AMBIT ENGINEERING, INC. CIVIL ENGINEERS AND LAND SURVEYORS

200 Griffin Road, Unit 3, Portsmouth, NH 03801
Phone (603) 430-9282 Fax 436-2315

23 February 2022

Rick Chellman, Planning Board Chair
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

RE: Application for CUP Approval, Tax Map 222, Lot 69, 213 Jones Avenue

Dear Chair Chellman and Planning Board members:

On behalf of Donald Stickney we submit herewith the attached Application for Conditional Use Permit; Wetland. In support thereof, we are submitting a proposed Site Plan set with the associated exhibits and requirements. This proposal is to add a new structure on this existing parcel and re-use the existing structure as a Detached Accessory Dwelling Unit. The proposed dwelling unit and associated utility connections are shown on the Site Plans. The parking required for the proposed dwelling will be contained in the proposed garage.

This City of Portsmouth Wetland Conditional Use Permit Amendment request is for 2,783 square feet of disturbance within the 100' City of Portsmouth Wetland Buffer. No direct wetland impact is proposed. The wetland is a poorly drained palustrine scrub-shrub broad leaved deciduous wetland system that is seasonally flooded and or saturated. The work in the buffer consists of the construction of a Detention Pond. Buffer Plantings associated with this request will occur in the wetland buffer; but those plantings are not included as impact area since there will be no change in the grade or preparation of the surface.

The property currently drains to a 15 inch culvert under Jones Avenue. In order to properly address the impact of the project on area drainage the application proposes to construct a drainage detention facility; the location being within the wetland buffer, requiring this request for Conditional Use. The need for the detention pond is to not increase flow to the city's 15 inch culvert pipe under Jones Avenue. The location of the detention pond within the wetland buffer is due to the existing topography of the parcel as well as the limited area available for the site development outside the wetland buffer. The site plan for stormwater will also include a drip apron on the street side of the proposed single family dwelling. The reasoning and justification for the impact is included in the attached submission, and detailed below.

According to the City of Portsmouth Zoning Ordinance, Article 10.1017.50 Criteria for Approval, the proposal shall comply with the following criteria:

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

The proposal is to construct a drainage detention pond within the 100' City of Portsmouth Wetland Buffer. The portion of the lot located within the 100 foot wetland buffer is impacted by a finger of wetland on the east side of the property that causes the buffer line to jut up to the north on the east side of the lot. This finger is at a point where the topography changes, and the wetland is actually within a separate subcatchment area than the site development. Given that the proposed project includes an increase in impervious surface, the increase must be mitigated and the peak flow attenuated. The proposed location is within a mowed area and therefore does not require the removal of any naturally vegetated buffer area to achieve construction goals.

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

Due to the topography of the lot, the location of the buffer and developable area, there is no area feasible to propose the detention pond while avoiding the 100' City of Portsmouth Wetland Buffer.

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

The proposal will not impact the existing wetland resource and its current functions and values. The proposed detention pond is located such that storm water runoff being collected and detained is run-off generated from the adjacent subcatchment; not the area, either existing or proposed, flowing to the wetland resource. The proposed stone drip apron will improve stormwater quality from the proposed building. The redevelopment will also involve the replacement of the existing septic system, although expanded, to current improved standards. It is our belief therefore that the project will have no adverse impact on the wetland functional values, and the surrounding properties.

4. Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals.

The area within the 100' City of Portsmouth Wetland Buffer proposed to be impacted is an existing lawn area. The owner, not as a part of this application, has undertaken tree plantings within the wetland buffer, those are buffer enhancements and they are shown on the plan. This application shows an additional 2,800 square foot area of the buffer which will be planted, in accordance with Ordinance Section 10.1017.25 Wetland Buffer Enhancement, to achieve a return to a natural vegetated state. There will be no alteration of the natural vegetated state to achieve construction goals.

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

The project represents the alternative with the least adverse impacts to areas and environments while allowing reasonable use of the property. The proposal provides stormwater mitigation in the only area feasible, due to the lot topography.

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

The owner, not as a part of this application, has undertaken tree plantings within the wetland buffer, those are buffer enhancements and they are shown on the plan. This application shows an additional 2,800 square foot area of the buffer which will be planted, in accordance with Ordinance Section 10.1017.25 Wetland Buffer Enhancement, to achieve a return to a natural vegetated state.

The following plans are included in our submission:

- Cover Sheet – This shows the Development Team, Legend, Site Location, and Site Zoning.
- Existing Conditions Plan C1 – This plan shows the current property improvements on the property.
- CUP ADU Site Plan C2 – This plan shows layout of the proposed dwelling with Zoning Information, waiver requests, setbacks and lot coverages.
- CUP Wetlands Site Plan C3 – This plan shows layout of the proposed dwelling with the proposed wetland buffer impacts and square footages.
- Erosion Control and Grading Plan C4 – This plan shows the proposed site grading and erosion control measures.
- Septic and Utility Plan C5 – This plan shows layout of the proposed septic system and site utilities.
- Detail Sheets D1 and D2 – These plans shows the construction details for the project.

Also attached is a photo of the existing home as well as a rendering of the proposed primary dwelling. This proposed primary dwelling exterior surfaces are in the process of being updated to more closely match the existing (to be converted) DADU structure.

We look forward to your review of this submission and our in person presentation at the Planning Board meeting. For the reasons stated, we respectfully request the Planning Board grant the Conditional Use Permit. Thank you for your time and attention to this proposal.

Sincerely,

John Chagnon

John R. Chagnon, PE
CC: 213 Jones Avenue Team

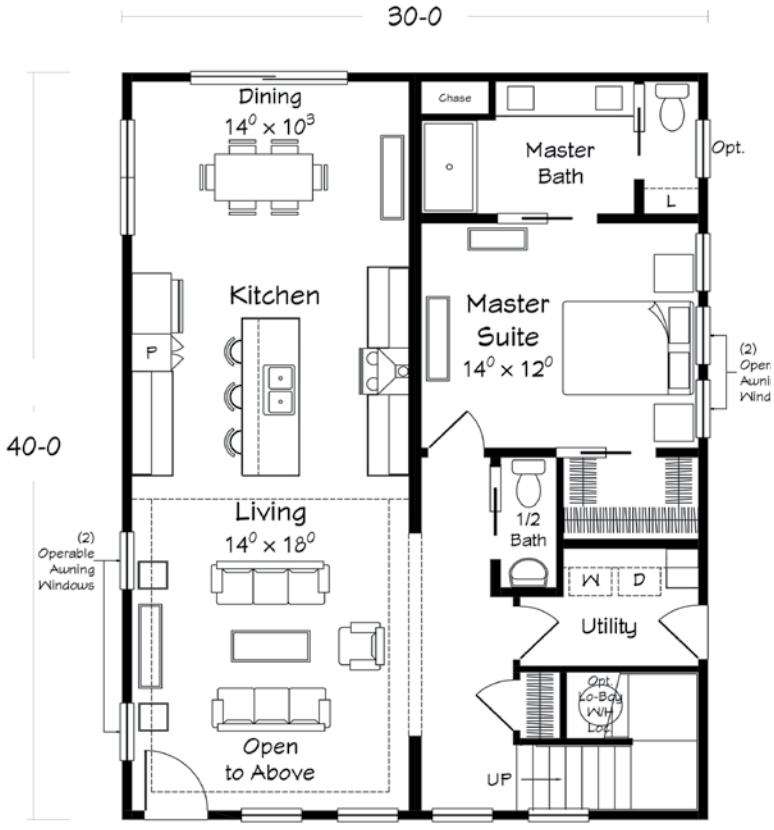

213

Modern Living Series

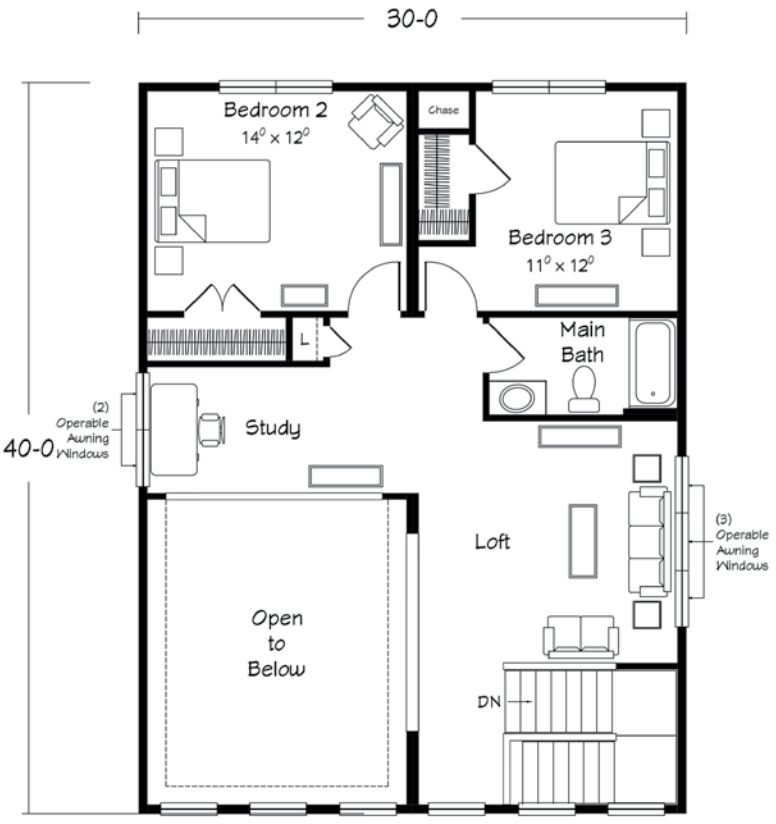
Aries Two Story

3 bedrooms and 2.5 baths • 2,148 SQ. FT.

3/12/4.5/12 sawtooth roof pitch; vaulted ceilings in Living Room. Open loft style floorplan.



First Floor



Second Floor

Artists renderings depict buildings as can be built on a typical site. Rendering may include optional or site installed features. Refer to Ritz-Craft's Modern Living Benchmark Series Specifications for standard included features.

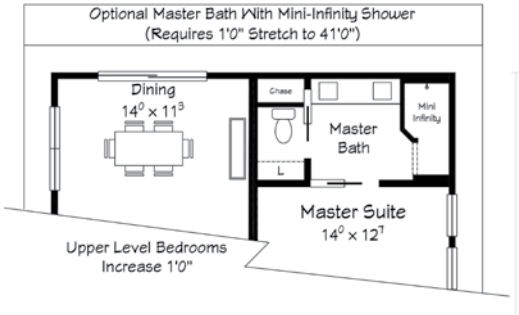
Ritz-Craft
Custom Building Simplified™

Ritz-Craft
Custom Building Simplified

Aries Two Story

- 2-Story vaulted ceiling in Living Room
  Large galley style kitchen with island/bar
- Open floorplan with kitchen open to adjacent dining and living areas
- All family areas face the rear yard

- Nicely sized bedrooms with plenty of closet space
- Large master bedroom with private bath featuring double bowl vanities, private toilet area and 60” shower base with tiled walls



Interior views may include optional features. Refer to standard specifications for included items.

