0%-5% PASSING	#8 SIEVE

   WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, SCREENED GRAVEL OR CRUSHED STONE 1/2 INCH TO 1 1/2 INCH SHALL BE USED.

11) LOCATION: THE LOCATION OF THE TEE OR WYE SHALL BE RECORDED AND FILED IN THE MUNICIPAL RECORDS. IN ADDITION, A FERROUS METAL ROD OR PIPE SHALL BE PLACED OVER THE TEE OR WYE AS DESCRIBED IN THE TYPICAL "CHIMNEY" DETAIL, TO AID IN LOCATING THE BURIED PIPE WITH A DIP NEEDLE OR PIPEFINDER.

12) CHIMNEYS: IF VERTICAL DROP INTO SEWER IS GREATER THAN 4 FEET, A CHIMNEY SHALL BE CONSTRUCTED FOR THE SEWER CONNECTION. CHIMNEY INSTALLATION AS RECOMMENDED BY THE PIPE MANUFACTURER MAY BE USED IF APPROVED BY THE ENGINEER.

GRAVITY SEWER NOTES

1. MINIMUM SIZE PIPE FOR GRAVITY SEWER SHALL BE 8-INCHES.

2. PIPE AND JOINT MATERIALS FOR PLASTIC SEWER PIPE SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

ASTM STANDARDS	GENERIC PIPE MATERIAL	SIZES APPROVED
D3034-04a	* PVC (SOLID WALL)	8" THROUGH 15" (SDR 35)
F679-03	PVC (SOLID WALL)	18" THROUGH 27" (T-1 & T-2)
F794-03	PVC (RIBBED WALL)	8" THROUGH 36"
F1760-01(2005)e1	PVC, RECYCLED	ALL DIAMETERS

*PVC: POLY VINYL CHLORIDE

3. PLASTIC SEWER PIPE SHALL HAVE A PIPE STIFFNESS RATING OF AT LEAST 46 POUNDS PER SQUARE INCH AT 5 PERCENT PIPE DIAMETER DEFLECTION, AS MEASURED IN ACCORDANCE WITH ASTM D2412-02 DURING MANUFACTURE.

4. JOINTS SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D-3212-96(a)(2003)e1 AND SHALL BE PUSH-ON, BELL AND SPIGOT TYPE.

5. DUCTILE-IRON PIPE, FITTINGS AND JOINTS SHALL CONFORM TO THE FOLLOWING STANDARDS OF THE AMERICAN WATER WORKS ASSOCIATION (AWWA).

   AWWA C151/A21.51-02 THICKNESS DESIGN OF DUCTILE IRON PIPE AND WITH ASTM A-536-84 (2004) DUCTILE IRON CASTINGS.

   AWWA C151/A21.51-02 DUCTILE IRON PIPE, CENTRIFUGALLY CAST IN METAL MOLDS OR SAND-LINED MOLDS FOR WATER OR OTHER LIQUIDS.

   JOINTS SHALL BE OF THE MECHANICAL OR PUSH-ON TYPE. JOINTS AND GASKETS SHALL CONFORM TO AWWA C151/A21.11 RUBBER GASKETS JOINTS FOR CAST IRON PRESSURE PIPE & FITTINGS.

6. CONCRETE PIPE SHALL CONFORM TO AWWA C302-04.

7. PRESTRESSED CONCRETE CYLINDER PIPE AND FITTINGS SHALL CONFORM TO AWWA C301-99.

   JOINTS SEALS FOR CONCRETE CYLINDER PIPE SHALL BE OIL RESISTANT ELASTOMERIC MATERIAL CONFORMING TO ASWWA C301-99 SPECIFICATIONS.

8. DAMAGED PIPE SHALL BE REJECTED AND REMOVED FROM THE JOB SITE.

9. GRAVITY SEWER PIPE TESTING SHALL BE AS FOLLOWS:

   ALL NEW GRAVITY SEWERS SHALL BE TESTED FOR WATER TIGHTNESS BY THE USE OF LOW-PRESSURE AIR TESTS.

   LOW PRESSURE AIR TESTING SHALL BE IN CONFORMANCE WITH:

   ASTM F1417-92(2005) "STANDARD TEST METHOD FOR INSTALLATION ACCEPTANCE OF PLASTIC GRAVITY SEWER LINES USING LOW PRESSURE AIR".

   UNI-BELL PVC PIPE ASSOCIATION UNI-B-6, "LOW PRESSURE AIR TESTING OF INSTALLED SEWER PIPE".

10. ALL NEW GRAVITY SEWERS SHALL BE CLEANED AND VISUALLY INSPECTED AND SHALL BE TRUE TO LINE AND GRADE FOLLOWING INSTALLATION AND PRIOR TO USE.

11. ALL PLASTIC SEWER PIPE SHALL BE DEFLECTION TESTED NOT LESS THAN 30 DAYS FOLLOWING INSTALLATION.

12. THE MAXIMUM ALLOWABLE DEFLECTION OF FLEXIBLE SEWER PIPE SHALL BE 5.0 PERCENT OF THE AVERAGE INSIDE DIAMETER.

13. TRENCH CONSTUCTION SHALL CONFORM TO THE FOLLOWING:

   SEWERS SHALL BE BURIED TO A MINIMUM DEPTH OF 6' BELOW GRADE IN ALL ROADWAY LOCATIONS AND TO A MINIMUM DEPTH OF 4 FEET BELOW GRADE IN ALL CROSS COUNTRY LOCATIONS.

   WHERE SEWER LINES CROSS WATER PIPES, A MINIMUM OF 18" VERTICAL SEPARATION BETWEEN THE TWO OUTSIDE PIPE WALLS SHALL BE OBSERVED. AT SEWER/WATER INTERSECTIONS, A MINIMUM OF 6 FEET SHALL BE PROVIDED FROM THE WATER LINE TO THE SEWER PIPE JOINT. 12" SEPARATION BETWEEN THE TWO OUTSIDE PIPE WALLS SHALL BE REQUIRED BETWEEN SEWER LINES AND ALL OTHER PIPES.

   TRENCH DIMENSIONS FOR SEWER PIPE LESS THAN 15 INCHES IN DIAMETER, THE ALLOWABLE TRENCH WIDTH AT A PLANE 12 INCHES ABOVE THE PIPE SHALL BE NO MORE THAN 36 INCHES AND FOR PIPE 15 INCHES AND LARGER, THE ALLOWABLE WIDTH SHALL BE EQUAL TO THE PIPES OUTSIDE DIAMETER PLUS 24 INCHES.

   PIPE TRENCH BEDDING MATERIAL AND FILL MATERIAL FOR EXCAVATION BELOW GRADE SHALL BE SCREENED GRAVEL OR CRUSHED STONE TO ASTM C33-03 STONE SIZE NO. 67. THE PIPE SAND BLANKET MATERIAL SHALL BE GRADED SAND FREE FROM ANY ORGANIC MATERIALS, GRADED SUCH THAT 100 PERCENT PASSED THE 1/2-INCH SIEVE AND A MAXIMUM OF 15 PERCENT PASSES A #200 SIEVE. IN LIEU OF A SAND BLANKET, A STONE ENVELOPE 6 INCHES THICK COMPLETELY AROUND THE PIPE USING 3/4-INCH STONE MAY BE USED.

   PIPE BEDDING MATERIAL SHALL EXTEND FROM A HORIZONTAL PLANE THROUGH THE PIPE AXIS TO 6-INCHES BELOW THE BOTTOM OF THE OUTSIDE SURFACE OF THE PIPE.

   PIPE SAND BLANKET MATERIAL SHALL COVER THE PIPE A MINIMUM OF 12 INCHES ABOVE THE CROWN OF THE OUTSIDE SURFACE.

   COMPACTION SHALL BE IN 12-INCH LAYERS FOR BEDDING AND BLANKET MATERIALS.

   BACKFILL MATERIAL SHALL BE IN 3-FOOT LAYERS TO THE GROUND SURFACE EXCEPT FOR ROAD CONSTRUCTION WHERE THE FINAL 3-FEET SHALL BE COMPACTED IN 12-INCH LAYERS TO THE ROAD BASE SURFACE.

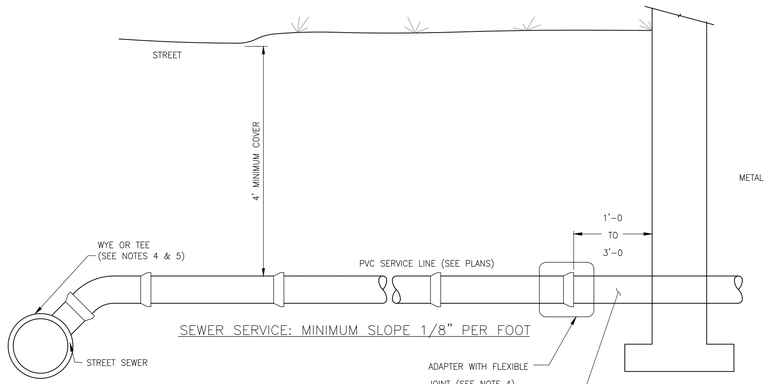
   TRENCH BACKFILL MATERIAL IN ROADWAY LOCATIONS SHALL BE NATURAL MATERIALS EXCAVATED FROM THE TRENCH DURING CONSTRUCTION, EXCLUDING DEBRIS, PAVEMENT PIECES, ORGANIC MATTER, TOP SOIL, WET OR SOFT MUCK, PEAT, CLAY, EXCAVATED LEDGE, ROCKS OVER 6 INCHES IN THE LARGEST DIMENSION, OR ANY OTHER UNSUITABLE MATERIAL NOT APPROVED BY THE ENGINEER.

   TRENCH BACKFILL AT CROSS-COUNTRY LOCATIONS SHALL BE AS DESCRIBED ABOVE EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK OR PEAT, IF HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE SEWER FOR MAINTENANCE AND POSSIBLE RECONSTRUCTION, WHEN NECESSARY WILL BE PRESERVED. BACKFILL SHALL BE MOUNDED 6-INCHES ABOVE ORIGINAL GROUND.

   BASE COURSE MATERIALS FOR TRENCH REPAIRS SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION.

   WHERE SHEETING IS PLACED ALONG SIDE OF THE PIPE AND EXTENDS BELOW MID-DIAMETER, THE SHEETING SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION NOT LESS THAN ONE FOOT ABOVE THE TOP OF THE PIPE AND AT LEAST 3 FEET BELOW FINISH GRADE.

   TRENCHES FOR SEWER PIPES WITH SLOPES OVER 0.08 FEET PER FOOT AND TRENCHES FOR SEWER PIPES BELOW THE SEASONAL HIGH GROUND WATER LEVEL SHALL HAVE IMPERVIOUS TRENCH DAMS CONSTRUCTED EVERY 300 FEET TO PREVENT POTENTIAL DISTURBANCE TO PIPE BEDDING AND BLANKET MATERIALS.



SEWER SERVICE: MINIMUM SLOPE 1/8" PER FOOT

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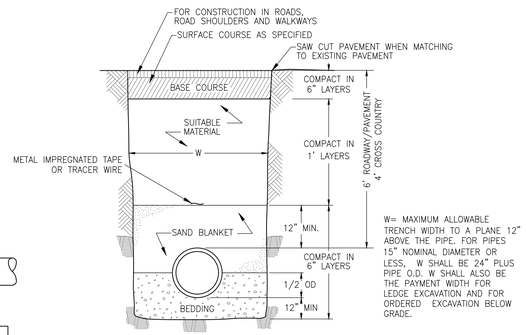

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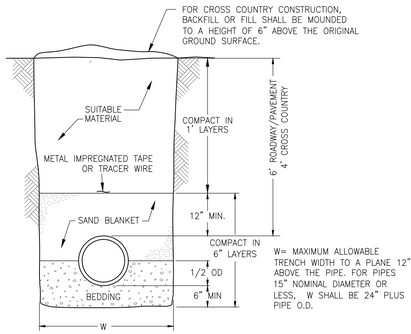

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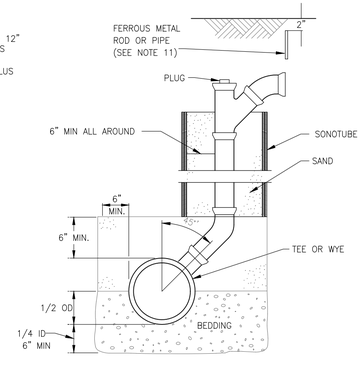

BACKFILLING TO BE BROUGHT UP EVENLY ON ALL SIDES.
(SEE NOTE 12)

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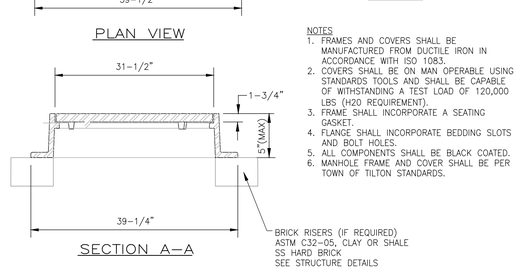

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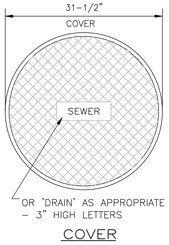
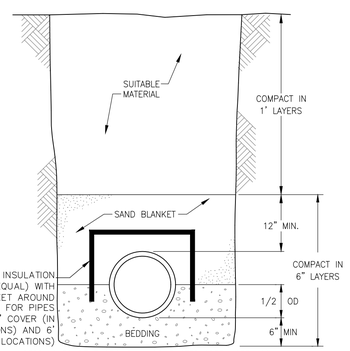


COVER

NOTES
1. FRAMES AND COVERS SHALL BE MANUFACTURED FROM DUCTILE IRON IN ACCORDANCE WITH ISO 1083.
2. COVERS SHALL BE ON MAN OPERABLE USING STANDARDS TOOLS AND SHALL BE CAPABLE OF WITHSTANDING A TEST LOAD OF 120,000 LBS (H20 REQUIREMENT).
3. FRAME SHALL INCORPORATE A SEATING GASKET.
4. FLANGE SHALL INCORPORATE BEDDING SLOTS AND BOLT HOLES.
5. ALL COMPONENTS SHALL BE BLACK COATED.
6. MANHOLE FRAME AND COVER SHALL BE PER TOWN OF TILTON STANDARDS.



BEDDING TO BE THOROUGHLY COMPACTED (SEE NOTE 10)

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DIG SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE
HANNAH E. GIOVANNUCCI
No.15699
LICENSED PROFESSIONAL ENGINEER
11/23/2021

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

DETAILS

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: NTS **SEPTEMBER 29, 2021**

REV.	DATE	DESCRIPTION	DR	CK
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

Seacoast Division
TFM
Civil Engineers
Structural Engineers
Traffic Engineers
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Landscape Architects
Scientists
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Portsmouth, NH 03801
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FILE	DR	FB	–	
47099.01	HEG			C-17
	CK	JCC	CADFILE	47099-01_DETAILS_MAIN

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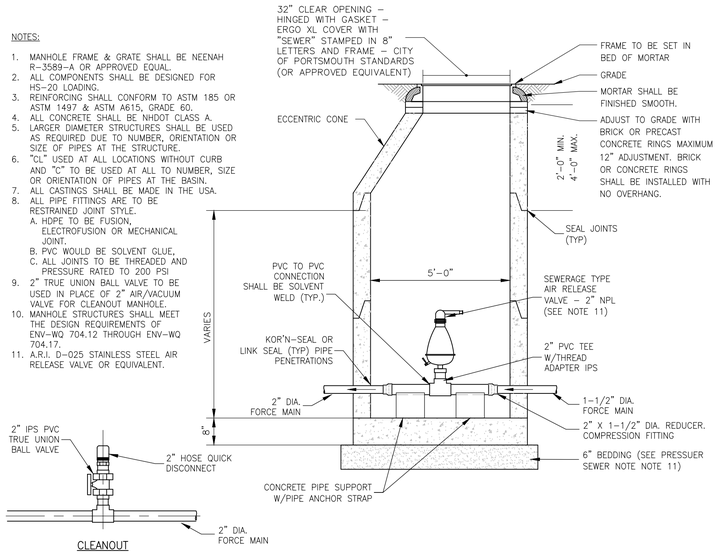
NOTES:

1. MANHOLE FRAME & GRATE SHALL BE NEENAH R-3589-A OR APPROVED EQUAL.
2. ALL COMPONENTS SHALL BE DESIGNED FOR HS-20 LOADING.
3. REINFORCING SHALL CONFORM TO ASTM 185 OR ASTM 1497 & ASTM A615, GRADE 60.
4. ALL CONCRETE SHALL BE NHDOT CLASS A.
5. LARGER DIAMETER STRUCTURES SHALL BE USED AS REQUIRED DUE TO NUMBER, ORIENTATION OR SIZE OF PIPES AT THE STRUCTURE.
6. "CL" USED AT ALL LOCATIONS WITHOUT CURB AND "C" TO BE USED AT ALL TO NUMBER, SIZE OR ORIENTATION OF PIPES AT THE BASIN.
7. ALL CASTINGS SHALL BE MADE IN THE USA.
8. ALL PIPE FITTINGS ARE TO BE RESTRAINED JOINT STYLE.
   A. HDPE TO BE FUSION, ELECTROFUSION OR MECHANICAL JOINT.
   B. PVC WOULD BE SOLVENT GLUE,
   C. ALL JOINTS TO BE THREADED AND PRESSURE RATED TO 200 PSI
9. 2" TRUE UNION BALL VALVE TO BE USED IN PLACE OF 2" AIR/VACUUM VALVE FOR CLEANOUT MANHOLE.
10. MANHOLE STRUCTURES SHALL MEET THE DESIGN REQUIREMENTS OF ENV-WQ 704.12 THROUGH ENV-WQ 704.17.
11. A.R.I. D-025 STAINLESS STEEL AIR RELEASE VALVE OR EQUIVALENT.



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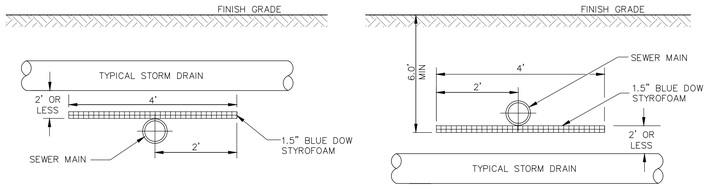

CONDITION I

CONDITION II

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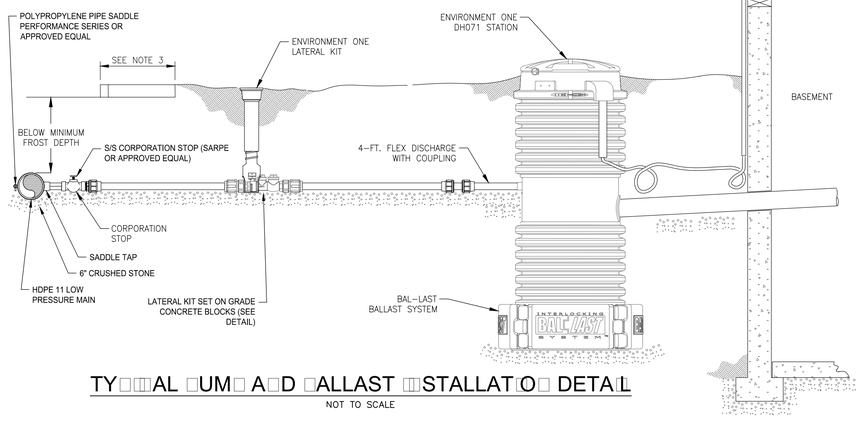
NOTES:

1. THE LENGTH OR WIDTH OF INSULATION SHALL EXTEND 1 STORM DRAIN PIPE DIAMETER BEYOND THE EDGE OF STORM DRAIN PIPE IN EACH DIRECTION OR A MINIMUM OF 2' BEYOND THE CENTERLINE OF THE STORM DRAIN PIPE, WHICHEVER IS GREATER.
2. ALL BUTT JOINT SEAMS TO BE OVERLAPPED WITH A 1' PIECE OF INSULATION CENTERED OVER SEAM.



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NOTES:

1. ASSEMBLY PER MANUFACTURE'S RECOMMENDATIONS.
2. ASSEMBLY SHALL BE PRESSURE TESTED AND RATED TO 235 PSI.
3. CURB STOP SHALL BE PLACED 2-3' (TYP) BEHIND CURB/EDGE OF ROADWAY, OR FROM BACKSIDE OF SIDEWALK.

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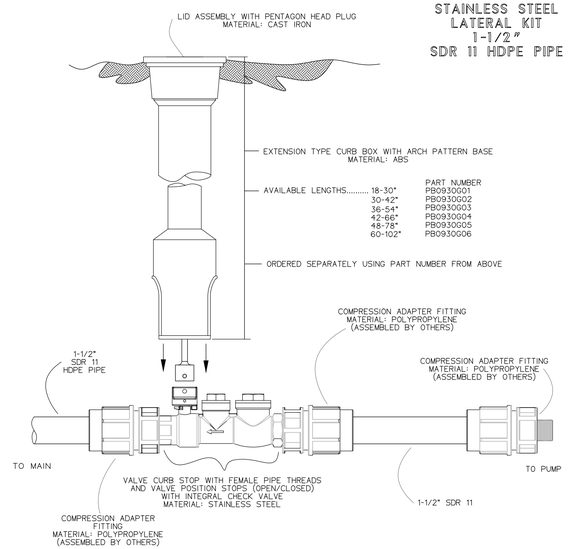

STAINLESS STEEL LATERAL KIT 1-1/2" SDR 11 HDPE PIPE

KIT PARTS ARE NOT ASSEMBLED

NOTES:

1. SS CURB STOP/CHECK VALVE AND FITTINGS ARE PROVIDED SEPARATELY, TO BE ASSEMBLED BY OTHERS
2. TO ASSEMBLE, APPLY A DOUBLE LAYER OF TEFLON TAPE, AND A LAYER OF PIPE DOPE (SUPPLIED BY OTHERS) TO THE THREADS ON THE PLASTIC FITTINGS AND INSTALL PER THE MANUFACTURER'S INSTRUCTIONS
   •FOR SS FITTING INTO SS THREAD, USE EITHER PIPE DOPE OR TEFLON TAPE, NOT BOTH
3. ASSEMBLY IS TO BE PRESSURE TESTED (BY OTHERS)
4. ASSEMBLY IS TO BE USED WITH SDR11 HDPE PIPE
5. TO ORDER SS LATERAL KIT, USE PART NUMBER NC0193G02
6. CURB BOX IS TO BE ORDERED SEPARATELY, SEE ABOVE

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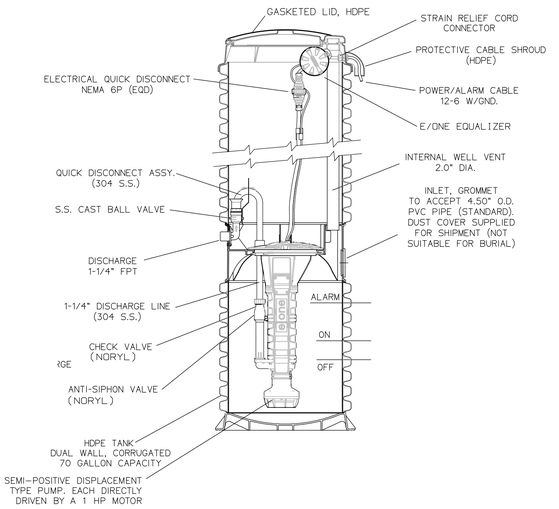
NOTES:

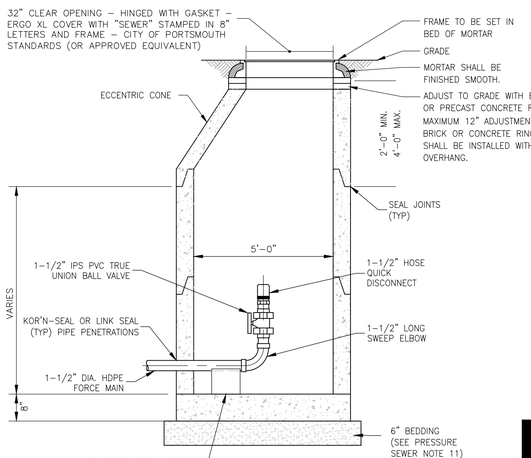
1. MANHOLE FRAME & GRATE SHALL BE NEENAH R-3589-A OR APPROVED EQUAL.
2. ALL COMPONENTS SHALL BE DESIGNED FOR HS-20 LOADING.
3. REINFORCING SHALL CONFORM TO ASTM 185 OR ASTM 1497 & ASTM A615, GRADE 60.
4. ALL CONCRETE SHALL BE NHDOT CLASS A.
5. LARGER DIAMETER STRUCTURES SHALL BE USED AS REQUIRED DUE TO NUMBER, ORIENTATION OR SIZE OF PIPES AT THE STRUCTURE.
6. "CL" USED AT ALL LOCATIONS WITHOUT CURB AND "C" TO BE USED AT ALL TO NUMBER, SIZE OR ORIENTATION OF PIPES AT THE BASIN.
7. ALL CASTINGS SHALL BE MADE IN THE USA.
8. INSTALL PIPE SUPPORTS ON THE SWEEP ELBOW.
9. ALL PIPE FITTINGS ARE TO BE RESTRAINED JOINT STYLE.
   A. HDPE TO BE FUSION, ELECTROFUSION OR MECHANICAL JOINT.
   B. PVC WOULD BE SOLVENT GLUE,
   C. ALL JOINTS TO BE THREADED AND PRESSURE RATED TO 200 PSI
10. MANHOLE STRUCTURES SHALL MEET THE DESIGN REQUIREMENTS OF ENV-WQ 704.12 THROUGH ENV-WQ 704.17.
11. A.R.I. D-025 STAINLESS STEEL AIR RELEASE VALVE OR EQUIVALENT.



CONCRETE BALLAST MAY BE REQUIRED
SEE INSTALLATION INSTRUCTION FOR DETAILS

E□O□E □R□DER □UM□

□OT TO S□ALE



E□O□E TERM□AL FLUS□□□ MA□□OLE

NOT TO SCALE

NOTES:

1. ACTUAL E-ONE PUMP AND SPECIFICATION MUST BE DESIGNED AND PROVIDED BY EONE DESIGNER OR EQUAL.
2. THE PUMP CORE CONTAINS BUILT IN CHECK AND ANTI-SIPHON VALVES. IN ADDITION, THERE IS A REDUNDANT UNILATERAL CHECK AND ISOLATION VALVE AT THE LOT LINE WITH THE STAINLESS STEEL ASSEMBLY.
3. THE STATION MONITOR CONTAINS A HIGH LEVEL ALARM. THE HIGH LEVEL ALARM IS RUN OFF A REDUNDANT RUN SWITCH THAT OVERRIDES THE RUN SWITCH IF IT SHOULD SEE A POWER FAILURE.
4. THE ALARM PANEL HAS THE OPTION TO CONNECT A PORTABLE GENERATOR WITH A 20 AMP, 240 VOLT SUPPLY. POWER TRANSFERS AUTOMATICALLY IF THE PUMP IS CALLING TO RUN.
5. THE PUMP RATED TO 700 GPD.
6. THE TANK HAS A 70-GAL VOLUME AND ALLOWS FOR 43 GALLONS ABOVE THE "ON" LEVEL.
7. IN CASE OF A POWER FAILURE, A BATTERY BACKUP REMOTE SENTRY ALARM PANEL SHALL BE USED IN CONJUNCTION WITH THE E-ONE PUMP SYSTEM.
8. A BACKUP GENERATOR WILL BE PROVIDED THAT SHALL BE AMPLE ENOUGH TO SUPPLY POWER TO RUN THE GRINDER PUMP AND ALARM SYSTEM. THERE SHALL BE ENOUGH FUEL ON SITE TO RUN THE GENERATOR FOR A MINIMUM OF 6 HRS.

□RESSURE SE□ER TEST□□ □OTES

1. PIPE AND JOINT MATERIALS:
   A. PRESSURE SEWERS SHALL BE CONSTRUCTED OF DUCTILE IRON (DI), HIGH DENSITY POLYETHYLENE (HDPE), OR PVC MATERIAL.
   B. PRESSURE SEWERS SHALL BE TREATED AS GRAVITY SEWERS FOR PURPOSES OF FOUNDATION BEDDING AND BACKFILL REQUIREMENTS.
   C. PVC PIPE USED PRESSURE SEWERS SHALL BE CERTIFIED BY ITS MANUFACTURER AS CONFORMING TO THE ASTM D2241 OR ASTM D1785 STANDARDS IN EFFECT WHEN THE PIPE IS MANUFACTURED.
   D. HDPE PIPE USED FOR PRESSURE SEWERS SHALL BE CERTIFIED BY ITS MANUFACTURER AS CONFORMING TO THE ASTM D3035 STANDARD IN EFFECT WHEN THE PIPE IS MANUFACTURED.
   E. IF DI PIPE IS USED IN AN ENVIRONMENT THAT COULD CAUSE CORROSION OR OTHER DETERIORATION OF OR DAMAGE TO AN IRON PIPE, OR OTHERWISE REDUCE THE TYPICAL LIFE EXPECTANCY OF THE PIPE, SUCH AS MAY OCCUR WITH CERTAIN SOIL TYPES, LOW PH LEVELS, OR WATER CONDITIONS, THE PIPE SHALL BE PROTECTED AGAINST CORROSION, SUCH AS WITH CATHODIC PROTECTION.
2. TESTING: THE COMPLETED SEWER SERVICE SHALL BE SUBJECTED TO A THIRD PARTY LEAKAGE TEST ANY OF THE FOLLOWING MANNERS: (PRIOR TO BACKFILLING) PRESSURE SEWERS SHALL BE TESTED IN ACCORDANCE WITH SECTION 5 OF THE AWWA C600, INSTALLATION OF CAST IRON WATER MAINS AND THEIR APPURTENANCES STANDARD IN EFFECT WHEN THE TEST IS CONDUCTED AT A PRESSURE EQUAL TO THE GREATER OF 150 PERCENT OF THE DESIGN OPERATING TOTAL DYNAMIC HEAD OR AT LEAST 100 PSI.
3. DAMAGED PIPE SHALL BE REJECTED AND REMOVED FROM THE JOB SITE.
4. JOINTS SHALL BE DEPENDENT UPON A NEOPRENE OR ELASTOMERIC GASKET FOR WATER-TIGHTNESS. ALL JOINTS SHALL BE PROPERLY MATCHED WITH THE PIPE MATERIALS USED. WHERE DIFFERING MATERIALS ARE TO BE CONNECTED, AS AT THE STREET SEWER WYE OR AT THE FOUNDATION WALL, APPROPRIATE MANUFACTURED ADAPTERS SHALL BE USED.
5. SEWER SERVICE INSTALLATION: THE PIPE SHALL BE HANDLED, PLACED AND JOINTED IN ACCORDANCE WITH INSTALLATION GUIDES OF THE APPROPRIATE MANUFACTURER. IT SHALL BE CAREFULLY BEDDED ON A 6 INCH LAYER OF CRUSHED STONE AND/OR GRAVEL AS SPECIFIED IN NOTE 11. BEDDING AND RE-FILL FOR DEPTH OF 12 INCHES ABOVE THE TOP OF THE PIPE SHALL BE CAREFULLY AND THOROUGHLY TAMPED BY HAND OR WITH APPROPRIATE MECHANICAL DEVICES.
6. PIPE JOINTS MUST BE MADE UNDER DRY CONDITIONS. IF WATER IS PRESENT, ALL NECESSARY STEPS SHALL BE TAKEN TO DEWATER THE TRENCH.
7. THE CENTERLINE OF ALL BUILDING CONNECTIONS SHALL ENTER THE TOP HALF OF THE SEWER.
8. ILLEGAL CONNECTIONS: NOTHING BUT SANITARY WASTE FLOW FROM TOILETS, SINKS, LAUNDRY ETC. SHALL BE PERMITTED. ROOF LEADERS, FOOTING DRAINS, SUMP PUMPS OR OTHER SIMILAR CONNECTIONS CARRYING RAIN WATER, DRAINAGE OR GROUND WATER SHALL NOT BE PERMITTED.
9. PRESSURE SEWERAGE SHALL HAVE AN ISOLATION VALVE OR CURB STOP VALVE INSTALLED AT THE PROPERTY LINE / LIMITED COMMON AREA. IF A CHECK VALVE IS USED AT THE PROPERTY LINE, THE VALVE SHALL BE INSTALLED WITHIN A VAULT TO FACILITATE MAINTENANCE.
10. WATER SERVICE SHALL NOT BE LAID IN SAME TRENCH AS SEWER SERVICE.
11. BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATERIAL AND MEETING ASTM C33/C33M STONE SIZE 67 AND FREE FROM CLAY, LOAM AND ORGANNIC MATTER. THE EXCAVATION SHALL BE PROPERLY DEWATERED WHILE PLACING BEDDING MATERIAL AND SETTING OF THE BASE OR POURING CONCRETE.

100% PASSING	1 INCH SCREEN
90%-100% PASSING	3/4 INCH SCREEN
20%-55% PASSING	3/8 INCH SCREEN
0%-10% PASSING	#4 SIEVE
0%-5% PASSING	#8 SIEVE

WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, SCREENED GRAVEL OR CRUSHED STONE 1/2 INCH TO 1 1/2 INCH SHALL BE USED.

12. LOCATION: THE LOCATION OF THE TEE OR WYE SHALL BE RECORDED AND FILED IN THE MUNICIPAL RECORDS.
13. INTERNAL STEPS IN MANHOLES ARE PROHIBITED PER PORTSMOUTH DPW STANDARDS.

DIG SAFE
CALL 811 OR 1-888-DIG-SAFE
CONTACT DIG SAFE 72 BUSINESS HOURS PRIOR TO CONSTRUCTION

STATE OF NEW HAMPSHIRE – HANNAH E. GIOVANNUCCI No.15699 LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	DR	CK
1	11/23/2021	REVISED PER NHDES & PROJECT COORDINATION	HEG	JCC

SITE DEVELOPMENT PLANS

TAX MAP 205 LOT 2

DETAILS

LADY ISLE SITE RENOVATIONS

325 LITTLE HARBOR ROAD, PORTSMOUTH, NH

OWNED BY & PREPARED FOR

ADL 325 LITTLE HARBOR ROAD TRUST

SCALE: NTS **SEPTEMBER 29, 2021**

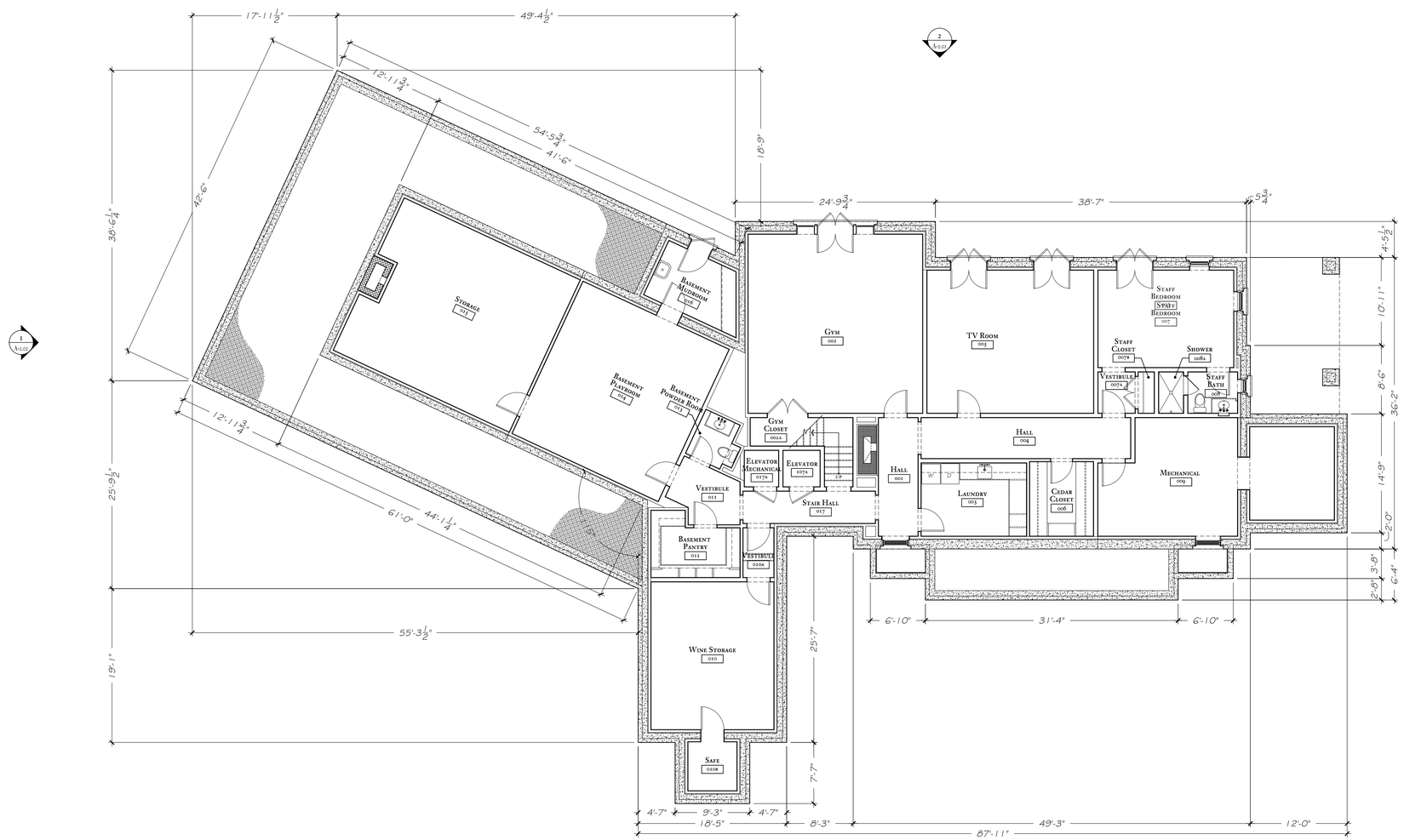
Seacoast Division
TFM
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431-2222
Fax (603) 431-0910
www.tfmoran.com

FILE	DR	HEG	FB	–	
47099.01	CK	JCC	CADFILE	47099-01_DETAILS_MAIN	C-18

FWS □□□□□1 1□1□□□ □□□□□

Gross Floor Area at Main House

	Conditioned sq.ft.	Unconditioned sq.ft.
Basement	3,382 sq.ft.	1,050 sq.ft.
First Floor	3,897 sq.ft.	1,496 sq.ft.
Second Floor	3,487 sq.ft.	--
Total	10,766 sq.ft.	2,546 sq.ft.
	13,312 sq.ft.	