DRAINAGE ANALYSIS

STICKNEY RESIDENCE
PROPOSED DADU

213 JONES AVENUE
PORTSMOUTH, NH

PREPARED FOR
DONALD STICKNEY

22 FEBRUARY 2022

AMBIT ENGINEERING, INC.
Civil Engineers & 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 531.01)

STATE OF NEW HAMPSHIRE
JOHN R. CHAGNON
No. 7651
LICENSED
PROFESSIONAL ENGINEER

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This drainage analysis examines the pre-development (existing) and post-development (proposed) stormwater drainage patterns for the Proposed DADU and new Residence at the property known as 213 Jones Avenue in Portsmouth, NH. The site is shown on the City of Portsmouth Assessor's Tax Map 222 as Lot 69. The total size of the associated drainage area is 186,102± square-feet (4.272 acres). The total size of the lot is 62,528± square-feet (1.435 acres).

The development will provide for a new driveway and single family residence. 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), with a 15% increase to comply with local ordinance.

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 222 as Lot 69. Bounding the site to the north is Jones Avenue, a metal yard, and a private residence. The site is bounded on the east by a private residence. The site is bounded to the south by City property. The site is bounded to the west by a residence. A vicinity map is included in the Appendix to this report.

The proposed development will include a driveway and residence with utilities. 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, with a 15% addition to comply with local ordinances.

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 three soil types:

Soil Symbol	Soil Name and Slopes
140B	Chatfield-Hollis-Canton complex, 0 to 8 percent slopes, rocky
299	Udorthents, smoothed
799	Urban land-Canton complex, 3 to 15 percent slopes

Chatfield-Hollis-Canton complex has a hydrological soil group rating of B, with depths to the restrictive feature of 20 to 41 inches and water table of greater than 80 inches.

Udorthents has an unknown hydrological soil group rating, assumed A from test pit data, with depths to the restrictive feature and water table of greater than 80 inches.

Urban land-Canton complex has a hydrological soil group rating of A, with depths to the restrictive feature and water table of greater than 80 inches.

Multiple test pits were conducted on the site for the proposed septic system, with an approximate infiltrative rate of 16 minutes per inch and a depth to SHWT of 17".

A copy of the custom soil survey for this project site as well as test pit data is included in the Appendix to this report.

The physical characteristics of the site consist of gently sloped (0-15%) grades that generally slope from the middle of the lot to the north and south. Elevations on the site range from 31 to 37 feet above sea level.
The existing site is developed and consists of an existing building and a driveway. Some of the contributing areas to the site contain roads and residences. There are wetlands on the property near the proposed development, though the flow from the proposed development will not flow to those wetlands.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) number 33015C0270F (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 the north half of the lot and adjacent areas, and drains to a culvert on the north edge of the lot, discharge point DP1. Subcatchment E2 contains the south half of the lot, and flows to the south edge of the lot, discharge point 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	94,535	12.0	62	5.47	12.18	DP1
E2	91,567	12.4	63	5.49	12.00	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 combined match the area of subcatchment E1, and drain to Discharge Point DP1. Subcatchment P1a drains to a detention pond. Subcatchment P2 remains identical to subcatchment 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	45,966	11.5	64	2.98	6.38	DP1
P1a	48,568	10.4	65	3.41	7.17	DP1
P2	91,567	12.4	63	5.49	12.00	DP2

The overall impervious coverage of the subcatchment areas analyzed in this report **increases** from 0.831 acres (19.44%) in the pre-development condition to 0.904 acres (21.17%) in the post-development condition. The project proposes the construction of a detention pond on site, reducing 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 shows the reduced flows as a result of the detention pond.

Table 3: Pre-Development to Post-Development Comparison

	Q2 (CFS)		Q10 (CFS)		Q50 (CFS)		
Design Point	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Description**
DP1	1.86	1.84	5.48	5.48	12.18	12.06	N edge culvert
DP2	1.94	1.94	5.49	5.49	12.00	12.00	S edge wetland

Note that all post-development peak discharges are either equivalent or less than the existing peak discharges.

OFFSITE INFRASTRUCTURE CAPACITY

The discharge point downstream of the proposed development is an existing 15” culvert beneath Jones Avenue. The proposed peak flows draining to that culvert are at or below existing peak flows, therefore no impact to City infrastructure is anticipated.

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
- Stabilized construction entrance 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 impervious walkways.

CONCLUSION

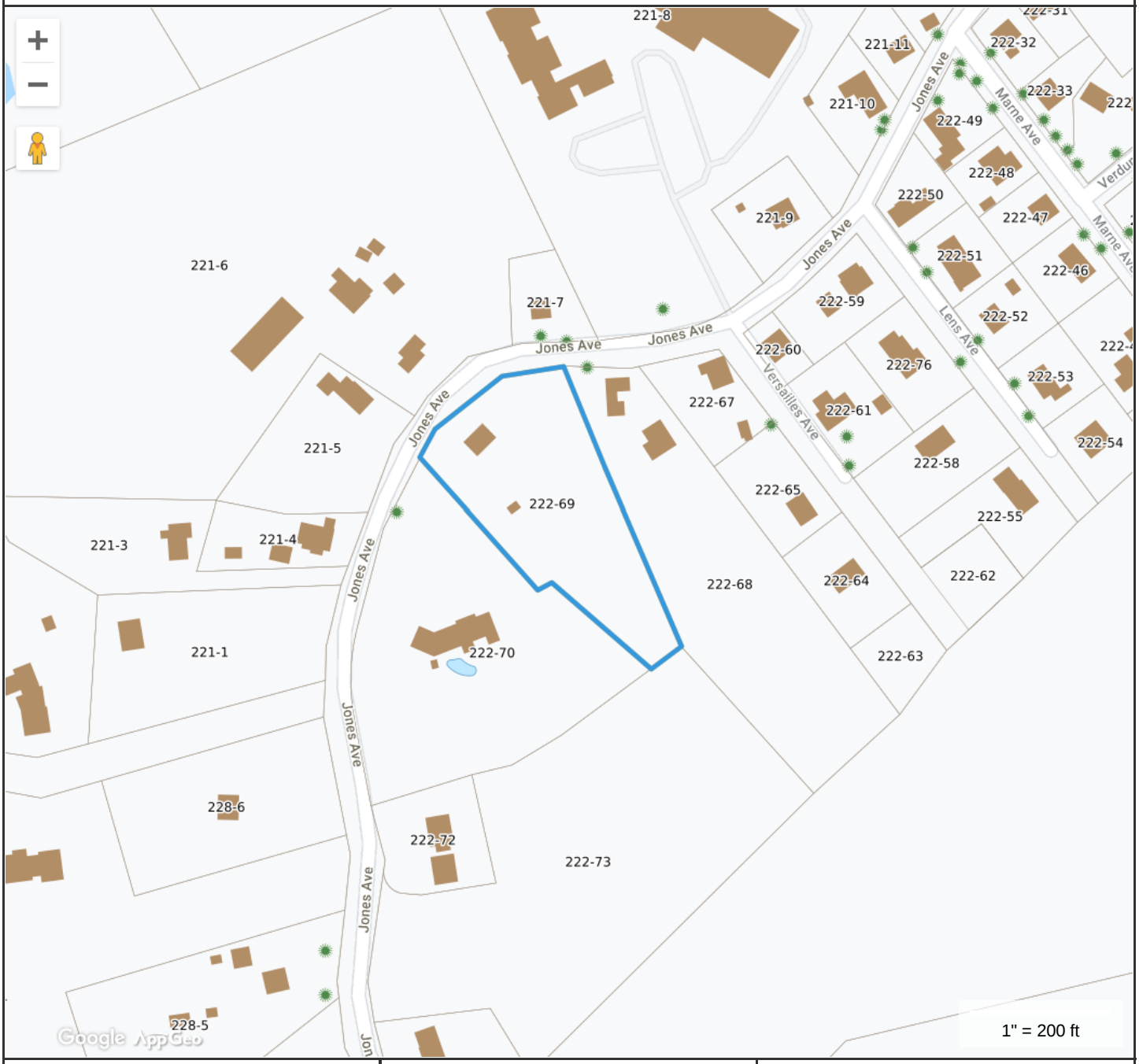
The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. With the design of the detention pond, the post-development runoff rates are reduced to be equivalent or below the pre-development runoff rates. Erosion and sediment control practices 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.

APPENDIX A

VICINITY (TAX) MAP



Property Information

Property ID	0222-0069-0000
Location	213 JONES AVE
Owner	STICKNEY DONALD LOWELL III

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.

APPENDIX B

TABLES, CHARTS, ETC.

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	70.759 degrees West
Latitude	43.060 degrees North
Elevation	0 feet
Date/Time	Wed, 09 Feb 2022 11:20:24 -0500

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	0.82	1.04	**1yr**	0.70	0.98	1.21	1.56	2.03	2.66	2.93	**1yr**	2.36	2.82	3.23	3.95	4.56	**1yr**
2yr	0.32	0.50	0.62	0.81	1.02	1.30	**2yr**	0.88	1.18	1.52	1.94	2.49	3.22	3.58	**2yr**	2.85	3.44	3.95	4.69	5.34	**2yr**
5yr	0.37	0.58	0.73	0.98	1.25	1.61	**5yr**	1.08	1.47	1.89	2.43	3.14	4.07	4.59	**5yr**	3.61	4.41	5.05	5.95	6.72	**5yr**
10yr	0.41	0.65	0.82	1.12	1.45	1.89	**10yr**	1.25	1.73	2.23	2.90	3.76	4.88	5.54	**10yr**	4.32	5.33	6.10	7.13	7.99	**10yr**
25yr	0.48	0.76	0.97	1.34	1.78	2.34	**25yr**	1.53	2.15	2.78	3.63	4.75	6.18	7.12	**25yr**	5.47	6.84	7.83	9.05	10.07	**25yr**
50yr	0.54	0.86	1.10	1.54	2.08	2.76	**50yr**	1.79	2.53	3.30	4.33	5.67	7.40	8.60	**50yr**	6.55	8.27	9.45	10.84	12.00	**50yr**
100yr	0.60	0.97	1.25	1.77	2.42	3.26	**100yr**	2.09	2.98	3.91	5.17	6.78	8.87	10.40	**100yr**	7.85	10.00	11.42	13.00	14.31	**100yr**
200yr	0.68	1.10	1.43	2.05	2.83	3.84	**200yr**	2.44	3.52	4.63	6.14	8.10	10.63	12.58	**200yr**	9.41	12.09	13.80	15.59	17.06	**200yr**
500yr	0.80	1.32	1.72	2.49	3.49	4.78	**500yr**	3.01	4.39	5.78	7.73	10.24	13.51	16.18	**500yr**	11.96	15.56	17.74	19.84	21.54	**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	0.72	0.88	**1yr**	0.63	0.86	0.92	1.33	1.68	2.24	2.50	**1yr**	1.99	2.41	2.87	3.19	3.91	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.37	1.82	2.33	3.07	3.46	**2yr**	2.71	3.33	3.83	4.56	5.09	**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	3.80	4.20	**5yr**	3.36	4.04	4.73	5.55	6.26	**5yr**
10yr	0.39	0.59	0.74	1.03	1.33	1.60	**10yr**	1.15	1.57	1.80	2.39	3.05	4.38	4.88	**10yr**	3.88	4.69	5.46	6.43	7.22	**10yr**
25yr	0.44	0.67	0.83	1.19	1.56	1.90	**25yr**	1.35	1.86	2.10	2.75	3.53	4.74	5.91	**25yr**	4.20	5.69	6.68	7.83	8.71	**25yr**
50yr	0.48	0.73	0.91	1.31	1.77	2.17	**50yr**	1.53	2.12	2.35	3.07	3.92	5.36	6.83	**50yr**	4.74	6.57	7.77	9.09	10.06	**50yr**
100yr	0.54	0.81	1.02	1.47	2.01	2.47	**100yr**	1.74	2.41	2.63	3.41	4.34	6.03	7.89	**100yr**	5.34	7.58	9.03	10.56	11.61	**100yr**
200yr	0.59	0.89	1.13	1.64	2.28	2.82	**200yr**	1.97	2.75	2.94	3.77	4.78	6.77	9.11	**200yr**	5.99	8.76	10.50	12.30	13.43	**200yr**
500yr	0.69	1.02	1.32	1.91	2.72	3.36	**500yr**	2.35	3.29	3.41	4.30	5.44	7.88	11.01	**500yr**	6.97	10.58	12.81	15.06	16.27	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.29	0.44	0.54	0.72	0.89	1.08	**1yr**	0.77	1.06	1.26	1.74	2.20	2.99	3.17	**1yr**	2.64	3.05	3.59	4.38	5.05	**1yr**
2yr	0.34	0.52	0.64	0.87	1.07	1.27	**2yr**	0.92	1.24	1.48	1.96	2.51	3.43	3.71	**2yr**	3.03	3.57	4.10	4.85	5.64	**2yr**
5yr	0.40	0.62	0.77	1.05	1.34	1.62	**5yr**	1.15	1.59	1.88	2.54	3.25	4.35	4.97	**5yr**	3.85	4.78	5.39	6.38	7.17	**5yr**
10yr	0.47	0.72	0.89	1.25	1.61	1.98	**10yr**	1.39	1.93	2.28	3.11	3.96	5.35	6.21	**10yr**	4.73	5.97	6.83	7.85	8.76	**10yr**
25yr	0.58	0.88	1.09	1.56	2.05	2.57	**25yr**	1.77	2.52	2.96	4.07	5.15	7.78	8.35	**25yr**	6.88	8.03	9.15	10.35	11.42	**25yr**
50yr	0.67	1.02	1.27	1.83	2.47	3.13	**50yr**	2.13	3.06	3.60	5.00	6.33	9.74	10.46	**50yr**	8.62	10.06	11.44	12.74	13.97	**50yr**
100yr	0.79	1.20	1.50	2.16	2.97	3.82	**100yr**	2.56	3.73	4.38	6.16	7.77	12.18	13.10	**100yr**	10.78	12.60	14.30	15.71	17.10	**100yr**
200yr	0.93	1.39	1.77	2.56	3.57	4.66	**200yr**	3.08	4.56	5.34	7.59	9.55	15.28	16.43	**200yr**	13.52	15.80	17.90	19.36	20.93	**200yr**
500yr	1.15	1.71	2.20	3.20	4.55	6.05	**500yr**	3.92	5.92	6.94	10.03	12.57	20.63	22.17	**500yr**	18.26	21.32	24.09	25.52	27.35	**500yr**

Powered by ACIS Northeast Regional Climate Center

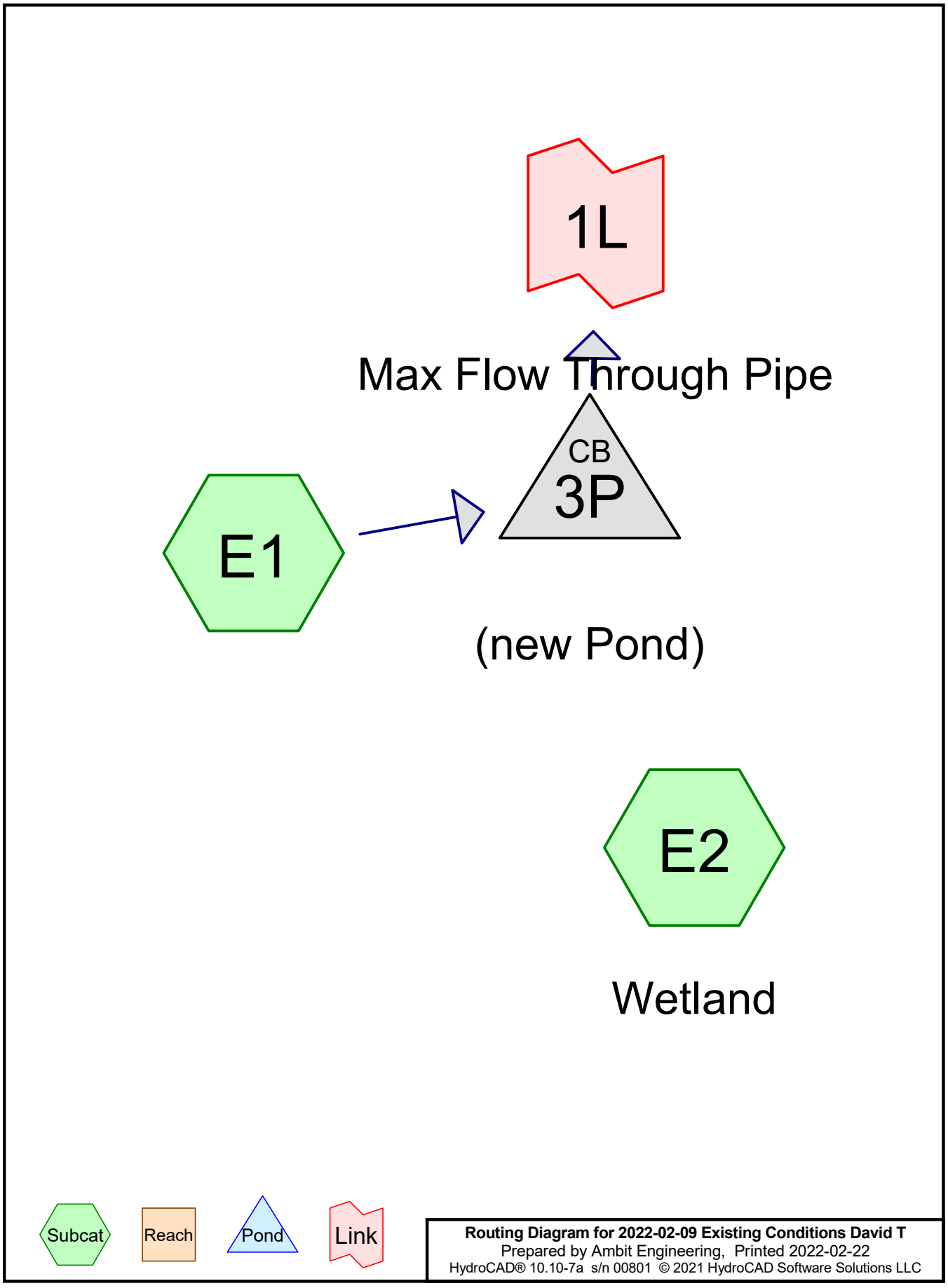
RIPRAP SIZING (Isbash)	(100-yr, 24-hour storm)	
Max height in channel	0.34	ft
width of channel	10	ft
side slopes	3	:1
Cross sectional area	3.75	sf
Q	7.24	cfs
V	1.93	ft/s
Gs	2.65	
g	32.20	ft/s^2
C	1.2	
Bottom half of equation	153.01	
D50	0.29	in

$$D_{50} = \frac{V_a^2}{2gC^2(G_s - 1)}$$

APPENDIX C

HYDROCAD DRAINAGE

ANALYSIS CALCULATIONS



Routing Diagram for 2022-02-09 Existing Conditions David T
Prepared by Ambit Engineering, Printed 2022-02-22

Project Notes

Defined 5 rainfall events from output (34) IDF

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type II 24-hr		Default	24.00	1	3.70	2
2	10-yr	Type II 24-hr		Default	24.00	1	5.61	2
3	25-yr	Type II 24-hr		Default	24.00	1	7.11	2
4	50-yr	Type II 24-hr		Default	24.00	1	8.51	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.746	54	1/2 acre lots, 25% imp, HSG A (E1, E2)
0.981	70	1/2 acre lots, 25% imp, HSG B (E1, E2)
0.333	39	>75% Grass cover, Good, HSG A (E1)
1.217	61	>75% Grass cover, Good, HSG B (E1, E2)
0.013	96	Gravel surface, HSG B (E2)
0.171	98	Paved parking, HSG A (E1)
0.118	98	Paved parking, HSG B (E1)
0.003	98	Roofs, HSG A (E1)
0.106	98	Roofs, HSG B (E1, E2)
0.583	55	Woods, Good, HSG B (E1, E2)
4.272	**63**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
1.254	HSG A	E1, E2
3.019	HSG B	E1, E2
0.000	HSG C	
0.000	HSG D	
0.000	Other	
4.272		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.746	0.981	0.000	0.000	0.000	1.727	1/2 acre lots, 25% imp	E1, E2
0.333	1.217	0.000	0.000	0.000	1.550	>75% Grass cover, Good	E1, E2
0.000	0.013	0.000	0.000	0.000	0.013	Gravel surface	E2
0.171	0.118	0.000	0.000	0.000	0.289	Paved parking	E1
0.003	0.106	0.000	0.000	0.000	0.109	Roofs	E1, E2
0.000	0.583	0.000	0.000	0.000	0.583	Woods, Good	E1, E2
1.254	**3.019**	**0.000**	**0.000**	**0.000**	**4.272**	**TOTAL AREA**	

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	3P	30.41	30.32	43.5	0.0021	0.013	0.0	15.0	0.0

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: Runoff Area=94,535 sf 22.15% Impervious Runoff Depth>0.62"
Flow Length=301' Slope=0.0280 '/' Tc=12.0 min CN=62 Runoff=1.86 cfs 0.113 af

Subcatchment E2: Wetland Runoff Area=91,567 sf 16.64% Impervious Runoff Depth>0.67"
Flow Length=326' Slope=0.0280 '/' Tc=12.4 min CN=63 Runoff=1.94 cfs 0.117 af