1 / A-1.00 — Basement Floor Plan - Overall

Scale: 1/8" = 1'-0"

ISSUED FOR PERMIT ONLY:
NOT FOR CONSTRUCTION

ISSUED FOR PERMIT	*6/24/21*

A New Residence & Garage
at
LADY ISLE
Portsmouth, New Hampshire

Sheet Title :

Basement
Overall Plan

Date :
June 24, 2021

Scale :
1/8" = 1'-0"

Drawn By :
PM / AB

Sheet Number :
MH
A-1.00

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Telefax: 212-965-1356

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Gross Floor Area at Main House		
	Conditioned sq.ft.	Unconditioned sq.ft.
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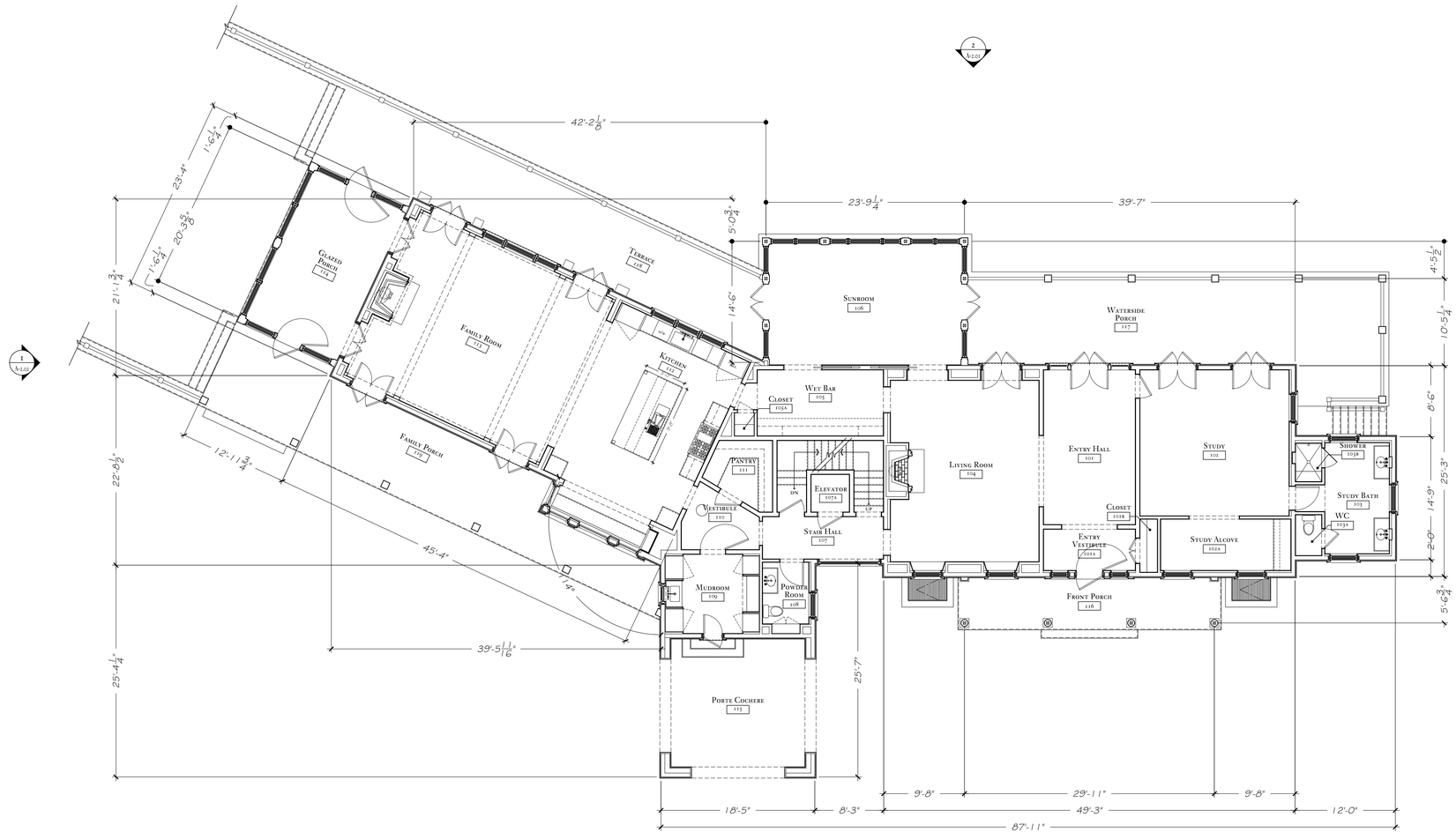

1 / A-1.01 First Floor Plan - Overall

Scale: 1/8" = 1'-0"

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A New Residence & Garage

at

Lady Isle
Portsmouth, New Hampshire

Sheet Title :

First Floor
Overall Plan

Date : *June 24, 2021*

Scale : *1/8" = 1'-0"*

Drawn By : *PM / AB*

Sheet Number :

MH
A-1.01

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Gross Floor Area at Main House		
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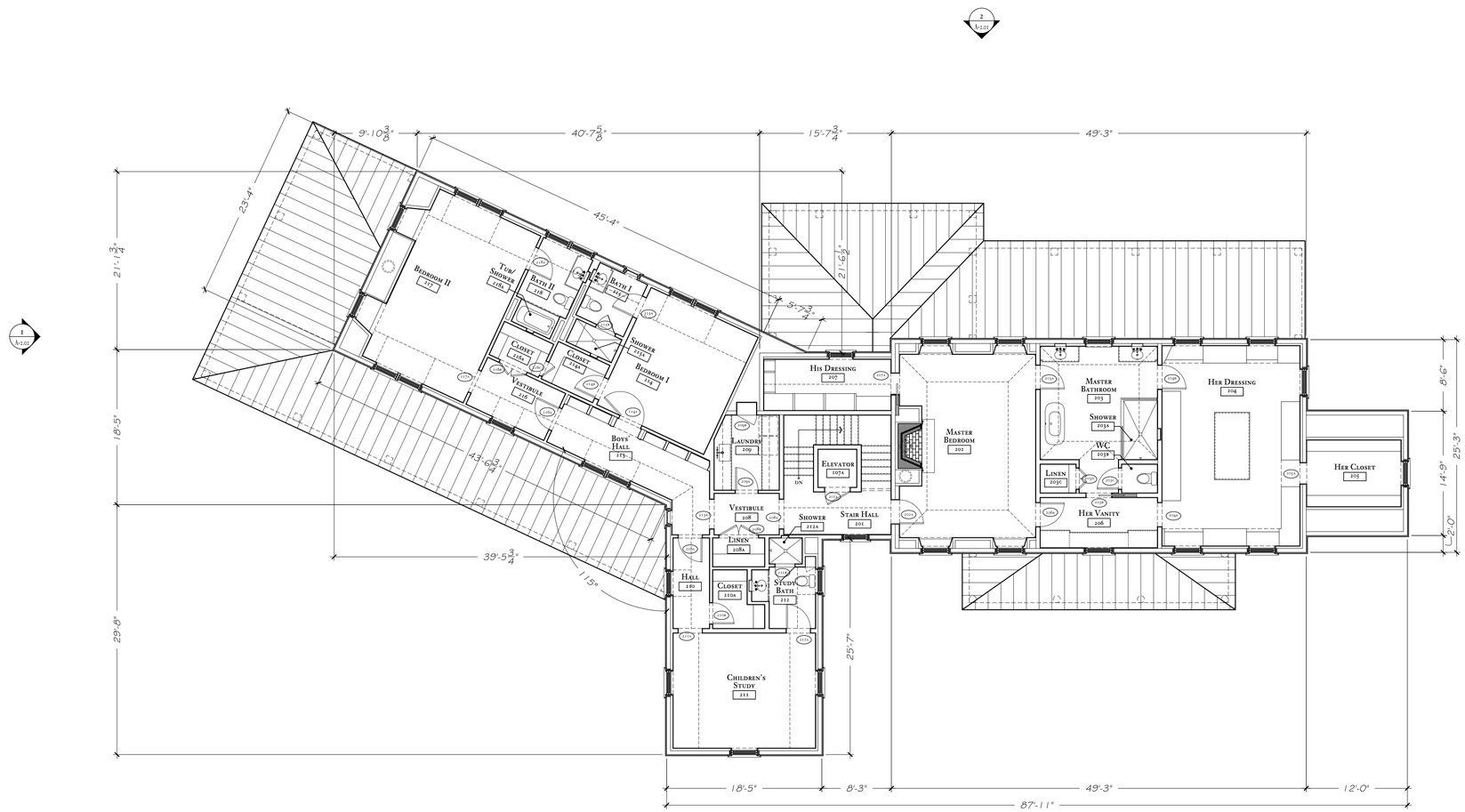

1 / A-1.02 Second Floor Plan - Overall

Scale: 1/8" = 1'-0"

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A New Residence & Garage

at

Lady Isle
Portsmouth, New Hampshire

Sheet Title :

Second Floor
Overall Plan

Date : *June 24, 2021*

Scale : *1/8" = 1'-0"*

Drawn By : *PM / AB*

Sheet Number :

MH
A-1.02

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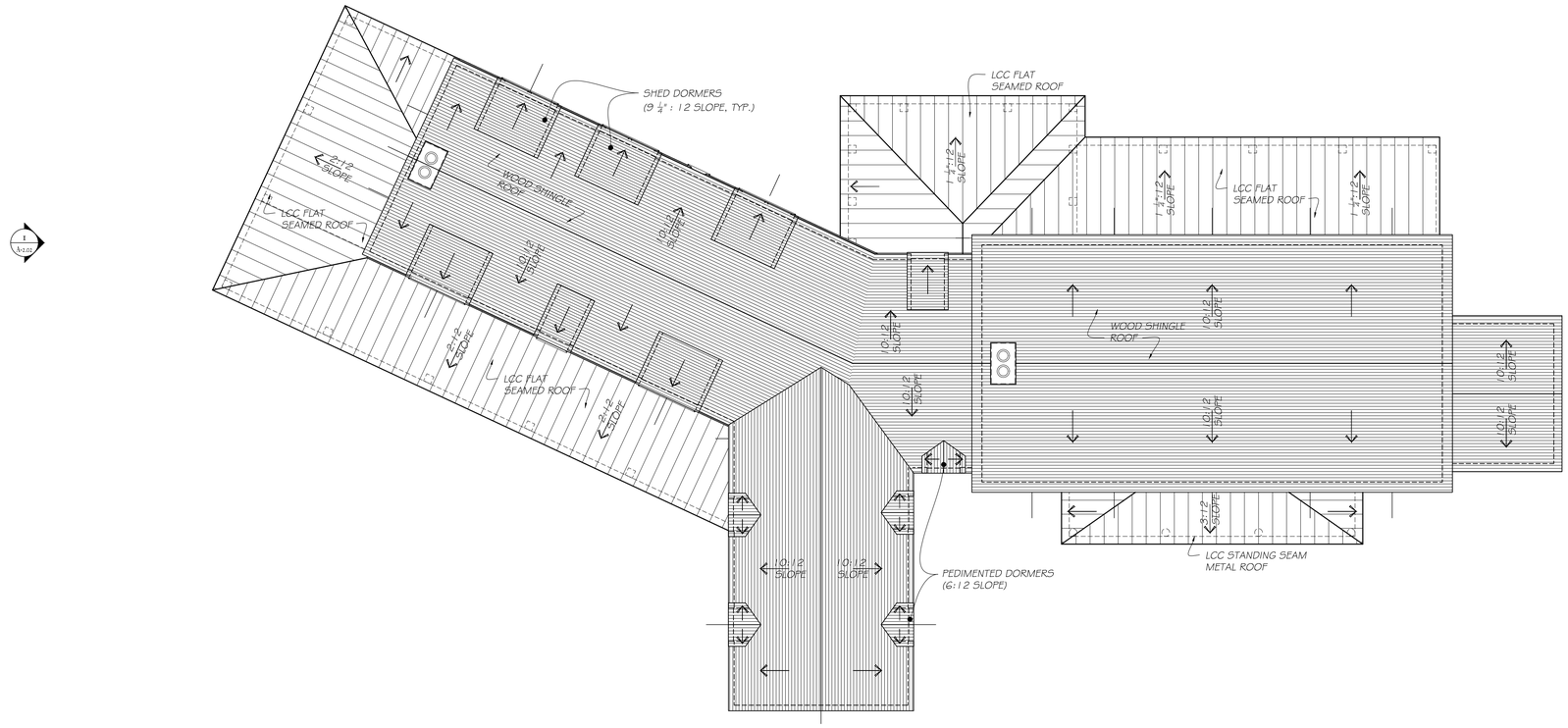

1 / A-1.03 — Roof Plan - Overall

Scale: 1/8" = 1'-0"

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A New Residence & Garage

at

Lady Isle
Portsmouth, New Hampshire

Sheet Title :

Roof
Overall Plan

Date :	Sheet Number :
June 24, 2021	MH A-1.03
Scale : *1/8" = 1'-0"*	
Drawn By : *PM / AB*	

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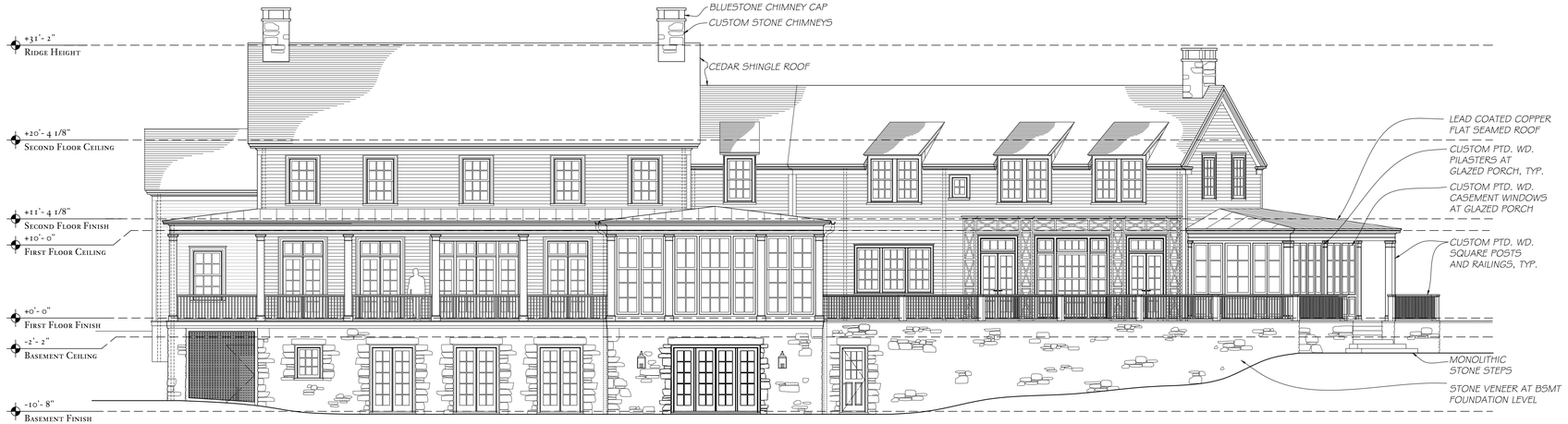

2 / A-2.01 **Overall East Elevation**

Scale: 1/8" = 1'-0"

1 / A-2.01 **Overall West Elevation**

Scale: 1/8" = 1'-0"

FOR PERMIT ONLY:

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ISSUED FOR PERMIT	*6/24/21*

A New Residence & Garage

at

Lady Isle
Portsmouth, New Hampshire

Sheet Title :

Exterior Elevations
Overall

Date :	Sheet Number :
June 24, 2021	MH A-2.01
Scale : *1/8" = 1'-0"*	
Drawn By : *PM / AB*	

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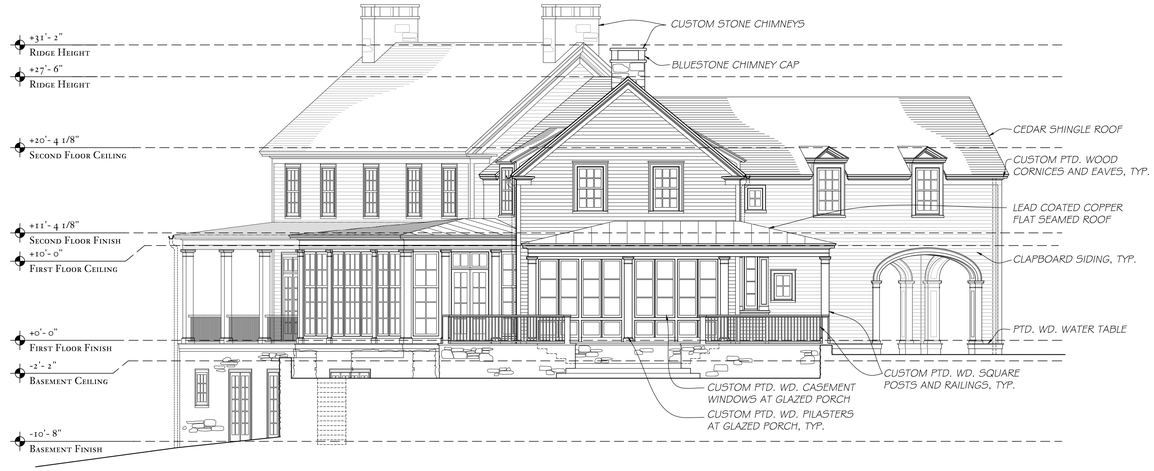

2 A-2.02 **Overall North Elevation**

Scale: 1/8" = 1'-0"

1 A-2.02 **Overall South Elevation**

Scale: 1/8" = 1'-0"

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A New Residence & Garage

at

Lady Isle
Portsmouth, New Hampshire

Sheet Title :

Exterior Elevations
Overall

Date :
June 24, 2021

Scale :
1/8" = 1'-0"

Drawn By :
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Sheet Number :
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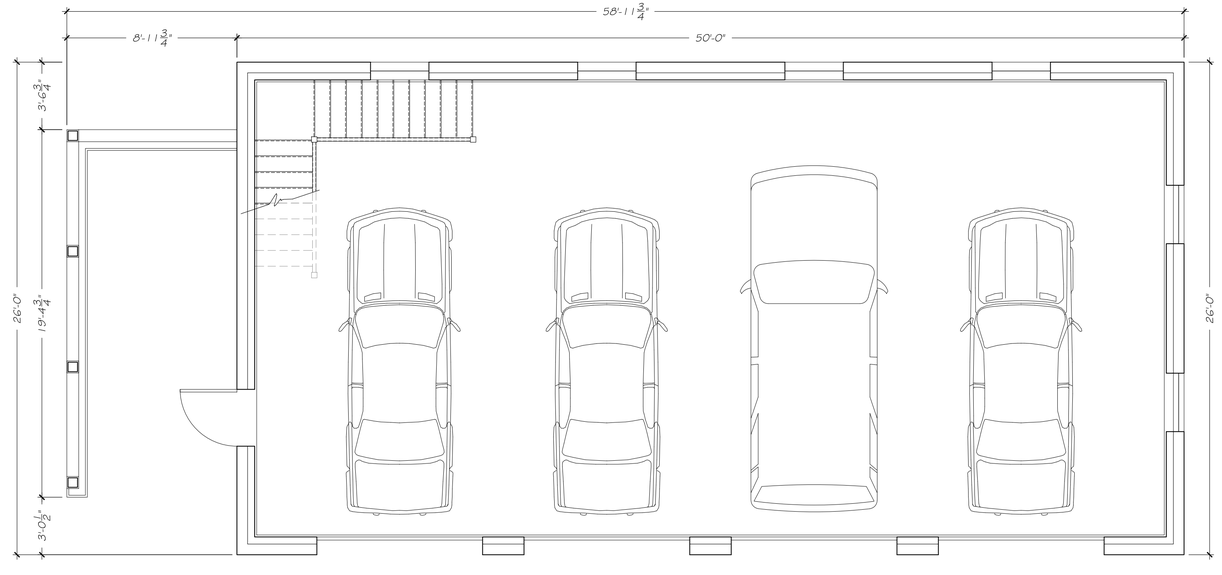

1 / A-1.01 First Floor Plan
Scale: 1/4" = 1'-0"

ISSUED FOR PERMIT — *6/24/21*

A New Residence & Garage
at
Lady Isle
Portsmouth, New Hampshire

Sheet Title :
First Floor Plan

Date : *June 24, 2021*	Sheet Number : GAR A-1.01
Scale : *1/4" = 1'-0"*	
Drawn By : *PM*	

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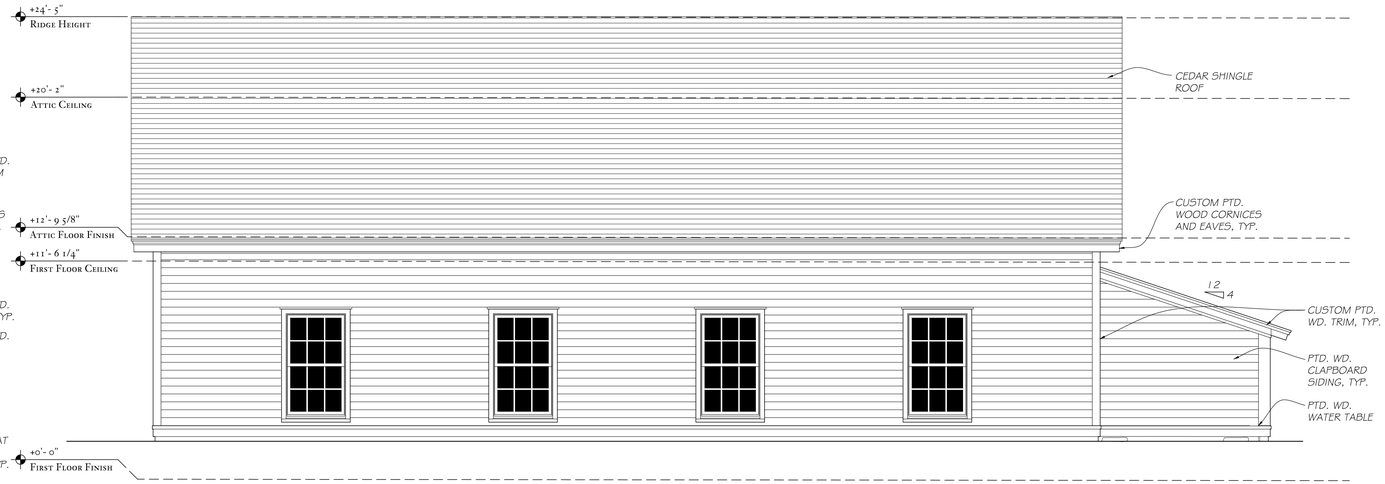
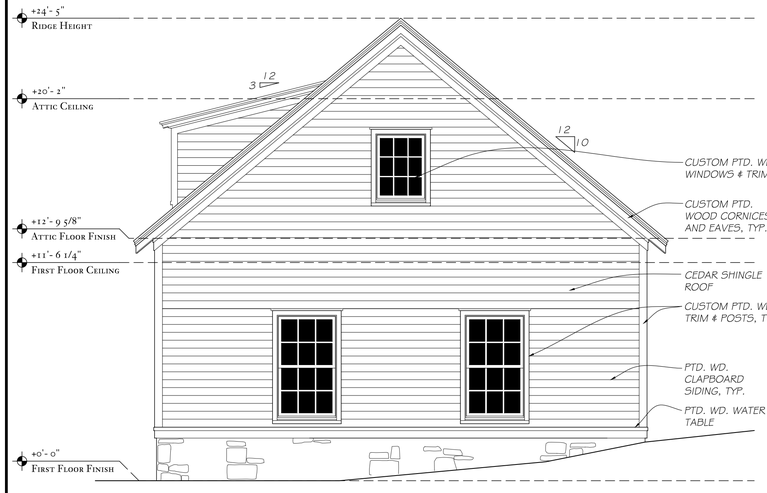
4 East Elevation
A-2.01 Scale: 1/4" = 1'-0"



3 South Elevation
A-2.01 Scale: 1/4" = 1'-0"



2 West Elevation
A-2.01 Scale: 1/4" = 1'-0"

1 North Elevation
A-2.01 Scale: 1/4" = 1'-0"

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A New Residence & Garage
at
Lady Isle
Portsmouth, New Hampshire

Sheet Title :
Exterior Elevations

Date : *June 24, 2021*
Scale : *1/4" = 1'-0"*
Drawn By : *PM*
Sheet Number : GAR A-2.01

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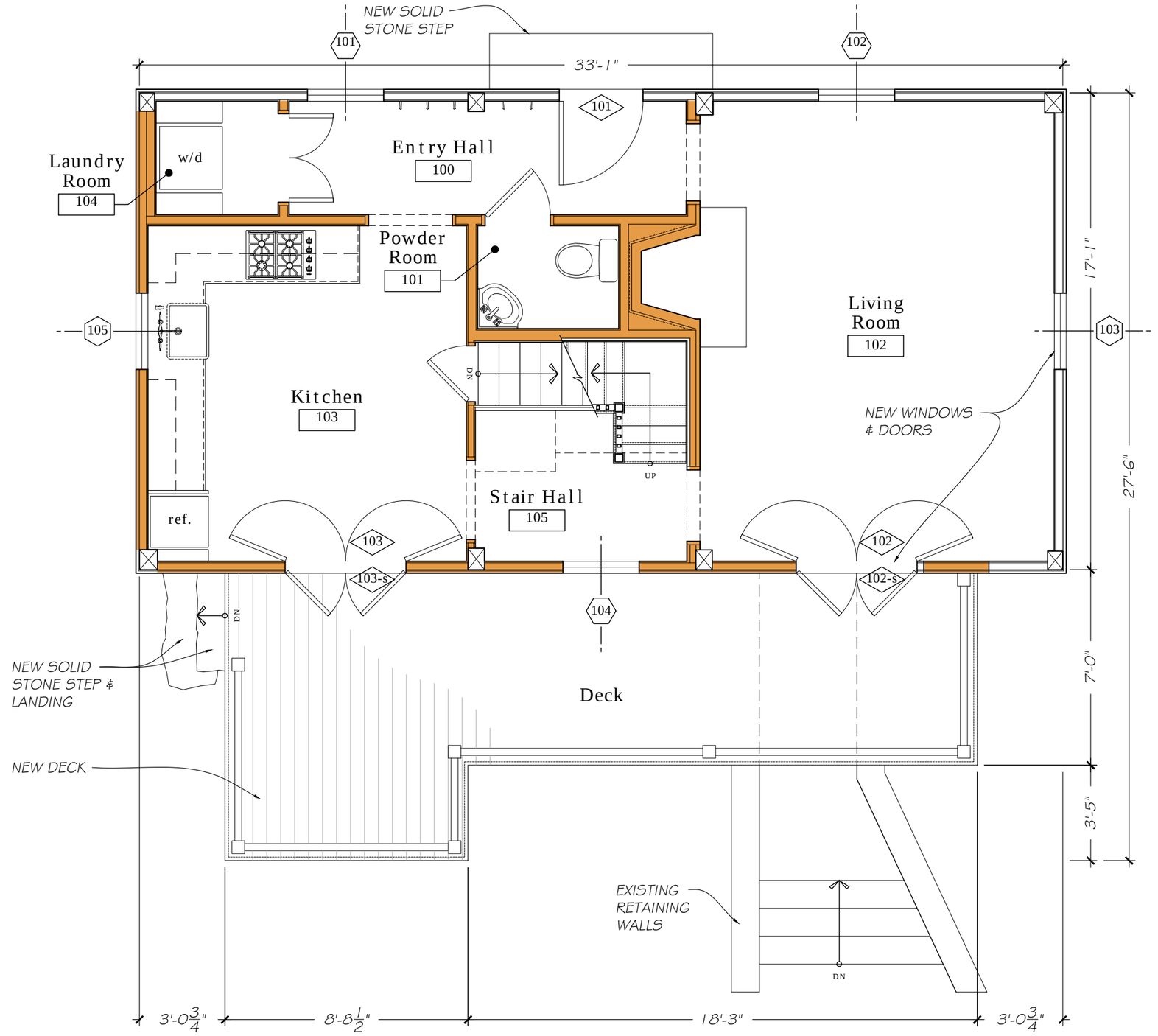

1 A-1.01 First Floor Plan - Proposed

Scale: 1/4" = 1'-0"

PROPOSED PLAN GRAPHIC LEGEND:

NEW CONSTRUCTION

GENERAL NOTE FOR REVISION 1:

WINDOW AND DOOR NUMBER TAGS HAVE BEEN ADDED TO REFERENCE WITH SCHEDULES IN A-6 SERIES AND A-7 SERIES

1

FOR PERMIT ONLY

002	REVISION 1	1	06/12/2020
001	ISSUED FOR BUILDING PERMIT		05/14/2020

A Renovated Guest Cottage
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title :

Proposed
First Floor Plan

Date : *June 12, 2020*

Scale : *1/4" = 1'-0"*

Drawn By : *PM*

Sheet Number :

A-1.01

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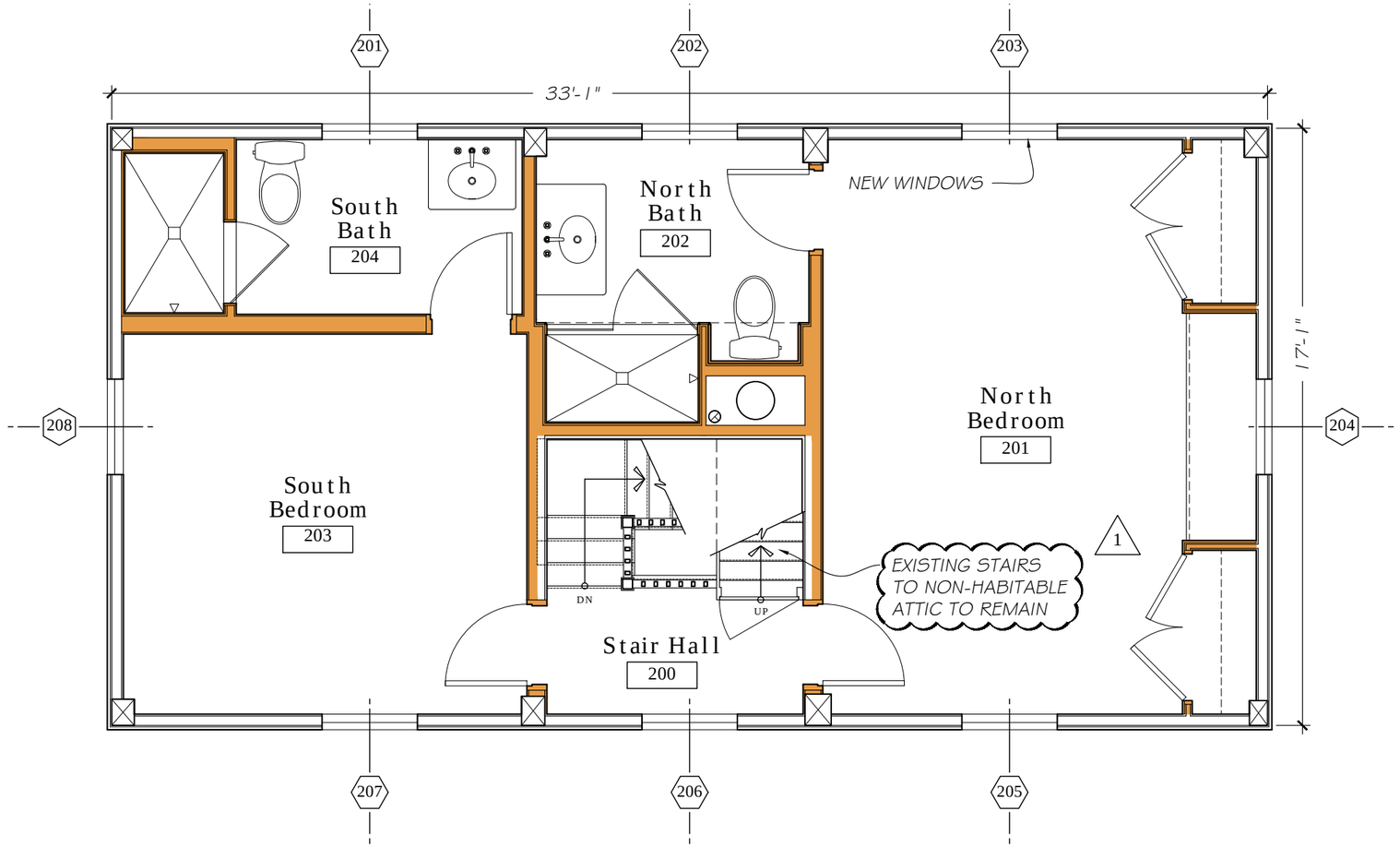

1 A-1.02 Second Floor Plan - Proposed

Scale: 1/4" = 1'-0"

PROPOSED PLAN GRAPHIC LEGEND:

NEW CONSTRUCTION

GENERAL NOTE FOR REVISION 1:

WINDOW AND DOOR NUMBER TAGS HAVE BEEN ADDED TO REFERENCE WITH SCHEDULES IN A-6 SERIES AND A-7 SERIES

1

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001	ISSUED FOR BUILDING PERMIT		05/14/2020

A Renovated Guest Cottage
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title:

Proposed
Second Floor Plan

Date: *June 12, 2020*

Scale: *1/4" = 1'-0"*

Drawn By: *PM*

Sheet Number: A-1.02

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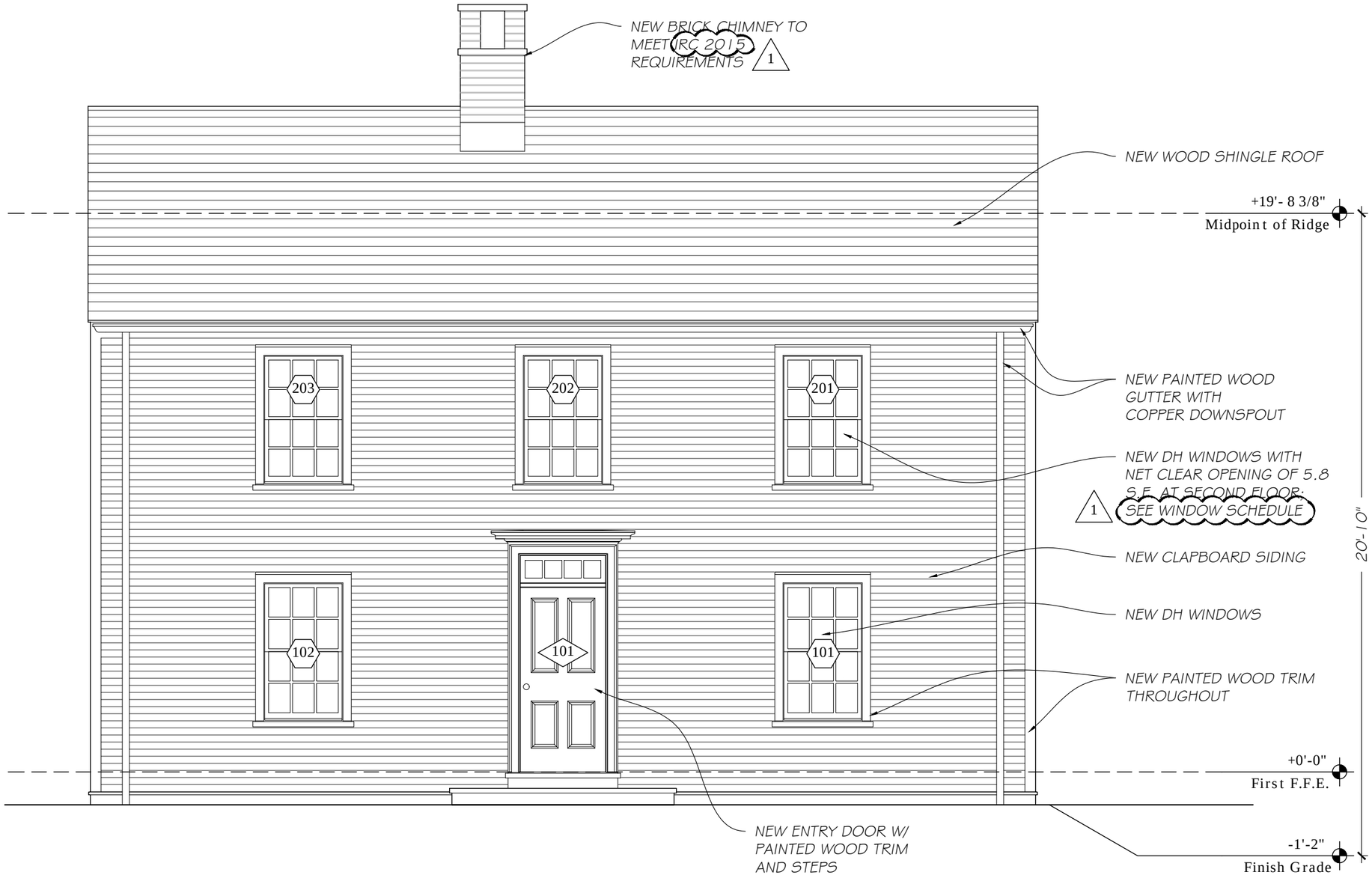

1 / D-2.01 West Elevation (Proposed)

Scale: 1/4" = 1'-0"

GENERAL NOTE FOR REVISION 1:

WINDOW AND DOOR NUMBER TAGS HAVE BEEN ADDED TO REFERENCE WITH SCHEDULES IN A-6 SERIES AND A-7 SERIES

1

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001	ISSUED FOR BUILDING PERMIT		05/14/2020

A Renovated Guest Cottage
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title:
Exterior Elevations

Date: June 12, 2020

Scale: 1/4" = 1'-0"

Drawn By: TG

Sheet Number: A-2.01

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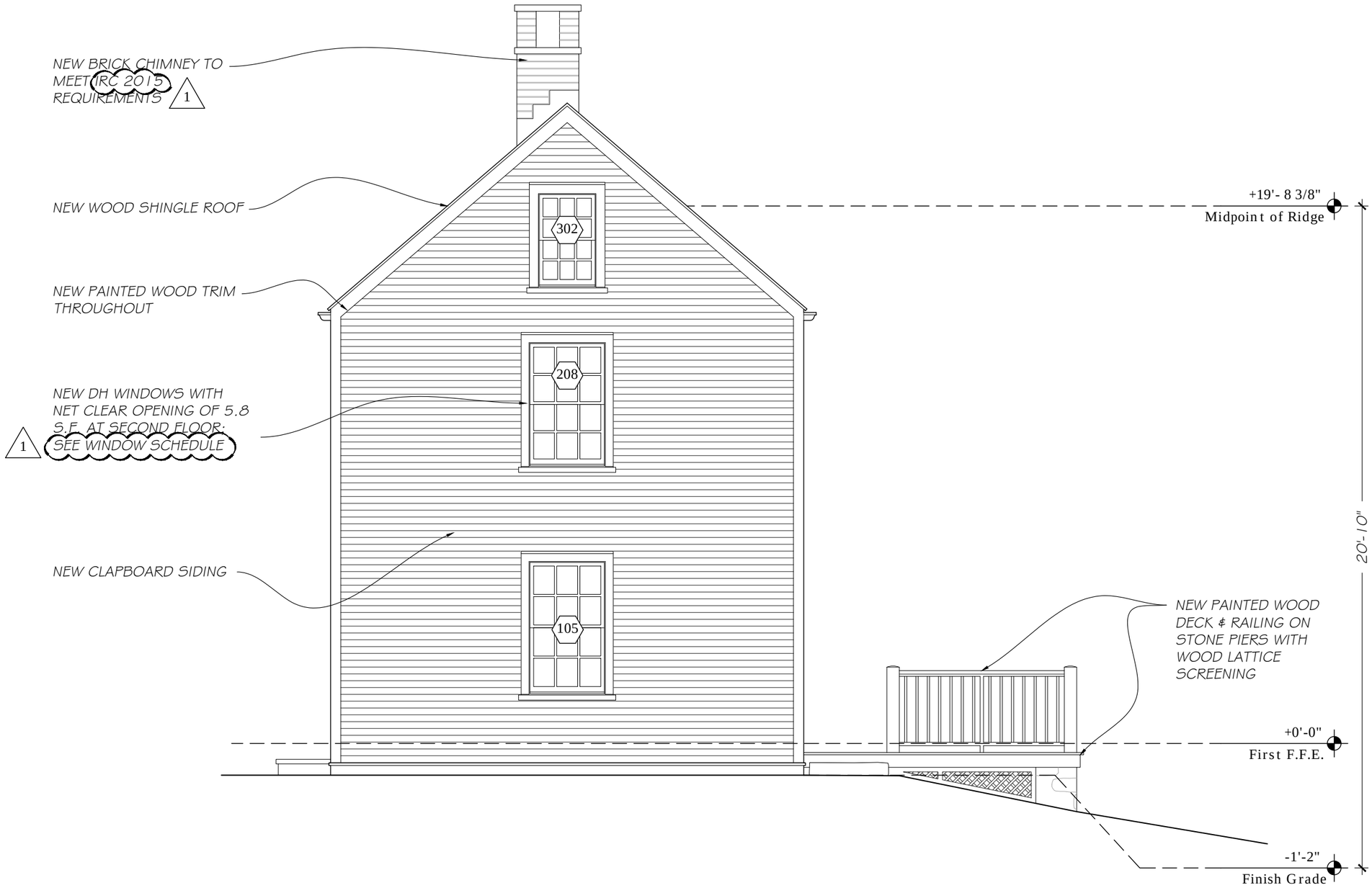

1 / A-2.02 South Elevation (Proposed)

Scale: 1/4" = 1'-0"

GENERAL NOTE FOR REVISION 1:

WINDOW AND DOOR NUMBER TAGS HAVE BEEN ADDED TO REFERENCE WITH SCHEDULES IN A-6 SERIES AND A-7 SERIES

1

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001	ISSUED FOR BUILDING PERMIT		05/14/2020

A Renovated Guest Cottage
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title:
Exterior Elevations

Date: June 12, 2020

Scale: 1/4" = 1'-0"

Drawn By: TG

Sheet Number: **A-2.02**

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1 / A-2.03 East Elevation (Proposed)

Scale: 1/4" = 1'-0"

GENERAL NOTE FOR REVISION 1:

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1

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001	ISSUED FOR BUILDING PERMIT		05/14/2020

A Renovated Guest Cottage
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title:
Exterior Elevations

Date: June 12, 2020

Scale: 1/4" = 1'-0"