Pond 3P: (new Pond) Peak Elev=31.33' Inflow=1.86 cfs 0.113 af
15.0" Round Culvert n=0.013 L=43.5' S=0.0021 '/' Outflow=1.86 cfs 0.113 af

Link 1L: Max Flow Through Pipe below 1,000.00 cfs Inflow=1.86 cfs 0.113 af
Primary=1.86 cfs 0.113 af Secondary=0.00 cfs 0.000 af

Total Runoff Area = 4.272 ac Runoff Volume = 0.229 af Average Runoff Depth = 0.64"
80.56% Pervious = 3.442 ac 19.44% Impervious = 0.831 ac

Summary for Subcatchment E1:

Runoff = 1.86 cfs @ 12.06 hrs, Volume= 0.113 af, Depth> 0.62"
Routed to Pond 3P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
19,255	54	1/2 acre lots, 25% imp, HSG A
3,107	70	1/2 acre lots, 25% imp, HSG B
14,517	39	>75% Grass cover, Good, HSG A
40,434	61	>75% Grass cover, Good, HSG B
128	98	Roofs, HSG A
2,612	98	Roofs, HSG B
7,461	98	Paved parking, HSG A
5,146	98	Paved parking, HSG B
1,875	55	Woods, Good, HSG B
94,535	62	Weighted Average
73,598		77.85% Pervious Area
20,938		22.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	301	0.0280	0.42		**Lag/CN Method,**

Summary for Subcatchment E2: Wetland

Runoff = 1.94 cfs @ 12.06 hrs, Volume= 0.117 af, Depth> 0.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
13,242	54	1/2 acre lots, 25% imp, HSG A
39,615	70	1/2 acre lots, 25% imp, HSG B
12,573	61	>75% Grass cover, Good, HSG B
2,027	98	Roofs, HSG B
570	96	Gravel surface, HSG B
23,540	55	Woods, Good, HSG B
91,567	63	Weighted Average
76,326		83.36% Pervious Area
15,241		16.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	326	0.0280	0.44		**Lag/CN Method,**

Summary for Pond 3P: (new Pond)

[57] Hint: Peaked at 31.33' (Flood elevation advised)

Inflow Area = 2.170 ac, 22.15% Impervious, Inflow Depth > 0.62" for 2-yr event
Inflow = 1.86 cfs @ 12.06 hrs, Volume= 0.113 af
Outflow = 1.86 cfs @ 12.06 hrs, Volume= 0.113 af, Atten= 0%, Lag= 0.0 min
Primary = 1.86 cfs @ 12.06 hrs, Volume= 0.113 af
Routed to Link 1L : Max Flow Through Pipe

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 31.33' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	30.41'	**15.0" Round Culvert** L= 43.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 30.41' / 30.32' S= 0.0021 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.82 cfs @ 12.06 hrs HW=31.31' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 1.82 cfs @ 2.67 fps)

Summary for Link 1L: Max Flow Through Pipe

Inflow Area = 2.170 ac, 22.15% Impervious, Inflow Depth > 0.62" for 2-yr event
Inflow = 1.86 cfs @ 12.06 hrs, Volume= 0.113 af
Primary = 1.86 cfs @ 12.06 hrs, Volume= 0.113 af, Atten= 0%, Lag= 0.0 min
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Primary outflow = Inflow below 1,000.00 cfs, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: Runoff Area=94,535 sf 22.15% Impervious Runoff Depth>1.65"
Flow Length=301' Slope=0.0280 '/' Tc=12.0 min CN=62 Runoff=5.47 cfs 0.298 af

Subcatchment E2: Wetland Runoff Area=91,567 sf 16.64% Impervious Runoff Depth>1.72"
Flow Length=326' Slope=0.0280 '/' Tc=12.4 min CN=63 Runoff=5.49 cfs 0.301 af

Pond 3P: (new Pond) Peak Elev=32.47' Inflow=5.47 cfs 0.298 af
15.0" Round Culvert n=0.013 L=43.5' S=0.0021 '/' Outflow=5.47 cfs 0.298 af

Link 1L: Max Flow Through Pipe below 1,000.00 cfs Inflow=5.47 cfs 0.298 af
Primary=5.47 cfs 0.298 af Secondary=0.00 cfs 0.000 af

Total Runoff Area = 4.272 ac Runoff Volume = 0.599 af Average Runoff Depth = 1.68"
80.56% Pervious = 3.442 ac 19.44% Impervious = 0.831 ac

Summary for Subcatchment E1:

Runoff = 5.47 cfs @ 12.05 hrs, Volume= 0.298 af, Depth> 1.65"
Routed to Pond 3P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.61"

Area (sf)	CN	Description
19,255	54	1/2 acre lots, 25% imp, HSG A
3,107	70	1/2 acre lots, 25% imp, HSG B
14,517	39	>75% Grass cover, Good, HSG A
40,434	61	>75% Grass cover, Good, HSG B
128	98	Roofs, HSG A
2,612	98	Roofs, HSG B
7,461	98	Paved parking, HSG A
5,146	98	Paved parking, HSG B
1,875	55	Woods, Good, HSG B
94,535	62	Weighted Average
73,598		77.85% Pervious Area
20,938		22.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	301	0.0280	0.42		**Lag/CN Method,**

Summary for Subcatchment E2: Wetland

Runoff = 5.49 cfs @ 12.05 hrs, Volume= 0.301 af, Depth> 1.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.61"

Area (sf)	CN	Description
13,242	54	1/2 acre lots, 25% imp, HSG A
39,615	70	1/2 acre lots, 25% imp, HSG B
12,573	61	>75% Grass cover, Good, HSG B
2,027	98	Roofs, HSG B
570	96	Gravel surface, HSG B
23,540	55	Woods, Good, HSG B
91,567	63	Weighted Average
76,326		83.36% Pervious Area
15,241		16.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	326	0.0280	0.44		**Lag/CN Method,**

Summary for Pond 3P: (new Pond)

[57] Hint: Peaked at 32.47' (Flood elevation advised)

Inflow Area = 2.170 ac, 22.15% Impervious, Inflow Depth > 1.65" for 10-yr event
Inflow = 5.47 cfs @ 12.05 hrs, Volume= 0.298 af
Outflow = 5.47 cfs @ 12.05 hrs, Volume= 0.298 af, Atten= 0%, Lag= 0.0 min
Primary = 5.47 cfs @ 12.05 hrs, Volume= 0.298 af
Routed to Link 1L : Max Flow Through Pipe

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 32.47' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	30.41'	**15.0" Round Culvert** L= 43.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 30.41' / 30.32' S= 0.0021 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.46 cfs @ 12.05 hrs HW=32.46' (Free Discharge)
1=Culvert (Barrel Controls 5.46 cfs @ 4.45 fps)

Summary for Link 1L: Max Flow Through Pipe

Inflow Area = 2.170 ac, 22.15% Impervious, Inflow Depth > 1.65" for 10-yr event
Inflow = 5.47 cfs @ 12.05 hrs, Volume= 0.298 af
Primary = 5.47 cfs @ 12.05 hrs, Volume= 0.298 af, Atten= 0%, Lag= 0.0 min
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Primary outflow = Inflow below 1,000.00 cfs, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: Runoff Area=94,535 sf 22.15% Impervious Runoff Depth>2.62"
Flow Length=301' Slope=0.0280 '/' Tc=12.0 min CN=62 Runoff=8.82 cfs 0.474 af

Subcatchment E2: Wetland Runoff Area=91,567 sf 16.64% Impervious Runoff Depth>2.72"
Flow Length=326' Slope=0.0280 '/' Tc=12.4 min CN=63 Runoff=8.74 cfs 0.476 af

Pond 3P: (new Pond) Peak Elev=34.61' Inflow=8.82 cfs 0.474 af
15.0" Round Culvert n=0.013 L=43.5' S=0.0021 '/' Outflow=8.82 cfs 0.474 af

Link 1L: Max Flow Through Pipe below 1,000.00 cfs Inflow=8.82 cfs 0.474 af
Primary=8.82 cfs 0.474 af Secondary=0.00 cfs 0.000 af

Total Runoff Area = 4.272 ac Runoff Volume = 0.950 af Average Runoff Depth = 2.67"
80.56% Pervious = 3.442 ac 19.44% Impervious = 0.831 ac

Summary for Subcatchment E1:

Runoff = 8.82 cfs @ 12.04 hrs, Volume= 0.474 af, Depth> 2.62"
Routed to Pond 3P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.11"

Area (sf)	CN	Description
19,255	54	1/2 acre lots, 25% imp, HSG A
3,107	70	1/2 acre lots, 25% imp, HSG B
14,517	39	>75% Grass cover, Good, HSG A
40,434	61	>75% Grass cover, Good, HSG B
128	98	Roofs, HSG A
2,612	98	Roofs, HSG B
7,461	98	Paved parking, HSG A
5,146	98	Paved parking, HSG B
1,875	55	Woods, Good, HSG B
94,535	62	Weighted Average
73,598		77.85% Pervious Area
20,938		22.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	301	0.0280	0.42		**Lag/CN Method,**

Summary for Subcatchment E2: Wetland

Runoff = 8.74 cfs @ 12.05 hrs, Volume= 0.476 af, Depth> 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.11"

Area (sf)	CN	Description
13,242	54	1/2 acre lots, 25% imp, HSG A
39,615	70	1/2 acre lots, 25% imp, HSG B
12,573	61	>75% Grass cover, Good, HSG B
2,027	98	Roofs, HSG B
570	96	Gravel surface, HSG B
23,540	55	Woods, Good, HSG B
91,567	63	Weighted Average
76,326		83.36% Pervious Area
15,241		16.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	326	0.0280	0.44		**Lag/CN Method,**

Summary for Pond 3P: (new Pond)

[57] Hint: Peaked at 34.61' (Flood elevation advised)

Inflow Area = 2.170 ac, 22.15% Impervious, Inflow Depth > 2.62" for 25-yr event
Inflow = 8.82 cfs @ 12.04 hrs, Volume= 0.474 af
Outflow = 8.82 cfs @ 12.04 hrs, Volume= 0.474 af, Atten= 0%, Lag= 0.0 min
Primary = 8.82 cfs @ 12.04 hrs, Volume= 0.474 af
Routed to Link 1L : Max Flow Through Pipe

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 34.61' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	30.41'	**15.0" Round Culvert** L= 43.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 30.41' / 30.32' S= 0.0021 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=8.73 cfs @ 12.04 hrs HW=34.54' (Free Discharge)
1=Culvert (Inlet Controls 8.73 cfs @ 7.11 fps)

Summary for Link 1L: Max Flow Through Pipe

Inflow Area = 2.170 ac, 22.15% Impervious, Inflow Depth > 2.62" for 25-yr event
Inflow = 8.82 cfs @ 12.04 hrs, Volume= 0.474 af
Primary = 8.82 cfs @ 12.04 hrs, Volume= 0.474 af, Atten= 0%, Lag= 0.0 min
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Primary outflow = Inflow below 1,000.00 cfs, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: Runoff Area=94,535 sf 22.15% Impervious Runoff Depth>3.62"
Flow Length=301' Slope=0.0280 '/' Tc=12.0 min CN=62 Runoff=12.18 cfs 0.655 af

Subcatchment E2: Wetland Runoff Area=91,567 sf 16.64% Impervious Runoff Depth>3.73"
Flow Length=326' Slope=0.0280 '/' Tc=12.4 min CN=63 Runoff=12.00 cfs 0.654 af

Pond 3P: (new Pond) Peak Elev=37.85' Inflow=12.18 cfs 0.655 af
15.0" Round Culvert n=0.013 L=43.5' S=0.0021 '/' Outflow=12.18 cfs 0.655 af

Link 1L: Max Flow Through Pipe below 1,000.00 cfs Inflow=12.18 cfs 0.655 af
Primary=12.18 cfs 0.655 af Secondary=0.00 cfs 0.000 af

Total Runoff Area = 4.272 ac Runoff Volume = 1.309 af Average Runoff Depth = 3.68"
80.56% Pervious = 3.442 ac 19.44% Impervious = 0.831 ac

Summary for Subcatchment E1:

Runoff = 12.18 cfs @ 12.04 hrs, Volume= 0.655 af, Depth> 3.62"
Routed to Pond 3P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.51"

Area (sf)	CN	Description
19,255	54	1/2 acre lots, 25% imp, HSG A
3,107	70	1/2 acre lots, 25% imp, HSG B
14,517	39	>75% Grass cover, Good, HSG A
40,434	61	>75% Grass cover, Good, HSG B
128	98	Roofs, HSG A
2,612	98	Roofs, HSG B
7,461	98	Paved parking, HSG A
5,146	98	Paved parking, HSG B
1,875	55	Woods, Good, HSG B
94,535	62	Weighted Average
73,598		77.85% Pervious Area
20,938		22.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	301	0.0280	0.42		**Lag/CN Method,**

Summary for Subcatchment E2: Wetland

Runoff = 12.00 cfs @ 12.05 hrs, Volume= 0.654 af, Depth> 3.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.51"

Area (sf)	CN	Description
13,242	54	1/2 acre lots, 25% imp, HSG A
39,615	70	1/2 acre lots, 25% imp, HSG B
12,573	61	>75% Grass cover, Good, HSG B
2,027	98	Roofs, HSG B
570	96	Gravel surface, HSG B
23,540	55	Woods, Good, HSG B
91,567	63	Weighted Average
76,326		83.36% Pervious Area
15,241		16.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	326	0.0280	0.44		**Lag/CN Method,**

Summary for Pond 3P: (new Pond)

[57] Hint: Peaked at 37.85' (Flood elevation advised)

Inflow Area = 2.170 ac, 22.15% Impervious, Inflow Depth > 3.62" for 50-yr event
Inflow = 12.18 cfs @ 12.04 hrs, Volume= 0.655 af
Outflow = 12.18 cfs @ 12.04 hrs, Volume= 0.655 af, Atten= 0%, Lag= 0.0 min
Primary = 12.18 cfs @ 12.04 hrs, Volume= 0.655 af
Routed to Link 1L : Max Flow Through Pipe

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 37.85' @ 12.04 hrs

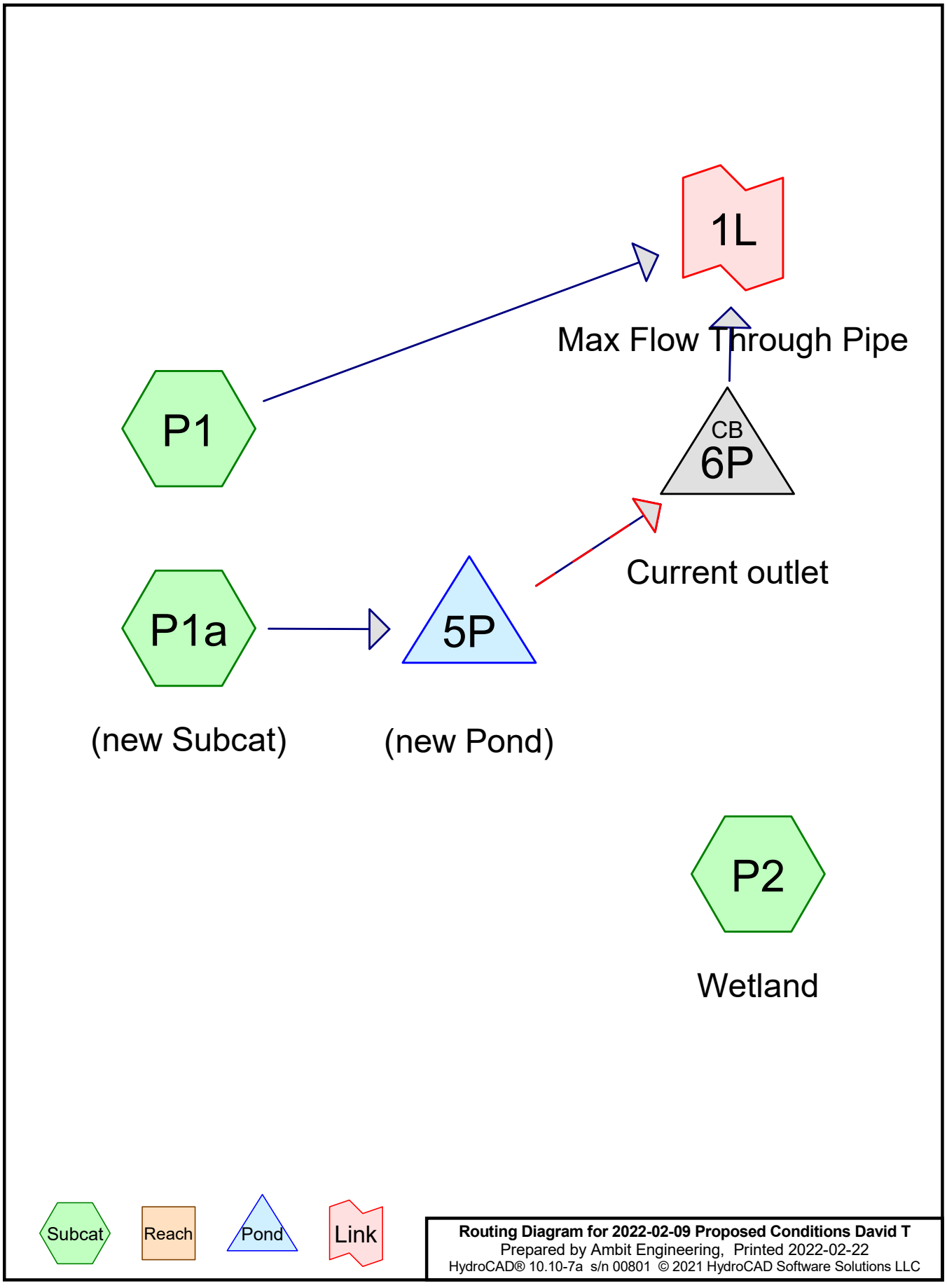
Device	Routing	Invert	Outlet Devices
#1	Primary	30.41'	**15.0" Round Culvert** L= 43.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 30.41' / 30.32' S= 0.0021 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=12.01 cfs @ 12.04 hrs HW=37.66' (Free Discharge)
1=Culvert (Inlet Controls 12.01 cfs @ 9.79 fps)

Summary for Link 1L: Max Flow Through Pipe

Inflow Area = 2.170 ac, 22.15% Impervious, Inflow Depth > 3.62" for 50-yr event
Inflow = 12.18 cfs @ 12.04 hrs, Volume= 0.655 af
Primary = 12.18 cfs @ 12.04 hrs, Volume= 0.655 af, Atten= 0%, Lag= 0.0 min
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Primary outflow = Inflow below 1,000.00 cfs, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Routing Diagram for 2022-02-09 Proposed Conditions David T
Prepared by Ambit Engineering, Printed 2022-02-22

Project Notes

Defined 5 rainfall events from output (34) IDF

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type II 24-hr		Default	24.00	1	3.70	2
2	10-yr	Type II 24-hr		Default	24.00	1	5.61	2
3	25-yr	Type II 24-hr		Default	24.00	1	7.11	2
4	50-yr	Type II 24-hr		Default	24.00	1	8.51	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.746	54	1/2 acre lots, 25% imp, HSG A (P1, P1a, P2)
0.981	70	1/2 acre lots, 25% imp, HSG B (P1, P1a, P2)
0.263	39	>75% Grass cover, Good, HSG A (P1)
1.213	61	>75% Grass cover, Good, HSG B (P1, P1a, P2)
0.013	96	Gravel surface, HSG B (P2)
0.197	98	Paved parking, HSG A (P1)
0.118	98	Paved parking, HSG B (P1, P1a)
0.047	98	Roofs, HSG A (P1)
0.110	98	Roofs, HSG B (P1, P1a, P2)
0.583	55	Woods, Good, HSG B (P1a, P2)
4.272	**64**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
1.253	HSG A	P1, P1a, P2
3.019	HSG B	P1, P1a, P2
0.000	HSG C	
0.000	HSG D	
0.000	Other	
4.272		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.746	0.981	0.000	0.000	0.000	1.727	1/2 acre lots, 25% imp	P1, P1a, P2
0.263	1.213	0.000	0.000	0.000	1.476	>75% Grass cover, Good	P1, P1a, P2
0.000	0.013	0.000	0.000	0.000	0.013	Gravel surface	P2
0.197	0.118	0.000	0.000	0.000	0.315	Paved parking	P1, P1a
0.047	0.110	0.000	0.000	0.000	0.157	Roofs	P1, P1a, P2
0.000	0.583	0.000	0.000	0.000	0.583	Woods, Good	P1a, P2
1.253	**3.019**	**0.000**	**0.000**	**0.000**	**4.272**	**TOTAL AREA**	

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	5P	30.88	30.50	75.0	0.0051	0.013	0.0	12.0	0.0
2	6P	30.41	30.32	43.5	0.0021	0.013	0.0	15.0	0.0

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P1: Runoff Area=45,966 sf 36.00% Impervious Runoff Depth>0.81"
Flow Length=307' Slope=0.0280 '/' Tc=11.5 min CN=64 Runoff=1.10 cfs 0.071 af

Subcatchment P1a: (new Subcat) Runoff Area=48,568 sf 15.67% Impervious Runoff Depth>0.86"
Flow Length=301' Slope=0.0317 '/' Tc=10.4 min CN=65 Runoff=1.31 cfs 0.080 af

Subcatchment P2: Wetland Runoff Area=91,567 sf 16.64% Impervious Runoff Depth>0.76"
Flow Length=326' Slope=0.0280 '/' Tc=12.4 min CN=63 Runoff=1.94 cfs 0.132 af