Drawn By: TG

Sheet Number: A-2.03

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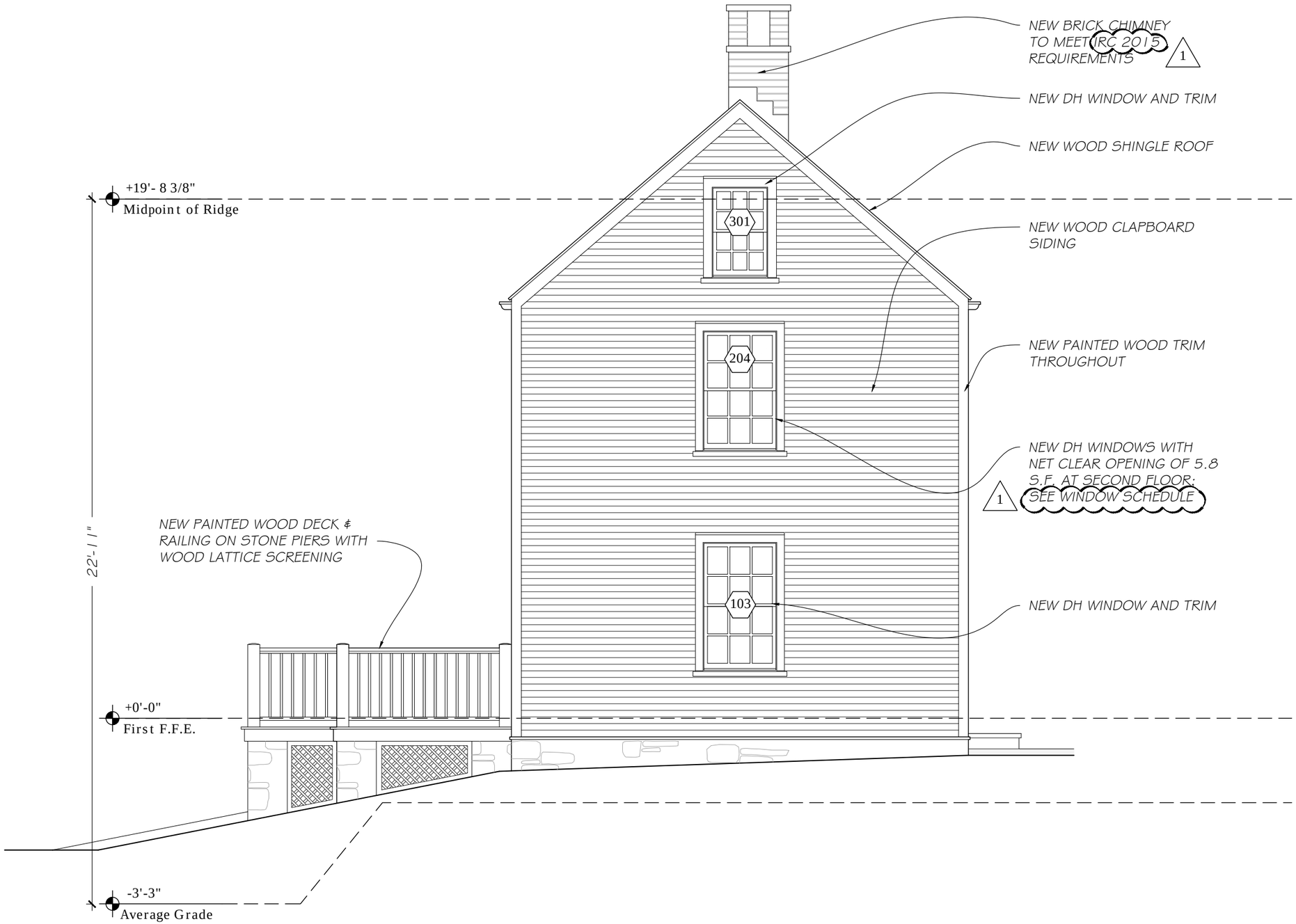

1 A-2.04 North Elevation (Proposed)

Scale: 1/4" = 1'-0"

GENERAL NOTE FOR REVISION 1:

WINDOW AND DOOR NUMBER TAGS HAVE BEEN ADDED TO REFERENCE WITH SCHEDULES IN A-6 SERIES AND A-7 SERIES

1

FOR PERMIT ONLY

002	REVISION 1	1	06/12/2020
001	ISSUED FOR BUILDING PERMIT		05/14/2020

A Renovated Guest Cottage
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title:
Exterior Elevations

Date: June 12, 2020

Scale: 1/4" = 1'-0"

Drawn By: TG

Sheet Number: A-2.04

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19 Union Square West
4th Floor
New York, New York 10003
Telephone: 212-965-1355
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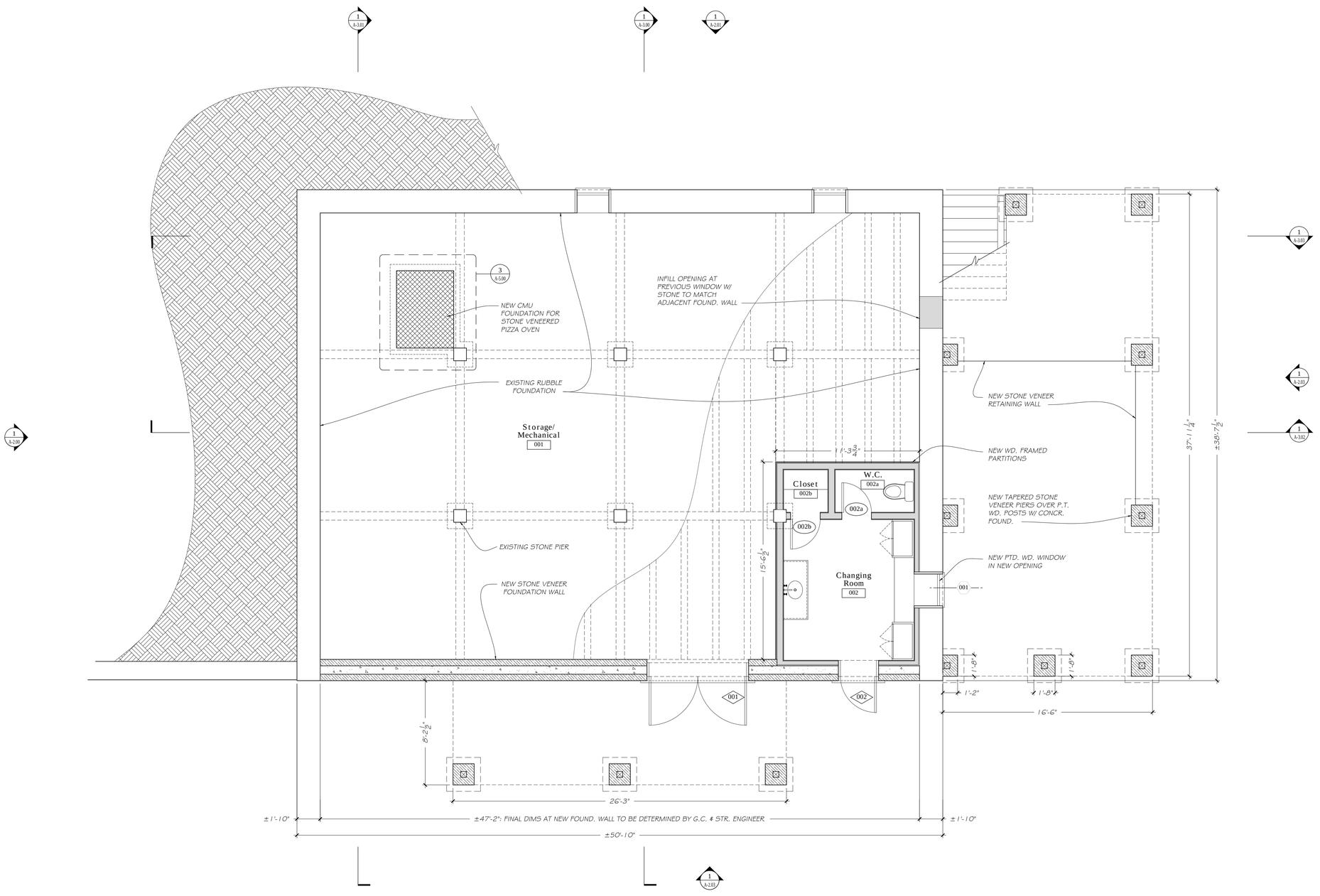

1 / A-1.00 **Basement Plan**

Scale: 1/4" = 1'-0"

LEGEND

- EXISTING FOUNDATION WALL
- NEW CONCR. STEM WALL
- NEW STONE VENEER
- NEW CMU FOUNDATION
- NEW FRAMING
- NEW WOOD POST

COORDINATION ONLY
NOT FOR CONSTRUCTION

-	ISSUED FOR PRICING (NOT FOR CONSTRUCTION)	9/8/20

A Renovated Barn
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title :
Basement Plan
Barn

Date : *September 8, 2020*

Scale : *1/4" = 1'-0"*

Drawn By : -

Sheet Number : **A-1.00**

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New York, New York 10003
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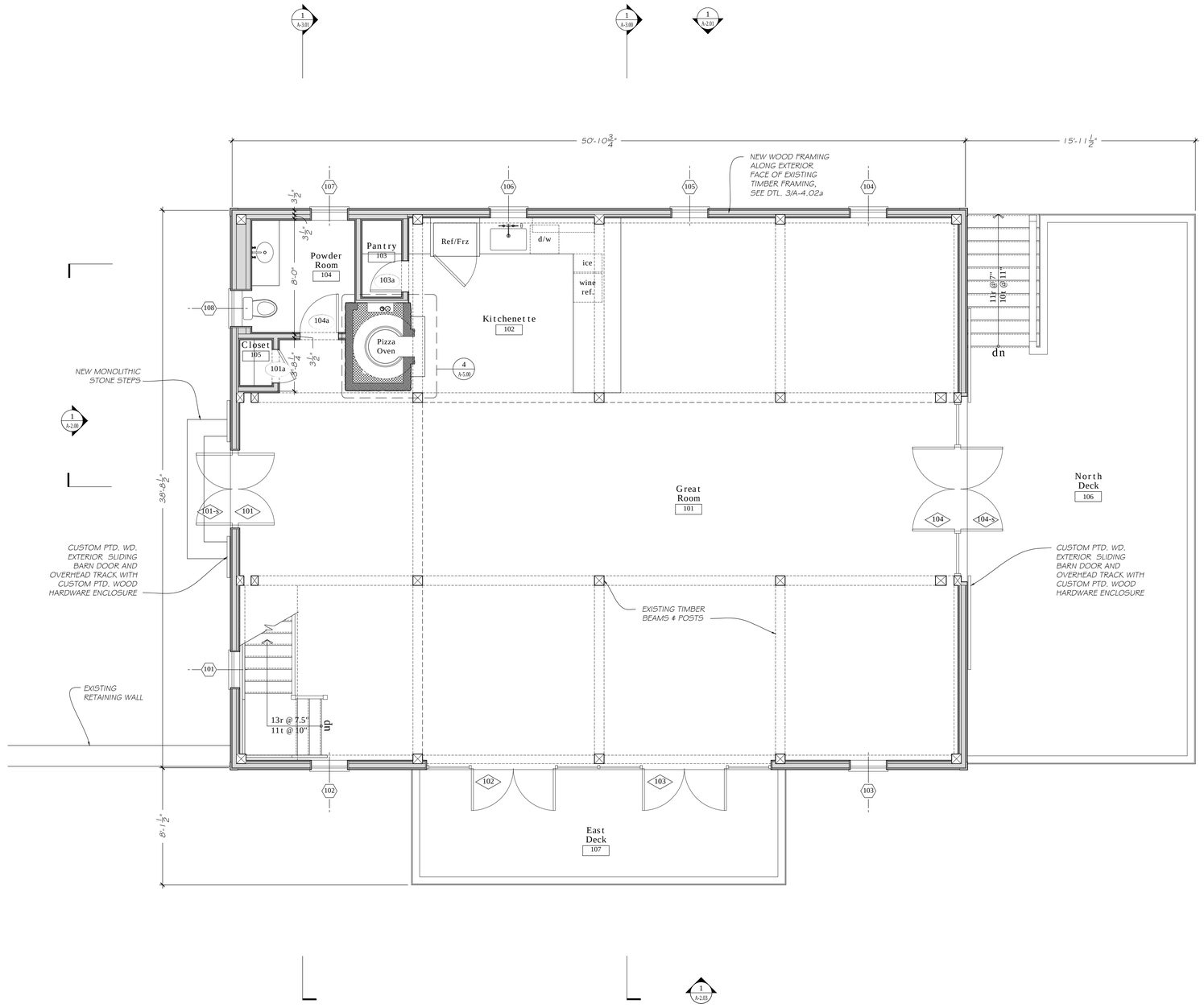
Actual North / Project North



1 A-1.01 First Floor Plan

Scale: 1/4" = 1'-0"

LEGEND

- EXISTING FOUNDATION WALL
- NEW CONCR. STEM WALL
- NEW STONE VENEER
- NEW CMU FOUNDATION
- NEW FRAMING
- EXISTING TIMBER POST

FOR COORDINATION ONLY
NOT FOR CONSTRUCTION

-	ISSUED FOR PRICING (NOT FOR CONSTRUCTION)	9/8/20

A Renovated Barn
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title :
First Floor Plan
Barn

Date : *September 8, 2020*

Scale : *1/4" = 1'-0"*

Drawn By : -

Sheet Number :
A-1.01

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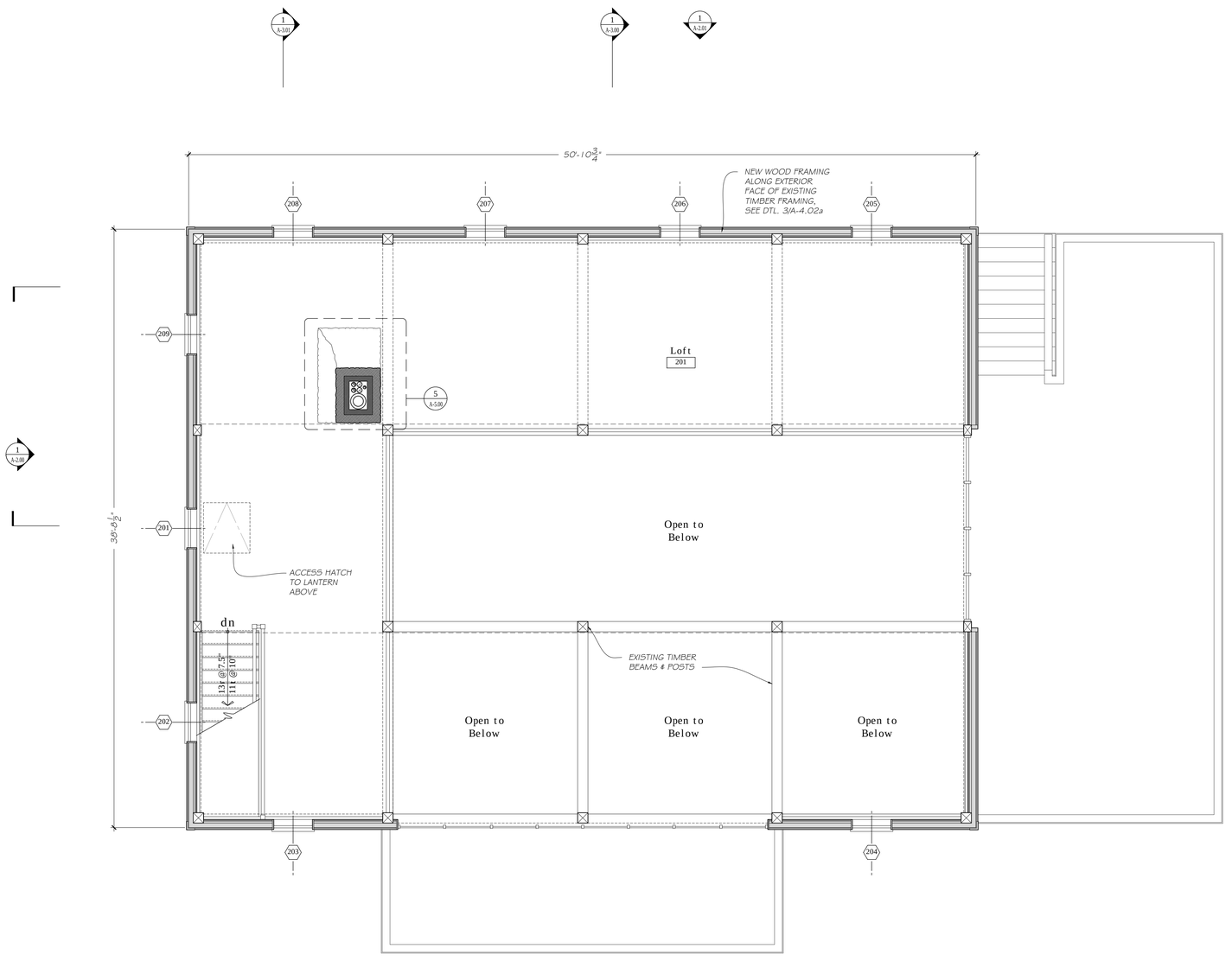
Actual North
Project North



1 / A-1.02 **Second Floor Plan**

Scale: 1/4" = 1'-0"

LEGEND

- EXISTING FOUNDATION WALL
- NEW CONCR. STEM WALL
- NEW STONE VENEER
- NEW CMU FOUNDATION
- NEW FRAMING
- EXISTING TIMBER POST

FOR COORDINATION ONLY
NOT FOR CONSTRUCTION

-	ISSUED FOR PRICING (NOT FOR CONSTRUCTION)	9/8/20

A Renovated Barn
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title :

Second Floor Plan
Barn

Date : *September 8, 2020*

Scale : *1/4" = 1'-0"*

Drawn By : -

Sheet Number :

A-1.02

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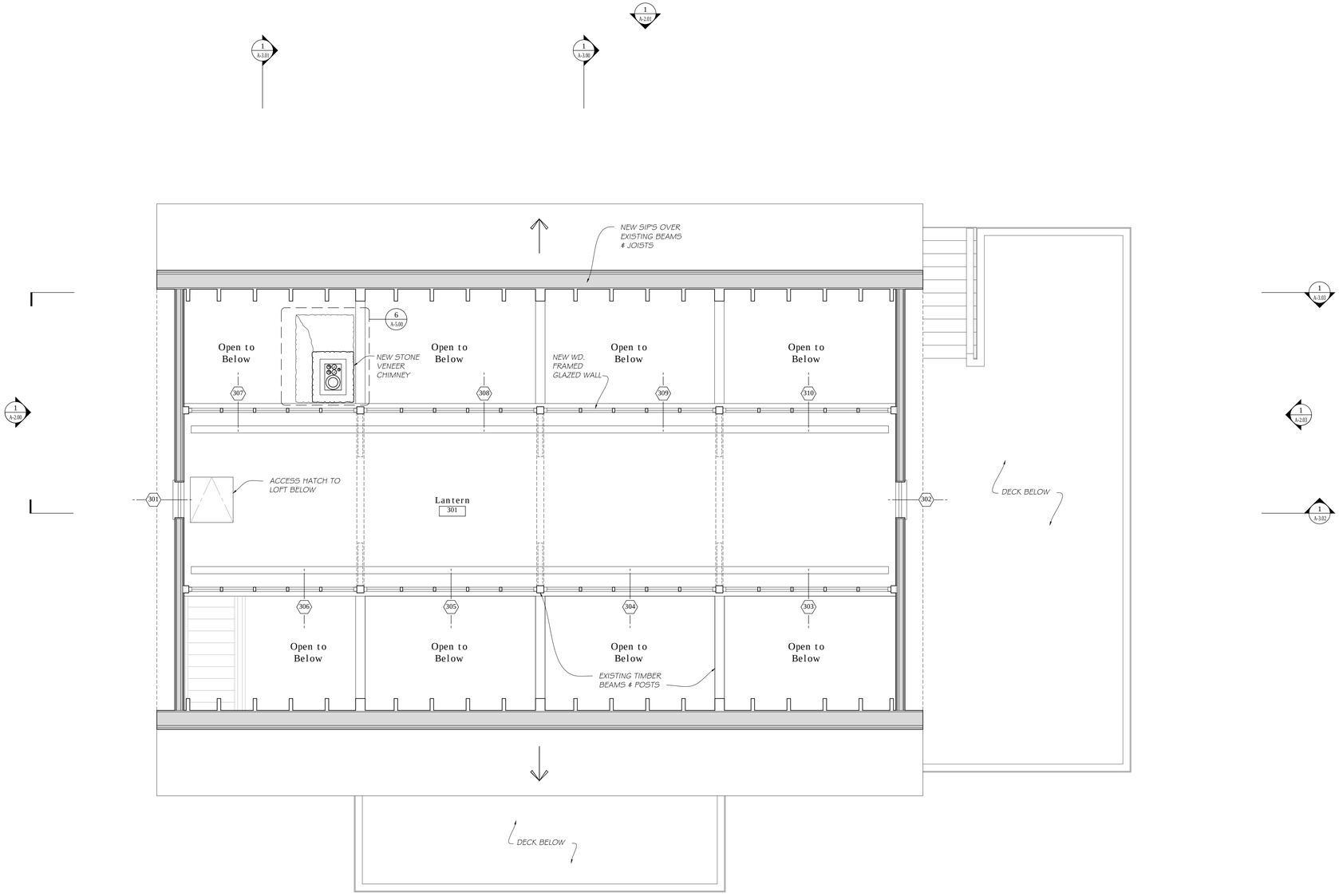
Actual North
Project North



1 A-1.03 Third Floor Plan

Scale: 1/4" = 1'-0"

LEGEND

- EXISTING FOUNDATION WALL
- NEW CONCR. STEM WALL
- NEW STONE VENEER
- NEW CMU FOUNDATION
- NEW FRAMING
- EXISTING TIMBER POST

FOR COORDINATION ONLY
NOT FOR CONSTRUCTION

-	ISSUED FOR PRICING (NOT FOR CONSTRUCTION)	9/8/20

A Renovated Barn
for
Lady Isle
Portsmouth, New Hampshire

Sheet Title :

Third Floor Plan
Barn

Date : *September 8, 2020*

Scale : *1/4" = 1'-0"*

Drawn By : -

Sheet Number :

A-1.03

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Actual North
Project North

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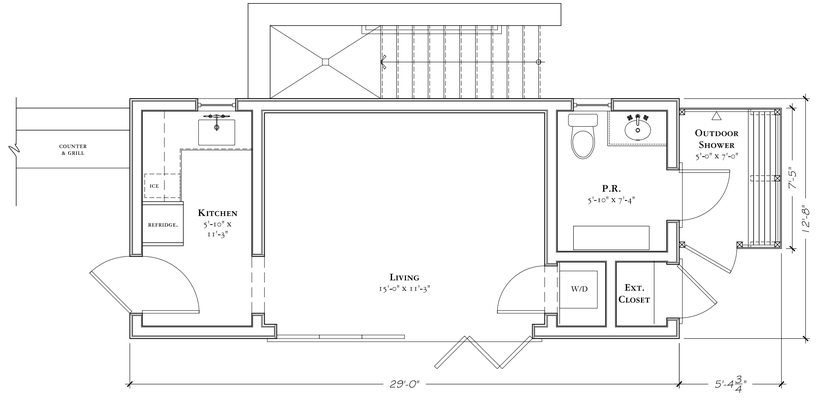

1 / A-1.01 — First Floor Plan
Scale: 1/4" = 1'-0"

A New Residence & Garage
at
Lady Isle
Portsmouth, New Hampshire

Sheet Title :
First Floor Plan

Date : *June 24, 2021*
Scale : *1/4" = 1'-0"*
Drawn By : *PM*
Sheet Number :
PC
A-1.01

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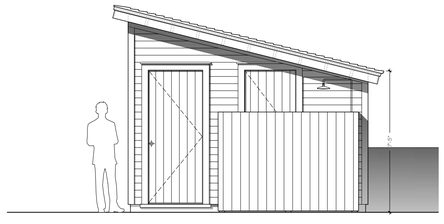
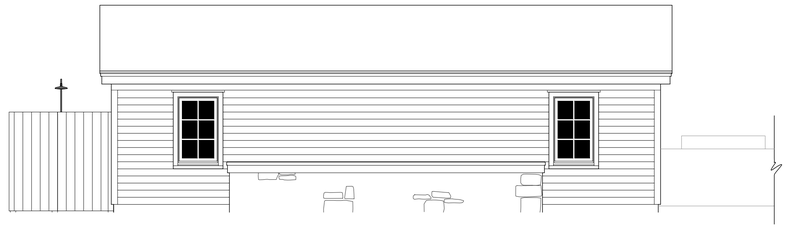
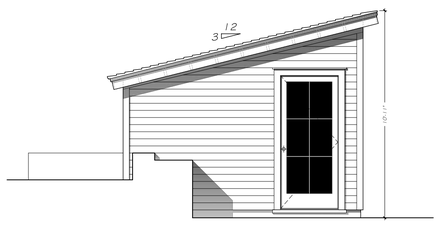


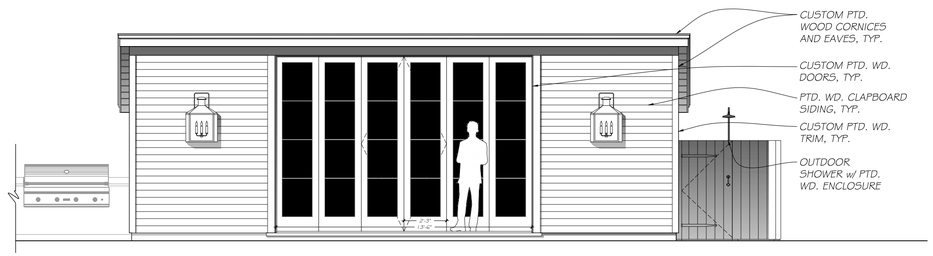
4 A-2.01 **West Elevation**
Scale: 1/4" = 1'-0"



3 A-2.01 **North Elevation**
Scale: 1/4" = 1'-0"



2 A-2.01 **South Elevation**
Scale: 1/4" = 1'-0"



1 A-2.01 **East Elevation**
Scale: 1/4" = 1'-0"

FOR PERMIT ONLY:
NOT FOR CONSTRUCTION

A New Residence & Garage
at
Lady Isle
Portsmouth, New Hampshire

Sheet Title :
Exterior Elevations

Date :
June 24, 2021

Scale :
1/4" = 1'-0"

Drawn By :
PM

Sheet Number :
PC
A-2.01

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Lady Isle

325 Little Harbor Road, Portsmouth NH

General Notes:

1. Existing conditions and topographic data are from a site plan of land dated March 2, 2021; prepared by: Thomas F. Moran Inc., 170 Commerce Way, Suite 102, Portsmouth, NH, 03801 - Tel: (603) 431.2222

2. Existing conditions supplemented from data collected by: Matthew Cunningham Landscape Design LLC, 411 Main Street, Stoneham, MA 02180 - Tel: (617) 905.2246

3. Do not scale drawings

LICENSED LANDSCAPE ARCHITECT
MATTHEW J. CUNNINGHAM
00161
STATE OF NEW HAMPSHIRE

MATTHEW CUNNINGHAM LANDSCAPE DESIGN LLC

matthew-cunningham.com

SCALE: 1" = 50'-0" DATE: 24 NOVEMBER 2021

0' 25' 50' 100'

SHEET TITLE:

LANDSCAPE PLAN

SHEET NUMBER:

L1.0

FOR PERMIT SUBMISSION

Lady Isle

325 Little Harbor Road, Portsmouth NH

General Notes:

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3. Do not scale drawings

LICENSED LANDSCAPE ARCHITECT
MATTHEW J. CUNNINGHAM
0D161
STATE OF NEW HAMPSHIRE

MATTHEW CUNNINGHAM LANDSCAPE DESIGN LLC
matthew-cunningham.com

SCALE: 1" = 30'-0" DATE: 24 NOVEMBER 2021

0' 15' 30' 60'

SHEET TITLE:

LANDSCAPE PLAN

SHEET NUMBER:

L1.1

FOR PERMIT SUBMISSION

TOTAL PROPOSED PLANT BED WITHIN LIMIT OF WORK: ~42,750SF

EXISTING LAWN AREA TO BE CONVERTED TO PLANT BED: ~34,770SF

PROPOSED PLANT PALETTE

Key	Qty.	Latin Name	Common Name	Scheduled Size
TREES				
ARR	6	Acer rubrum 'Red Sunset'	Red Sunset Red Maple	4-4.5" cal. B&B
ASG	5	Acer saccharum 'Green Mountain'	Green Mountain Sugar Maple	4-4.5" B&B
AC	30	Amelanchier canadensis	Shadblow Serviceberry	10-12' B&B
BPW	12	Betula platyphylla 'Whitespire'	Japanese Whitespire Birch	8-10' B&B
CF	2	Cornus florida 'Cherokee Princess'	Cherokee Princess Dogwood	4-4.5" cal. B&B
JV	4	Juniperus virginiana	Eastern Red Cedar	8-10' B&B
LL	5	Larix laricina	Tamarack	10-12' B&B
MJ	1	Magnolia liliiflora 'Jane'	Jane Magnolia	7-8' ht. B&B
MV	5	Magnolia virginiana	Sweetbay Magnolia	8-10' ht. B&B
MG	13	Malus x domestica 'Gala'	Gala Apple	4-4.5" cal. B&B
NS	2	Nyssa sylvatica	Tupelo	4-4.5" cal. B&B
PA	3	Picea abies	Norway Spruce	10-12' ht. B&B
QA	3	Quercus 'Alba'	White Oak	4-4.5" B&B
SA	6	Salix babylonica	Weeping Willow	3-3.5" cal. B&B
SP	1	Stewartia pseudocamellia	Japanese Stewartia	3.5-4" cal. B&B
TP	3	Thuja plicata 'Green Giant'	Green Giant Arborvitae	10-12' ht. B&B

Latin Name	Common Name
SHRUBS	
Aesculus parviflora	Bottlebrush Buckeye
Aronia arbutifolia	Red Chokeberry
Callicarpa dichotoma	Beautyberry
Cephalanthus occidentalis	Buttonbush
Clethra alnifolia	Summersweet
Comptonia peregrina	Sweetfern
Cornus sericea	Red-Twig Dogwood
Daphne × burkwoodii	Burkwood Daphne
Fothergilla x intermedia	Fothergilla
Hamamelis x intermedia	Witchhazel
Hydrangea arborescens	Smooth Hydrangea
Hydrangea paniculata	Lacecap Hydrangea
Hydrangea quercifolia	Oakleaf Hydrangea
Ilex glabra	Inkberry
Ilex verticillata	Winterberry
Itea virginica	Sweetspire
Myrica gale	Sweetgale
Myrica pensylvanica	Northern Bayberry
Prunus maritima	Beach Plum
Rhododendron 'Cunningham's White'	Cunningham's White Rhododendron
Rhododendron maximum	Rosebay Rhododendron
Rhus aromatica 'Gro-Lo'	Fragrant Sumac
Rhus typhina	Staghorn Sumac
Rosa virginiana	Virginia Rose
Sambucus canadensis	American Elderberry
Syringa meyeri	Dwarf Korean Lilac
Syringa vulgaris	Common Purple Lilac
Vaccinium corymbosum	Highbush Blueberry
Viburnum dentatum	Arrowwood Viburnum
Viburnum plicatum f. tomentosum	Doublefile Viburnum
Viburnum triloburn	American Cranberry Virbumum

Latin Name	Common Name
PERENNIALS	
Actaea racemosa	Snakeroot
Agastache x hybrida	Anise Hyssop
Alchemilla mollis	Lady's Mantle
Allium senescens	Circle Chives
Amsonia hubrichtii	Bluestar
Andropogon gerardii	Big Bluestem
Anemone tomentosa	Grapeleaf Anemone
Anemone x hybrida	Japanese Anemone
Anemonella thalictroides	Rue Anemone
Aruncus dioicus	Goat's Beard
Asclepias incamata	Swamp Milkweed
Asclepias syriaca	Common Milkweed
Astilbe x hybrida	Astilbe
Astrantia rubra	Red Masterwort
Athyrium niponicum pictum	Japanese Painted Fern
Baptisia australis	False Indigo
Calamagrostis x acutiflora 'Karl Foerster'	Foerster's Feather Reed Grass
Carex pensylvanica	Oak Sedge
Centaurea montana	Cornflower
Clematis x jackmanii	Jackman Clematis
Corydalis lutea	Yellow Corydalis
Dennstaedia punctilobula	Hay-Scented Fern
Deschampsia cespitosa	Tufted Hairgrass
Dicentra spectabilis	Bleeding Heart
Digitalis purpurea	Foxglove
Echinacea purpurea	Purple Coneflower
Epimedium x rubrum	Red Barrenwort
Eragrostis spectabilis	Purple Love Grass
Eupatorium dubium	Dwarf Joe Pye Weed
Eupatorium maculatum	Spotted Joe Pye Weed
Eurybia divaricata	White Wood Aster
Galium odoratum	Sweet Woodruff
Geranium 'Rozanne'	Rozanne Cranesbill
Geranium macrorrhizum	Cranesbill
Gillenia trifoliata	Bowman's Root

Latin Name	Common Name
PERENNIALS (Cont.)	
Hakonechloa macra	Hakone Grass
Helleborus x hybridus	Lenten Rose
Heuchera micrantha	Coral Bells
Hydrangea anomala petiolaris	Climbing Hydrangea
Iris cristata	Crested Iris
Iris sibirica	Siberian Iris
Kirengeshoma palmata	Yellow Waxbells
Lavandula intermedia	Lavender
Leucanthemum superbum	Shasta Daisy
Lupinus polyphyllus	Lupine
Matteuccia struthiopteris	Ostrich Fern
Miscanthus sinensis	Maiden Grass
Nepeta x faassenii	Catmint
Osmunda cinnamomea	Cinnamon Fern
Paeonia lactiflora	Peony
Panicum virgatum	Switchgrass
Pennisetum alopecuroides	Dwarf Fountain Grass
Perovskia atriplicifolia	Russian Sage
Podophyllum peltatum	May Apple
Polygonatum odoratum	Solomon's Seal
Pulmonaria officinalis	Lungwort
Rosa x 'New Dawn'	New Dawn Rose
Rudbeckia fulgida	Black-Eyed-Susan
Salvia x sylvestris	Wood Sage
Salvia nemorosa	Woodland Sage
Schizachyrium scoparium	Little Bluestem
Solidago ssp.	Goldenrod
Sorghastrum nutans	Indian Grass
Sporobolus heterolepsis	Prairie Dropseed
Stachys byzantina	Lamb's Ear
Symphyotrichum novae-angliae	New England Aster
Symphyotrichum novi-belgii	New York Aster
Symphyotrichum oblongifolium	Aromatic Aster
Thalictrum rochebrunianum	Lavender Mist Meadow-rue
Thymus vulgaris	Common Thyme

NOTES:

1. PLANT LOCATIONS ON PLAN ARE FOR DIAGRAMMATIC PURPOSES AND DO NOT NECESSARILY REFLECT ACTUAL PROPOSED LOCATIONS OF PLANTING
2. PLANT SIZES OR QUANTITIES SHOWN ARE SUBJECT TO CHANGE BASED ON AVAILABILITY
3. THE USE OF ANY FERTILIZER IS PROHIBITED WITHIN A WETLAND, VEGETATED BUFFER AREA, OR LIMITED CUT AREA
4. THE USE OF FERTILIZERS OTHER THAN LOW PHOSPHATE OR SLOW RELEASE NITROGEN FERTILIZER IS PROHIBITED IN ALL COASTAL RESOURCE AREAS

Lady Isle

325 Little Harbor Road, Portsmouth NH

General Notes:

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3. Do not scale drawings

MATTHEW J. CUNNINGHAM 00161 LICENSED LANDSCAPE ARCHITECT STATE OF NEW HAMPSHIRE

MATTHEW CUNNINGHAM LANDSCAPE DESIGN LLC

matthew-cunningham.com

SCALE: 1" = 30'-0" DATE: 24 NOVEMBER 2021

0' 15' 30' 60'

SHEET TITLE:

PLANTING PLAN

SHEET NUMBER:

L1.2

FOR PERMIT SUBMISSION

EXISTING TRAIL

EXISTING SHED

WOODLAND

WOODLAND

RESTORED MEADOW

DROUGHT TOLERANT LAWN

DROUGHT TOLERANT LAWN

APPLE TREES

ASG

LL

ARR

TPG

JV

PA

TPG

JV

TPG

ASG

ASG

MG, TYP.

DROUGHT TOLERANT LAWN

MATCH LINE B

MATCH LINE A

Lady Isle

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MATTHEW CUNNINGHAM LANDSCAPE DESIGN LLC

matthew-cunningham.com

SCALE: 1" = 30'-0" DATE: 24 NOVEMBER 2021

0' 15' 30' 60'

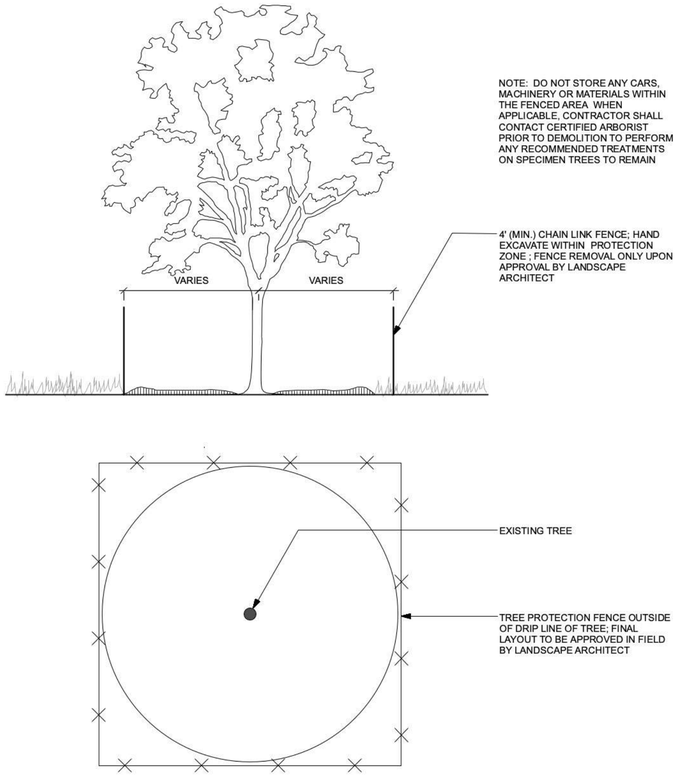
SHEET TITLE:

PLANTING PLAN

SHEET NUMBER:

L1.3

FOR PERMIT SUBMISSION



1 TREE PROTECTION FENCING
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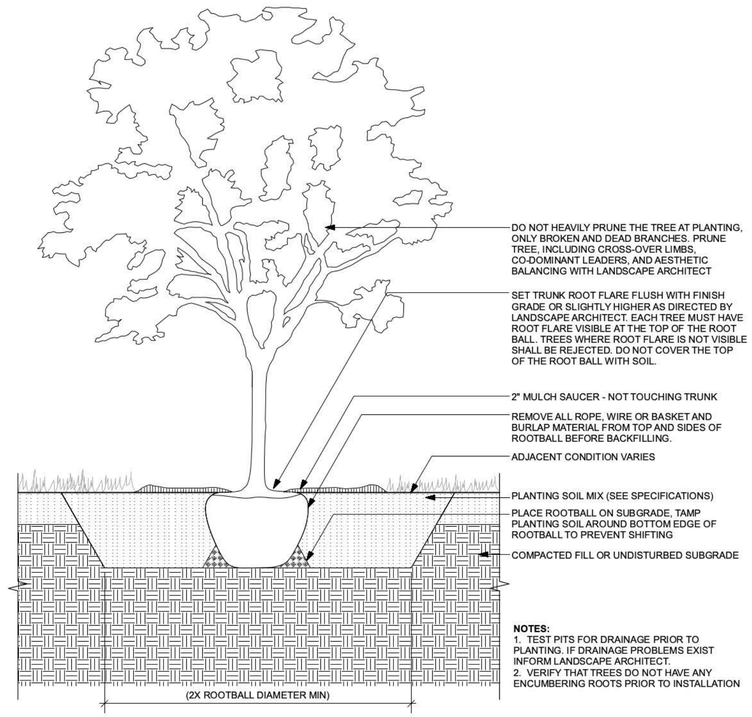
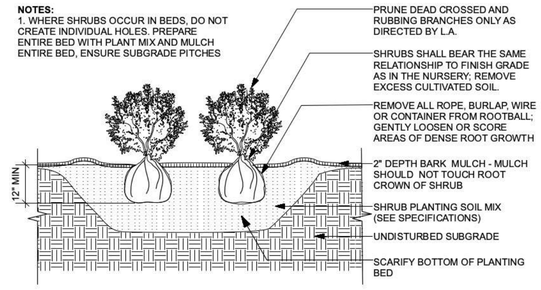
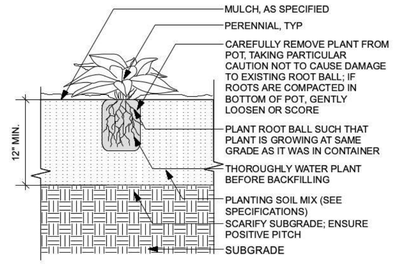


2 TREE PLANTING - TYPICAL SECTION
Scale: 1/2" = 1'-0"



3 SHRUB PLANTING - TYPICAL SECTION
Scale: 1/2" = 1'-0"



4 PERENNIAL PLANTING - TYPICAL SECTION
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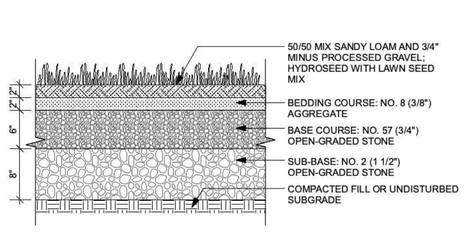
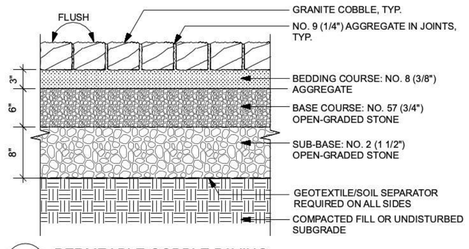
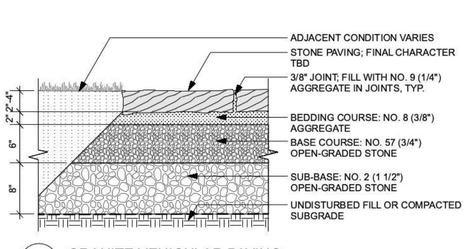


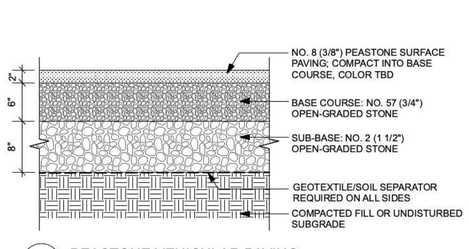
5 STABILIZED SEEDED GRAVEL VEHICULAR PAVING
Scale: 1" = 1'-0"



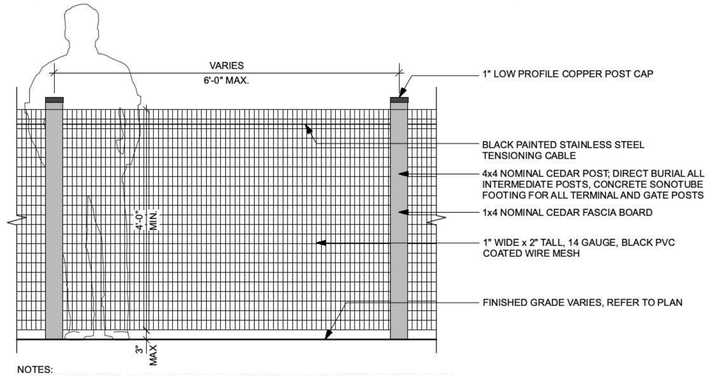
6 PERMEABLE COBBLE PAVING
Scale: 1" = 1'-0"



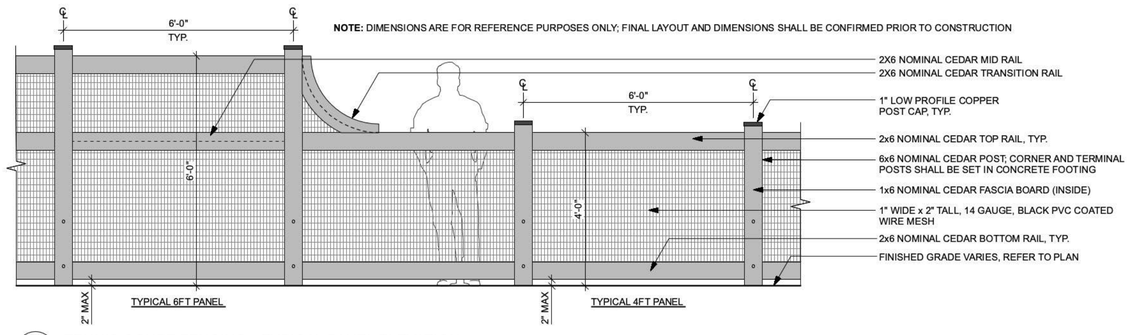
7 GRANITE VEHICULAR PAVING
Scale: 1" = 1'-0"



8 PEASTONE VEHICULAR PAVING
Scale: 1" = 1'-0"



9 POOL ENCLOSURE MESH FENCE - TYPICAL PANEL ELEVATION
Scale: 3/4" = 1'-0"



10 TENNIS COURT FENCING - TYPICAL PANEL ELEVATION
Scale: 1/2" = 1'-0"

Lady Isle

325 Little Harbor Road, Portsmouth NH

General Notes:

1. Existing conditions and topographic data are from a site plan of land dated March 2, 2021; prepared by: Thomas F. Moran Inc., 170 Commerce Way, Suite 102, Portsmouth, NH, 03801 - Tel: (603) 431.2222

2. Existing conditions supplemented from data collected by: Matthew Cunningham Landscape Design LLC, 411 Main Street, Stoneham, MA 02180 - Tel: (617) 905.2246

3. Do not scale drawings

MATTHEW J. CUNNINGHAM 00161 LICENSED LANDSCAPE ARCHITECT STATE OF NEW HAMPSHIRE

MATTHEW CUNNINGHAM LANDSCAPE DESIGN LLC
matthew-cunningham.com

SCALE: AS NOTED DATE: 24 NOVEMBER 2021

SHEET TITLE:
LANDSCAPE DETAILS

SHEET NUMBER:
L1.4

FOR PERMIT SUBMISSION

PLANNING BOARD | EXISTING AERIAL PHOTO (06/02/21)

Lady Isle | 325 Little Harbor Road, Portsmouth NH
24 November 2021

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Land Management Plan

A Narrative for Invasive Plant Management and Native Plant Restoration

325 Little Harbor Road, Portsmouth, NE

Fall 2021

PARTERRE
ECOLOGICAL

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Introduction and Primary Goals

The Dilorenzo residence is located at 325 Little Harbor Road in Portsmouth. The 11-acre island lies near the mouth of the Piscataqua River and the majority of the site is within the 100' tidal river buffer. An inventory of existing native and invasive plant species can be found in this plan.

The primary goal of this plan is to seek approval from the Portsmouth Conservation Commission to offset home construction and landscape improvements within the 100' Tidal buffer. We propose to remove invasive species on site and to restore the area with native species that will benefit the ecosystem around Piscataqua Rive and reduce further incursion of invasive species on the island. An inventory of existing native and invasive plant species can be found in this plan.

We propose removing invasive species by low-impact manual hand methods and cut & dab herbicide application by licensed applicators. All invasive species greater than 1" in caliper will be cut and dabbed with herbicide to reduce the chance of erosion along the banks. All existing erosion will be stabilize and any soil disturbed during planting will be stabilized and seeded with native wildflower mix. Techniques are outlined in the report. After removal of invasive species we will restore with native shrubs and perennials that will help prevent resurgence of the invasive plants and enhance the existing ecology.

A mass of invasive Multiflora Rose along the edges of the horse paddock with maturing Black Swallowort pods hanging from the stem. The majority of the western portion of the island is healthy pine/oak forest, but invasives are dense in areas with historically high disturbance. We propose managing all invasive species and replacing with native alternatives.

325 Little Harbor Road
Invasive Plant Inventory

Mature invasive species have developed isolated populations along the tidal river buffer and threaten to spread into an otherwise healthy native ecosystem. We propose controlling invasive plant species that have developed self sustaining populations on the Dilorenzo's property and restoring with native species. The physiology of the invasive plants has enabled them to out compete the native plant community and compromise the ecological value of the native plant community. The dominant invasive plants, including Multiflora Rose and Barberry, disrupt the formation of a native understory by filling ecological niches and resisting any browsing by native species. A very small Japanese Knotweed population exists near the southwestern corner of the paddock. It can spread quickly in coastal areas and should be managed before it can establish itself. All invasive perennials and shrubs with viable fruit will be removed from the site. Poison Ivy is a native species with valuable ecological benefits. We propose control the and areas of human traffic.

Invasive Plant Species Identified:

Acer platanoides, Norway Maple
Alliaria petiolata, Garlic Mustard
Berberis thunbergii, Japanese Barberry
Celastrus orbiculatus, Asiatic Bittersweet
Cynanchum louiseae, Black Swallowort
Elaeagnus umbellata, Autumn Olive
Fallopia japonica, Japanese Knotweed
Frangula alnus, Glossy Buckthorn
Lonicera morrowii, Morrow's Honeysuckle
Rhamnus cathartica, Common Buckthorn
Rosa multiflora, Multiflora Rose

****Likely Invasive Plant Species Identified:***

Artemisia vulgaris, Mugwort
Deutzia scabra, Fuzzy Deutzia
Ligustrum vulgaris, Common Privet
Rhodotypos scandens, Jetbead
Vitus sp., Grape (Native but control)

* While not listed as an Invasive Species by ISC (New Hampshire Invasive Species Committee) these species can dominate the shrub layer and crowd out native trees and shrubs. We recommend removal of along with listed invasive plant species in wetland buffers and replace with native shrubs and trees.

Black Swallowort releasing seedheads in the paddock. The majority of this area is a healthy goldenrod/blackberry meadow with patches of Milkweed, but Black Swallowort can establish itself quickly and releases compounds in the soil to limit its competitor. Without intervention there will likely be a large infestation.

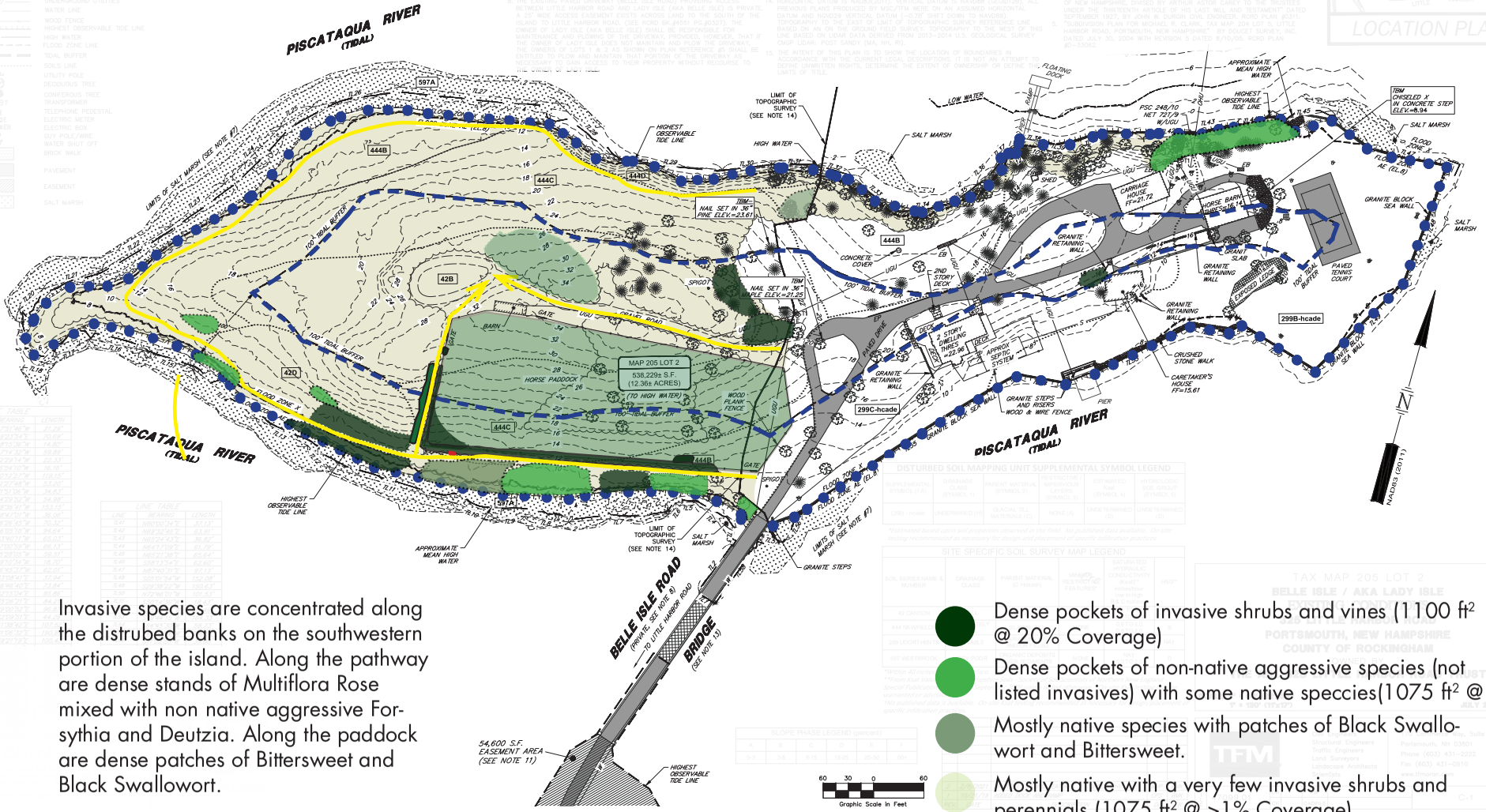
Property area

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Portsmouth, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 4/1/2019
Data updated 7/17/2019

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.



Invasive species are concentrated along the distrubed banks on the southwestern portion of the island. Along the pathway are dense stands of Multiflora Rose mixed with non native aggressive Forsythia and Deutzia. Along the paddock are dense patches of Bittersweet and Black Swallowort.

- Dense pockets of invasive shrubs and vines (1100 ft² @ 20% Coverage)
- Dense pockets of non-native aggressive species (not listed invasives) with some native speccies(1075 ft² @
- Mostly native species with patches of Black Swallowort and Bittersweet.
- Mostly native with a very few invasive shrubs and perennials (1075 ft² @ >1% Coverage)
- Japanese Knotweed (20 ft²)
- Wetland Buffer
- Highest Observable tide line
- Existing Pathways

325 Little Harbor Road
Invasive Plant Images

Japanese Barberry with Deutzia and Black Swallowort at the edge of the forest

Garlic Mustard seedheads with Mugwort on the northern bank

Japanese Barberry with viable fruits

Autumn Olive in the open paddock

A single small population of Japanese Knotweed on site should be managed as soon as possible

325 Little Harbor Road
Invasive management techniques

We propose a combination of manual hand removal and cut & dab herbicide to control invasive plant species within the identified project areas over a phased time line. Once the initial identified invasive plant species have been removed by manual methods (described below), we propose seeding all exposed soil with native seed blend and begin planting identified tree, shrub and perennial plant species selected from the native plant community list that will increase the density and diversity of the existing wetland buffers.

Manual Hand Removal Methods:
Manual methods of invasive plant management will include hand pulling or cutting. To minimize soil disturbance, shallow-rooted invasive plants less than 1" in caliper will be hand pulled from the soil. Invasive plant species greater than 1" in diameter will be cut. All invasive plant material will be disposed of off site. Manual hand pulling and cutting will remove all invasive plants from the wetland buffer.

Cut and Dab and Foam application: All invasive plant species that have a base greater than 1" in caliper are proposed for herbicide application methods. Although invasive, the root systems of plants greater then 1" in caliper usually have extensive fibrous root systems, providing soil stabilization. So we propose a cut & dab method of application of a Triclopyr based herbicide (Garlon) or Glyphosate based herbicide approved for wetland use (trade name Rodeo) on individual cut stumps. Licensed Pesticide Applicators will complete all aspects of the proposed restoration. For treatment of perennial species that cannot be controlled with cut and dab or by manual methods should be treated by a foam based herbicide that is wiped onto the leaves using a cotton glove. This hyper-specific treatment limits any treatment of non-target plants. No treatment will occur in areas of standing water.

Qualified applicators with necessary Personal Protective Equipment paint the stems of invasive species after cutting

Proposed cut stump treatment (below) using hand tools and applying marking dye to eliminate possibility of treatment of stump twice, or missing stump entirely. (Above) Foam treatment allows highly specific placement of herbicide to remove invasive perennials that limits disturbance and protects surrounding species

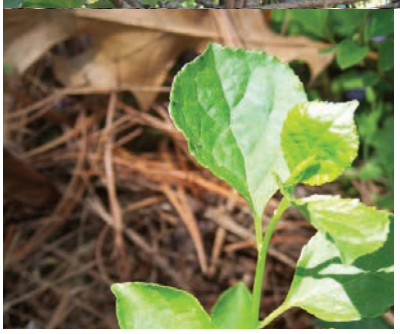
325 Little Harbor Road

Asiatic Bittersweet ID and Management

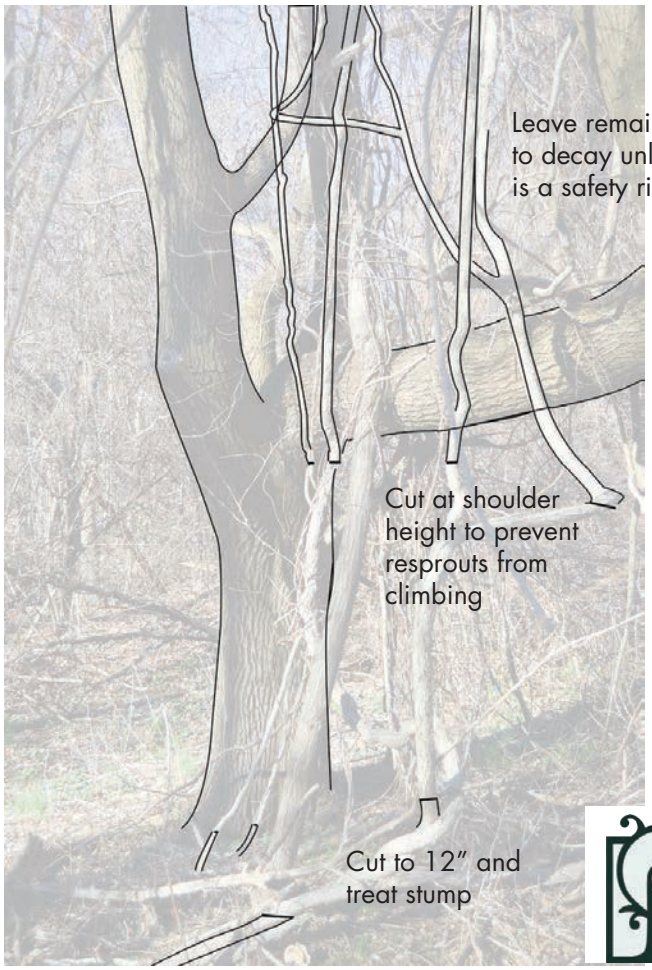
Invasive Bittersweet (*Celastrus orbiculatus)* have the capacity to girdle, weaken, and even kill mature canopy trees. Without some frequency of removal, they will eventually open large holes in the canopy while suppressing saplings from filling the holes. They readily resprout after being cut and can damage the aesthetic and ecological value of meadows.

Mature stems produce thousands of bright red berries that mature in late fall and are spread by birds.

Removing the entire vines from trees is often dangerous and unnecessary (unless it poses safety risk). Our team recommends making cuts at shoulder height followed by a cut at 12" and immediate herbicide treatment. Bittersweet aggressively suckers after cutting so it is important to cut and treat during or after its flowering period (late June to December).



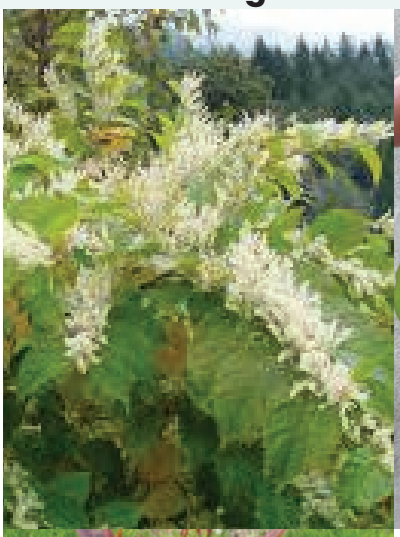
Identification: Alternate, circular light green leaves 2-5 in. long. Distinctive, large light colored vine. Red berries with orange casing appearing in late fall. Seedlings have light green leaves. Deep orange roots.



325 Little Harbor Road
Japanese Knotweed Management

Japanese Knotweed (*Fallopia japonica)* is one of the most difficult invasive species to control. Its main mode of spreading is through cut portions of its rhizomes or stem, which can actively resprout even when 1 inch in length. Growing 10-15' and shading out any competitors, Japanese Knotweed can quickly form a monoculture. It can take 2-5 seasons to fully contain through repeat herbicide treatments. It is at its weakest point during the flowering stage, when nutrients are flowing back into the roots (Aug, Sept.) Unfortunately, taproots can extend over 6' below the ground making organic eradication nearly impossible without excavation. There are two ways to approach treatment.

1. Cut and treat: For smaller areas, involves cutting the stem between the 1st and 3rd node and adding a 66% solution of Aquaneat (glyphosate), generally 5 oz per treated stem. If density is less than 5 ft per plant treat every third stem. Do this for 2-5 seasons.
2. Cut in May, wipe leaves in fall or apply to stem in fall: In this case, dense stands of Knotweed are mown in end of May so when they regrow they are at hip height by August. They can then be easily wiped with a 6.0% Aquaneat (glyphosate) solution



Identification: Herbaceous perennial, with long heart shaped leaves. Young sprouts can be red, rhubarb in nature. Extensive roots can spread and colonize quickly and can reach 15 ft. at maturity.

Japanese Knotweed cut in preparation for a fall herbicide foliar wipe treatment (top left). Treatment of Japanese Knotweed stems using a cut and fill method (above). A combination of cut and fill in the first season and foliar wipe in the second has shown to be effective. Foliar wipe can be accomplished by applying herbicide to a glove and wiping leaves or by utilizing a foaming agent to help herbicide stick to the leaves (left). It is a highly specific treatment with little risk of drift.

Management Calendar for Treatment and Planting

Task	March/ April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
Remove Garlic Mustard and Lesser Celandine seedlings by hand or smothering									
Cutting of Japanese Knotweed									
Cut and dab of woody invasive species									
Treatment of Japanese Knotweed									
Invasive vine management and cut and dab treatment									
Restoration planting									
Treatment of Black Swallowort									
Mowing of meadows									

Optimal timing and efficiency

Not optimal but mostly effective

Possible, but not ideal

325 Little Harbor Road
Native Plant Inventory

Within the tidal river buffer is a diverse native plant community dominated by mature Oaks and White Pines with Chokeberry, Black Cherry, Arrowood Viburnum, and lowbush Blueberry in the understory. In the sunnier areas is a wet meadow featuring Rough Goldenrod, Alleghaney Blackberry, Sumac, Common Rush and Elderberry. An occupied Belted Kingfisher nest was found during the site visits. We propose utilizing these existing native plant species as indicators of what naturally inhabits this plant community and propose additional planting of these species and diversifying with other native trees, shrubs and perennials.

Native Plant Species Identified:

Acer rubrum, Red Maple
Acer sacharinum, Sugar Maple
Aronia melanocarpa, Black Chokeberry
Betula populifolia, Gray Birch
Betula papyrifera, Paper Birch
Iva frutescens, Bigleaf Marsh-elder
Juncus tenuis, Path Rush
Juniperus virginiana, Eastern Red Cedar
Kalmia latifolia, Mountain Laurel
Myrica pensylvanica, Bayberry
Parthenocissus quinquefolia, Virginia Creeper
Pinus strobus, Eastern White Pine
Prunus serotina, Black Cherry
Prunus virginana, Chokecherry
Toxicodendron radicans, Poison Ivy
Quercus alba, White Oak
Rosa virginiana, Virginia Rose
Rhus typhina, Staghorn Sumac
Rubus allegheniensis, Allegheny blackberry
Sambucus canadensis, Elderberry
Solidago bicolor, Silverrod
Solidago sempervirens, Sea-side Goldenrod
Solidago rugosa, Rough-leaved Goldenrod
Swida amonum, Silky Dogwood
Tilia americana, American Basswood
Vaccinium corymbosum, High-bush Blueberry
Viburnum dentatum, Arrowood Viburnum

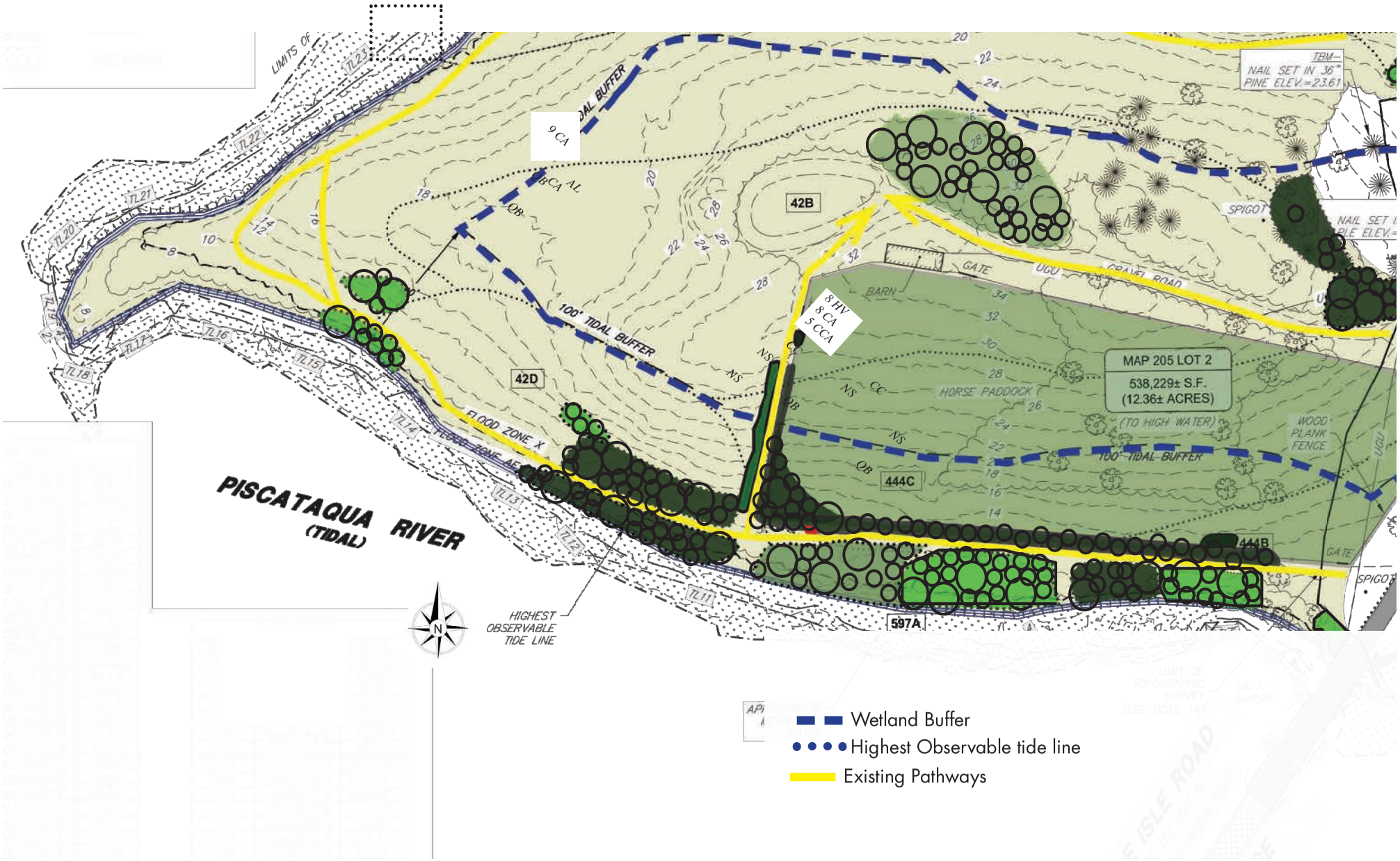
Silverrod alongside Blue-stem Goldenrod and Carex. sp

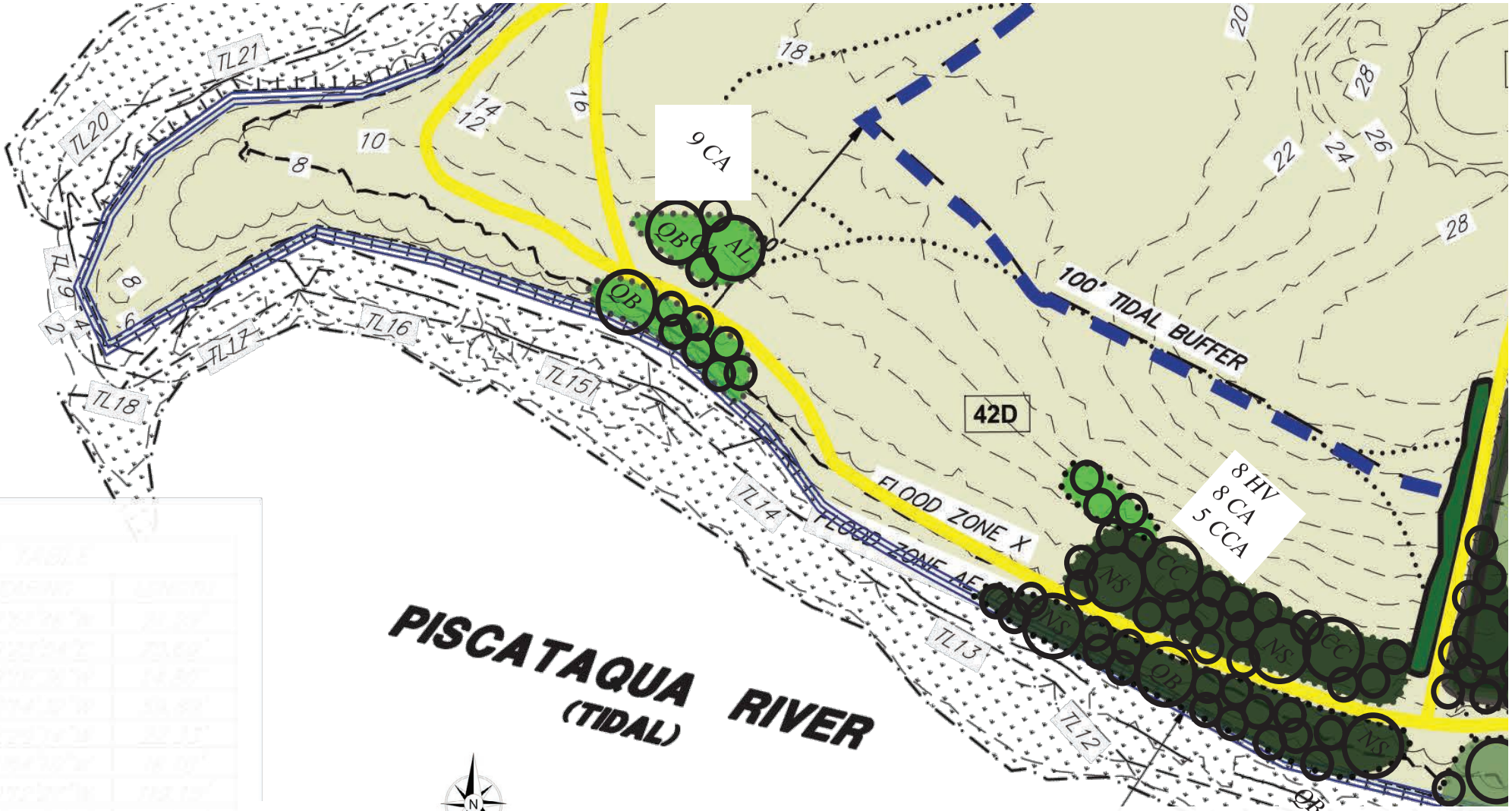
Gray Birch along the bank

325 Little Harbor Road
Invasive Plant Images

Staghorn Sumac along the banks with Arrowood Viburnum and Virginia Rose in the foreground

Marsh Elder along with Beechgrass line the western banks of the island


PISCATAQUA RIVER
(TIDAL)
100' TIDAL BUFFER
FLOOD ZONE X
FLOOD ZONE AE
HIGHEST OBSERVABLE TIDE LINE
42B
42D
444C
444B
597A
9 CA
8 HV
8 CA
5 CCA
BARN
GATE
HORSE PADDOCK
MAP 205 LOT 2
538,229± S.F.
(12.36± ACRES)
(TO HIGH WATER)
WOOD PLANK FENCE
NAIL SET IN 36" PINE ELEV.=23.61
SPIGOT
Wetland Buffer
Highest Observable tide line
Existing Pathways

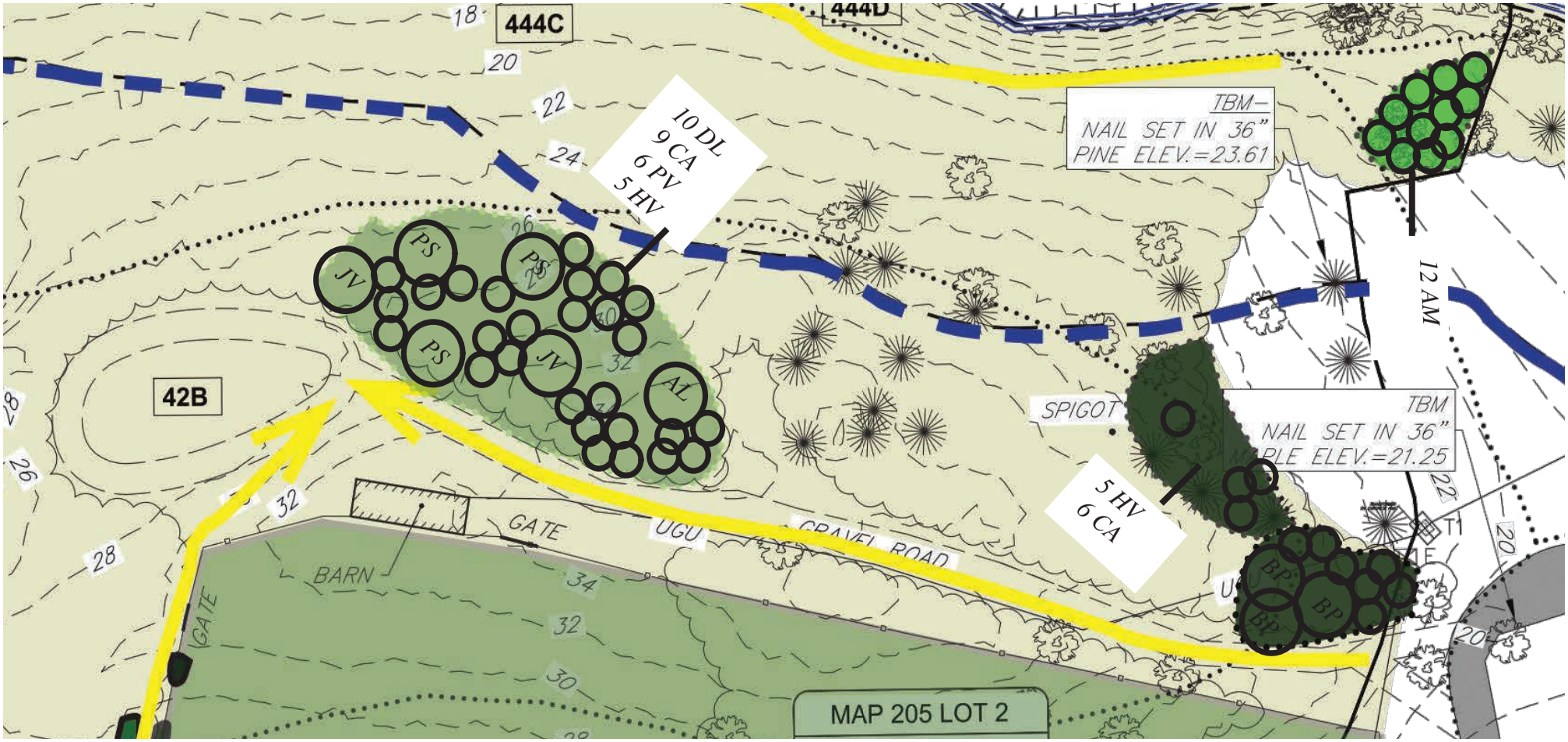


Wetland Buffer

Highest Observable tide line

Existing Pathways

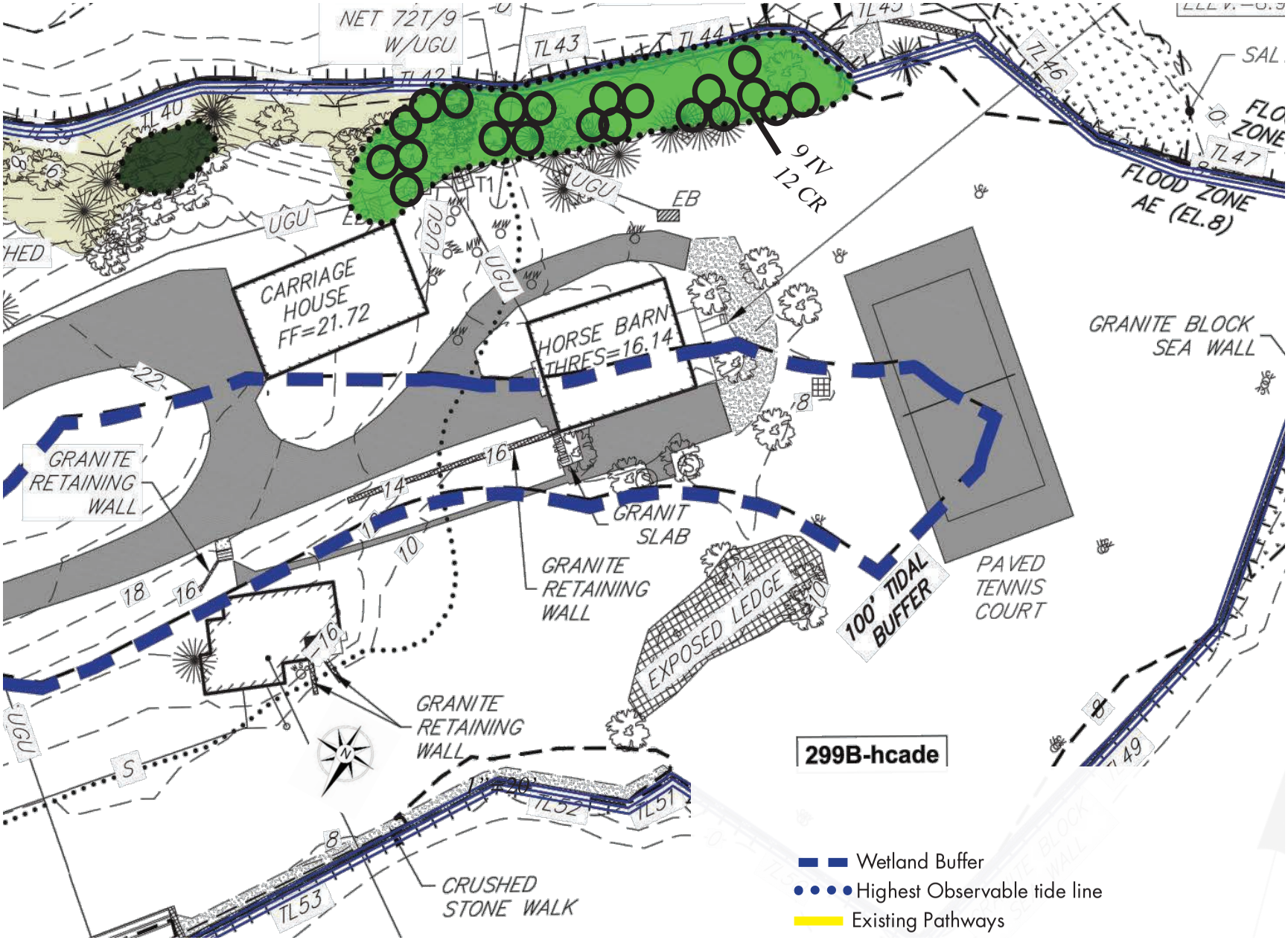
For the planting, we propose restoring a
invasive species with native shrubs and p
path through the meadow In areas propos
propose mowing and controlling existing
establish native perennials and add diver



Wetland Buffer

Highest Observable tide line

Existing Pathways


NET 72T/9
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TL52
TL53
9 IV
12 CR
FLOOD ZONE
AE (EL.8)
SAL
EB
UGU
T1
CARRIAGE
HOUSE
FF=21.72
HORSE BARN
THRES=16.14
GRANITE BLOCK
SEA WALL
GRANITE
RETAINING
WALL
GRANIT
SLAB
GRANITE
RETAINING
WALL
EXPOSED LEDGE
100' TIDAL
BUFFER
PAVED
TENNIS
COURT
GRANITE
RETAINING
WALL
CRUSHED
STONE WALK
299B-hcade
Wetland Buffer
Highest Observable tide line
Existing Pathways

After invasive plant species have been removed from the wetland buffer, the area will be planted with one to five gallon native conservation grade New England native trees, shrubs and perennials from local seed and cutting sources. It is proposed that native plants will have greater than 90% coverage by the conclusion of the 3 year Order of Conditions. Native plants proposed for installation will add diversity of existing native plants, provide habitat and forage for wildlife, and reduce storm water and sediment flow wetland areas. Plants proposed for installation include:

	Quantity	Size	Scientific name	Common name
Within 100' Tidal River Buffer	4	3-4'	Amelanchier laevis	Shadblow Serviceberry
	2	3-4'	Acer rubrum	Red Maple
	12	3-4'	*Aronia melanocarpa*	Black Chokecherry
	5	3-4'	*Betula papyrifera*	*Paper Birch*
	2	3-4'	*Carpinus caroliniana*	*Ironwood*
	44	3-4'	*Clethra alnifolia*	Summersweet
	5	3-4'	*Cornus amonum*	Silky Dogwood
	12	3-4'	*Cornus racemosa*	Gray Dogwood
	10	3-4'	*Diervilla lonicera*	Northern Bush Honeysuckle
	18	3-4'	Hamamelis virginiana	Witchazel
	9	3-4'	Ilex vertilicillata	Winterberry
	2	3-4'	Juniperus virginiana	Eastern Red Cedar
	24	3-4'	*Myrica pennsylvatica*	Bayberry
	6	3-4'	Nyssa sylvatica	Black Tupelo
	6	3-4'	Prunus virginiana	Chokecherry
	3	3-4'	Prunus serotina	Black Cherry
	7	3-4'	Quercus bicolor	Swamp White Oak
	9	3-4'	Rhus typhina	Staghorn Sumac
	16	3-4'	Rosa virginiana	Virginia Rose

After planting the conservation grade native shrubs and trees and slope stabilizing perennials, we propose the area be seeded with a custom Dormant seed mix at recommended seeding rates. This dense seed mix will supply a matrix of vegetative growth to cover disturbed soils, and reduce recolonization of invasive plant species. These mixes include:

New England Showy New England Wildflower mix
New England Understory Grass and Forb Mix

325 Little Harbor Road
Maintenance Schedule

The recommendations for restoration take into consideration the long term health of the wetland. Once the invasive plant species have been managed in a locus area and any native plants installed, a long-term maintenance plan will be set in motion with the goal of continued control of invasive plant species on site, serve, and sustain native plant populations, and improve the native plant diversity and aesthetic beauty of the wetland.