Pond 5P: (new Pond) Peak Elev=31.95' Storage=0.012 af Inflow=1.31 cfs 0.080 af
Primary=0.87 cfs 0.078 af Secondary=0.00 cfs 0.000 af Outflow=0.87 cfs 0.078 af

Pond 6P: Current outlet Peak Elev=31.01' Inflow=0.87 cfs 0.078 af
15.0" Round Culvert n=0.013 L=43.5' S=0.0021 '/' Outflow=0.87 cfs 0.078 af

Link 1L: Max Flow Through Pipe below 1,000.00 cfs Inflow=1.84 cfs 0.149 af
Primary=1.84 cfs 0.149 af Secondary=0.00 cfs 0.000 af

Total Runoff Area = 4.272 ac Runoff Volume = 0.283 af Average Runoff Depth = 0.79"
78.83% Pervious = 3.368 ac 21.17% Impervious = 0.904 ac

Summary for Subcatchment P1:

Runoff = 1.10 cfs @ 12.05 hrs, Volume= 0.071 af, Depth> 0.81"
Routed to Link 1L : Max Flow Through Pipe

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
11,454	39	>75% Grass cover, Good, HSG A
7,192	61	>75% Grass cover, Good, HSG B
14,346	54	1/2 acre lots, 25% imp, HSG A
14	70	1/2 acre lots, 25% imp, HSG B
8,594	98	Paved parking, HSG A
1,368	98	Paved parking, HSG B
2,057	98	Roofs, HSG A
941	98	Roofs, HSG B
45,966	64	Weighted Average
29,416		64.00% Pervious Area
16,550		36.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	307	0.0280	0.44		**Lag/CN Method,**

Summary for Subcatchment P1a: (new Subcat)

Runoff = 1.31 cfs @ 12.04 hrs, Volume= 0.080 af, Depth> 0.86"
Routed to Pond 5P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
33,083	61	>75% Grass cover, Good, HSG B
4,909	54	1/2 acre lots, 25% imp, HSG A
3,093	70	1/2 acre lots, 25% imp, HSG B
3,778	98	Paved parking, HSG B
1,830	98	Roofs, HSG B
1,875	55	Woods, Good, HSG B
48,568	65	Weighted Average
40,960		84.33% Pervious Area
7,609		15.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	301	0.0317	0.48		**Lag/CN Method,**

Summary for Subcatchment P2: Wetland

Runoff = 1.94 cfs @ 12.06 hrs, Volume= 0.132 af, Depth> 0.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.70"

Area (sf)	CN	Description
13,242	54	1/2 acre lots, 25% imp, HSG A
39,615	70	1/2 acre lots, 25% imp, HSG B
12,573	61	>75% Grass cover, Good, HSG B
2,027	98	Roofs, HSG B
570	96	Gravel surface, HSG B
23,540	55	Woods, Good, HSG B
91,567	63	Weighted Average
76,326		83.36% Pervious Area
15,241		16.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	326	0.0280	0.44		**Lag/CN Method,**

Summary for Pond 5P: (new Pond)

Inflow Area = 1.115 ac, 15.67% Impervious, Inflow Depth > 0.86" for 2-yr event
Inflow = 1.31 cfs @ 12.04 hrs, Volume= 0.080 af
Outflow = 0.87 cfs @ 12.13 hrs, Volume= 0.078 af, Atten= 34%, Lag= 5.4 min
Primary = 0.87 cfs @ 12.13 hrs, Volume= 0.078 af
Routed to Pond 6P : Current outlet
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 6P : Current outlet

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 31.95' @ 12.13 hrs Surf.Area= 0.037 ac Storage= 0.012 af

Plug-Flow detention time= 18.8 min calculated for 0.078 af (98% of inflow)
Center-of-Mass det. time= 11.4 min (892.8 - 881.4)

Volume	Invert	Avail.Storage	Storage Description
#1	31.60'	0.057 af	**46.00'W x 31.00'L x 1.40'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Secondary	32.80'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	30.88'	**12.0" Round Culvert** L= 75.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 30.88' / 30.50' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	31.60'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.40 Width (feet) 1.30 1.30

Primary OutFlow Max=0.86 cfs @ 12.13 hrs HW=31.94' (Free Discharge)
└**2=Culvert** (Passes 0.86 cfs of 2.38 cfs potential flow)
└**3=Custom Weir/Orifice** (Weir Controls 0.86 cfs @ 1.92 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=31.60' (Free Discharge)
└**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Current outlet

[57] Hint: Peaked at 31.01' (Flood elevation advised)
[79] Warning: Submerged Pond 5P Primary device # 2 INLET by 0.13'

Inflow Area = 1.115 ac, 15.67% Impervious, Inflow Depth > 0.84" for 2-yr event
Inflow = 0.87 cfs @ 12.13 hrs, Volume= 0.078 af
Outflow = 0.87 cfs @ 12.13 hrs, Volume= 0.078 af, Atten= 0%, Lag= 0.0 min
Primary = 0.87 cfs @ 12.13 hrs, Volume= 0.078 af
Routed to Link 1L : Max Flow Through Pipe

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 31.01' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	30.41'	**15.0" Round Culvert** L= 43.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 30.41' / 30.32' S= 0.0021 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.86 cfs @ 12.13 hrs HW=31.01' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.86 cfs @ 2.17 fps)

Summary for Link 1L: Max Flow Through Pipe

Inflow Area = 2.170 ac, 25.56% Impervious, Inflow Depth > 0.83" for 2-yr event
Inflow = 1.84 cfs @ 12.08 hrs, Volume= 0.149 af
Primary = 1.84 cfs @ 12.08 hrs, Volume= 0.149 af, Atten= 0%, Lag= 0.0 min
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Primary outflow = Inflow below 1,000.00 cfs, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P1: Runoff Area=45,966 sf 36.00% Impervious Runoff Depth>1.98"
Flow Length=307' Slope=0.0280 '/' Tc=11.5 min CN=64 Runoff=2.98 cfs 0.174 af

Subcatchment P1a: (new Subcat) Runoff Area=48,568 sf 15.67% Impervious Runoff Depth>2.07"
Flow Length=301' Slope=0.0317 '/' Tc=10.4 min CN=65 Runoff=3.41 cfs 0.192 af

Subcatchment P2: Wetland Runoff Area=91,567 sf 16.64% Impervious Runoff Depth>1.90"
Flow Length=326' Slope=0.0280 '/' Tc=12.4 min CN=63 Runoff=5.49 cfs 0.333 af

Pond 5P: (new Pond) Peak Elev=32.33' Storage=0.027 af Inflow=3.41 cfs 0.192 af
Primary=2.68 cfs 0.190 af Secondary=0.00 cfs 0.000 af Outflow=2.68 cfs 0.190 af

Pond 6P: Current outlet Peak Elev=31.55' Inflow=2.68 cfs 0.190 af
15.0" Round Culvert n=0.013 L=43.5' S=0.0021 '/' Outflow=2.68 cfs 0.190 af

Link 1L: Max Flow Through Pipe below 1,000.00 cfs Inflow=5.48 cfs 0.365 af
Primary=5.48 cfs 0.365 af Secondary=0.00 cfs 0.000 af

Total Runoff Area = 4.272 ac Runoff Volume = 0.699 af Average Runoff Depth = 1.96"
78.83% Pervious = 3.368 ac 21.17% Impervious = 0.904 ac

Summary for Subcatchment P1:

Runoff = 2.98 cfs @ 12.04 hrs, Volume= 0.174 af, Depth> 1.98"
Routed to Link 1L : Max Flow Through Pipe

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.61"

Area (sf)	CN	Description
11,454	39	>75% Grass cover, Good, HSG A
7,192	61	>75% Grass cover, Good, HSG B
14,346	54	1/2 acre lots, 25% imp, HSG A
14	70	1/2 acre lots, 25% imp, HSG B
8,594	98	Paved parking, HSG A
1,368	98	Paved parking, HSG B
2,057	98	Roofs, HSG A
941	98	Roofs, HSG B
45,966	64	Weighted Average
29,416		64.00% Pervious Area
16,550		36.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	307	0.0280	0.44		**Lag/CN Method,**

Summary for Subcatchment P1a: (new Subcat)

Runoff = 3.41 cfs @ 12.03 hrs, Volume= 0.192 af, Depth> 2.07"
Routed to Pond 5P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.61"

Area (sf)	CN	Description
33,083	61	>75% Grass cover, Good, HSG B
4,909	54	1/2 acre lots, 25% imp, HSG A
3,093	70	1/2 acre lots, 25% imp, HSG B
3,778	98	Paved parking, HSG B
1,830	98	Roofs, HSG B
1,875	55	Woods, Good, HSG B
48,568	65	Weighted Average
40,960		84.33% Pervious Area
7,609		15.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	301	0.0317	0.48		**Lag/CN Method,**

Summary for Subcatchment P2: Wetland

Runoff = 5.49 cfs @ 12.05 hrs, Volume= 0.333 af, Depth> 1.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.61"

Area (sf)	CN	Description
13,242	54	1/2 acre lots, 25% imp, HSG A
39,615	70	1/2 acre lots, 25% imp, HSG B
12,573	61	>75% Grass cover, Good, HSG B
2,027	98	Roofs, HSG B
570	96	Gravel surface, HSG B
23,540	55	Woods, Good, HSG B
91,567	63	Weighted Average
76,326		83.36% Pervious Area
15,241		16.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	326	0.0280	0.44		**Lag/CN Method,**

Summary for Pond 5P: (new Pond)

Inflow Area = 1.115 ac, 15.67% Impervious, Inflow Depth > 2.07" for 10-yr event
Inflow = 3.41 cfs @ 12.03 hrs, Volume= 0.192 af
Outflow = 2.68 cfs @ 12.10 hrs, Volume= 0.190 af, Atten= 21%, Lag= 4.2 min
Primary = 2.68 cfs @ 12.10 hrs, Volume= 0.190 af
Routed to Pond 6P : Current outlet
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 6P : Current outlet

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 32.33' @ 12.10 hrs Surf.Area= 0.041 ac Storage= 0.027 af

Plug-Flow detention time= 14.0 min calculated for 0.190 af (99% of inflow)
Center-of-Mass det. time= 8.9 min (861.9 - 853.0)

Volume	Invert	Avail.Storage	Storage Description
#1	31.60'	0.057 af	**46.00'W x 31.00'L x 1.40'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Secondary	32.80'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	30.88'	**12.0" Round Culvert** L= 75.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 30.88' / 30.50' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	31.60'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.40 Width (feet) 1.30 1.30

Primary OutFlow Max=2.68 cfs @ 12.10 hrs HW=32.33' (Free Discharge)
└**2=Culvert** (Passes 2.68 cfs of 2.93 cfs potential flow)
└**3=Custom Weir/Orifice** (Weir Controls 2.68 cfs @ 2.81 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=31.60' (Free Discharge)
└**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Current outlet

[57] Hint: Peaked at 31.55' (Flood elevation advised)
[79] Warning: Submerged Pond 5P Primary device # 2 INLET by 0.67'

Inflow Area = 1.115 ac, 15.67% Impervious, Inflow Depth > 2.05" for 10-yr event
Inflow = 2.68 cfs @ 12.10 hrs, Volume= 0.190 af
Outflow = 2.68 cfs @ 12.10 hrs, Volume= 0.190 af, Atten= 0%, Lag= 0.0 min
Primary = 2.68 cfs @ 12.10 hrs, Volume= 0.190 af
Routed to Link 1L : Max Flow Through Pipe

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 31.55' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	30.41'	**15.0" Round Culvert** L= 43.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 30.41' / 30.32' S= 0.0021 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.68 cfs @ 12.10 hrs HW=31.55' (Free Discharge)
└**1=Culvert** (Barrel Controls 2.68 cfs @ 2.98 fps)

Summary for Link 1L: Max Flow Through Pipe

Inflow Area = 2.170 ac, 25.56% Impervious, Inflow Depth > 2.02" for 10-yr event
Inflow = 5.48 cfs @ 12.06 hrs, Volume= 0.365 af
Primary = 5.48 cfs @ 12.06 hrs, Volume= 0.365 af, Atten= 0%, Lag= 0.0 min
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Primary outflow = Inflow below 1,000.00 cfs, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P1: Runoff Area=45,966 sf 36.00% Impervious Runoff Depth>3.08"
Flow Length=307' Slope=0.0280 '/' Tc=11.5 min CN=64 Runoff=4.69 cfs 0.271 af

Subcatchment P1a: (new Subcat) Runoff Area=48,568 sf 15.67% Impervious Runoff Depth>3.18"
Flow Length=301' Slope=0.0317 '/' Tc=10.4 min CN=65 Runoff=5.30 cfs 0.295 af

Subcatchment P2: Wetland Runoff Area=91,567 sf 16.64% Impervious Runoff Depth>2.97"
Flow Length=326' Slope=0.0280 '/' Tc=12.4 min CN=63 Runoff=8.74 cfs 0.521 af

Pond 5P: (new Pond) Peak Elev=32.73' Storage=0.044 af Inflow=5.30 cfs 0.295 af
Primary=3.56 cfs 0.293 af Secondary=0.00 cfs 0.000 af Outflow=3.56 cfs 0.293 af

Pond 6P: Current outlet Peak Elev=31.80' Inflow=3.56 cfs 0.293 af
15.0" Round Culvert n=0.013 L=43.5' S=0.0021 '/' Outflow=3.56 cfs 0.293 af

Link 1L: Max Flow Through Pipe below 1,000.00 cfs Inflow=8.06 cfs 0.564 af
Primary=8.06 cfs 0.564 af Secondary=0.00 cfs 0.000 af

Total Runoff Area = 4.272 ac Runoff Volume = 1.087 af Average Runoff Depth = 3.05"
78.83% Pervious = 3.368 ac 21.17% Impervious = 0.904 ac

Summary for Subcatchment P1:

Runoff = 4.69 cfs @ 12.04 hrs, Volume= 0.271 af, Depth> 3.08"
Routed to Link 1L : Max Flow Through Pipe

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.11"

Area (sf)	CN	Description
11,454	39	>75% Grass cover, Good, HSG A
7,192	61	>75% Grass cover, Good, HSG B
14,346	54	1/2 acre lots, 25% imp, HSG A
14	70	1/2 acre lots, 25% imp, HSG B
8,594	98	Paved parking, HSG A
1,368	98	Paved parking, HSG B
2,057	98	Roofs, HSG A
941	98	Roofs, HSG B
45,966	64	Weighted Average
29,416		64.00% Pervious Area
16,550		36.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	307	0.0280	0.44		**Lag/CN Method,**

Summary for Subcatchment P1a: (new Subcat)

Runoff = 5.30 cfs @ 12.02 hrs, Volume= 0.295 af, Depth> 3.18"
Routed to Pond 5P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.11"

Area (sf)	CN	Description
33,083	61	>75% Grass cover, Good, HSG B
4,909	54	1/2 acre lots, 25% imp, HSG A
3,093	70	1/2 acre lots, 25% imp, HSG B
3,778	98	Paved parking, HSG B
1,830	98	Roofs, HSG B
1,875	55	Woods, Good, HSG B
48,568	65	Weighted Average
40,960		84.33% Pervious Area
7,609		15.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	301	0.0317	0.48		**Lag/CN Method,**

Summary for Subcatchment P2: Wetland

Runoff = 8.74 cfs @ 12.05 hrs, Volume= 0.521 af, Depth> 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.11"

Area (sf)	CN	Description
13,242	54	1/2 acre lots, 25% imp, HSG A
39,615	70	1/2 acre lots, 25% imp, HSG B
12,573	61	>75% Grass cover, Good, HSG B
2,027	98	Roofs, HSG B
570	96	Gravel surface, HSG B
23,540	55	Woods, Good, HSG B
91,567	63	Weighted Average
76,326		83.36% Pervious Area
15,241		16.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	326	0.0280	0.44		**Lag/CN Method,**

Summary for Pond 5P: (new Pond)

Inflow Area = 1.115 ac, 15.67% Impervious, Inflow Depth > 3.18" for 25-yr event
Inflow = 5.30 cfs @ 12.02 hrs, Volume= 0.295 af
Outflow = 3.56 cfs @ 12.11 hrs, Volume= 0.293 af, Atten= 33%, Lag= 5.4 min
Primary = 3.56 cfs @ 12.11 hrs, Volume= 0.293 af
Routed to Pond 6P : Current outlet
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 6P : Current outlet

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 32.73' @ 12.11 hrs Surf.Area= 0.046 ac Storage= 0.044 af

Plug-Flow detention time= 12.7 min calculated for 0.293 af (99% of inflow)
Center-of-Mass det. time= 8.4 min (848.8 - 840.4)

Volume	Invert	Avail.Storage	Storage Description
#1	31.60'	0.057 af	**46.00'W x 31.00'L x 1.40'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Secondary	32.80'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	30.88'	**12.0" Round Culvert** L= 75.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 30.88' / 30.50' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	31.60'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.40 Width (feet) 1.30 1.30

Primary OutFlow Max=3.54 cfs @ 12.11 hrs HW=32.72' (Free Discharge)
└**2=Culvert** (Barrel Controls 3.54 cfs @ 4.51 fps)
└**3=Custom Weir/Orifice** (Passes 3.54 cfs of 5.02 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=31.60' (Free Discharge)
└**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Current outlet

[57] Hint: Peaked at 31.80' (Flood elevation advised)
[79] Warning: Submerged Pond 5P Primary device # 2 INLET by 0.92'

Inflow Area = 1.115 ac, 15.67% Impervious, Inflow Depth > 3.16" for 25-yr event
Inflow = 3.56 cfs @ 12.11 hrs, Volume= 0.293 af
Outflow = 3.56 cfs @ 12.11 hrs, Volume= 0.293 af, Atten= 0%, Lag= 0.0 min
Primary = 3.56 cfs @ 12.11 hrs, Volume= 0.293 af
Routed to Link 1L : Max Flow Through Pipe

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 31.80' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	30.41'	**15.0" Round Culvert** L= 43.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 30.41' / 30.32' S= 0.0021 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.54 cfs @ 12.11 hrs HW=31.80' (Free Discharge)
└**1=Culvert** (Barrel Controls 3.54 cfs @ 3.24 fps)

Summary for Link 1L: Max Flow Through Pipe

Inflow Area = 2.170 ac, 25.56% Impervious, Inflow Depth > 3.12" for 25-yr event
Inflow = 8.06 cfs @ 12.05 hrs, Volume= 0.564 af
Primary = 8.06 cfs @ 12.05 hrs, Volume= 0.564 af, Atten= 0%, Lag= 0.0 min
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Primary outflow = Inflow below 1,000.00 cfs, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P1: Runoff Area=45,966 sf 36.00% Impervious Runoff Depth>4.18"
Flow Length=307' Slope=0.0280 '/' Tc=11.5 min CN=64 Runoff=6.38 cfs 0.368 af

Subcatchment P1a: (new Subcat) Runoff Area=48,568 sf 15.67% Impervious Runoff Depth>4.30"
Flow Length=301' Slope=0.0317 '/' Tc=10.4 min CN=65 Runoff=7.17 cfs 0.400 af

Subcatchment P2: Wetland Runoff Area=91,567 sf 16.64% Impervious Runoff Depth>4.06"
Flow Length=326' Slope=0.0280 '/' Tc=12.4 min CN=63 Runoff=12.00 cfs 0.711 af

Pond 5P: (new Pond) Peak Elev=32.97' Storage=0.055 af Inflow=7.17 cfs 0.400 af
Primary=3.89 cfs 0.378 af Secondary=2.24 cfs 0.019 af Outflow=6.13 cfs 0.397 af

Pond 6P: Current outlet Peak Elev=32.74' Inflow=6.13 cfs 0.397 af
15.0" Round Culvert n=0.013 L=43.5' S=0.0021 '/' Outflow=6.13 cfs 0.397 af

Link 1L: Max Flow Through Pipe below 1,000.00 cfs Inflow=12.06 cfs 0.765 af
Primary=12.06 cfs 0.765 af Secondary=0.00 cfs 0.000 af

Total Runoff Area = 4.272 ac Runoff Volume = 1.479 af Average Runoff Depth = 4.15"
78.83% Pervious = 3.368 ac 21.17% Impervious = 0.904 ac

Summary for Subcatchment P1:

Runoff = 6.38 cfs @ 12.04 hrs, Volume= 0.368 af, Depth> 4.18"
Routed to Link 1L : Max Flow Through Pipe

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.51"

Area (sf)	CN	Description
11,454	39	>75% Grass cover, Good, HSG A
7,192	61	>75% Grass cover, Good, HSG B
14,346	54	1/2 acre lots, 25% imp, HSG A
14	70	1/2 acre lots, 25% imp, HSG B
8,594	98	Paved parking, HSG A
1,368	98	Paved parking, HSG B
2,057	98	Roofs, HSG A
941	98	Roofs, HSG B
45,966	64	Weighted Average
29,416		64.00% Pervious Area
16,550		36.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	307	0.0280	0.44		**Lag/CN Method,**

Summary for Subcatchment P1a: (new Subcat)

Runoff = 7.17 cfs @ 12.02 hrs, Volume= 0.400 af, Depth> 4.30"
Routed to Pond 5P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.51"

Area (sf)	CN	Description
33,083	61	>75% Grass cover, Good, HSG B
4,909	54	1/2 acre lots, 25% imp, HSG A
3,093	70	1/2 acre lots, 25% imp, HSG B
3,778	98	Paved parking, HSG B
1,830	98	Roofs, HSG B
1,875	55	Woods, Good, HSG B
48,568	65	Weighted Average
40,960		84.33% Pervious Area
7,609		15.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	301	0.0317	0.48		**Lag/CN Method,**