Fall - Winter 2021

- Complete invasive species management of Buckthorn and woody invasive plant species by cut and dab methods
- Identify and manually hand-pull identified invasive shrubs and vines under 1' in caliper
- Cover all disturbed soil along with native seed mix

Winter 2021-Spring 2022

- Continue utilizing control methods of invasive plant management to exhaust seed bank
- Begin planting native plant species according to approved quantities and varieties
- Monitor plant response and continue hand pulling and herbicide application methods on re sprouting invasive plant species
- Cover exposed soils Conservation seed mix

Summer 2022

- Cut and dab/Foam application to Japanese Knotweed and remaining invasive shrub and tree species
- Continue utilizing control methods of invasive plant management to exhaust seed bank
- Continue planting native plant species according to approved quantities and varieties

Fall 2022 - Summer 2023

- Monitor plant response and continue hand pulling and herbicide application methods on re sprouting invasive plant species
- Followup treatment of Japanese Knotweed (Mowing in spring, treating in fall)
- Cover exposed soils Conservation seed mix
- Monitor native species for plant health

Ongoing Maintenance and Monitoring:

- After the treatments of fall 2023, the management plan should be re-evaluated. If management treatments have been successful, only monitoring and minimal hand removal should be required to keep invasive plant species from being reintroduced. Native trees, shrubs, and herbaceous forbs should dominate the wetland buffer.
- Implementation of the LMP should be completed by qualified professionals including:
  NH Licensed pesticide applicator
  Certified Massachusetts/NH Invasive Species Management
  MCH Massachusetts Certified Horticulturist
- Monitoring reports shall be submitted to conservation at the end of each growing season indicating invasive species management efforts and establishment of the restoration plantings.

Bittersweet

Description:

Celastrus orbiculatus, Asiatic Bittersweet is a deciduous climbing vine common in areas of disturbance in our New England forests. It has glossy, rounded leaves that are alternate with finely toothed margins. The leaves turn yellow in the fall. The fruiting plants produce small greenish flower clusters from leaf axils that mature in fall to produce high numbers of fruiting seed. The seed are noticeably yellow, globular capsules that split open at maturity to reveal red-orange fruiting seeds. Roots are also distinctly orange.

Habitat:

Bittersweet spreads easily into forest edges, woodlands, unmanaged meadows and old fields. Most disturbed sites that are not being actively managed that receive full sun are susceptible. The vine can tolerate shade but is often found in more open, sunny areas.

Management:

Asiatic Bittersweet management is a combination of manual hand pulling with cut & dab herbicide treatments. For established plants, vines should be cut to ground to reduce mass. Persistent root infestations will require repeat cutting and treatments over several seasons. Rake any seeds present, bagging in plastic bags, tying, and disposing of correctly.

Celastrus orbiculatus,
Asiatic Bittersweet

Honeysuckle

Description:

Lonicera morrowii, Morrow's honeysuckles are upright, deciduous shrubs that typically have a multi-stem mounding appearance. Oval leaves are opposite along the stem with smooth edges (no teeth or lobes) and hairy on the underside. Mature stems are often hollow on the interior and peeling on the outer bark. In the spring pairs of fragrant, tubular flowers less than an inch long are borne along the stem in the leaf axils. The fruits are red to orange, and fleshy .

Habitat:

Honeysuckles are relatively shade-intolerant and most often occur in forest edges, abandoned fields, and other open, upland habitats. Woodlands and open meadows, especially those that have been grazed or otherwise disturbed and are left unmanaged are also highly susceptible. Morrow's Honeysuckle have the greatest habitat diversity and are capable of invading wetland edges and other uncommon habitat types.

Management:

Morrows Honeysuckle management is a combination of mechanical mowing and manual hand pulling with cut and dab herbicide treatments. When feasible, the root system is generally shallow and plants can be uprooted easily. Persistent root re sprouting may require repeat cutting with herbicide application over several seasons to fully control.

Lonicera morrowii,
Morrow's Honeysuckle

Buckthorn

Description:
Frangula alnus, Glossy Buckthorn is a deciduous shrub that grows up to 20 ft.. tall. The oblong leaves are up to 2" long, arranged alternately along the stem and are dark green on the surface, glossy above and slightly pubescent beneath. The leaves turn yellow in the fall, and remain on the plant when most other species have already lost their leaves. The yellow-green flowers are arranged in 1-8 flowered sessile, glabrous umbels. This plant flowers after the leaves expand, from May to September . The fruit ripen from red to black July to August.

Habitat:
Buckthorn thrives in early successional habitat. Abandoned agricultural or pasture lands, an opening in canopy within woodland, or unmanaged meadows are common areas. Buckthorn will also tolerate wetland soils where it can form dense stands that suppress the growth of native plant species. The seed is readily dispersed by birds, and the extended productivity of the fruit into winter allows the plant to be dispersed through the entire season.

Management:
Manual methods of hand-pulling seedlings is recommended. For larger saplings, a 'Weed Wrench' is effective. Mature Buckthorn can also be cut and the stump application of Triclopyr based herbicide. Rake any seeds present, bagging and disposing of correctly.

Frangula alnus,
Glossy buckthorn

Multiflora Rose

Description:
Rosa multiflora, Multiflora Rose is a shrub with arching canes with a mounding shape in the landscape. The leaves are divided into five to eleven sharply toothed leaflets. The base of each leaf stalk has a pair of fringed bracts which is a key identifier of the plant from other wild rose. Beginning in early summer, clusters of showy white flowers appear. The flowers are followed by developing red fruit, or hips, during the summer that remain on the plant through the winter.

Habitat:
Multiflora Rose thrives in early successional habitat. The rose has a wide tolerance for various soil, moisture, and light conditions. It occurs in dense woods, along river banks and roadsides and in open unmanaged fields. It can form a dense understory that suppresses growth of native plant species. The seed is readily dispersed by birds, and the extended productivity of the fruit into winter months allows wide spread distribution of the plant.

Management:
Manual methods of hand-pulling seedlings is effective. For more established shrubs, a combination of pruning to reduce mass followed by cut & dab treatments with a Triclopyr based herbicide is recommended. Persistent root infestations may require repeat cutting over several seasons. Rake any seeds present, bagging and disposing of correctly.

Rosa multiflora,
Multiflora rose

IDENTIFICATION AND QUALIFICATION OF APPLICANT

This plan has been developed by Miles H. Connors, Director of Ecological Services at Parterre Ecological, a division of Parterre Garden Services. Parterre Ecological Services provides Land Management Planning, expert Invasive Plant Management services, Native Plant Restoration strategies, and ongoing Maintenance and Monitoring in natural area restorations.

PLAN AUTHOR AND QUALIFICATIONS

Miles Hilton Connors
Director of Ecological Services
mconnors@parterreecological.com

Parterre Garden Services
67 Smith Place, unit 12A
Cambridge MA 12138

Miles holds an Bachelor of Science degree in Environmental Planning and Policy and Biology, with a Masters of Science in Sustainable Landscape Planning and Design. Miles is also a Massachusetts Certified Horticulturist, holds an Invasive Plant Certification from UMASS Amherst and is a Licensed Pesticide Applicator.

Members of the Parterre Ecological team are licensed Massachusetts Pesticide Applicators, are Massachusetts Certified Horticulturists and hold an Invasive Plant Certification from UMASS Amherst.

Precedent Images of a Restoration Project completed in 2020

1. Existing Conditions - Client under an enforcement order to restore buffer after tree & shrub removal and hydroseeding turf

2. After installation of sediment control, we mechanically mowed area and seeded with New England Conservation and Wildlife Seed Mix

3. Covered exposed loam with straw erosion control blanket: BioNet S75BN and staple into existing slope

4. Layout native plant species suitable for an Oak Hickory Forest plant community

5. Native plant species installed: *Quercus rubra, Kalmia latifolia, Ostrya virginiana, Corylus americana, Betula lenta, Fagus grandiflora and Viburnum acerfolium*

P-0766-006
December 9, 2021

Mr. Dexter Legg, Chair
City of Portsmouth Planning Board
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: **Wetland Conditional Use Permit Application**
North Mill Pond Greenway
Vaughan Street
Portsmouth, New Hampshire

Dear Mr. Legg,

On behalf of The City of Portsmouth, we are pleased to submit the following information to support this request for a Wetland Conditional Use Permit for the above referenced project:

- One (1) full size of the Site Plan Set, last revised December 3, 2021.
- One copy of the Restoration and Buffer Impact Exhibit, last revised December 3, 2021.
- One (1) Copy of the Invasive Species Inventory Figure, dated November 5, 2018.
- One (1) copy of the Owner's Letter of Authorization.

Project Summary

The proposed project involves mitigating an existing neglected urban shoreline parcel with a public multi-use path and boardwalk. As a valuable open space and wildlife habitat, the proposed greenway is envisioned to create an ecologically healthy, socially vibrant and educational destination for residents and visitors alike. The approximately 1.1-acre parcel is located along Vaughan Street and is identified on the City of Portsmouth Tax Map 123 as Lot 15. Invasive plant species have occupied the area over a long period of neglect and abandonment. The site presents an opportunity to holistically restore the shoreline and adjacent upland areas. The proposed restoration will include invasive species control, adjacent upland native plantings, community engagement, and living shoreline restoration.

The Jurisdictional wetland boundaries were delineated by Marc Jacobs, Certified Wetlands Scientist, Number 090, in December of 2015 according to the Standard of The US Army Corps of Engineers – Wetland Delineation Manual, Technical Report T-87-1, January 1987; The Regional Supplement to the Corps of Engineers Wetland Delineation Manual; Northcentral and Northeast Region, Version 2.0, January 2012; NH RSA 482-A; The Code of Administrative Rules, NH Department of Environmental Services – Wetlands Bureau – Chapter Env-Wt 100-900; as well as the City of Portsmouth Zoning – Article 10, Section 10.1010, Wetlands Conservation District. Predominant Hydric Soils were identified utilizing the Field Indicators for Identifying Hydric Soils in New England, Version 3, April 2004 and The Field Indicators of Hydric Soils in the United States, Version 7. The indicator status of Hydrophytic Vegetation was determined according to the National List of Plant Species that Occur in Wetlands; Northeast Region, U.S. Fish and Wildlife Service.

Proposed permanent impacts associated with this project include the upland buffer restoration area, the reclaimed salt marsh area, the subtidal oyster bed, a porous pavement multi-use trail and a boardwalk. By nature of the restoration project type, the entirety of the parcel is

identified as permanent impacts and are summarized in the table below. These impacts are depicted on the Restoration and Buffer Impact Exhibit, enclosed herein.

Project Buffer Impact and Marsh Restoration Comparison			
Wetland and Buffer Setback Area	**Proposed Restoration**	**Proposed Impacts**	
		Boardwalk	**Porous Pave**
Mudflat	3,922 SF	0 SF	0 SF
Jurisdictional Wetland	30,948 SF	206 SF	0 SF
0 - 100 FT*	22,794 SF	126 SF	5,420 SF
Sub Totals	**57,664 SF**	**332 SF**	**5,420 SF**
Totals	**57,664 SF**	**5,752 SF**	
*Tidal Buffer Zone per RSA 482-A:4			

Living Shoreline

As the science and art of coastal zone protection and restoration advances in the wake of climate change and sea level rise, the accumulated tools that develop will make up a set of resilient strategies to assist communities during these changing times. Based on the current literature, constructed living shorelines should be included in this set of tools. Coastal shorelines are increasingly susceptible to storm damage and flooding from rising seas. Coastal New Hampshire is an area that has become dramatically impacted by these changing conditions. Specifically, the infilling of tidal rivers with sediment from eroded marsh habitats, loss of shellfish habitat, and the loss of associated ecological services such as diminished flood storage and storm damage prevention. Furthermore, the loss of portions of these resources have resulted in significant impairment of local estuaries and the loss of ecological services provided by these unique ecosystems. Utilizing green technology such as living shorelines in concert with thin layer deposition, eel grass beds, oyster and blue mussel beds, among other strategies, could serve to reduce the impacts of the adverse impacts of climate change and sea level rise.

The existing coastal bank at the project site presents various stages of erosion and impairment of the seaward mudflat. The existing bulkhead is damaged and in various states of decay. The intent of the project is to create a living shoreline and create approximately 4000 square feet of low marsh dominated by Salt Marsh Cordgrass (Spartina alterniflora) plantings. Additionally, a coastal bluff planting area is proposed landward of the river-walk which will not only provide a visual barrier to the developed spaces of the site but also provide wildlife habitat benefits in the form of food, shelter, and overwintering habitat for wildlife.

1. View of eroded shoreline that is part of the North Mill Pond shoreline restoration project.

The project has elected to install a living shoreline in an effort to stabilize the existing eroding shoreline at the site. The options of more "gray" infrastructure in this area was rejected given that we do not expect severe scour or storm damage directly on the shoreline given its location within the riparian system associated with North Mill Pond. The benefits of a green infrastructure solution would provide additional ecological services and assist with ameliorating impacts from sea level rise and climate change.

The lower sill will be created by using salvaged rock and granite as well as living rock from the site to create a rocky intertidal shoreline. This structural shoreline will mimic the rocky coast of New Hampshire and Maine and create tide pool habitats for a multitude of vertebrate and invertebrate species including blue mussels, oysters, and nursery habitat for fisheries. The landward side of the rocky intertidal shoreline will be infilled with a blended soil of 2 parts sand and 1 part organic compost to create a growing media for the lower marsh consisting of salt marsh cordgrass Spartina alterniflora.

By using dense coir logs at the toe of the upper sill, a blended soil consisting of sand and organic compost can be utilized to stabilized on the landward side of the coil logs to support the growth of salt meadow grass (Spartina patens).

View of coir log installation on Neponset River held fast with Duck Bill Anchors. Photo taken after two growing seasons. Spartina alterniflora well established.

Additional plantings located on the up-gradient side of the shoreline, including seaside goldenrod, marsh elder and sea lavender will add additional ecological services to the shoreline system including flowering plants for pollinators and additional root structure for stability of the shoreline. Duck bill anchors will be utilized to hold the coir log in place and further maintain its stability.

Construction Sequence

The proposed living shoreline will be constructed in a specific sequence that will terminate with the installation of salt marsh plantings that will stabilize the entire living shoreline and establish a densely vegetated salt marsh consisting principally of low marsh grass (Spartina alterniflora) and high marsh plant community dominated by salt meadow grass (Spartina patens). The following sequence outlines the principal construction elements of the project. Oversight by a restoration ecologist or professional wetland scientist would improve the success of the outcome. The establishment of accurate elevations of the planting shelves are important to improve the success of plant establishment.

1. Salvaged rock and existing living rock from the project site will be used to create a rocky intertidal shore consistent with the elevations on the design plans.
2. The created rocky intertidal shoreline will be created between approximately Elevation -2.0 to Elevation 2.0 (NGVD 1929).
3. The blended soil mix (2 parts sand, 1-part organic compost) will be used to infill the area landward of the installed salvaged rock and granite to create a planting shelf for the low marsh.
4. The low marsh shelf will be planted with plugs of salt marsh cord grass (Spartina alterniflora) on an 18 inch on center, configuration at approximately Elevation 2.0 (NGVD 1929).
5. The remaining bulkhead will be left in place and act as perches for birds and other wildlife.
6. The coir logs (24-inch Cocologix, or equal) will be installed along the proposed contour at approximately Elevation 2.0 to approximately Elevation 6.0 and secured with timber stakes or other suitable constraints (Duckbill Anchors, or equal).
7. The slope from approximately Elevation 6.0 to approximately Elevation 9.0 will be stabilized with coir mat and salt tolerant plantings (see plant list) to transition to the coastal bluff and North Mill Pond Greenway Trail.
8. Irrigation will be provided through the first growing season or until new plantings are established.
9. Monitoring will be conducted by faculty and graduate students of the Marine Science Center at Northeastern University and the University of New Hampshire.

Community Engagement

A main objective of the proposed project is to provide a desirable shoreline space that was once inaccessible for public recreational use. Providing this public area along the once degraded shoreline will provide educational opportunities. The site will feature interpretive signage with the goal to educate users on the importance of responsible shoreline rehabilitation and habitat restoration. Also, the community will be able to use the space as an outdoor classroom to give educators a visual tool for positive environmental restoration projects.

Invasive Species Control

We have identified the dominant invasive species within and adjacent to the project site including Norway maple (*Acer platanoides*), black locust (*Robinia pseudoacacia*), autumn olive (*Elaeagnus umbellata*), Japanese knotweed (*Polygonum cuspidatum*), Phragmites (*Phragmites australis*), and Asiatic bittersweet (*Celastrus orbiculatus*) (See Invasive Species Inventory figure). These species are the targeted plants for removal at the North Mill Pond Greenway site. The presence of invasive species has been identified throughout the understory and canopy of the site. The following is a description of the proposed methodology to remove the invasive plant species to substantially improve the function and value of the landscape.

Whole Plant Removal

The techniques of whole plant removal intend to remove the entire invasive plant including standing plant material as well as the roots and rhizomes of the invasive species. In this way,

the entire plant is removed, and re-colonization of the treatment area is substantially reduced. Simply cutting the standing vegetation will only stimulate recovery growth and a dense re-growth of the invasive species intended to be removed.

However, 100% removal is rarely achievable, even in an excavation effort with machinery and labor. Accordingly, professional judgment is necessary to determine when to cease removal activities in any particular project area. Typically, this work is conducted in the fall and winter, before the ground freezes, or in early spring. During the following spring and summer months additional hand pulling of newly sprouted seed material is required. Summer work can also be effective especially when the season is dry and reduced impact to soils is achievable.

Initial Removal with Equipment or Weed Wrench
Standing vegetation will be cut, removed, and stockpiled for burning or chipping for compost. A mini excavator will be used to remove the root balls of the targeted species. This will leave the exposed roots and stumps of the invasive species accessible for removal. The area can be cut with a machine as well during this phase of work. If heavy machinery is used for removal of root material, mats will be placed to minimize the disturbance of the soils by dispersing the weight of the equipment over a larger surface area, decreasing the compression of the soils. The entire restoration area will be cleared of the invasive woody species and maintained from the re-invasion of the targeted invasive plant species.

Removal of Root Ball and Trailing Roots and Rhizomes
Care must be used in pulling the root balls of invasive shrub species. The use of a mini excavator, described above, may facilitate the removal of the root balls of these species. Carefully lifting and shaking the root ball as it is extracted from the soil facilitates the removal of the trailing roots and rhizomes. The soil is then released from the root ball by gentle shaking of the bucket by the machine operator. In areas that are inaccessible by machine, the work will be completed with weed wrenches and by hand. If root balls are too large for extraction by weed wrenches, chains and straps will be lead out to the mini excavator, or in some cases we will use "come-alongs" and manually pull the root ball out of the soil. These root balls can be stockpiled and burned during the burning season. Ashes are a good amendment for fields and planting areas as they contain phosphorous and other nutrients. Alternatively, the root balls can be transported to an off-site facility for grinding and chipping and/or composting. Standing plant material is chipped separately for wood chips. This work is usually completed on site to reduce the volume of material that will need to be transported from the site.

Hand Clearing and Grubbing of Broken Roots and Rhizomes
Hand clearing and removal of broken root parts is important for invasive species management, as these shoots will re-sprout if any viable rootlets remain at the site. These collected roots can be stockpiled and burned during the local brush-burning season or composted off site for later use as a soil amendment. Our staff will follow the excavator operator and clear the restoration area of root fragments and rhizomes by hand. All collected roots are removed along with the collected root balls for off-site composting.

Stump Grinding
An arborist will come to the Site and mark the invasive, dead, and hazardous trees. The trees will be clearly marked by professional scientist and removed by approprate machinery. The cut trees will be stump ground to prevent coppicing and re-growth.

Final Disposition of Removed Plant Material
Once the invasive plant material is harvested, we plan to either burn the material on site or to chip it and remove it from the site for composting. If the harvest occurs during the burning season there are several reasons to burn the majority of the material on site. Firstly, burning on site reduces costs of chipping and off-site transport of harvested material. Secondly, the

burning of woody material returns valuable nutrients to the soil structure, principally phosphorous, which in many systems has been depleted by plant growth and microbial activity. If possible, we prefer to burn the harvested material in small manageable brush piles to facilitate these benefits to the local ecosystem.

If the work is conducted out of the burning season the harvested material will be chipped on site and removed to an off-site composting operation for composting and subsequent use as a soil amendment. Chipping the plant material before it develops seeds or flowers renders the plant unviable, especially once the material has completely dried. Then, composting the chipped woody plants becomes a sustainable use for the harvested material. Once composted, this material will return valuable nutrients to the soil, which will eventually be used by other plants for growth.

Soil Augmentation, Grading, Seeding and Hay Mulch
The existing landscape will be augmented with compost and duff (decaying leaf mold) as needed, then re-graded to match the contours of the adjacent upland areas and gently sloped upward across the buffer zone. Of most importance is establishing a native plant community within the treated area, as discussed under the "Native Species Planting Plan" section below. Accordingly, any disturbed soils will be seeded, then hay mulched with salt marsh hay to quickly stabilize the disturbed soils. The areas will be maintained until native species have established.

Native Species Planting Plan

Subsequent planting of various plant species adapted to the local habitat will be installed according to the proposed Restoration Planting Plan (see attached). This planting palette includes native trees, shrubs, and herbaceous species that will create habitat value, as well as increase plant and wildlife diversity within the general area. Specific locations of these plantings will be chosen on site at the time of installation, but all will be within the designated restoration area. All plantings are to be installed by hand within the existing landscape to maintain soil stability unless otherwise noted. Plantings will be interspersed across the restoration area and not in a uniform "on-center" planting schedule (see attached). The following is a description of the proposed methodology to install native plant species to substantially improve the function and value of the landscape.

Canopy and Shrub Plantings
Red maple (*Acer rubrum),* will be installed as the canopy species within the restoration planting area and the buffer zone between the living shoreline and the North Mill Pond Greenway (see Site Plan, attached). Gator Bags or equivalent will be placed around the newly planted trees to ensure watering and establishment, as needed. A native shrub layer consisting of red cedar (*Juniperus virginiana*), beach plum (*Prunus maritima*), witch hazel (*Hamamelis virginiana*) and gray dogwood (*Cornus racemosa*) will be installed according to the proposed Restoration Planting Plan (see attached). These species will substantially improve the function and value of the landscape to provide wildlife habitat and ecological services to this degraded coastal ecosystem. These shrub species will be installed by hand in with at least three (3) gallon containerized nursery stock.

Herbaceous Plantings
The herbaceous plant community consists of a diversity of native grasses and flowering perennial plantings (see Restoration Planting Plan). These native plant species are adapted to wetland conditions and will add to the existing landscape. These species will be installed as one-gallon, containerized nursery stock. In addition, an herbaceous seed mix will be used in the wetland plant community. The ground plain seed mix that will be spread in the buffer zone includes coastal red fescue *(Festuca rubra),* switchgrass *(Panicum virgatum),* and little

bluestem *(Schizachyrium scoparium).* Seeding will occur after plantings have been installed, and the entire restoration area will be lightly raked to cover the seeds with soil.

This planting plan will improve the area's capacity to provide ecosystem functions including food, cover, and nest sites for wildlife species. All species to be installed are native to this region and are adapted to the surrounding soils and hydrology.

Aftercare and Maintenance

After the initial removal of the woody shrub and tree species, the restoration areas will be surveyed monthly to remove sprouting invasive species, since seed material is still present in the thatch and surface soils of the disturbed areas. Some of these seeds will germinate and sprout. It is very important to conduct these monthly surveys and to harvest by hand any sprouting invasive materials. During the first growing season, the majority of this material is handpicked. We typically use 5-gallon pails and fill them with new invasive seedlings for disposal. Each month there are fewer and fewer seedlings to harvest, and by the end of the first season the seeded area has become dense with new growth of desirable native species, and the invasive seedlings are practically eliminated. The second growing season will typically only require three (3) surveys, in the early spring, mid-summer, and mid-fall.

The living shoreline will be monitored for a minimum of two (2) years to maximum of five (5) years to ensure the grow in and establishment of the low marsh plantings (principally, Spartina alterniflora) and high marsh plantings (principally Spartina patens). The site will be visited quarterly and assessed for plant vigor, establishment, percent cover, and recommendations for replacement of plantings or substitutions for failed plantings. The salt marsh, living shoreline, and the coastal bluff plantings will be monitored in accordance with the requirements of the restoration planting plan. Annual reports will summarize the results of the monitoring efforts including photographs and lists of interventions that were undertaken, as needed. Annual reports will be submitted to the NH Department of Environmental Services and other applicable agencies.

Construction Oversight, Follow-up Observation, & Maintenance

Construction oversight, follow-up observations, and all plant installation work will be overseen in accordance with the NHDES monitoring protocol requirements. It is proposed that the restoration areas be reviewed prior to the issuance of a Certificate of Compliance and within the regulatory provision to ensure that wetland plant material has established itself as required by NHDES rules and regulations.

Conditional Use Permit

Jurisdictional wetland areas were delineated by Marc Jacobs, Certified Wetlands Scientist Number 090, in December of 2015. The functions and values associated with this parcel have been identified in Section 1 of the enclosed Wetland Application.

Based on the above described and enclosed materials, the following addresses how the proposed project warrants the granting of a Wetland Conditional Use Permit by satisfying the following six (6) criteria for approval in Section 10.1017.50 of the Zoning Ordinance:

(1) The land is reasonably suited to the use, activity or alteration;
This land exhibits an eroding tidal shoreline adjacent to a buffer area impaired with invasive species and neglect. The proposed alterations intend to restore the shoreline and improve the function and value of the intertidal zone. Additionally, the project will provide public access to a desirable shoreline space that was once inaccessible for public recreational use.

(2) There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use, activity or alteration;
The placement of the pervious path and boardwalk provides enhanced functions and values to the site which offers opportunities for the public to responsibly interact with the delicate resource area and provide educational opportunities with interpretive signage along the proposed path and boardwalk. This site does not provide an alternative location outside of the wetland buffer that provides the same enhancements as described.

(3) There will be no adverse impact on the wetland functional values of the site or surrounding properties;
The proposed project is intended as a restoration project and will enhance the wetland functional values.

(4) Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals; and
The proposed project will restore the area to a natural vegetative state with native plantings and invasive species control.

(5) The proposal is the alternative with the least adverse impact to areas and environments under the jurisdiction of this Section.
The permanent impacts, including the pervious pathway and boardwalk have been minimized to the maximum extent practical to be able to provide the proposed enhanced wetland functional values to the site.

(6) Any area within the vegetated buffer strip will be returned to a natural state to the extent feasible.
Proposed impacts to the vegetated buffer strip have been minimized to the maximum extent feasible. Additionally, the vegetated buffer strip will be restored from the existing neglect and abandonment to a proposed living shoreline and marsh area to enhance resiliency to the effect of sea level rise and provide desirable ecological services.

Conservation Commission Work Session Progress

This project was originally presented to the Conservation Commission at their October 13, 2021 meeting. The Commission voted to hold a work session for the project at their November 10, 2021 meeting to discuss potential improvements to the design. The enclosed plans have been updated to address improvements recommended by the Commission during the work session. The following is a summary of those revisions:

1. The boardwalk area has been reduced by 375 SF from the previous design. The location and size are shown on the enclosed Site Plan Set.
2. The 1-foot gravel shoulders have been eliminated on either side of the 10-foot porous pavement path.
3. Existing trees greater than 6-inch caliper will remain where possible.

At the Conservation Commission meeting on December 8, 2021, the commission voted to recommend that the Planning Board grant a Conditional Use Permit with stipulations that project agrees to incorporate into the design.

Conclusion

The proposed improvements intend to restore the impaired shoreline and improve the function and value of the intertidal zone. Moreover, the project will create greater coastal resiliency by creating a stable, living habitat to act as storm damage prevention to the upgradient buffer zone and developed areas. Habitat quality for wildlife will be significantly improved by providing food, cover, and overwintering areas for wildlife. The landward migration of salt marsh as a result of sea level rise will be able to progress into the buffer zone at the site given the gradual rise in elevation in these areas.

We respectfully request to be placed on the Planning Board meeting agenda for December 16, 2021. If you have any questions or need any additional information, please contact Patrick Crimmins by phone at (603) 433-8818 or by email at pmcrimmins@tighebond.com.

Sincerely,
TIGHE & BOND, INC.

Patrick M. Crimmins, PE
Senior Project Manager

Enclosures
Cc: Peter Britz, City Environmental Planner & Interim Planning Director
Halvorson Tighe & Bond Studio
Derosa Environmental Consulting

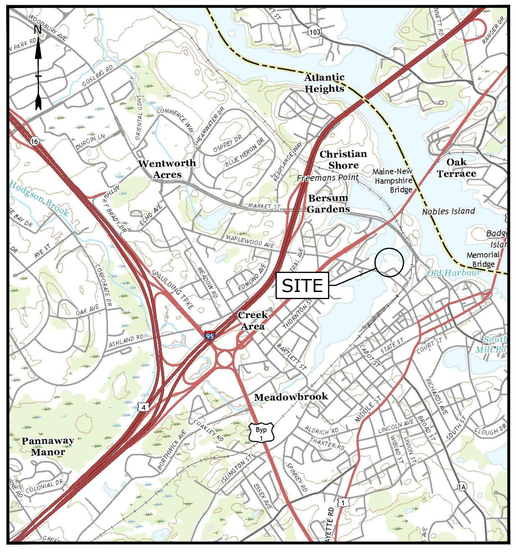
NORTH MILL POND GREENWAY AND COMMUNITY PARK - AREA 1

VAUGHAN STREET
PORTSMOUTH, NEW HAMPSHIRE
JULY 21, 2021
LAST REVISED: DECEMBER 3, 2021

LIST OF DRAWINGS		
SHEET NO.	SHEET TITLE	LAST REVISED
	COVER SHEET	12/3/2021
C-101	EXISTING CONDITIONS AND DEMOLITION PLAN	12/3/2021
C-102	SITE PLAN	12/3/2021
C-103	GRADING AND DRAINAGE PLAN	12/3/2021
C-501	EROSION CONTROL NOTES AND DETAILS SHEET	7/21/2021
C-502	DETAILS SHEET	7/21/2021
C-503	BOARDWALK DETAILS SHEET	12/3/2021
C-504	RESTORATION SECTION PLAN	7/21/2021
L-101	RESTORATION PLANTING PLAN	12/3/2021

STATE OF NEW HAMPSHIRE
BRADLEE MEZQUITA
No. 06830
LICENSED
PROFESSIONAL ENGINEER
12-3-21

STATE OF NEW HAMPSHIRE
PATRICK M. CUMMINGS
No. 12870
REVISED
PROFESSIONAL ENGINEER
12-03-21



LOCATION MAP
SCALE: 1" = 2,000'

PREPARED BY:
HALVORSON
Tighe&Bond STUDIO
25 KINGSTON STREET
BOSTON, MASSACHUSETTS 02111-2200
617-536-0380

APPLICANT/OWNER:
CITY OF PORTSMOUTH
1 JUNKINS AVENUE, 3RD FLOOR
PORTSMOUTH, NEW HAMPSHIRE 03801

ENVIRONMENTAL CONSULTANT:
DEROSA ENVIRONMENTAL CONSULTING, INC.
167 MAIN STREET, PO BOX 716
ROWLEY, MASSACHUSETTS 01969

SURVEYOR:
DOUCET SURVEY, LLC
192 KENT PLACE
NEWMARKET, NEW HAMPSHIRE 30857

CIVIL CONSULTANT:
Tighe&Bond
177 CORPORATE DRIVE
PORTSMOUTH, NEW HAMPSHIRE 03801
603-433-8818

T & B PROJECT NO: P-0766-006

COMPLETE SET 9 SHEETS

Last Saved: 7/21/2021
Plotted On:Dec 03, 2021-8:26am By: ASellar
Tighe & Bond: J:\P\P0766 Portsmouth, NH General Proposals\P0766-006 (North Mill Pond Trail)\Drawings_Figures\AutoCAD\Sheet\P0766-006_C COVER.dwg

EXISTING CONDITIONS PLAN NOTES:

1. EXISTING CONDITIONS ARE BASED ON A FIELD SURVEY BY DOUCET SURVEY INC, DATED FEBRUARY 3, 2016.
2. JURISDICTIONAL WETLANDS DELINEATED BY MARC JACOBS, IN DECEMBER 2015.
3. VERTICAL DATUM IS BASED ON NGVD29 PER DISK B2 1923
4. HORIZONTAL DATUM IS BASED ON NEW HAMPSHIRE STATE PLANE(2800) NAD83(2011) DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.

REFERENCE PLANS:

1. "EXISTING CONDITIONS PLAN OF TAX MAP 123, LOT 15 & TAX MAP 124, LOTS 10 & 11" PREPARED BY DOUCET SURVEY INC, DATED FEBRUARY 3, 2016.
2. "EXISTING CONDITIONS PLAN FOR TIGHE & BOND OF STONE CREEK REALTY" PREPARED BY DOUCET SURVEY LLC, DATED NOVEMBER 2019.

DEMOLITION NOTES:

1. THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK.
2. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES. CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.
3. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES.
4. COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
5. ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO MATCH ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
6. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THE CONDITIONS OF ALL OF THE PERMIT APPROVALS.
7. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ADDITIONAL PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK.
9. CONTRACTOR SHALL VERIFY ORIGIN OF ALL DRAINS AND UTILITIES PRIOR TO REMOVAL/TERMINATION TO DETERMINE IF DRAINS OR UTILITY IS ACTIVE, AND SERVICES ANY ON OR OFF-SITE STRUCTURE TO REMAIN. THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY OF ANY SUCH UTILITY FOUND AND SHALL MAINTAIN THESE UTILITIES UNTIL PERMANENT SOLUTION IS IN PLACE.
10. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, CONCRETE PADS, UTILITIES AND PAVEMENT WITHIN THE WORK LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ITEMS TO BE REMOVED INCLUDE BUT ARE NOT LIMITED TO: ABANDONED RAIL ROAD TRACKS, CONCRETE, PAVEMENT, CURBS, UNDER GROUND PIPING, POLES, SIGNS, FENCES, TREES, LANDSCAPING AND DEBRIS.
11. REMOVE TREES AND BRUSH AS REQUIRED FOR COMPLETION OF WORK. CONTRACTOR SHALL GRUB AND REMOVE ALL STUMPS WITHIN LIMITS OF WORK AND DISPOSE OF OFF SITE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.
12. CONTRACTOR SHALL PROTECT ALL PROPERTY MONUMENTATION THROUGHOUT DEMOLITION AND CONSTRUCTION OPERATIONS. SHOULD ANY MONUMENTATION BE DISTURBED BY THE CONTRACTOR, THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED SURVEYOR TO REPLACE DISTURBED MONUMENTS.
13. PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS/CURB INLETS WITHIN CONSTRUCTION LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. INLET PROTECTION BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE "HIGH FLOW SILT SACK" BY ACF ENVIRONMENTAL OR EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN EVENT OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED OR SEDIMENT HAS ACCUMULATED TO 1/3 THE DESIGN DEPTH OF THE BARRIER.
14. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.
15. THE CONTRACTOR SHALL PAY ALL COSTS NECESSARY FOR TEMPORARY PARTITIONING, BARRICADING, FENCING, SECURITY AND SAFETY DEVICES REQUIRED FOR THE MAINTENANCE OF A CLEAN AND SAFE CONSTRUCTION SITE.
16. WATER BOUNDARIES ARE DYNAMIC IN NATURE AND ARE SUBJECT TO CHANGE DUE TO NATURAL CAUSES SUCH AS EROSION OR ACCRETION.
17. MEAN HIGH WATER (EL. 3.0' NGVD1929) AND HIGHEST OBSERVABLE TIDE (EL. 4.3' NGVD1929) ELEVATIONS PER "MAPLEWOOD AVENUE CULVERT REPALCEMENT AND NORTH MILL POND RESTORATION, WATERFRONT/STRUCTURAL BASIS OF DESIGN, BY WATERFRONT ENGINEERS, LLC, DATED DECEMBER 30, 2009".
18. MANMADE AND NATURAL JURISDICTIONAL BOUNDARIES WERE DELINEATED BY MARC JACOBS, CERTIFIED WETLAND SCIENTIST NUMBER 090, IN 12/15 ACCORDING TO THE STANDARD OF THE US ARMY CORPS OF ENGINEERS - WETLAND DELINEATION MANUAL, TECHNICAL REPORT T-87-1, JANUARY 1987; THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2.0, JANUARY 2012; NH RSA 482-A:; THE CODE OF ADMINISTRATIVE RULES, NH DEPARTMENT OF ENVIRONMENTAL SERVICES-WETLANDS BUREAU - CHAPTER ENV-WT 100-900; AS WELL AS THE CITY OF PORTSMOUTH ZONING - ARTICAL 10, SECTION 10.1010, WETLANDS CONSERVATION DISTRICT. PREDOMINANT HYDRIV SOILS WERE IDENTIFIED UTILIZING THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 3, APRIL 2004 AND THE FIELD INDICATORS OF HYDRIC SOILS IN THE IUNITED STATES, VERSION 7. THE INDICATOR STATUS OF HYDROPHYTIC VEGETATION WAS DETERMINED ACCORDING TO THE NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS: NORTHEAST REGION, U.S. FISH AND WILDLIFE SERVICE.

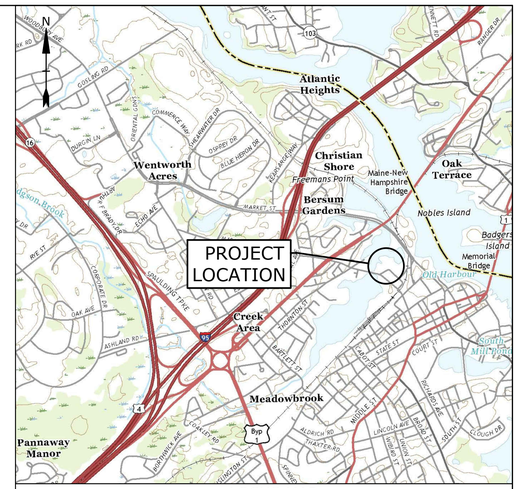
LEGEND

- PROPERTY LINE
- APPROXIMATE LIMIT OF WORK
- MEAN HIGH WATER LINE
- HIGHEST OBSERVABLE TIDE LINE
- EASEMENT LINE
- CHAIN LINK FENCE
- OHW — OVERHEAD WIRES
- D — DRAIN LINE
- 10 — MAJOR CONTOUR LINE
- 8 — MINOR CONTOUR LINE
- EDGE OF WETLAND
- UTILITY POLE W/ LIGHT
- SIGN
- CATCH BASIN (ROUND)
- CATCH BASIN
- WETLAND AREA
- CONIFEROUS TREE
- DECIDUOUS TREE
- DECIDUOUS BUSH

- CONCRETE
- LANDSCAPED AREA
- BRICK

TYP.	TYPICAL
D.H.F.	DRILL HOLE FOUND
I.P.F.	IRON PIPE FOUND
FF	FINISHED FLOOR
EP	EDGE OF PAVEMENT
EOG	EDGE OF GRAVEL
SWL	SINGLE WHITE LINE
SYL	SINGLE YELLOW LINE
CONC.	CONCRETE
VGC	VERTICAL GRANITE CURB
SBB	SLOPED BITUMINOUS BERM
AS	AUTO SPRINKLER

- APPROXIMATE LIMIT OF PROPOSED WETLAND IMPACT AREA
- APPROXIMATE LIMIT OF PROPOSED WETLAND BUFFER IMPACT AREA



LOCUS MAP

SCALE IN FEET

0 2000' 4000'

GRAPHIC SCALE

PROPOSED AREA OF SUBTIDAL MUSSEL BED (SEE SITE PLAN)

"NO TRESPASSING" (TO BE REMOVED)

"NO DIGGING" (TO BE REMOVED)

UTILITY TOWER (TO REMAIN)

EXPOSED PILINGS (TO REMAIN)

PROPOSED TEMPORARY TURBIDITY CURTAIN

LIMITS OF HISTORIC WHARF (PER REFERENCE PLAN #1)

PROPOSED TWO (2) ROWS OF SILT SOCK

TAX MAP 123 LOT 15
CITY OF PORTSMOUTH
1 JUNKINS AVENUE
PORTSMOUTH, NH 03801
R.C.R.D. BOOK 5904, PAGE 2777

25' VEGETATED BUFFER

EXISTING TREES TO REMAIN (TYP)

RAIL ROAD TRACKS IN DISREPAIR (TO BE REMOVED)

50' WATERFRONT BUFFER

SBB

EP

TAX MAP 123 LOT 15-1
299 VAUGHAN STREET LLC
C/O CATHARTES PRIVATE INVESTMENTS
100 SUMMER STREET SUITE 1600
BOSTON, MA 02110
R.C.R.D. BOOK 5434, PAGE 2905

TAX MAP 123, LOT 14
HORIZON TRUST OF NH
ROBERT A. MCGUIRE JR.
PO BOX 988
DOVER, NH 03821
R.C.R.D. BK. 5448, PG. 2348

100' TIDAL BUFFER ZONE

PAVED PARKING AREA

TAX MAP 124, LOT 9
319 VAUGHAN STREET CENTER LLC
PO BOX 21948

RAMP WITH HANDRAIL

10' WIDE PEDESTRIAN ACCESS EASEMENT (SEE REF. PLAN #19)

N38°56'03"E, 16'±
(TO MEAN HIGH WATER)

12" RCP INV.=1.9'
(TO REMAIN)

CB #1535

EXISTING CATCH BASIN TO REMAIN

PROPOSED INLET PROTECTION BARRIER

EDGE OF JURISDICTIONAL WETLANDS

MEAN HIGH WATER ELEV. 3.0 FT NGVD1929

HIGHEST OBSERVABLE TIDE LINE ELEV. 4.3 FT NGVD1929

NORTH MILL POND

ZONE AE
ZONE X

0 20' 40'

GRAPHIC SCALE

CON COM WORK SESSION 12/3/2021

REVISIONS

PROJECT NO:	P0766-006
DRAWN BY:	AFS
CHECKED BY:	PMC
SCALE:	AS SHOWN

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July 21, 2021

EXISTING CONDITIONS AND DEMOLITION PLAN

C-101

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NORTH MILL POND GREENWAY AND COMMUNITY PARK - AREA 1

PORTSMOUTH, NEW HAMPSHIRE

STATE OF NEW HAMPSHIRE — BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER — 12-3-21

STATE OF NEW HAMPSHIRE — PATRICK M. CROMWELL No. 12976 LICENSED PROFESSIONAL ENGINEER — 12-03-21

Last Save Date: December 2, 2021 3:43 PM By: AFSLAR
File Name: P:\0766-006 Maplewood Ave Culvert Replacement\Design\Permit\Plans\PERMIT SET 2021\0766-006 Sheets All Years Trash\Drawings\Structures\EXISTING CONDITIONS AND DEMOLITION PLAN.dwg

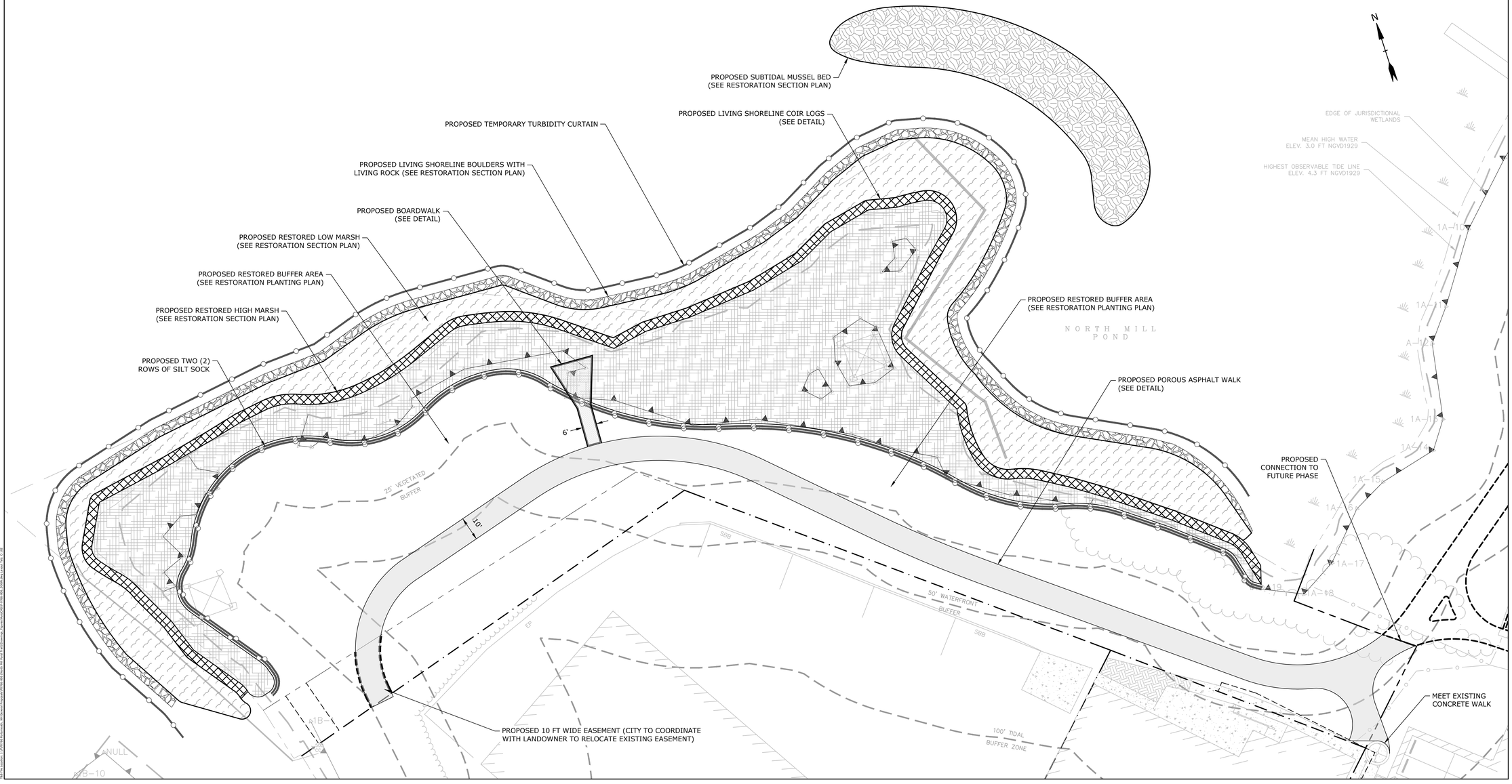
SITE NOTES:

1. THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED LAND SURVEYOR TO DETERMINE ALL LINES AND GRADES.
2. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAW CUT LINE WITH RS-1 EMULSION IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
3. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES & SPECIFICATIONS.
4. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAY WITH THE CITY OF PORTSMOUTH.
5. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
6. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
7. SEE LANDSCAPE PLANS FOR LANDSCAPING MATERIALS AND NOTES.

LEGEND

- PROPERTY LINE
- APPROXIMATE PROPERTY LINE
- EXISTING EASEMENT LINE
- PROPOSED EASEMENT LINE
- PROPOSED POROUS ASPHALT WALK
- PROPOSED BOARDWALK
- PROPOSED RESTORED HIGH MARSH
- PROPOSED RESTORED LOW MARSH
- PROPOSED LIVING SHORELINE BOULDERS WITH LIVING ROCK
- PROPOSED LIVING SHORELINE BOULDERS WITH LIVING ROCK
- PROPOSED SUBTIDAL OYSTER BED

TYP TYPICAL
COORD COORDINATE



CITY OF PORTSMOUTH NH — INCORPORATED 1849 — SETTLED 1623

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(PHONE) 617.536.0380
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NORTH MILL POND GREENWAY AND COMMUNITY PARK - AREA 1

PORTSMOUTH, NEW HAMPSHIRE

STATE OF NEW HAMPSHIRE — BRADLEE MEZQUITA No. 06830 — LICENSED PROFESSIONAL ENGINEER — 12-3-21

STATE OF NEW HAMPSHIRE — PATRICK M. CUMMINS No. 12574 — LICENSED PROFESSIONAL ENGINEER — 12-03-21

0 20' 40'
GRAPHIC SCALE

CON COM WORK SESSION 12/3/2021

REVISIONS

PROJECT NO:	P0766-006
DRAWN BY:	AFS
CHECKED BY:	PMC
SCALE:	AS SHOWN

PERMIT SET
NOT FOR CONSTRUCTION

July 21, 2021

SITE PLAN

C-102

Last Save Date: December 3, 2021 2:51 PM by: AFS/JAR
File Name: P:\0766-006 North Mill Pond Greenway Area 1\Design\Permit\Plans\Sheets\C102 Site Plan.dwg Layout Tab: C-102

GRADING AND DRAINAGE NOTES:

1. COMPACTION REQUIREMENTS:
   - BELOW PAVED OR CONCRETE AREAS 95%
   - TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL 95%
   - BELOW LOAM AND SEED AREAS 90%

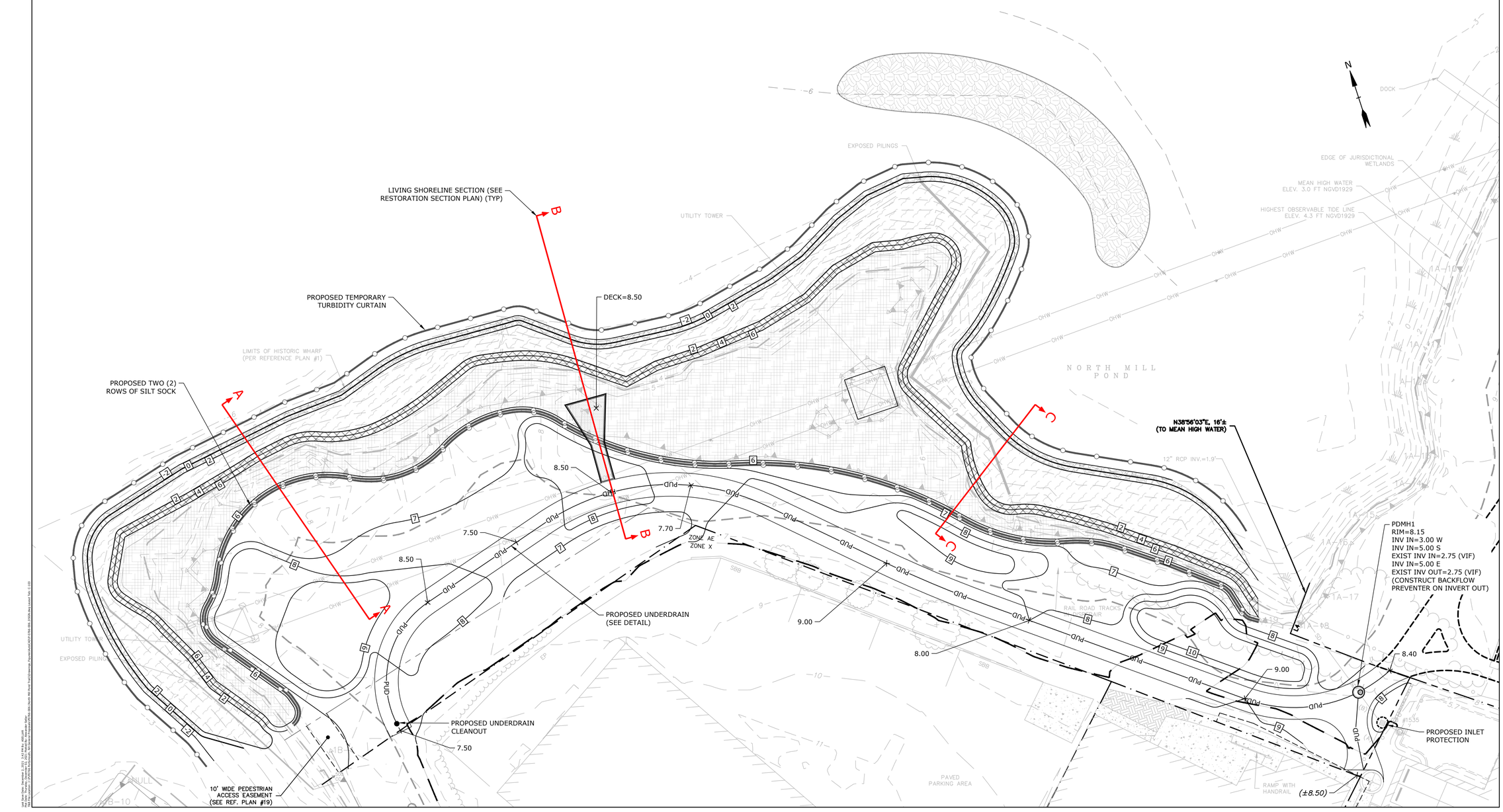
   * ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557, METHOD C FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM D-1556 OR ASTM-2922.
2. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE AND LAWN AREAS FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCES, EXITS, RAMPS AND LOADING DOCK AREAS ADJACENT TO THE BUILDING.
3. CONTRACTOR SHALL THOROUGHLY CLEAN ALL CATCH BASINS AND DRAIN LINES, WITHIN THE LIMIT OF WORK, OF SEDIMENT IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
4. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES.
5. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED FERTILIZER AND MULCH.
6. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
7. SEE EXISTING CONDITIONS PLAN FOR BENCH MARK INFORMATION.

EROSION CONTROL NOTES:

1. INSTALL EROSION CONTROL BARRIERS AS SHOWN AS FIRST ORDER OF WORK.
2. SEE GENERAL EROSION CONTROL NOTES ON "EROSION CONTROL NOTES & DETAILS SHEET".
3. PROVIDE INLET PROTECTION AROUND ALL EXISTING CATCH BASIN INLETS WITHIN THE WORK LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. MAINTAIN FOR THE DURATION OF THE PROJECT.
4. INSTALL STABILIZED CONSTRUCTION EXIT(S).
5. INSPECT INLET PROTECTION AND PERIMETER EROSION CONTROL MEASURES DAILY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
6. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED, FERTILIZER AND MULCH.
7. CONSTRUCT EROSION CONTROL BLANKET ON ALL SLOPES STEEPER THAN 3:1.
8. PRIOR TO ANY WORK OR SOIL DISTURBANCE COMMENCING ON THE SUBJECT PROPERTY, INCLUDING MOVING OF EARTH, THE APPLICANT SHALL INSTALL ALL EROSION AND SILTATION MITIGATION AND CONTROL MEASURES AS REQUIRED BY STATE AND LOCAL PERMITS AND APPROVALS.
9. CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST AND WIND EROSION THROUGHOUT THE CONSTRUCTION PERIOD. DUST CONTROL MEASURES SHALL INCLUDE, BUT ARE NOT LIMITED TO, SPRINKLING WATER ON UNSTABLE SOILS SUBJECT TO ARID CONDITIONS.
10. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
11. ALL CATCH BASIN SUMPS AND PIPING SHALL BE THOROUGHLY CLEANED TO REMOVE ALL SEDIMENT AND DEBRIS AFTER THE PROJECT HAS BEEN FULLY PAVED.
12. TEMPORARY SOIL STOCKPILE SHALL BE SURROUNDED WITH PERIMETER CONTROLS AND SHALL BE STABILIZED BY TEMPORARY EROSION CONTROL SEEDING. STOCKPILE AREAS TO BE LOCATED AS FAR AS POSSIBLE FROM THE DELINEATED EDGE OF WETLANDS.
13. SAFETY FENCING SHALL BE PROVIDED AROUND STOCKPILES OVER 10 FT.

LEGEND

- PROPOSED MAJOR CONTOUR LINE
- PROPOSED MINOR CONTOUR LINE
- PROPOSED TEMPORARY EROSION CONTROL DEVICE
- PROPOSED UNDERDRAIN LINE
- INLET PROTECTION SILT SACK
- 7.85 PROPOSED SPOT ELEVATION
- (7.85) EXISTING SPOT ELEVATION
- 2% PROPOSED SLOPE AND DIRECTION
- PROPOSED DRAIN MANHOLE



CITY OF PORTSMOUTH NEW HAMPSHIRE INCORPORATED 1849

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NORTH MILL POND GREENWAY AND COMMUNITY PARK - AREA 1

PORTSMOUTH, NEW HAMPSHIRE

STATE OF NEW HAMPSHIRE — BRADLEE MEZQUITA No. 08830 LICENSED PROFESSIONAL ENGINEER — 12-3-21

STATE OF NEW HAMPSHIRE — PATRICK M. CRIMMINS No. 12076 LICENSED PROFESSIONAL ENGINEER — 12-03-21

GRAPHIC SCALE 0 20' 40'

CON COM WORK SESSION	12/3/2021
REVISIONS	
PROJECT NO:	P0766-006
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July 21, 2021

GRADING, DRAINAGE AND EROSION CONTROL PLAN

C-103

Last Save Date: December 2, 2021 2:42 PM By: AFSLAIN
File Path: C:\Users\afslain\Halvorson Design Dropbox\Halvorson Design Team\Projects\P0766-006 North Mill Pond Greenway\Permitting\Site Plan\Sheets\P0766-006 Grading and Drainage Plan.dwg

□ENERAL PRO□ECT INFORMATION

PROJECT OWNER: CIT□OF PORTSMO□TH
1 J□NKINS AC□NCE
PORTSMO□TH, NH 0□B01
PROJECT NAME: NORTH MILL POND GREENWA□AND COMM□NIT□PARK - AREA 1
PROJECT ADDRESS: □A□GHAN STREET
PORTSMO□TH, NH 0□B01
PROJECT MAP □LOT: MAP 12□□LOT 15
PROJECT LATIT□DE: 43°-04'-49.95"N
PROJECT LONGIT□DE: 70°-45'-49.31"W

PRO□ECT DESCRIPTION

THE PROJECT CONSISTS OF CONSTR□CTION OF A PROPOSED GREENWA□PATH AND BOARDWALK ALONG THE NORTH MILL POND WATERFRONT INCL□DING WETLAND RESTORATION, IN□ASI□ SPECIES CONTROL, PROPOSED LI□ING SHORELINE AND ADDITIONAL DRAINAGE IMPRO□EMENTS.

DISTURBED AREA

THE TOTAL AREA TO BE DIST□RBED IS APPRO□IMATEL□1.25 ACRES.

SOIL CHARACTERISTICS

BASED ON THE NRCS WEB SOIL S□R□E□FOR ROCKINGHAM CO□NT□- NEW HAMPSHIRE, THE SOILS ON SITE CONSIST OF □RBAN LAND SOILS WITH NO H□DROLOGIC SOIL GRO□P RATING PRO□IDED.

NAME OF RECEIVIN□ WATERS

THE STORMWATER R□NOFF FROM THE SITE WILL BE DISCHARGED □A O□ERLAND FLOW OR COLLECTED THRO□GH THE PORO□S PA□EMENT □NDERDRAIN AND DISCHARGED TO THE NORTH MILL POND.

CONSTRUCTION SE□UENCE OF MA□OR ACTIVITIES□

1. C□T AND CLEAR □EGETATION.
2. CONSTR□CT TEMPORAR□AND PERMANENT SEDIMENT, EROSION AND DETENTION CONTROL FACILITIES. EROSION, SEDIMENT AND DETENTION MEAS□RES SHALL BE INSTALLED PRIOR TO AN□ EARTH MO□ING OPERATIONS THAT WILL INFL□ENCE STORMWATER R□NOFF S□CH AS:
   - NEW CONSTR□CTION
   - DE□LOPMENT OF BORROW PIT AREAS
   - DISPOSAL OF SEDIMENT SPOIL, ST□MP AND OTHER SOLID WASTE
   - E□CA□ATION WORK
   - WETLAND MODIFICATIONS
   - CONTROL OF D□ST
   - CONSTR□CTION OF ACCESS AND HA□L ROAD
   - NEARNESS OF CONSTR□CTION SITE TO RECEI□ING WATERS
   - CONSTR□CTION D□RING LATE WINTER AND EARL□SPRING
3. ALL PERMANENT DITCHES, SWALES, DETENTION, RETENTION AND SEDIMENTATION BASINS TO BE STABILI□ED □SING THE □EGETATI□E AND NON-STR□CT□RAL BMPS PRIOR TO DIRECTING R□NOFF TO THEM.
4. CLEAR AND DISPOSE OF DEBRIS.
5. CONSTR□CT TEMPORAR□CL□□ERTS AND DI□ERSION CHANNELS AS RE□□IRED.
6. CONSTR□CT AND STABILI□E LI□ING SHORELINE AND HELICAL PILES FOR PROPOSED BOARDWALK.
7. GRADE AND GRA□EL PATH - AREA SHALL BE STABILI□ED WITHIN 72 HO□RS OF ACHIE□ING FINISHED GRADE.
8. FINALI□E BOARDWALK CONSTR□CTION.
9. □ BEGIN PERMANENT AND TEMPORAR□SEEDING AND M□LCHING. ALL C□T AND FILL SLOPES SHALL BE SEEDED AND M□LCHED WITHIN 72 HO□RS OF ACHIE□ING FINISHED GRADE.
10. DAIL□ OR AS RE□□IRED, CONSTR□CT TEMPORAR□BERMS, DRAINS, DITCHES, PERIMETER EROSION CONTROL MEAS□RES, SEDIMENT TRAPS, ETC., M□LCH AND SEED AS RE□□IRED.
11. SEDIMENT TRAPS AND□DR BASINS SHALL BE □SED AS NECESSAR□TO CONTAIN R□NOFF □NTIL SOILS ARE STABILI□ED.
12. FINISH PA□ING PATH.
13. 1□ INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEAS□RES.
14. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
15. REMO□E TRAPPED SEDIMENTS FROM COLLECTOR DE□ICES AS APPROPRIATE AND THEN REMO□E TEMPORAR□EROSION CONTROL MEAS□RES.

SPECIAL CONSTRUCTION NOTES□

1. THE CONSTR□CTION SE□□ENCE M□ST LIMIT THE D□RATION AND AREA OF DIST□RBANCE.
2. THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE RE□□IREMENTS AND INTENT OF RSA 4□D:5□AND CHAPTER AGR □800 RELATI□E TO IN□ASI□ SPECIES.

EROSION CONTROL NOTES□

1. ALL EROSION CONTROL MEAS□RES AND PRACTICES SHALL CONFORM TO THE "NEW HAMPSHIRE STORMWATER MAN□AL □DL□ME □ EROSION AND SEDIMENT CONTROLS D□RING CONSTR□CTION" PREPARED B□THE NHDES.
2. □ THE PROJECT M□ST BE COND□CTED IN ACCORDANCE WITH THE "NEW HAMPSHIRE BEST MANAGEMENT PRACTICES FOR EROSION CONTROL D□RING TRAIL MAINTENANCE AND CONSTR□CTION (TRAIL BMPS)" PREPARED B□THE NEW HAMPSHIRE B□REA□OF TRAILS.
3. PRIOR TO AN□WORK OR SOIL DIST□RBANCE, CONTRACTOR SHALL S□BMIT SHOP DRAWINGS FOR EROSION CONTROL MEAS□RES AS RE□□IRED IN THE PROJECT MAN□AL.
4. CONTRACTOR SHALL INSTALL TEMPORAR□EROSION CONTROL BARRIERS, INCL□DING T□RBIDIT□ C□RTAINS, HA□BALES, SILT FENCES, M□LCH BERMS, SILT SACKS AND SILT SOCKS AS SHOWN IN THESE DRAWINGS AS THE FIRST ORDER OF WORK.
5. SILT SACK INLET PROTECTION SHALL BE INSTALLED IN ALL E□ISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AND BE MAINTAINED FOR THE D□RATION OF THE PROJECT.
6. PERIMETER CONTROLS INCL□DING T□RBIDIT□C□RTAINS, SILT FENCES, M□LCH BERM, SILT SOCK, AND□DR HA□BALE BARRIERS SHALL BE MAINTAINED FOR THE D□RATION OF THE PROJECT □NTIL NON-PA□ED AREAS HA□E BEEN STABILI□ED.
7. THE CONTRACTOR SHALL REMO□E AND PROPERL□DISPOSE OF ALL TEMPORAR□EROSION CONTROL DE□ICES □PON COMPLETION OF CONSTR□CTION.
8. □ ALL DIST□RBED AREAS NOT OTHERWISE BEING TREATED SHALL RECEI□E 6" LOAM, SEED AND FERTILI□ER.
9. INSPECT ALL INLET PROTECTION AND PERIMETER CONTROLS WEEKL□AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR□MODIF□PROTECTION AS NECESSAR□TO MA□MI□E EFFICIENC□ OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1□□THE FILTER HEIGHT.

STABILI□ATION□

1. AN AREA SHALL BE CONSIDERED STABLE WHEN ONE OF THE FOLLOWING HAS OCC□RRED:
   A. BASE CO□RSE GRA□ELS HA□E BEEN INSTALLED IN AREAS TO BE PA□ED□
   B. A MINIM□M OF 85□ □EGETATED GROWTH HAS BEEN ESTABLISHED□
   C. A MINIM□M OF □ OF NON-EROSI□E MATERIAL S□CH AS STONE OR RIPRAP HAS BEEN INSTALLED□
   D. EROSION CONTROL BLANKETS HA□E BEEN PROPERL□INSTALLED.□
   E. IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE RE□□IREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTR□CTION, 2016, ITEM □4.2 HA□E BEEN INSTALLED.
2. WINTER STABILI□ATION PRACTICES:
   A. ALL PROPOSED □EGETATED AREAS THAT DO NOT E□HIBIT A MINIM□M OF 85 PERCENT □EGETATI□E GROWTH B□OCTOBER 15, OR WHICH ARE DIST□RBED AFTER OCTOBER 15, SHALL BE STABILI□ED B□SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN □1, AND SEEDING AND PLACING □TO 4 TONS OF M□LCH PER ACRE, SEC□RED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR M□LCH AND NETTING SHALL NOT OCC□R O□ER ACC□M□LATED SNOW OR ON FRO□EN GRO□ND AND SHALL BE COMPLETED IN AD□ANCE OF THAW OR SPRING MELT E□ENTS□
   B. ALL DITCHES OR SWALES WHICH DO NOT E□HIBIT A MINIM□M OF 85 PERCENT □EGETATI□E GROWTH B□OCTOBER 15, OR WHICH ARE DIST□RBED AFTER OCTOBER 15, SHALL BE STABILI□ED TEMPORARIL□WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS□
   C. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING S□RFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIM□M OF □INCHES OF CR□SHED GRA□EL PER NHDOT ITEM □4.□ OR IF CONSTR□CTION IS TO CONTIN□E THRO□GH THE WINTER SEASON BE CLEARED OF AN□ACC□M□LATED SNOW AFTER EACH STORM E□ENT□
3. □ STABILI□ATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DIST□RBED AREAS, WHERE CONSTR□CTION ACTI□IT□SHALL NOT OCC□R FOR MORE THAN TWENT□ONE (21) CALENDAR DA□S B□THE FO□RTEENTH (14TH) DA□AFTER CONSTR□CTION ACTI□IT□HAS PERMANENTL□OR TEMPORARIL□CEASED IN THAT AREA. STABILI□ATION MEAS□RES TO BE □SED INCL□DE:
   A. TEMPORAR□SEEDING□
   B. M□LCHING.
4. ALL AREAS SHALL BE STABILI□ED WITHIN 45 DA□S OF INITIAL DIST□RBANCE.
5. WHEN CONSTR□CTION ACTI□IT□PERMANENTL□OR TEMPORARIL□CEASES WITHIN 100 FEET OF NEARB□S□RFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILI□ED WITHIN SE□EN (7) DA□S OR PRIOR TO A RAIN E□ENT. ONCE CONSTR□CTION ACTI□IT□CEASES PERMANENTL□IN AN THESE AREAS, SILT FENCES, M□LCH BERMS, HA□BALE BARRIERS AND AN□ EARTH□IKES SHALL BE REMO□ED ONCE PERMANENT MEAS□RES ARE ESTABLISHED.
6. D□RING CONSTR□CTION, R□NOFF WILL BE DI□ERTED ARO□ND THE SITE WITH EARTH DIKES, PIPING OR STABILI□ED CHANNELS WHERE POSSIBLE. SHEET R□NOFF FROM THE SITE WILL BE FILTERED THRO□GH SILT FENCES, M□LCH BERMS, HA□BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PRO□IDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILI□ED FOR THE WINTER B□OCTOBER 15.

DUST CONTROL□

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL D□ST THRO□GHO□T THE CONSTR□CTION PERIOD.
2. D□ST CONTROL METHODS SHALL INCL□DE, B□T BE NOT LIMITED TO SPRINKLING WATER ON E□POSED AREAS, CO□ERING LOADED D□MP TR□CKS LEA□ING THE SITE, AND TEMPORAR□ M□LCHING.
3. □ D□ST CONTROL MEAS□RES SHALL BE □TILI□ED SO AS TO PRE□ENT THE MIGRATION OF D□ST FROM THE SITE TO AB□TTING AREAS.

STOCKPILES□

1. LOCATE STOCKPILES A MINIM□M OF 50 FEET AWA□FROM S□RFACE WATERS, CATCH BASINS, SWALES, AND CL□ERTS.
2. ALL STOCKPILES SHOL□ BE S□RRO□NDED WITH TEMPORAR□EROSION CONTROL MEAS□RES PRIOR TO THE ONSET OF PRECIPITATION.
3. □ PERIMETER BARRIERS SHO□LD BE MAINTAINED AT ALL TIMES, AND ADJ□STED AS NEEDED TO ACCOMMODATE THE DELI□ER□AND REMO□AL OF MATERIALS FROM THE STOCKPILE. THE INTEGRIT□ OF THE BARRIER SHO□LD BE INSPECTED AT THE END OF EACH WORKING DA□
4. PROTECT ALL STOCKPILES FROM STORMWATER R□N-OFF □SING TEMPORAR□EROSION CONTROL MEAS□RES S□CH AS BERMS, SILT SOCK, OR OTHER APPRO□ED PRACTICE TO PRE□ENT MIGRATION OF MATERIAL BE□ND THE IMMEDIATE CONFINES OF THE STOCKPILES.

OFF SITE VEHICLE TRACKIN□□

1. THE CONTRACTOR SHALL CONSTR□CT STABILI□ED CONSTR□CTION ENTRANCE(S) PRIOR TO AN□ E□CA□ATION ACTI□ITIES.

VE□ETATION□

1. TEMPORAR□GRASS CO□ER:
   A. SEEDBED PREPARATION:
      a. APPL□FERTILI□ER AT THE RATE OF 600 PO□NDS PER ACRE OF 10-10-10. APPL□LIMESTONE (E□□□ALENT TO 50 PERCENT CALCI□M PL□S MAGNESI□M O□IDE) AT A RATE OF THREE (□) TONS PER ACRE□
   B. SEEDING:
      a. □TILI□E ANN□AL R□E GRASS AT A RATE OF 40 LBS□ACRE□
      b. WHERE THE SOIL HAS BEEN COMPACTED B□CONSTR□CTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF TWO (2) INCHES BEFORE APPL□ING FERTILI□ER, LIME AND SEED□
      c. APPL□SEED □NIFORML□B□HAND, C□CLONE SEEDER, OR H□DROSEEDER (SL□RR□ INCL□DING SEED AND FERTILI□ER). H□DROSEEDINGS, WHICH INCL□DE M□LCH, MA□BE LEFT ON SOIL S□RFACE. SEEDING RATES M□ST BE INCREASED 10□ WHEN H□DROSEEDING□
   C. MAINTENANCE:
      a. TEMPORAR□SEEDING SHALL BE PERIODICALL□INSPECTED. AT A MINIM□M, □5□ OF THE SOIL S□RFACE SHO□LD BE CO□ERED B□□EGETATION. IF AN□□IDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORAR□ MEAS□RES □SED IN THE INTERIM (M□LCH, FILTER BARRIERS, CHECK DAMS, ETC.).
2. PERMANENT MEAS□RES AND PLANTINGS:
   A. SEE RESTORATION PLANTING PLAN (SHEET L-101).

ALLOWABLE NON-STORMWATER DISCHAR□ES□

1. FIRE-FIGHTING ACTI□ITIES□
2. FIRE H□DRANT FL□SHING□
3. □ WATERS □SED TO WASH □EHICLES WHERE DETERGENTS ARE NOT □SED□
4. WATER □SED TO CONTROL D□ST□
5. POTABLE WATER INCL□DING □NCONTAMINATED WATER LINE FL□SHING□
6. RO□TINE E□TERNAL B□ILDING WASH DOWN WHERE DETERGENTS ARE NOT □SED□
7. PA□EMENT WASH WATERS WHERE DETERGENTS ARE NOT □SED□
8. □NCONTAMINATED AIR CONDITIONING□□OMPRESSOR CONDENSATION□
9. □ □NCONTAMINATED GRO□ND WATER OR SPRING WATER□
10. FOUNDATION OR FOOTING DRAINS WHICH ARE □NCONTAMINATED□
11. □NCONTAMINATED E□CA□ATION DEWATERING□
12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL□

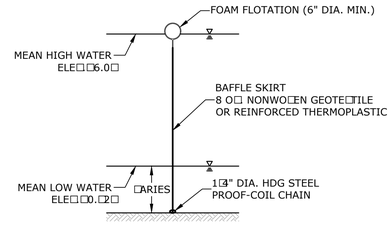
1. WASTE MATERIAL:
   A. ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SEC□REL□LIDDED RECEPTACLES. ALL TRASH AND CONSTR□CTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A D□MPSTER□
   B. NO CONSTR□CTION WASTE MATERIALS SHALL BE B□RIED ON SITE□
   C. ALL PERSONNEL SHALL BE INSTR□CTED REGARDING THE CORRECT PROCED□RE FOR WASTE DISPOSAL B□THE S□PERINTENDENT.
2. HA□ARDO□S WASTE:
   A. ALL HA□ARDO□S WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED B□ LOCAL OR STATE REG□LATION OR B□THE MAN□FACT□RER□
   B. SITE PERSONNEL SHALL BE INSTR□CTED IN THESE PRACTICES B□THE S□PERINTENDENT.
3. □ SANITAR□WASTE:
   A. ALL SANITAR□WASTE SHALL BE COLLECTED FROM THE PORTABLE □NITS A MINIM□M OF ONCE PER WEEK B□A LICENSED SANITAR□WASTE MANAGEMENT CONTRACTOR.

SPILL PREVENTION□

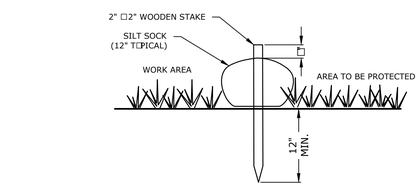
1. CONTRACTOR SHALL BE FAMILIAR WITH SPILL PRE□ENTION MEAS□RES RE□□IRED B□LOCAL, STATE AND FEDERAL AGENCIES. AT A MINIM□M, CONTRACTOR SHALL FOLLOW THE BEST MANAGEMENT SPILL PRE□ENTION PRACTICES O□TLINED BELOW.
2. THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT SHALL BE □SED TO RED□CE THE RISK OF SPILLS OR OTHER ACCIDENTAL E□POS□RE OF MATERIALS AND S□BSTANCES D□RING CONSTR□CTION TO STORMWATER R□NOFF:
   A. GOOD HO□SEKEEPING - THE FOLLOWING GOOD HO□SEKEEPING PRACTICE SHALL BE FOLLOWED ON SITE D□RING CONSTR□CTION:
      a. ONL□S□FFICIENT AMO□NTS OF PROD□CTS TO DO THE JOB SHALL BE STORED ON SITE□
      b. ALL REG□LATED MATERIALS STORED ON SITE SHALL BE STORED IN A NEAT, ORDERL□ MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, □NDER A ROOF OR OTHER ENCLOS□RE, ON AN IMPER□□IOS S□RFACE□
      c. MAN□FACT□RER'S RECOMMENDATIONS FOR PROPER □SE AND DISPOSAL SHALL BE FOLLOWED□
      d. THE SITE S□PERINTENDENT SHALL INSPECT DAIL□TO ENS□RE PROPER □SE AND DISPOSAL OF MATERIALS□
      e. S□BSTANCES SHALL NOT BE MI□ED WITH ONE ANOTHER □NLESS RECOMMENDED B□THE MAN□FACT□RER□
      f. □ WHENE□ER POSSIBLE ALL OF A PROD□CT SHALL BE □SED □P BEFORE DISPOSING OF THE CONTAINER.
      g. THE TRAINING OF ON-SITE EMPLO□EES AND THE ON-SITE POSTING OF RELEASE RESPONSE INFORMATION DESCRIBING WHAT TO DO IN THE E□ENT OF A SPILL OF REG□LATED S□BSTANCES.
   B. HA□ARDO□S PROD□CTS - THE FOLLOWING PRACTICES SHALL BE □SED TO RED□CE THE RISKS ASSOCIATED WITH HA□ARDO□S MATERIALS:
      a. PROD□CTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS □NLESS THE□ARE NOT RESEALABLE□
      b. ORIGINAL LABELS AND MATERIAL SAFET□DATA SHALL BE RETAINED FOR IMPORTANT PROD□CT INFORMATION□
      c. S□RPL□S PROD□CT THAT M□ST BE DISPOSED OF SHALL BE DISCARDED ACCORDING TO THE MAN□FACT□RER'S RECOMMENDED METHODS OF DISPOSAL.
   C. PROD□CT SPECIFIC PRACTICES - THE FOLLOWING PROD□CT SPECIFIC PRACTICES SHALL BE FOLLOWED ON SITE:
      a. PETROLE□M PROD□CTS:
      i. ALL ON SITE □EHICLES SHALL BE MONITORED FOR LEAKS AND RECEI□E REG□LAR PRE□ENTI□E MAINTENANCE TO RED□CE LEAKAGE□
      ii. PETROLE□M PROD□CTS SHALL BE STORED IN TIGHTL□SEALED CONTAINERS WHICH ARE CLEARL□LABELED. AN□ASPHALT BASED S□BSTANCES □SED ON SITE SHALL BE APPLIED ACCORDING TO THE MAN□FACT□RER'S RECOMMENDATIONS.
      iii. SEC□RE FI□ED STORAGE AREAS AGAINST □NA□THORI□ED ENTR□□
      iv. INSPECT FI□ED STORAGE AREAS WEEKL□□
      v. WHERE□ER POSSIBLE, KEEP REG□LATED CONTAINERS THAT ARE STORED O□TSIDE MORE THAN 50 FEET FROM S□RFACE WATER AND STORM DRAINS, 75 FEET FROM PRI□ATE WELLS, AND 400 FEET FROM PB□LIC WELLS□
      vi. CO□ER REG□LATED CONTAINERS IN O□TSIDE STORAGE AREAS□
      vii. SECONDAR□CONTAINMENT IS RE□□IRED FOR CONTAINERS CONTAINING REG□LATED S□BSTANCES STORED O□TSIDE, E□CEPT FOR ON PREMISE □SE HEATING FI□EL TANKS, OR ABO□EGRO□ND OR □NDERGRO□ND STORAGE TANKS OTHERWISE REG□LATED.
      viii. THE FI□EL HANDLING RE□□IREMENTS SHALL INCL□DE:
         (1) E□CEPT WHEN IN □SE, KEEP CONTAINERS CONTAINING REG□LATED S□BSTANCES CLOSED AND SEALED□
         (2) PLACE DRIP PANS □NDER SPIGOTS, □AL□ES, AND P□MPS□
         (□) HA□E SPILL CONTROL AND CONTAINMENT E□□IPMENT READIL□A□AILABLE IN ALL WORK AREAS□
         (4) □SE F□NNELS AND DRIP PANS WHEN TRANSFERRING REG□LATED S□BSTANCES□
         (5) PERFORM TRANSFERS OF REG□LATED S□BSTANCES O□ER AN IMPER□IO□S S□RFACE.
      ix. FI□ELING AND MAINTENANCE OF E□CA□ATION, EARTHMO□ING AND OTHER CONSTR□CTION RELATED E□□IPMENT SHALL COMPL□WITH THE REG□LATIONS OF THE NEW HAMPSHIRE DEPARTMENT OF EN□IRONMENTAL SER□ICES THESE RE□□IREMENTS ARE S□MMARI□ED IN WD-DWGB-22-6 BEST MANAGEMENT PRACTICES FOR FI□ELING AND MAINTENANCE OF E□CA□ATION AND EARTHMO□ING E□□IPMENT, OR ITS SC□CESSOR DOC□MENT. HTTPS://□WWW.DES.NH.GO□DRGANI□ATION□DOMMISSIONER/DIP/FACTSHEETS/DWGB/DOC□MENTS/DWGB-22-6.PDF
   b. FERTILI□ERS:
      i. FERTILI□ERS □SED SHALL BE APPLIED ONL□IN THE MINIM□M AMO□NTS DIRECTED B□THE SPECIFICATIONS□
      ii. ONCE APPLIED FERTILI□ER SHALL BE WORKED INTO THE SOIL TO LIMIT E□POS□RE TO STORMWATER□
      iii. STORAGE SHALL BE IN A CO□ERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF AN□ PARTIALL□□SED BAGS OF FERTILI□ER SHALL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO A□ID SPILLS.
   c. PAINTS:
      i. ALL CONTAINERS SHALL BE TIGHTL□SEALED AND STORED WHEN NOT RE□□IRED FOR □SE□
      ii. E□CESS PAINT SHALL NOT BE DISCHARGED TO THE STORM SEWER S□STEM□
      iii. E□CESS PAINT SHALL BE DISPOSED OF PROPERL□ACCORDING TO MAN□FACT□RER'S INSTR□CTIONS OR STATE AND LOCAL REG□LATIONS.
D. SPILL CONTROL PRACTICES - IN ADDITION TO GOOD HO□SEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISC□SSED IN THE PRE□IO□S SECTION, THE FOLLOWING PRACTICES SHALL BE FOLLOWED FOR SPILL PRE□ENTION AND CLEAN□P:
   a. MAN□FACT□RER'S RECOMMENDED METHODS FOR SPILL CLEAN□P SHALL BE CLEARL□ POSTED AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCED□RES AND THE LOCATION OF THE INFORMATION AND CLEAN□P S□PPLIES□
   b. MATERIALS AND E□UIPMENT NECESSAR□FOR SPILL CLEAN□P SHALL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. E□□IPMENT AND MATERIALS SHALL INCL□DE B□T NOT BE LIMITED TO BROOMS, D□STPANS, MOPS, RAGS, GLO□ES, GOGGLES, KITT□LITTER, SAND, SAWD□ST AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALL□FOR THIS P□RPOSE□
   c. ALL SPILLS SHALL BE CLEANED □P IMMEDIATEL□AFTER DISCO□ER□□
   d. THE SPILL AREA SHALL BE KEPT WELL □ENTILATED AND PERSONNEL SHALL WEAR APPROPRIATE PROTECTI□E CLOTHING TO PRE□ENT INJ□R□FROM CONTACT WITH A HA□ARDO□S S□BSTANCE□
   e. SPILLS OF TO□IC OR HA□ARDO□S MATERIAL SHALL BE REPORTED TO THE APPROPRIATE LOCAL, STATE OR FEDERAL AGENCIES AS RE□□IRED□
   □ THE SITE S□PERINTENDENT RESPONSIBLE FOR DA□TO-DA□SITE OPERATIONS SHALL BE THE SPILL PRE□ENTION AND CLEAN□P COORDINATOR.
E. □HICLE F□ELING AND MAINTENANCE PRACTICE:
   a. CONTRACTOR SHALL MAKE AN EFFORT TO PERFORM E□□IPMENT□□EHICLE F□ELING AND MAINTENANCE AT AN OFF-SITE FACILIT□□
   b. CONTRACTOR SHALL PRO□IDE AN ON-SITE F□ELING AND MAINTENANCE AREA THAT IS CLEAN AND DR□□
   c. IF POSSIBLE THE CONTRACTOR SHALL KEEP AREA CO□ERED□
   d. CONTRACTOR SHALL KEEP A SPILL KIT AT THE F□ELING AND MAINTENANCE AREA□
   e. CONTRACTOR SHALL REG□LARL□INSPECT □EHICLES FOR LEAKS AND DAMAGE□
   □ CONTRACTOR SHALL □SE DRIP PANS, DRIP CLOTHS, OR ABSORBENT PADS WHEN REPLACING SPENT FL□ID.

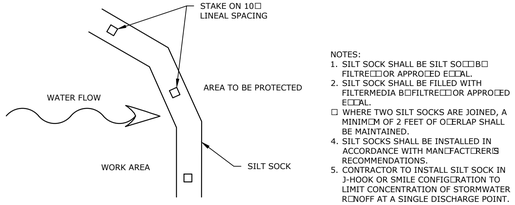
EROSION CONTROL OBSERVATIONS AND MAINTENANCE PRACTICES

1. THIS PROJECT E□CEEDS ONE (1) ACRE OF DIST□RBANCE AND TH□S RE□□IRE A SWPPP. THE SWPPP SHALL BE PREPARED B□THE CONTRACTOR. THE CONTRACTOR SHALL BE FAMILIAR WITH THE SWPPP AND KEEP AN □PDATED COP□OF THE SWPPP ONSITE AT ALL TIMES.
2. THE FOLLOWING REPRESENTS THE GENERAL OBSER□ATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT:
   A. OBSER□ATIONS OF THE PROJECT FOR COMPLIANCE WITH THE SWPPP SHALL BE MADE B□THE CONTRACTOR AT LEAST ONCE A WEEK OR WITHIN 24 HO□RS OF A STORM 0.25 INCHES OR GREATER□
   B. AN OBSER□ATION REPORT SHALL BE MADE AFTER EACH OBSER□ATION AND DISTRIB□TED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR□
   C. A REPRESENTATI□E OF THE SITE CONTRACTOR, SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTI□ITIES□
   D. IF A REPAIR IS NECESSAR□, IT SHALL BE INITIATED WITHIN 24 HO□RS OF REPORT.



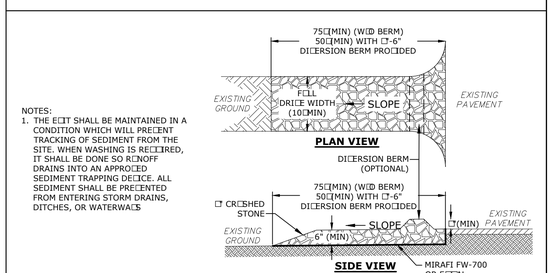
FULL-DEPTH TURBIDITY CURTAIN
NO SCALE





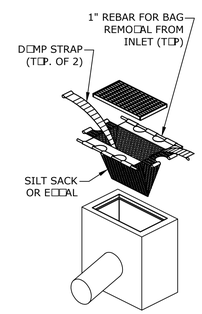
NOTES:
1. SILT SOCK SHALL BE SILT SO□□B□ FILTRE□□OR APPRO□ED E□□AL.
2. SILT SOCK SHALL BE FILLED WITH FILTERMEDIA B□FILTRE□□OR APPRO□ED E□□AL.
□ WHERE TWO SILT SOCKS ARE JOINED, A MINIM□M OF 2 FEET OF O□ERLAP SHALL BE MAINTAINED.
4. SILT SOCKS SHALL BE INSTALLED IN ACCORDANCE WITH MAN□FACT□RER'S RECOMMENDATIONS.
5. CONTRACTOR TO INSTALL SILT SOCK IN J-HOOK OR SMILE CONFIG□RATION TO LIMIT CONCENTRATION OF STORMWATER R□NOFF AT A SINGLE DISCHARGE POINT.

SILT SOCK
NO SCALE

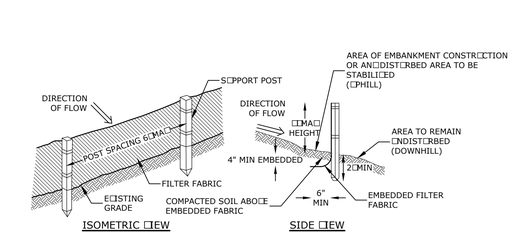


NOTES:
1. THE E□IT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PRE□ENT TRACKING OF SEDIMENT FROM THE SITE. WHEN WASHING IS RE□□IRED, IT SHALL BE DONE SO R□NOFF DRAINS INTO AN APPRO□ED SEDIMENT TRAPPING DE□ICE. ALL SEDIMENT SHALL BE PRE□ENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWA□S

STABILI□ED CONSTR□CTION E□IT
NO SCALE



SILT SACK
NO SCALE



ISOMETRIC □EW SIDE □EW

NOTES:
1. SILT FENCE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
2. ADJOINING SECTIONS OF THE FENCE SHALL BE OVERLAPPED BY 6 INCHES, FOLDED AND STAPLED TO A SUPPORT POST.
5. SILT FENCING SHOULD NOT BE STAPLED OR NAILED TO TREES.
6. THE FILTER FABRIC SHOULD BE A PERVIOUS SHEET OF PROPYLENE, NYLON, POLYESTER OR ETHYLENE YARN AND SHOULD BE CERTIFIED BY THE MANUFACTURER OR SUPPLIER.
7. THE FILTER FABRIC SHOULD CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 6 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0 DEGREES FAHRENHEIT TO 120 DEGREES FAHRENHEIT.

SILT FENCE
NO SCALE

HALVORSON
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(PHONE) 617.536.0380
WWW.HALVORSONDESIGN.COM

NORTH MILL POND GREENWAY AND COMMUNITY PARK - AREA 1

PORTSMOUTH, NEW HAMPSHIRE

REVISIONS

PROJECT NO:	P0766-006
DRAWN BY:	AFS
CHECKED BY:	PMC
SCALE:	AS SHOWN

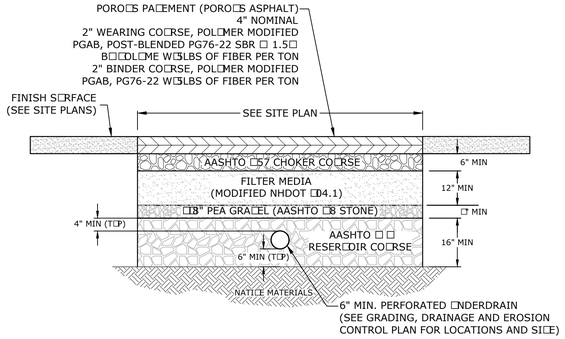
PERMIT SET
NOT FOR CONSTRUCTION

July 21, 2021

EROSION CONTROL NOTES AND DETAILS SHEET

C-501

Left Date Plotted: July 21, 2021 - 3:32 PM by: AFSLAM
Left Date Saved: July 21, 2021 - 3:32 PM by: C:\Users\afsla\Halvorson Partner\Tighe & Bond\Projects\P0766 Storm Mill Pond Park\Drawings_Reports\Civil\Sheets\P0766_EROSION CONTROL NOTES AND DETAILS SHEET.dwg



NOTES:
1. SEE GRADING AND DRAINAGE PLAN FOR SLOPE AND CROSS-SLOPE.
2. GRAVEL SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST SPECIFICATIONS FROM THE NH STORMWATER CENTER FOR POROUS ASPHALT.
3. FILTER COURSE TO BE INCREASED AS NECESSARY TO MEET PROPOSED GRADES.
4. INSTALL FILTER COURSE AGGREGATE IN 8-INCH MAXIMUM LIFTS TO A MAXIMUM OF 95% STANDARD PROCTOR COMPACTION (ASTM D698 AASHTO T99). INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
5. INSTALL CHOKER, GRAVEL, AND STONE BASE COURSE AGGREGATE TO A MAXIMUM OF 95% COMPACTION STANDARD PROCTOR (ASTM D698 AASHTO T99). CHOKER SHOULD BE PLACED EVENLY OVER SURFACE OF FILTER COURSE BED, SUFFICIENT TO ALLOW PLACEMENT OF PAVEMENT, AND NOTIFY ENGINEER FOR APPROVAL. CHOKER BASE COURSE THICKNESS SHALL BE SUFFICIENT TO ALLOW FOR EVEN PLACEMENT OF THE POROUS ASPHALT BUT NO LESS THAN 6-INCHES IN DEPTH.
6. THE DENSITY OF SUBBASE COURSES SHALL BE DETERMINED BY AASHTO T 191 (SAND-CONE METHOD), AASHTO T 204 (DRIVE CYLINDER METHOD), OR AASHTO T 238 (NUCLEAR METHODS), OR OTHER APPROVED METHODS AT THE DISCRETION OF THE SUPERVISING ENGINEER.

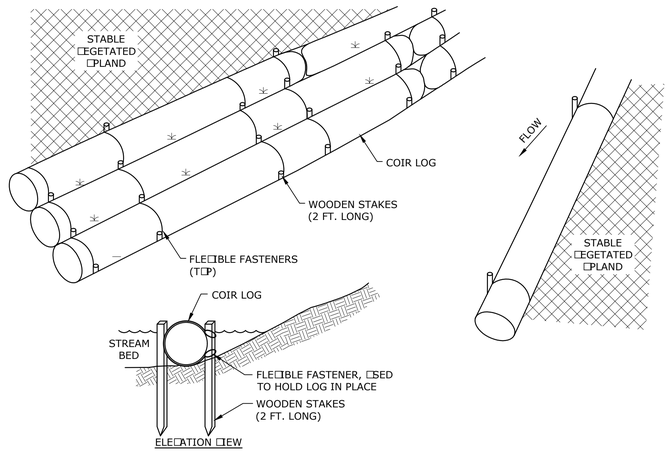
POROUS PAVEMENT SECTION
NO SCALE

AASHTO #57 STONE (RESERVOIR COURSE)	
	% PASSING
2-½"	100
2"	90-100
1-½"	25-70
1"	0-15
½"	0-5

AASHTO #8 STONE (PEA GRAVEL)	
	% PASSING
½"	100
⅜"	85-100
#4	10-30
#8	0-10
#16	0-5

MODIFIED NHDOT #4.1	
	% PASSING
6"	100
#4	70-100
#200	0-60

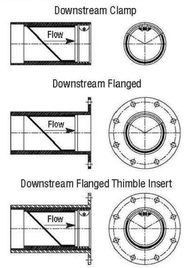
NHDOT ITEM No. #4.2 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING
1"	100
½"	25-100
#4	0-60
#200	0-10



TYPICAL COIR LOG USE FOR BANK STABILIZATION
NO SCALE

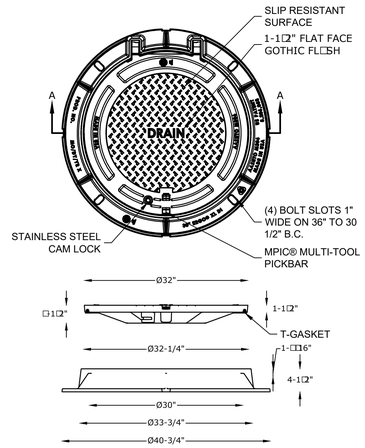
NOMINAL PIPE SIZE I.D.*		OVERALL LENGTH**		NUMBER OF CLAMPS	CUFF DEPTH		BACK PRESSURE RATING	
Inches	Millimeters	Inches	Millimeters		Inches	Millimeters	Feet	Meters
12	300	23	584	1	2	51	40	12

Mounting Styles and Configurations



Flange shape and bolt pattern can be customized.
Flangeless thimble inserts are available.

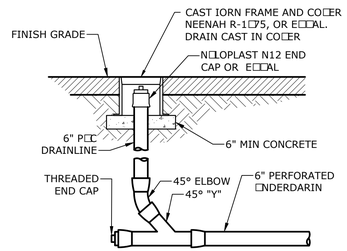
TYPICAL BACK FLOW PREVENTER
NO SCALE



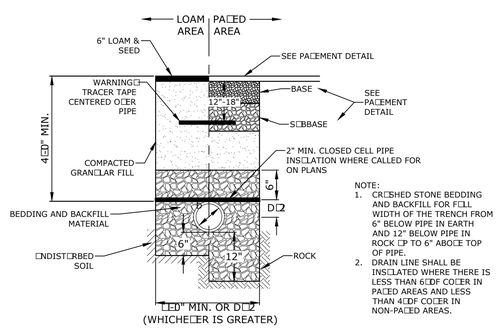
SECTION A-A

NOTES:
1. MANHOLE FRAME AND COVER SHALL BE 32" HINGED ERGO XL BOLTED CO.
2. ALL DIMENSIONS ARE NOMINAL.
3. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
   A. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
   B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAMES ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
   C. ALL OTHER PERTINENT REQUIREMENTS OF THE SPECIFICATIONS ARE MET.
4. LABEL TYPE OF MANHOLE WITH 3" HIGH LETTERS IN HE CENTER OF THE COVER.

DRAIN MANHOLE FRAME & COVER
NO SCALE



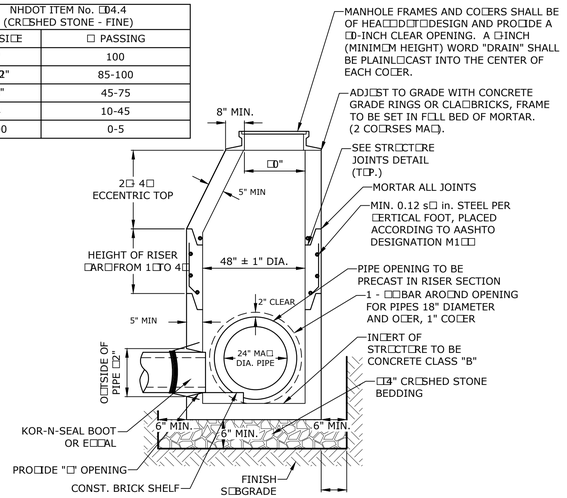
DRAIN CLEAN-OUT
NO SCALE



NOTE:
1. CRUSHED STONE BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 6" ABOVE TOP OF PIPE.
2. DRAIN LINE SHALL BE INSULATED WHERE THERE IS LESS THAN 6'0" OF COVER IN PAVED AREAS AND LESS THAN 4'0" OF COVER IN NON-PAVED AREAS.

STORM DRAIN TRENCH
NO SCALE

NHDOT ITEM No. #4.4 (CRUSHED STONE - FINE)	
SIEVE SIZE	% PASSING
2"	100
1-1/2"	85-100
#4"	45-75
#4	10-45
#200	0-5



NOTES:
1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
4. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
5. CONSTRUCT CRUSHED STONE BEDDING AND BACKFILL UNDER (6" MINIMUM THICKNESS)
6. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
7. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
8. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 1" BEYOND INSIDE WALL OF STRUCTURE.
9. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
10. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZONTAL CROSS SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 1' TO JOINTS.
11. THE INSIDE OF THE CONCRETE STRUCTURE SHALL BE TREATED WITH A SILOXANE COATING AND SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. SILOXANE COATING SHALL BE SIKAGARD-705L OR APPROVED EQUAL.

4' DIAMETER DRAIN MANHOLE
NO SCALE

CITY OF PORTSMOUTH, N.H. INCORPORATED 1849 CITY SEAL

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(PHONE) 617.536.0380
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NORTH MILL POND GREENWAY AND COMMUNITY PARK - AREA 1

PORTSMOUTH, NEW HAMPSHIRE

STATE OF NEW HAMPSHIRE — BRADLEY M. CZYZ — No. 00736 — LICENSED PROFESSIONAL ENGINEER — 7-21-21

STATE OF NEW HAMPSHIRE — PATRICK M. CROSSMAN — No. 16970 — LICENSED LAND SURVEYOR — 7-21-2021

REVISIONS

PROJECT NO:	P0766-006
DRAWN BY:	AFS
CHECKED BY:	PMC
SCALE:	AS SHOWN

PERMIT SET
NOT FOR CONSTRUCTION

July 21, 2021

DETAILS SHEET

C-502

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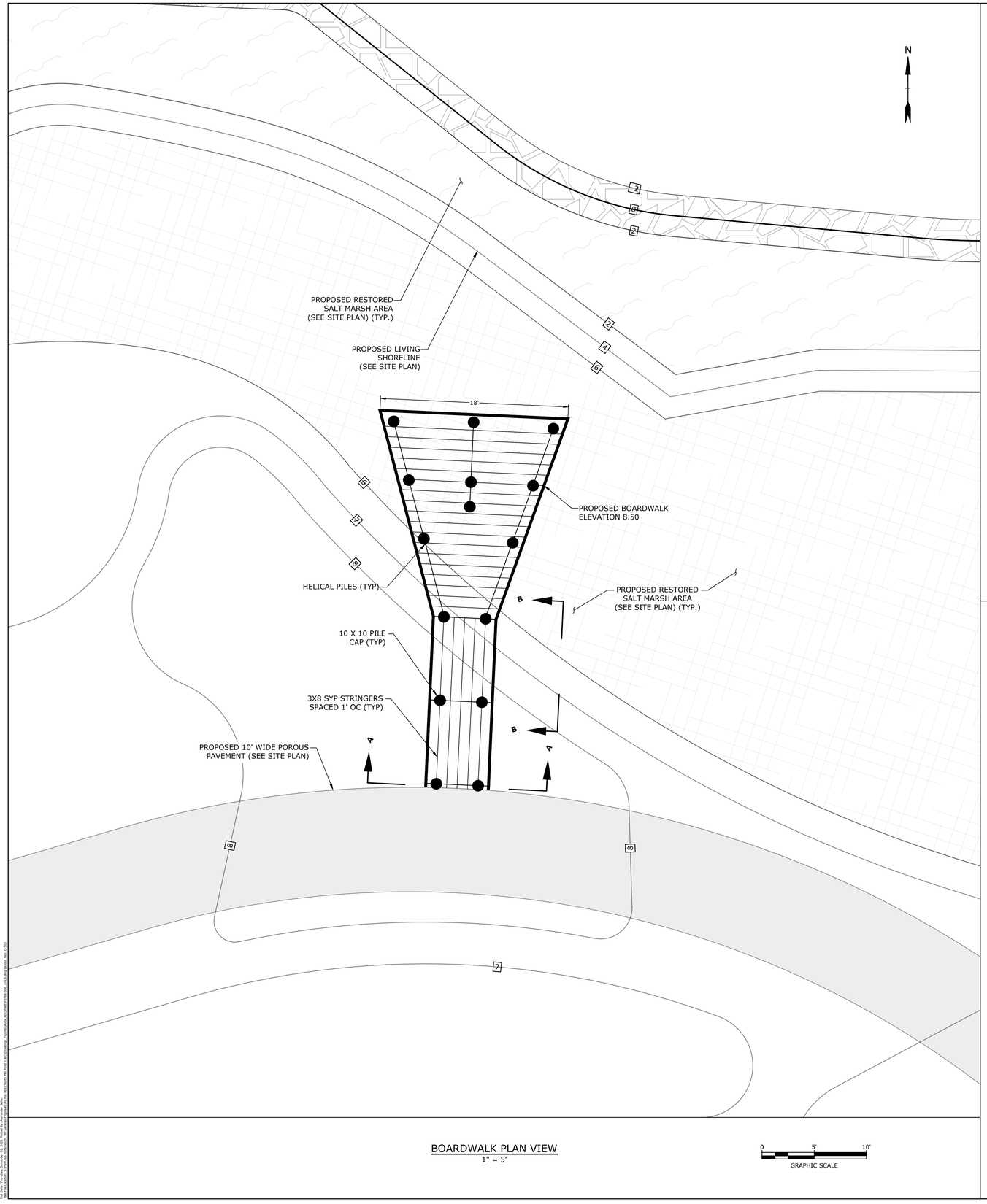
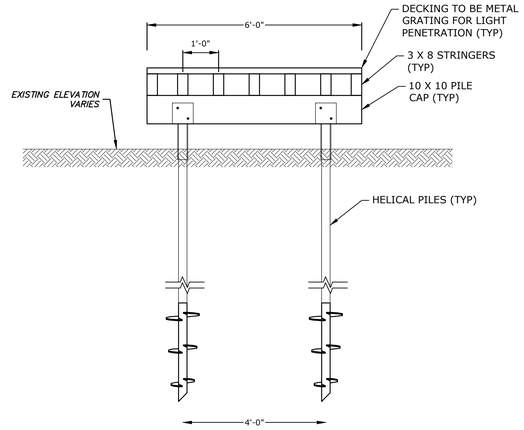


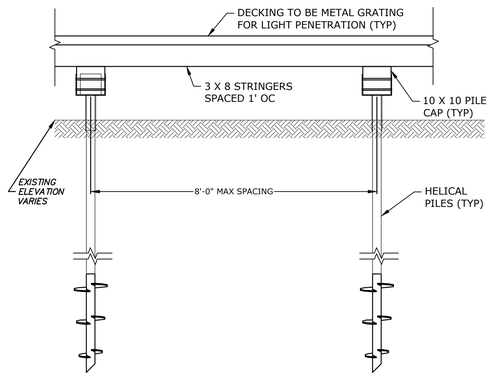
BOARDWALK PLAN VIEW
1" = 5'

0 5' 10'
GRAPHIC SCALE



BOARDWALK SECTION A-A
1/2" = 1'

0 1' 2' 4'
GRAPHIC SCALE



BOARDWALK SECTION B-B
1/2" = 1'

0 1' 2' 4'
GRAPHIC SCALE

CITY OF PORTSMOUTH NH
INCORPORATED 1849
SETTLED 1623

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NORTH MILL POND GREENWAY AND COMMUNITY PARK - AREA 1

PORTSMOUTH, NEW HAMPSHIRE

STATE OF NEW HAMPSHIRE
BRADLEE MEZQUITA
No. 08830
LICENSED PROFESSIONAL ENGINEER
12-3-21

STATE OF NEW HAMPSHIRE
PATRICK M. CRIMMINS
No. 12376
LICENSED PROFESSIONAL ENGINEER
12-03-21

CON COM WORK SESSION	12/3/2021
REVISIONS	
PROJECT NO:	P0766-006
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CHECKED BY:	PMC
SCALE:	AS SHOWN

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July 21, 2021

BOARDWALK DETAILS SHEET

C-503

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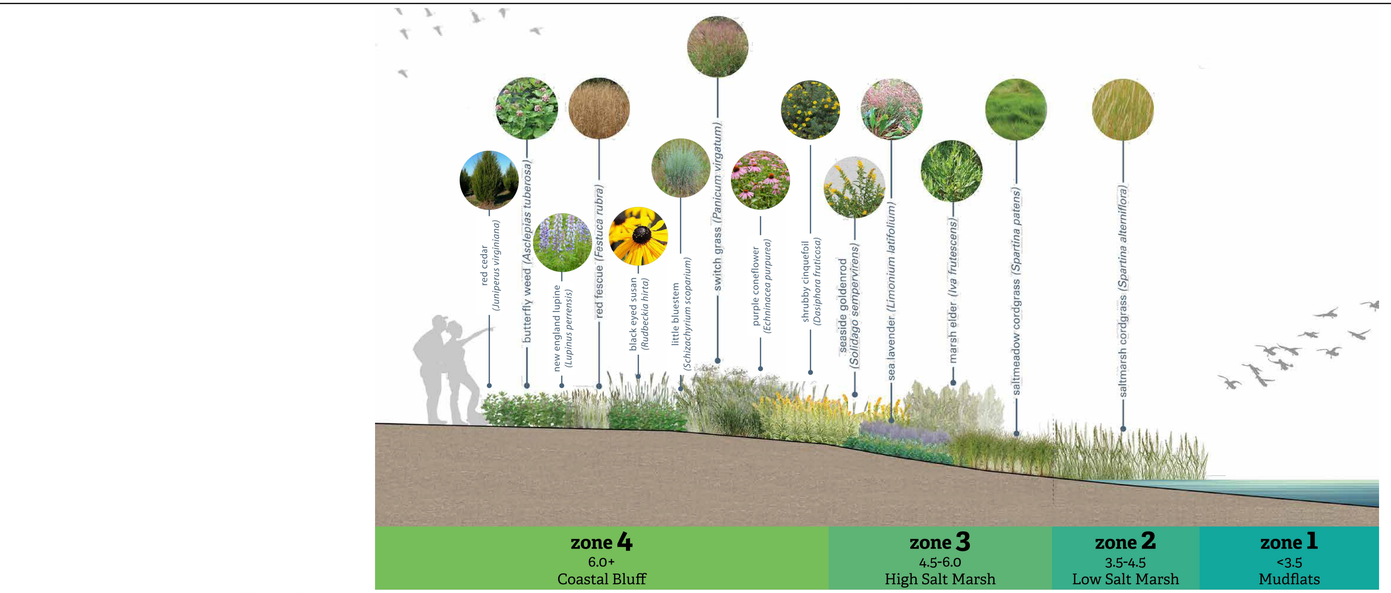

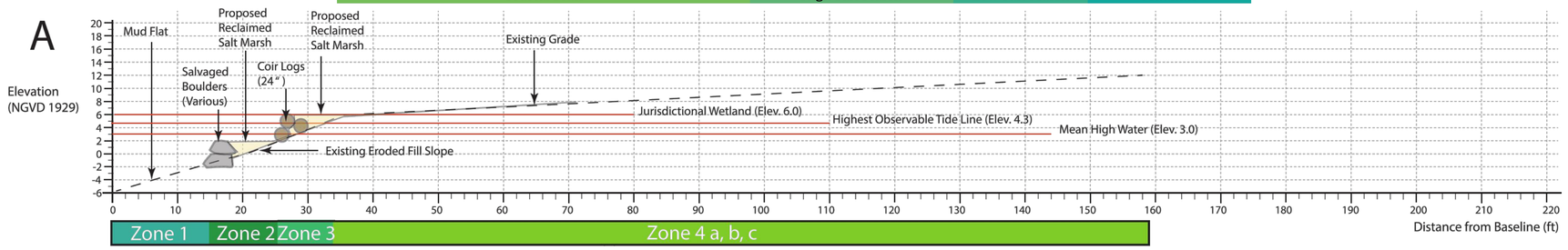

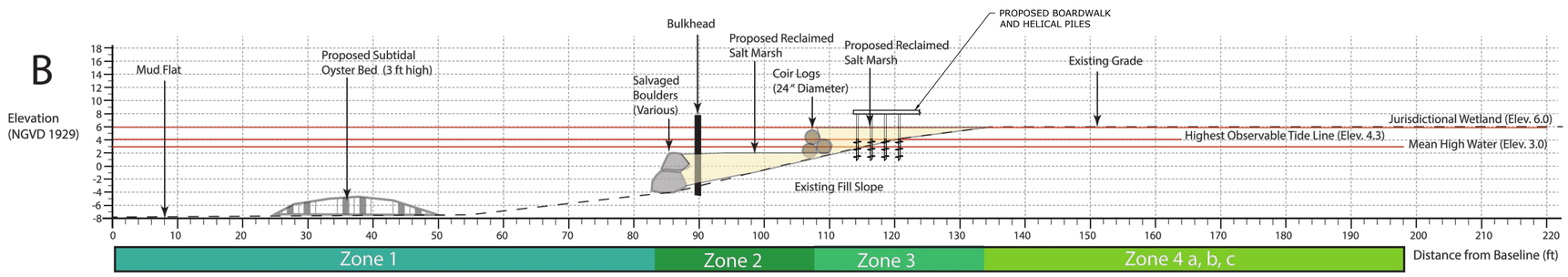

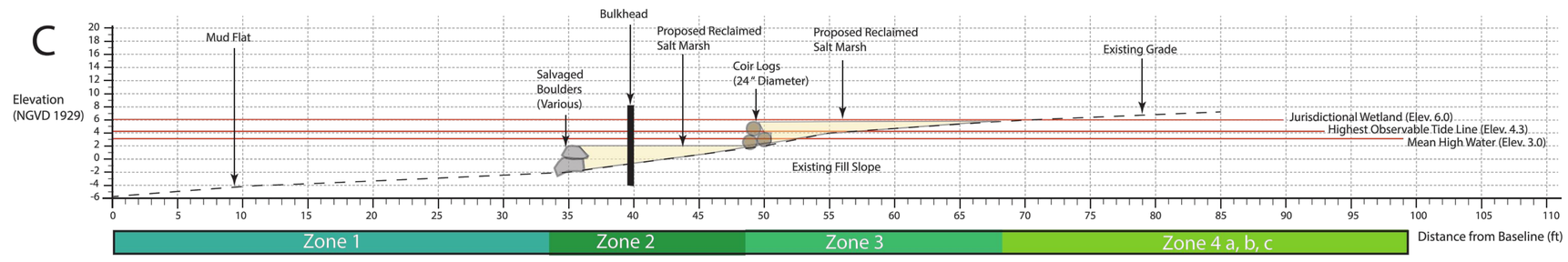

CITY OF PORTSMOUTH, N.H. — SETTLED 1623 — INCORPORATED 1849

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NORTH MILL POND GREENWAY AND COMMUNITY PARK - AREA 1

PORTSMOUTH, NEW HAMPSHIRE

STATE OF NEW HAMPSHIRE — PATRICK M. CROSSMAN No. 16570 — LICENSED PROFESSIONAL ENGINEER — 7-21-21

STATE OF NEW HAMPSHIRE — PATRICK M. CROSSMAN No. 16570 — LICENSED PROFESSIONAL ENGINEER — 7-21-2021

REVISIONS

PROJECT NO:	P0766-006
DRAWN BY:	AFS
CHECKED BY:	PMC
SCALE:	AS SHOWN

PERMIT SET
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July 21, 2021

RESTORATION SECTION PLAN

C-504

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Planting Notes:

1. *Invasive plant material will be removed using mechanical, whole plant removal strategies and chipped and composted at an appropriate facility or burned on site according to local fire department rules and regulations.*
2. *Disturbed soils within the upland buffer zone will be augmented as needed with a custom blended soil of one part loam, one part compost and one part clean sand.*
3. *Seeded areas are to be covered with salt marsh hay to retain soil moisture and protect against seed predation by birds and small mammals.*
4. *Native plant material will be laid out and installed by an ecological restoration specialist or persons trained in horticultural practices. Exact plant locations will be determined in the field based on site-specific planting conditions and micro-topography.*
5. *The new plantings will be irrigated for one full growing season or until the seed and plant material is established.*
6. *Monthly inspections will be conducted for the first growing season and treatment/removal of invasive species will be implemented as needed during the establishment period.*
7. *Care is to be taken in removing any new colonizing invasive plant material to minimize disturbance to establishing native plant species.*

Restoration Planting List | North Mill Pond Greenway | Portsmouth NH

	Common Name	Scientific Name	Indicator Status	Quantiy	Size
	Buffer Zone Adjacent to Salt Marsh-Living Shoreline				
1	Red Maple	*Acer rubrum*	FAC	8	2.5
2	Red cedar	*Juniperus virginiana*	FACU	12	3 gallon
3	Beach Plum	*Prunus maritima*	UPL	25	5 gallon
4	Witch Hazel	*Hamamelis virginiana*	FACU	25	5 gallon
5	Gray Dogwood	*Cornus racemosa*	FAC	50	5 gallon
6	Pearly Everlasting	Anaphalis margaritacea	FACU	50	1 gallon
7	False Indigo (purple)	*Asclepias syriaca*	UPL	50	1 gallon
8	Black-eyed Susan	*Rudbeckia hirta*	FACU	100	1 gallon
9	Coneflower	*Rudbeckia lacinata*	UPL	100	1 gallon
10	Red Fescue	*Festuca rubra*	FACU-	100 pounds	seed
11	Indian Grass	*Sorghastrum nutans*	UPL	50	1 gallon
12	Switchgrass	*Panicum virgatum*	FAC	50	1 gallon
13	Upland Bentgrass	*Agrostis pernnans*	FACU	50	1 gallon
14	Little Bluestem	*Schizachyrium scoparium*	FACU-	100	1 gallon
15	NE Lupine	*Lupinus perennis*	UPL	200	1 gallon
16	New Jersey Tea	*Ceanothus americanus*	UPL	100	1 gallon
	Living Shoreline Plant List				
	Low Marsh				
17	Chordgrass	*Spartina alterniflora*	OBL	500	Plug
	High Marsh				
18	High Marsh Grass	*Spartina patens*	FACW	50	Plug
19	Sea Lavender	*Limonium carolinianum*	OBL	50	1 gallon
20	Sea Side Goldenrod	*Solidago maratima*	UPL	100	1 gallon
21	Black Grass	*Juncus gerardii*	FACW	100	1 gallon

(1) Plant species with scientific names and quantities provided.
Included in planting list.

(2) Source of planting materials or whether the plan relies on natural re-vegetation;
Source will be from local nurseries including by not limited to: Pierson Nursery, Biddeford Maine; Bigelow Nursery, Northborough MA.

(3) Plant stock size and zones of predicted plant occurrence;
Included on planting list

(4) Plant survival goals;
Expect to achieve 75 % success on or before 3 years post installation

(5) The proposed locations of native plant stock and the rate and type of seeding;
Included on planting plan but will be determined in the field at time of planting based on local microtopography and specific site conditions.

(6) When and where seeding or planting will take place; and
Plantings to be installed in early spring as soon as possible after completion of construction to insure full growing season to establish before winter storms.

(7) Notation of dead snags, tree stumps, or logs per acre, where appropriate, to provide structure and cover for wildlife and food chain support;
New plantings will be installed at densities that will provide cover and structure for wildlife with the intent of creating wildlife corritors along the wetland edge.

(d) Documentation of existing and proposed soils as follows:

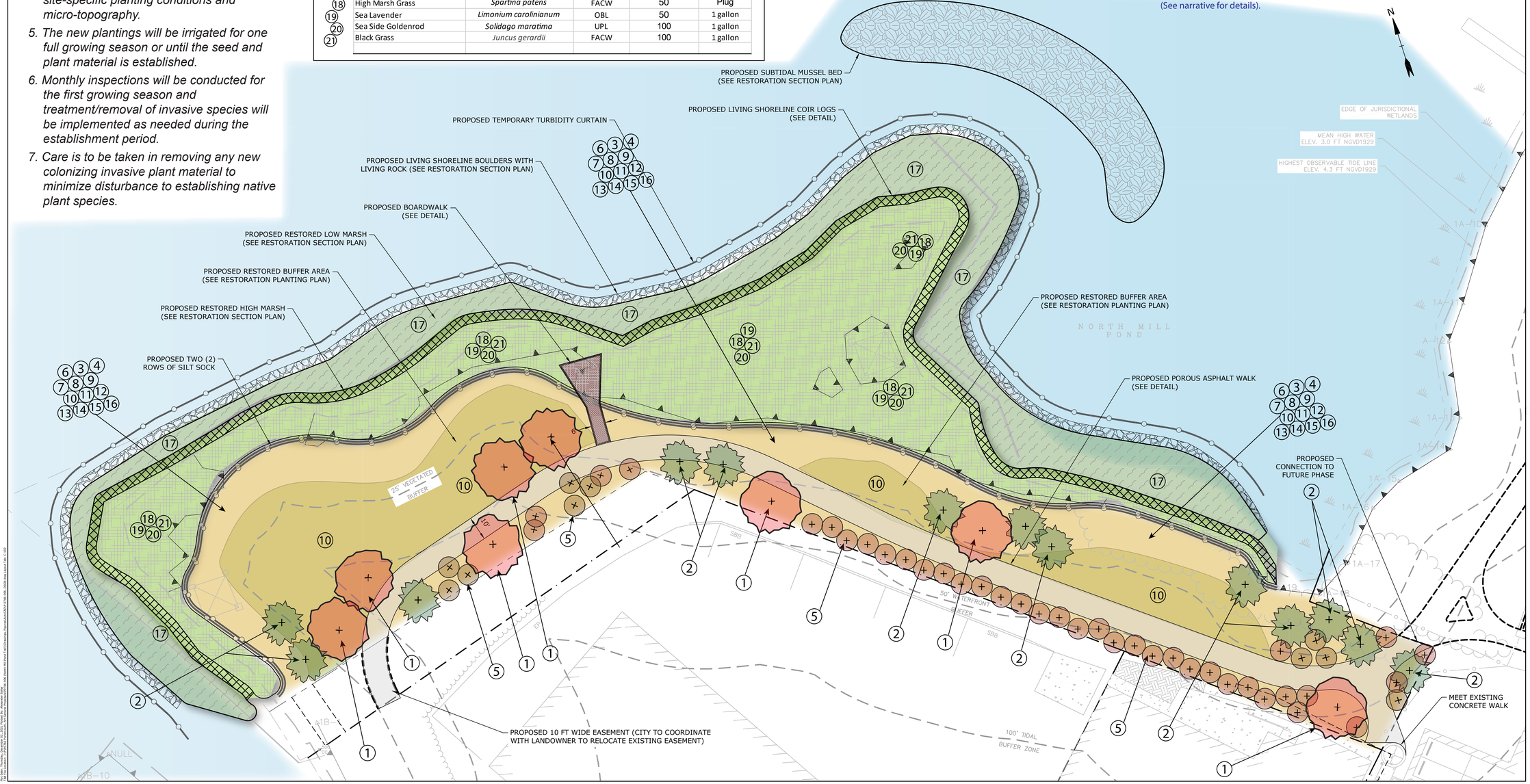
(1) The existing soils on the proposed mitigation site;
Existing soils consist of fill materials and debris; gravel, brick, wood. These materials will be filled with blended soils as described below to elevations condusive to the establishment of the native plant species proposed for the different planting zones: low marsh, high marsh, upland buffer.

(2) The source of soils to be placed on the site;
Blended soils consisting of 2 parts sand and 1 part organic compost will be sourced from local venders and inspected before use in the project. Soils will be blended at the facility and delivered to the site in their final form.

(3) The likely seed bank composition of soils;
The seed bank of existing soils is likely composed of a variety of invasive species that currently occupy the site including black locust, Asiatic Bittersweet, Phragmites, privet, bush honeysuckle, and multiflora rose. The proposed invasive species management plan (see narrative) intends to manage the site for re-colonization of the site with these invasive species.

(4) The depth of proposed growing medium; and
The total depth of growth medium and blended soils will vary across the site within the various growing areas. 12 to 24 inches in the low marsh; 12 to 24 inches in the high marsh, and 12 to 18 inches in the upland buffer areas.

(5) The soil properties such as texture and organic content;
The blended soils for the low and high marsh areas will consist principally of the blended soil of sand and organic compost - see narrative for detail. The soils blended for the upland buffer plantings will consist of 1 part loam, 1 part sand, 1 part organic compost. (See narrative for details).



CITY OF PORTSMOUTH, N.H. INCORPORATED 1849 SETTLED 1623

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NORTH MILL POND GREENWAY AND COMMUNITY PARK - AREA 1

PORTSMOUTH, NEW HAMPSHIRE

Restoration Planting Plan

North Mill Pond Greenway
Portsmouth, NH

1. *Base Plan prepared by Halvorson Tighe& Bond Studio, Project No. P7066-003.*
2. *Additional text added by DeRosa Environmental Consulting, Inc. April 16, 2021.*

DEROSA Environmental CONSULTING, INC.
167 Main Street
P. O. Box 716
Bowley Massachusetts
USA
978.948.7717 Office
derosaenvironmental.com
Michael J. DeRosa
PWS No. 2250
MJD/mjd
April 16, 2021

CON COM WORK SESSION 12/3/2021

REVISIONS

PROJECT NO:	P0766-006
DRAWN BY:	AFS
CHECKED BY:	PMC
SCALE:	AS SHOWN

PERMIT SET
NOT FOR CONSTRUCTION

July 21, 2021

SITE PLAN

C-102

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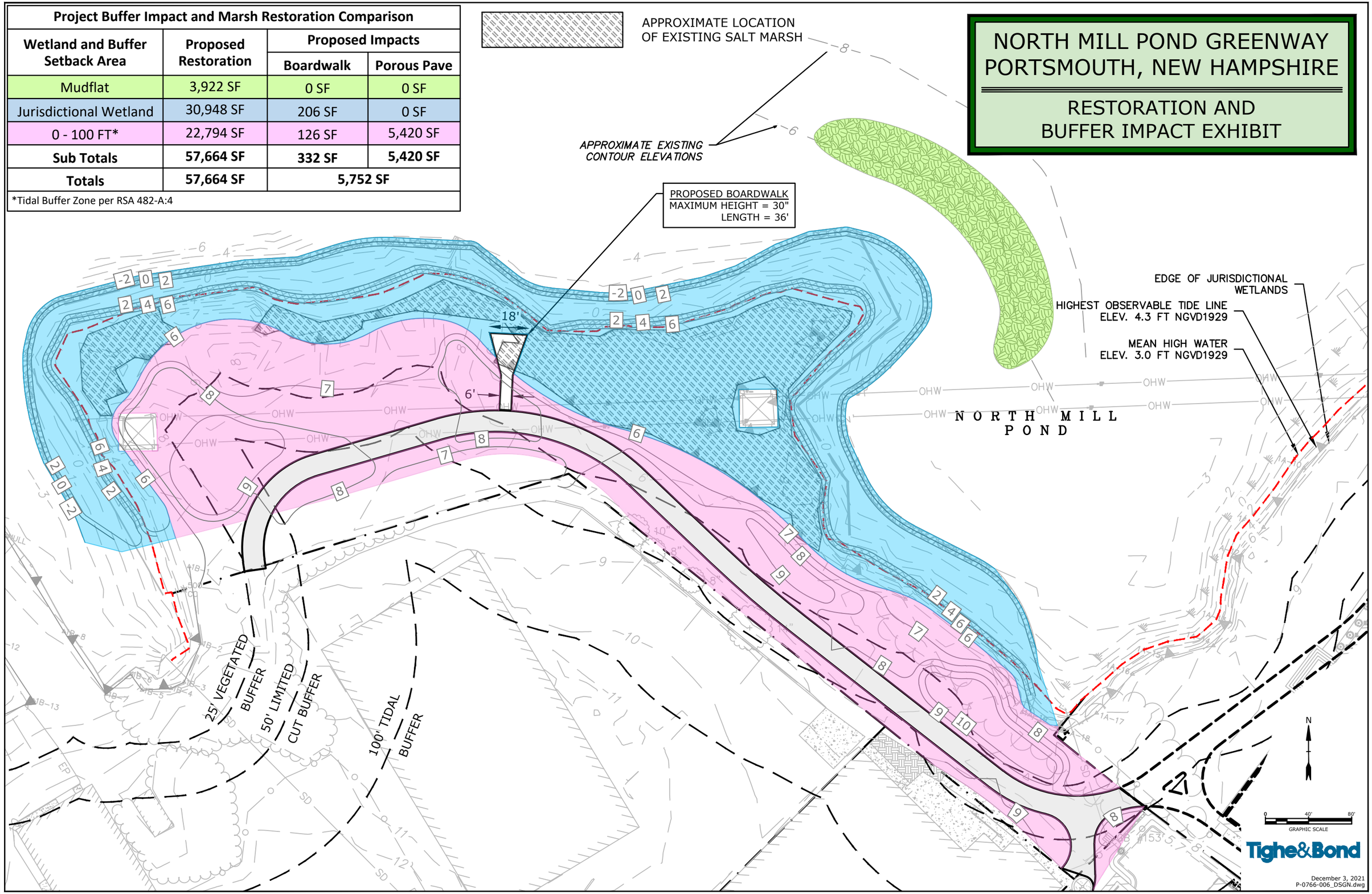
NORTH MILL POND GREENWAY
PORTSMOUTH, NEW HAMPSHIRE

RESTORATION AND BUFFER IMPACT EXHIBIT

Project Buffer Impact and Marsh Restoration Comparison			
Wetland and Buffer Setback Area	Proposed Restoration	Proposed Impacts	
		Boardwalk	Porous Pave
Mudflat	3,922 SF	0 SF	0 SF
Jurisdictional Wetland	30,948 SF	206 SF	0 SF
0 - 100 FT*	22,794 SF	126 SF	5,420 SF
Sub Totals	**57,664 SF**	**332 SF**	**5,420 SF**
Totals	**57,664 SF**	**5,752 SF**	

*Tidal Buffer Zone per RSA 482-A:4



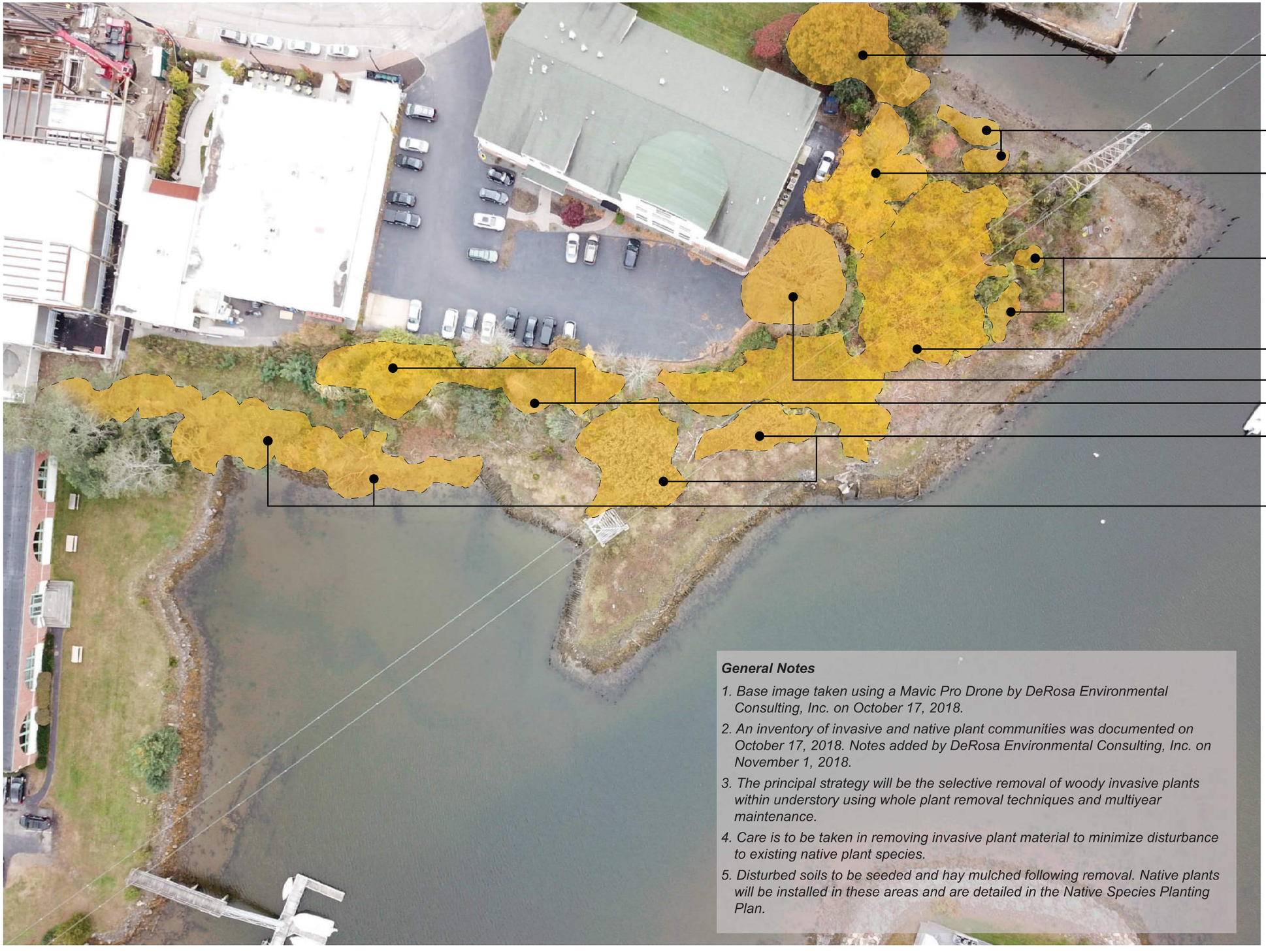
Tighe&Bond
Engineers | Environmental Specialists

HALVORSON DESIGN PARTNERSHIP

DEROSA Environmental Consulting, Inc.

Invasive Species Inventory

North Mill Pond Multi-use Trail | Portsmouth, NH



General Notes

1. *Base image taken using a Mavic Pro Drone by DeRosa Environmental Consulting, Inc. on October 17, 2018.*
2. *An inventory of invasive and native plant communities was documented on October 17, 2018. Notes added by DeRosa Environmental Consulting, Inc. on November 1, 2018.*
3. *The principal strategy will be the selective removal of woody invasive plants within understory using whole plant removal techniques and multiyear maintenance.*
4. *Care is to be taken in removing invasive plant material to minimize disturbance to existing native plant species.*
5. *Disturbed soils to be seeded and hay mulched following removal. Native plants will be installed in these areas and are detailed in the Native Species Planting Plan.*

Michael J. DeRosa
PWS No. 2250

MJD/aem
November 5, 2018

DEROSA Environmental CONSULTING, INC.
167 Main Street
P.O. Box 716
Rowley Massachusetts
USA
978.948.7217 Office
derosaenvironmental.com

Owner's Letter of Authorization

I, **Peter Britz**, of The City of Portsmouth (Owner) hereby give Tighe & Bond, Inc. (site/civil Engineer) permission to be my agent in all site design and permitting matters for the proposed project located at 0 Vaughan Street in Portsmouth, New Hampshire on the parcel of land identified as Tax Map 123 Lot 15. This authorization shall include any required signatures for local, state and federal permit applications.

Signature	Peter Britz Print Name	9-21-21 Date
Witness	IZAK Gilbo Print Name	9-21-21 Date

T5037-002
December 2, 2021

Mr. Dexter Legg, Chairman
City of Portsmouth Planning Department
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: **Preliminary Conceptual Consultation Phase**
Proposed Mixed Use Development, Russell St & Deer St, Portsmouth, NH

Dear Chairman Legg:

On behalf of Port Harbor Land, LLC (owner/applicant), we are pleased to submit the following information to support a request for a Preliminary Conceptual Consultation for the above referenced project:

- PB Consultation Conceptual Plan Set, dated December 16, 2021

The proposed project is located along Deer Street and Russell Street on property identified as Map 118 Lot 28, Map 124 Lot 12, and Map 125 Lot 21 on the City of Portsmouth Tax Maps. The project includes three buildings consisting of office, retail/commercial, and residential uses. The buildings consist of a 4-story office building at the corner of Deer Street and Maplewood Avenue, 5-story mixed-use residential building at the corner of Deer Street and Russell Street with below ground parking, first floor residential lobby, commercial space and parking and upper floor residential units, and a 5-story mixed-use residential building along Russell Street with first floor residential lobby and commercial space and upper floor residential units. The project also consists of significant on-site and off-site improvements including wide sidewalks, roadway improvements, stormwater management, lighting, landscaping, and utilities.

The project is proposing over 30% community space in order to meet the requirements to receive a Conditional Use Permit (CUP) for an increased building footprint. The CUP will allow the project to consolidate parking under the building on the corner of Deer and Russell Streets.

As per Section 2.4.2.1 of the Site Plan Regulations, the proposed project is required to meet with the Planning Board for Preliminary Conceptual Consultation Phase. Thus, the applicant respectfully requests to be placed on the December 16, 2021 Planning Board meeting agenda for the Preliminary Conceptual Consultation Phase. If you have any questions or need any additional information, please contact Patrick Crimmins by phone at (603) 433-8818 or by email at pmcrimmins@tighebond.com.

Sincerely,

TIGHE & BOND, INC.

Patrick M. Crimmins, PE
Senior Project Manager

Neil A. Hansen, PE
Project Engineer

Copy: Port Harbor Land, LLC

RUSSELL STREET DEVELOPMENT

PB CONSULTATION 1 | 12.16.2021

PROJECT TEAM

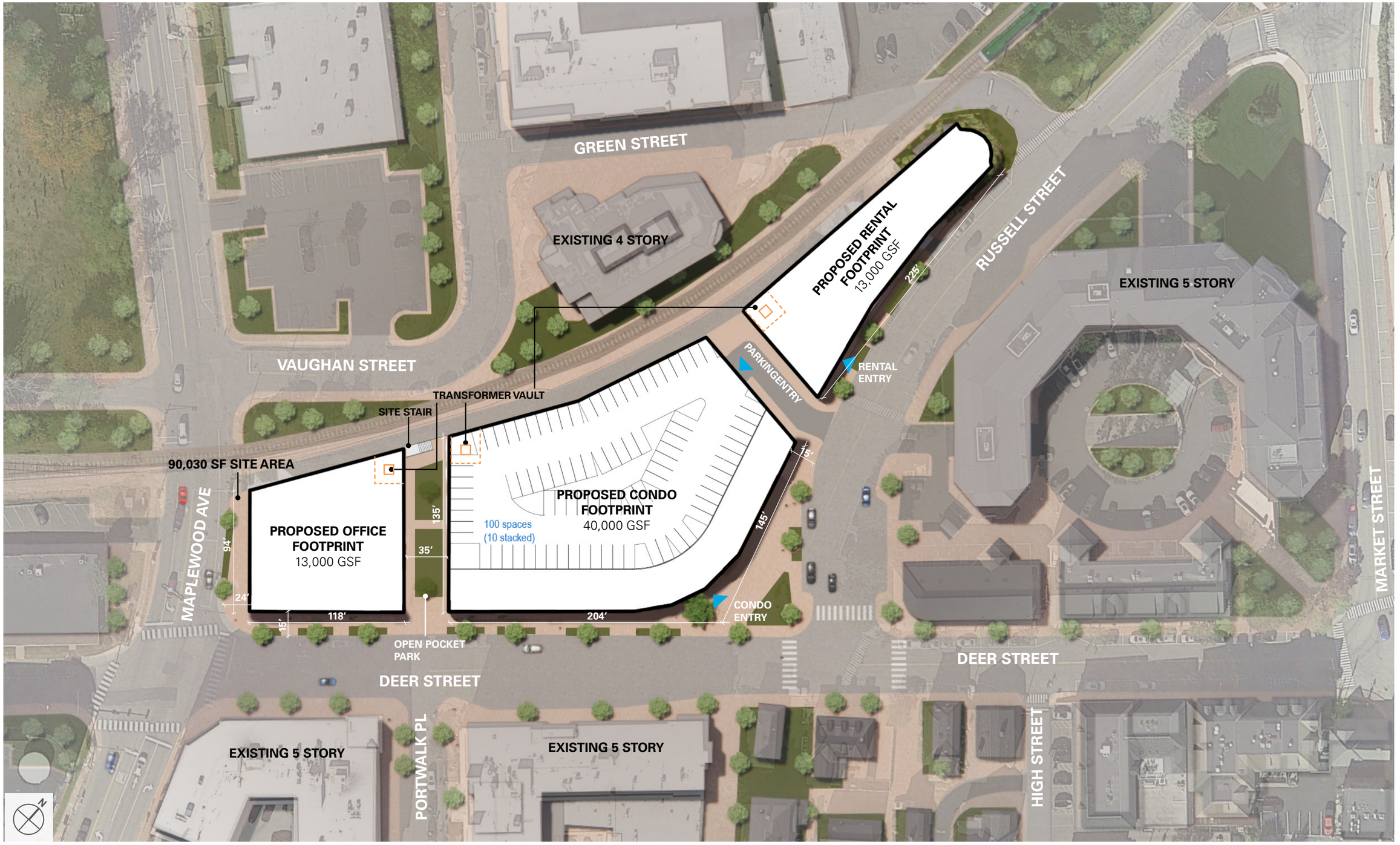
PORT HARBOR LAND, LLC
OWNER

SGA
ARCHITECT

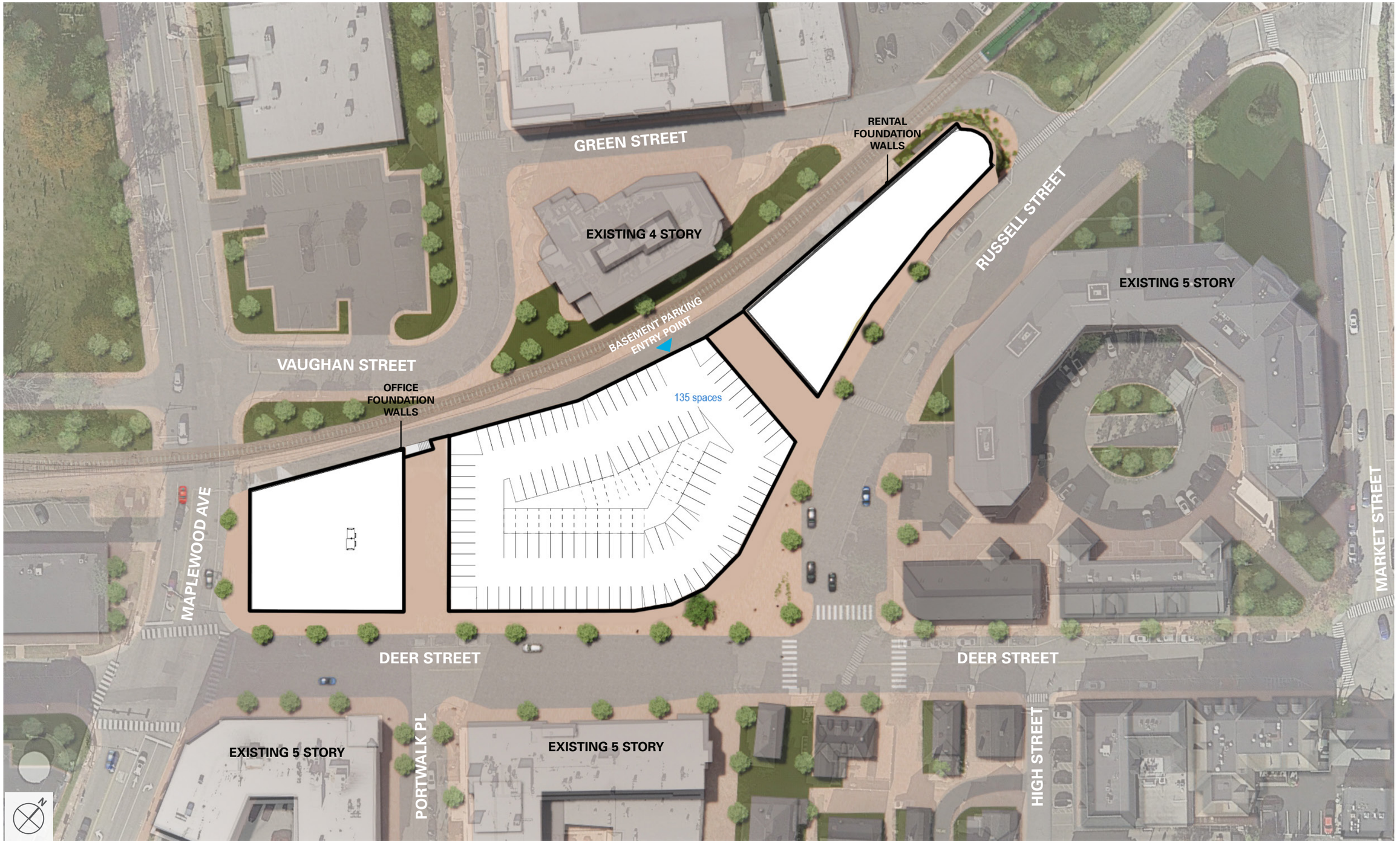
MARKET SQUARE ARCHITECTS
ARCHITECT OF RECORD

TIGHE & BOND
CIVIL

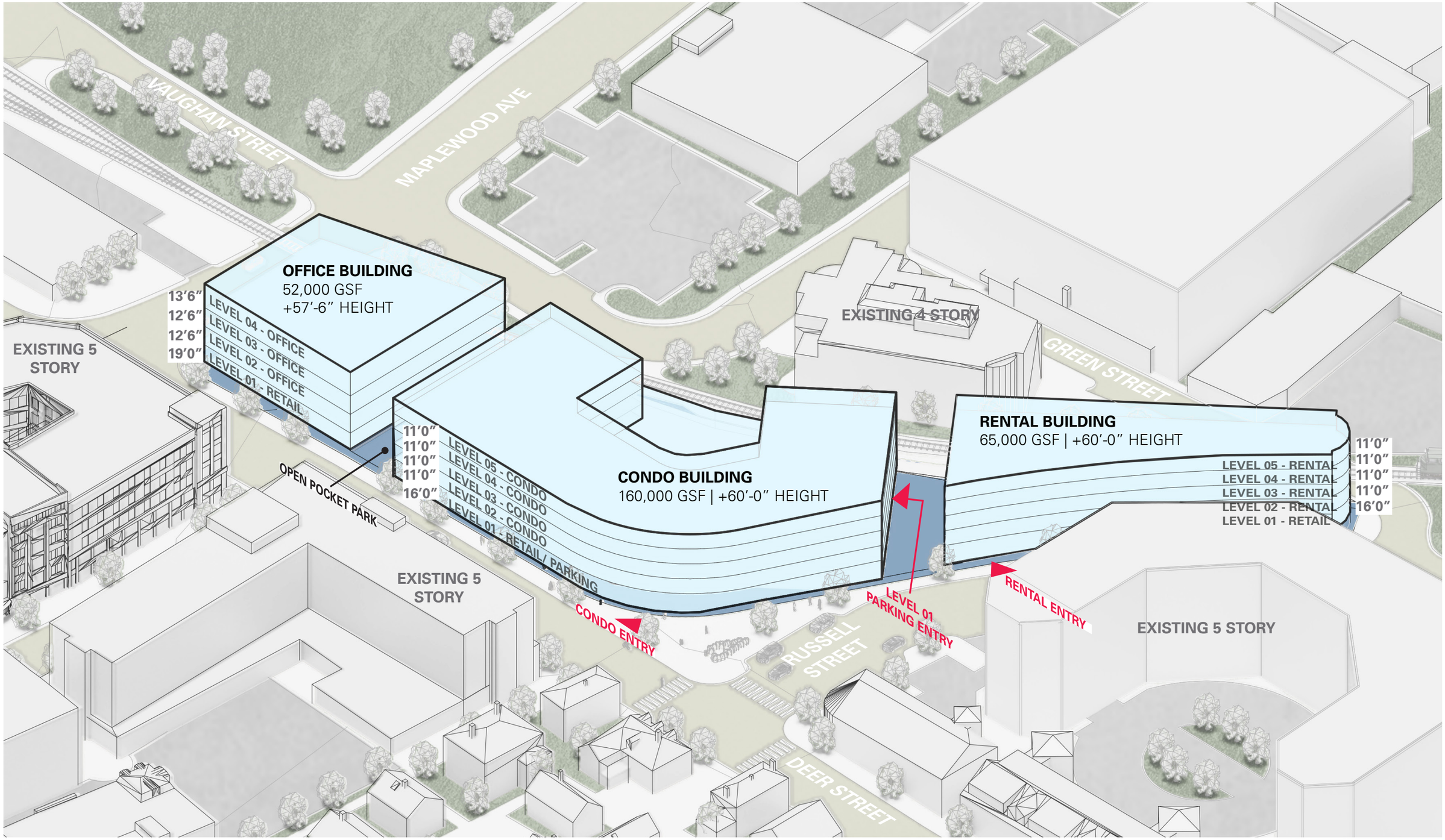
SITE PLAN - GROUND FLOOR



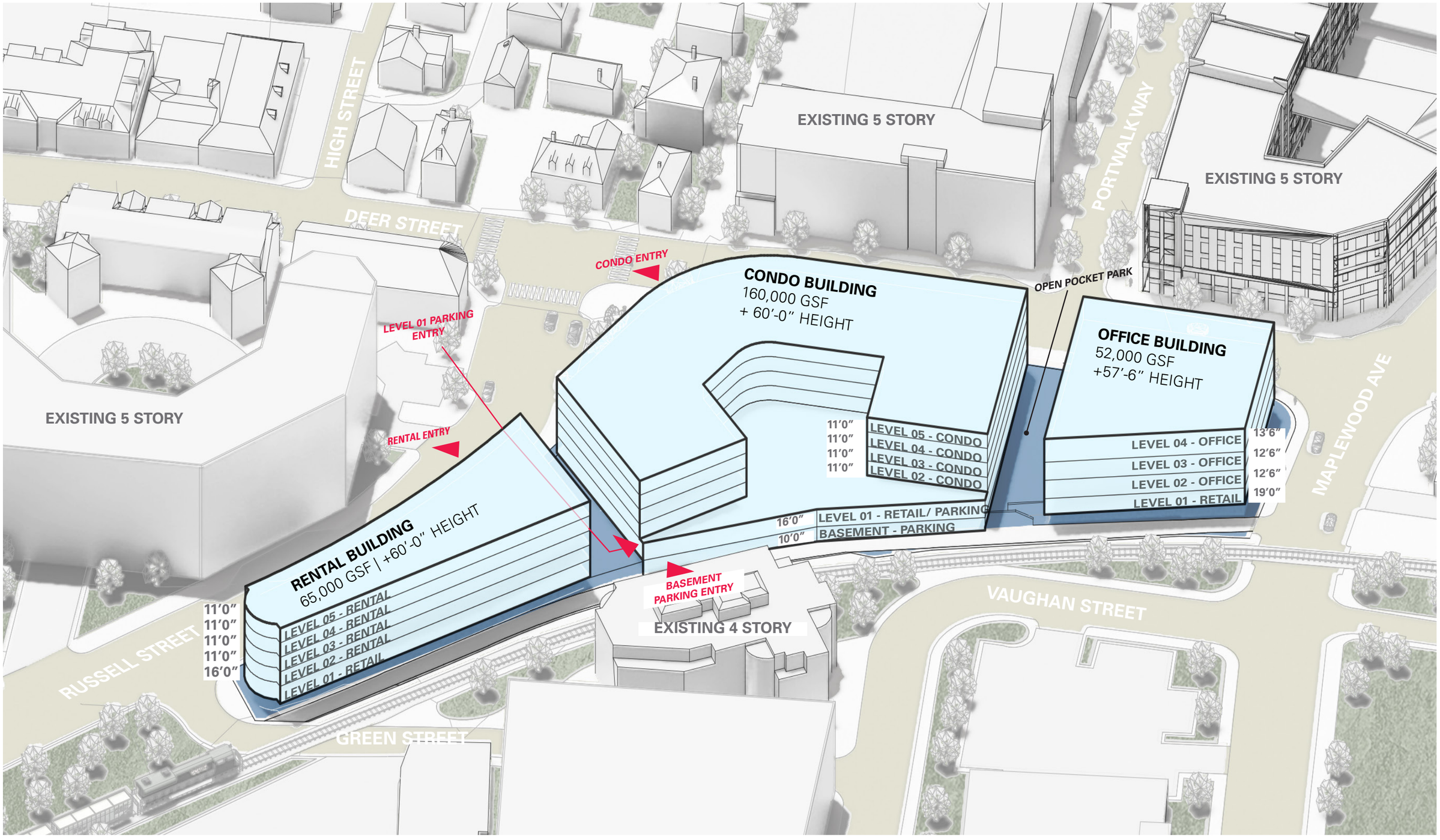
SITE PLAN - GARAGE LEVEL



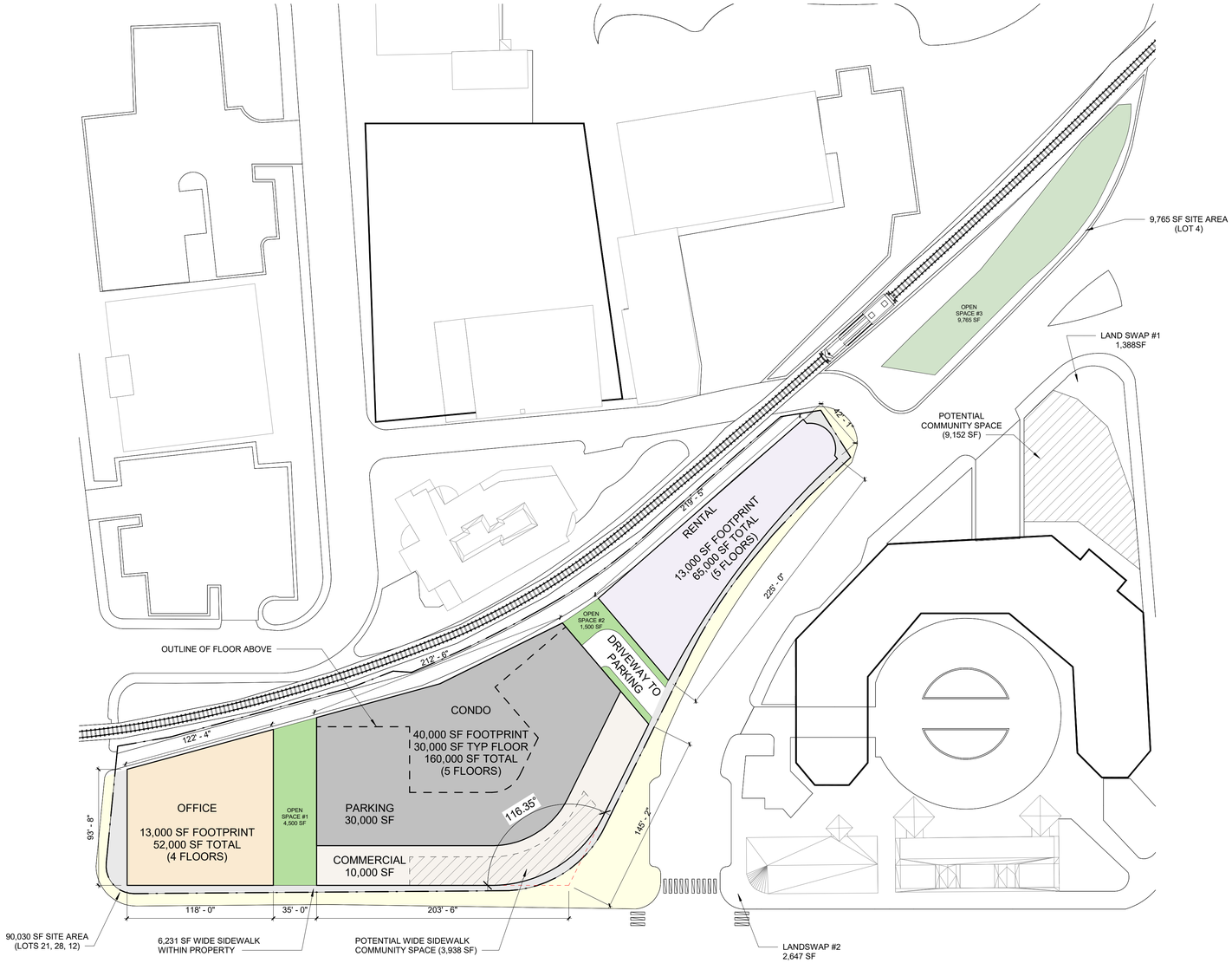
MASSING VIEW 01



MASSING VIEW 02

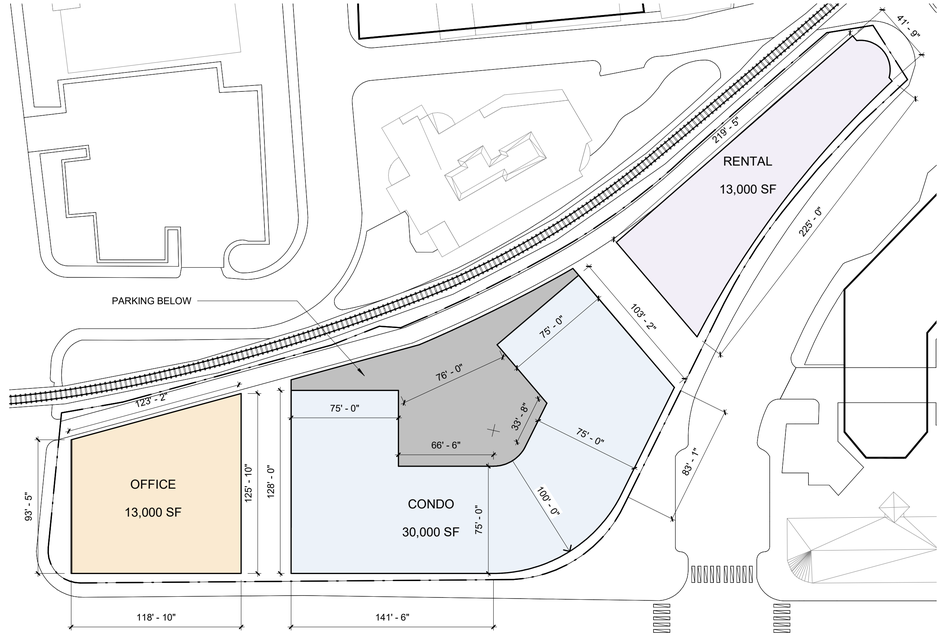


MASSING DIAGRAMS
CONCEPT MASSING



1 GROUND FLOOR
1" = 50'-0"

3 MASSING VIEW



2 TYPICAL FLOOR
1" = 50'-0"

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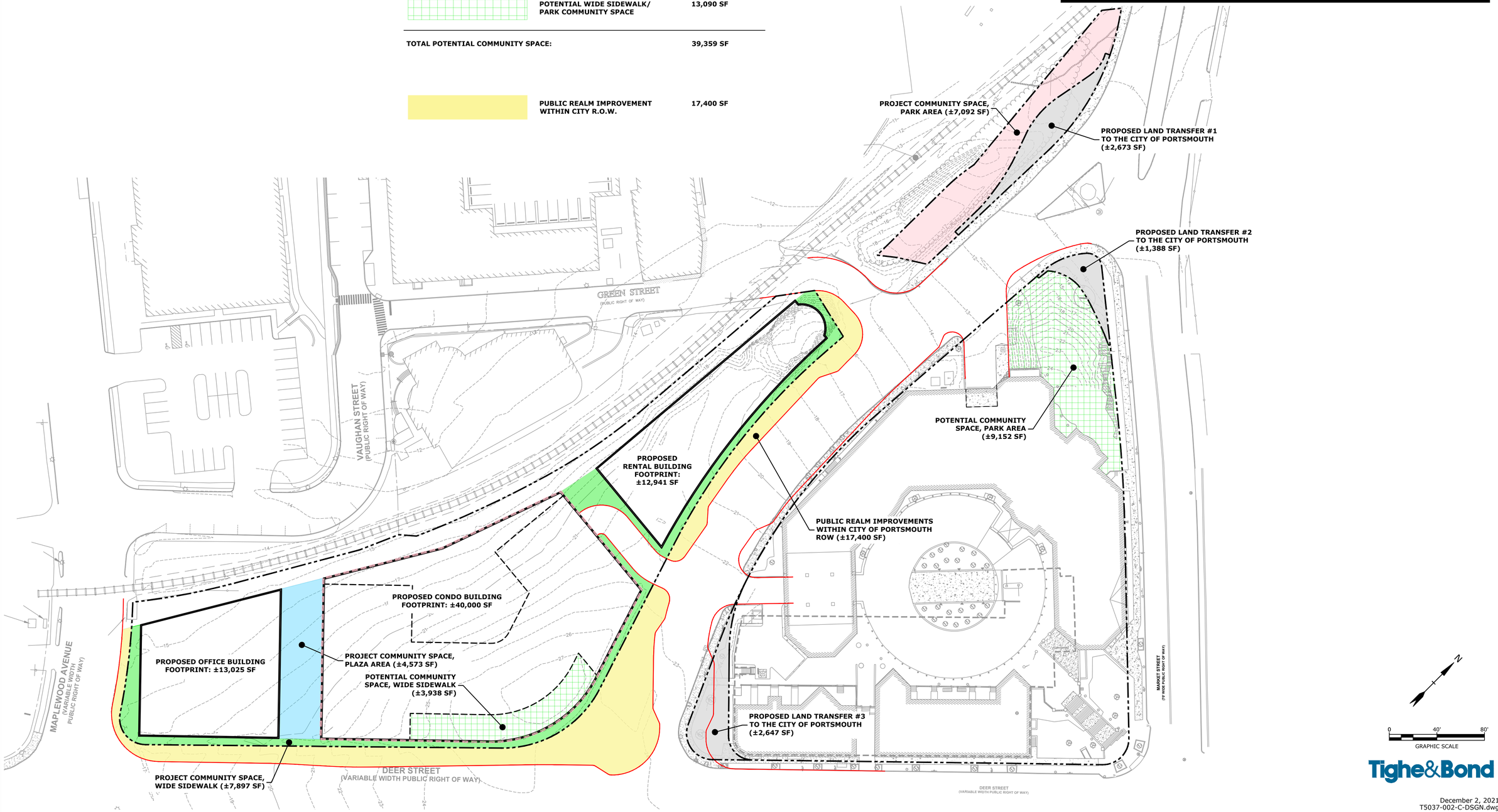
NORTH END MIXED USE DEVELOPMENT
RUSSELL STREET & DEER STREET
PORTSMOUTH, NEW HAMPSHIRE

COMMUNITY SPACE EXHIBIT

LEGEND

- PROPERTY LINE
- SETBACK LINE
- APPROX LIMIT OF PROPOSED EDGE OF PAVEMENT
- PROPOSED BUILDING FOOTPRINT
- PROPOSED PARKING STRUCTURE

PROPOSED COMMUNITY SPACE:		PROVIDED
	WIDE SIDEWALK COMMUNITY SPACE	7,897 SF
	PRIVATE LAND TRANSFER TO PUBLIC R.O.W.	6,707 SF
	PLAZA AREA COMMUNITY SPACE	4,573 SF
	PARK AREA COMMUNITY SPACE	7,092 SF
	POTENTIAL WIDE SIDEWALK/ PARK COMMUNITY SPACE	13,090 SF
TOTAL POTENTIAL COMMUNITY SPACE:		39,359 SF
	PUBLIC REALM IMPROVEMENT WITHIN CITY R.O.W.	17,400 SF



Tighe&Bond

December 2, 2021
T5037-002-C-DSGN.dwg

Last Save Date: December 1, 2021 8:21 AM By: NAHANSEN
Plot Date: Thursday, December 02, 2021 Plotted By: Neil A. Hansen
Xref File Location: J:\T\T5037 Two International Group\002 Russell Street Development\Drawings_Figures\AutoCAD\T5037-002-C-DSGN.dwg Layout Tab: Community Space

ARCHITECTURE | PLANNING
INTERIOR DESIGN | VDC
BRANDED ENVIRONMENTS

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THANK YOU