Summary for Subcatchment P2: Wetland

Runoff = 12.00 cfs @ 12.05 hrs, Volume= 0.711 af, Depth> 4.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.51"

Area (sf)	CN	Description
13,242	54	1/2 acre lots, 25% imp, HSG A
39,615	70	1/2 acre lots, 25% imp, HSG B
12,573	61	>75% Grass cover, Good, HSG B
2,027	98	Roofs, HSG B
570	96	Gravel surface, HSG B
23,540	55	Woods, Good, HSG B
91,567	63	Weighted Average
76,326		83.36% Pervious Area
15,241		16.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	326	0.0280	0.44		**Lag/CN Method,**

Summary for Pond 5P: (new Pond)

Inflow Area = 1.115 ac, 15.67% Impervious, Inflow Depth > 4.30" for 50-yr event
Inflow = 7.17 cfs @ 12.02 hrs, Volume= 0.400 af
Outflow = 6.13 cfs @ 12.09 hrs, Volume= 0.397 af, Atten= 15%, Lag= 3.9 min
Primary = 3.89 cfs @ 12.09 hrs, Volume= 0.378 af
Routed to Pond 6P : Current outlet
Secondary = 2.24 cfs @ 12.09 hrs, Volume= 0.019 af
Routed to Pond 6P : Current outlet

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 32.97' @ 12.09 hrs Surf.Area= 0.049 ac Storage= 0.055 af

Plug-Flow detention time= 11.8 min calculated for 0.397 af (99% of inflow)
Center-of-Mass det. time= 8.0 min (839.8 - 831.8)

Volume	Invert	Avail.Storage	Storage Description
#1	31.60'	0.057 af	**46.00'W x 31.00'L x 1.40'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Secondary	32.80'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	30.88'	**12.0" Round Culvert** L= 75.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 30.88' / 30.50' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	31.60'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 1.40 Width (feet) 1.30 1.30

Primary OutFlow Max=3.88 cfs @ 12.09 hrs HW=32.96' (Free Discharge)
└**2=Culvert** (Barrel Controls 3.88 cfs @ 4.94 fps)
└**3=Custom Weir/Orifice** (Passes 3.88 cfs of 6.74 cfs potential flow)

Secondary OutFlow Max=2.06 cfs @ 12.09 hrs HW=32.96' (Free Discharge)
└**1=Sharp-Crested Rectangular Weir** (Weir Controls 2.06 cfs @ 1.30 fps)

Summary for Pond 6P: Current outlet

[57] Hint: Peaked at 32.74' (Flood elevation advised)
[79] Warning: Submerged Pond 5P Primary device # 2 INLET by 1.84'

Inflow Area = 1.115 ac, 15.67% Impervious, Inflow Depth > 4.27" for 50-yr event
Inflow = 6.13 cfs @ 12.09 hrs, Volume= 0.397 af
Outflow = 6.13 cfs @ 12.09 hrs, Volume= 0.397 af, Atten= 0%, Lag= 0.0 min
Primary = 6.13 cfs @ 12.09 hrs, Volume= 0.397 af
Routed to Link 1L : Max Flow Through Pipe

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 32.74' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	30.41'	**15.0" Round Culvert** L= 43.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 30.41' / 30.32' S= 0.0021 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.96 cfs @ 12.09 hrs HW=32.66' (Free Discharge)
└**1=Culvert** (Inlet Controls 5.96 cfs @ 4.85 fps)

Summary for Link 1L: Max Flow Through Pipe

Inflow Area = 2.170 ac, 25.56% Impervious, Inflow Depth > 4.23" for 50-yr event
Inflow = 12.06 cfs @ 12.06 hrs, Volume= 0.765 af
Primary = 12.06 cfs @ 12.06 hrs, Volume= 0.765 af, Atten= 0%, Lag= 0.0 min
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Primary outflow = Inflow below 1,000.00 cfs, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

APPENDIX D

SOIL SURVEY INFORMATION

TEST PIT DATA

United States Department of Agriculture

NRCS

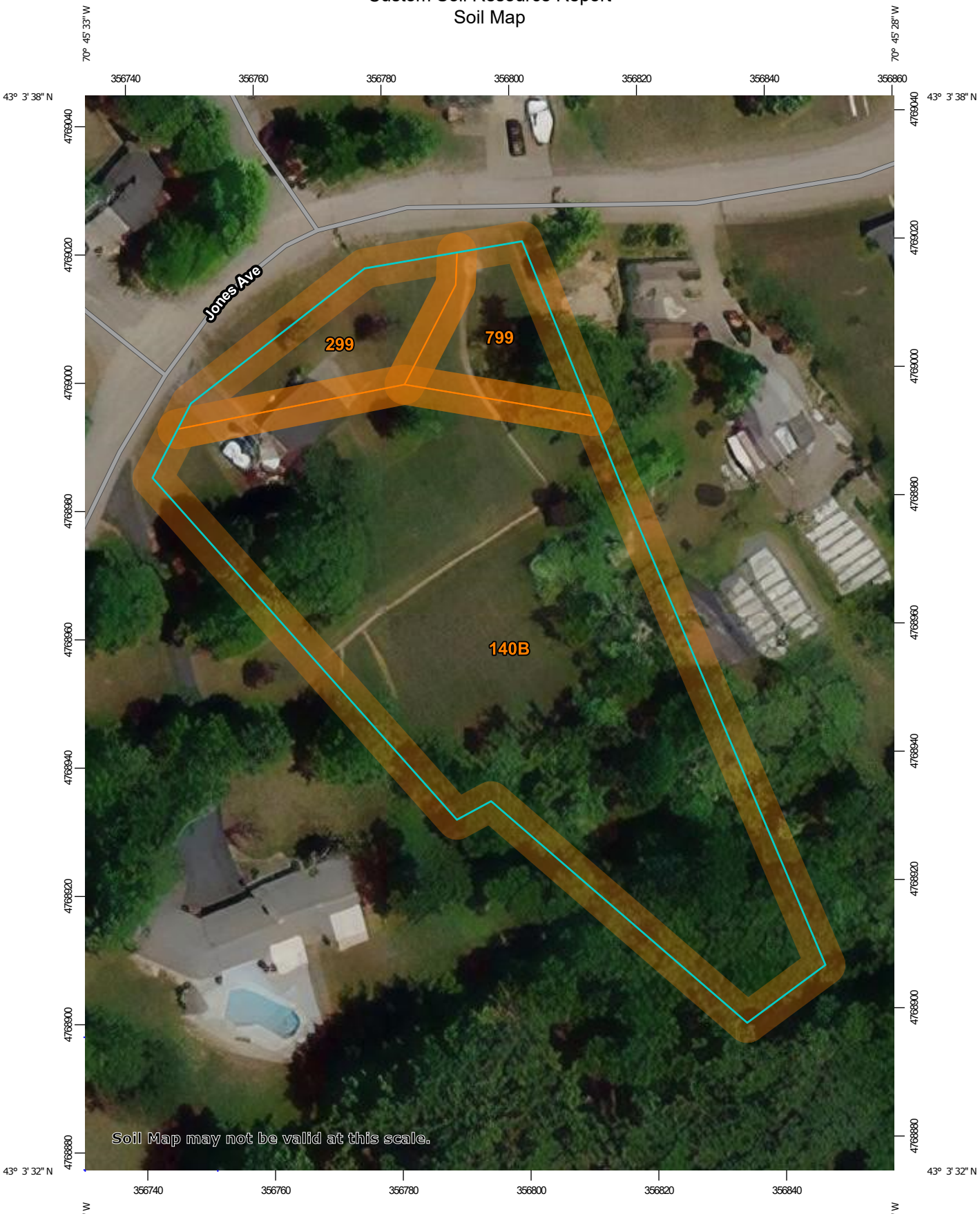
Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Rockingham County, New Hampshire

February 9, 2022

Custom Soil Resource Report
Soil Map



Map Scale: 1:816 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 10 20 40 60

Feet
0 35 70 140 210

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 24, Aug 31, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Jun 14, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
140B	Chatfield-Hollis-Canton complex, 0 to 8 percent slopes, rocky	1.2	83.0%
299	Udorthents, smoothed	0.1	9.2%
799	Urban land-Canton complex, 3 to 15 percent slopes	0.1	7.8%
Totals for Area of Interest		**1.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Rockingham County, New Hampshire

140B—Chatfield-Hollis-Canton complex, 0 to 8 percent slopes, rocky

Map Unit Setting

National map unit symbol: 2w82m
Elevation: 380 to 1,070 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Chatfield, very stony, and similar soils: 35 percent
Hollis, very stony, and similar soils: 25 percent
Canton, very stony, and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chatfield, Very Stony

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 2 inches: fine sandy loam
Bw - 2 to 30 inches: gravelly fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 41 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands

Hydric soil rating: No

Description of Hollis, Very Stony

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 7 inches: gravelly fine sandy loam
Bw - 7 to 16 inches: gravelly fine sandy loam
2R - 16 to 26 inches: bedrock

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 8 to 23 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144AY033MA - Shallow Dry Till Uplands
Hydric soil rating: No

Description of Canton, Very Stony

Setting

Landform: Moraines, hills, ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 5 inches: fine sandy loam
Bw1 - 5 to 16 inches: fine sandy loam
Bw2 - 16 to 22 inches: gravelly fine sandy loam
2C - 22 to 67 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Newfields, very stony

Percent of map unit: 5 percent
Landform: Ground moraines, hills, moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Freetown

Percent of map unit: 5 percent
Landform: Marshes, depressions, bogs, kettles, swamps
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Walpole, very stony

Percent of map unit: 3 percent
Landform: Deltas, depressions, outwash plains, depressions, outwash terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Rock outcrop

Percent of map unit: 2 percent
Landform: Ridges, hills
Hydric soil rating: Unranked

299—Udorthents, smoothed

Map Unit Setting

National map unit symbol: 9cmt
Elevation: 0 to 840 feet
Mean annual precipitation: 44 to 49 inches
Mean annual air temperature: 48 degrees F
Frost-free period: 155 to 165 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Properties and qualities

Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

799—Urban land-Canton complex, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9cq0
Elevation: 0 to 1,000 feet
Mean annual precipitation: 42 to 46 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 55 percent
Canton and similar soils: 20 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Parent material: Till

Typical profile

H1 - 0 to 5 inches: gravelly fine sandy loam
H2 - 5 to 21 inches: gravelly fine sandy loam
H3 - 21 to 60 inches: loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: A
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Udorthents

Percent of map unit: 5 percent
Hydric soil rating: No

Squamscott and scitico

Percent of map unit: 4 percent
Landform: Marine terraces
Hydric soil rating: Yes

Walpole

Percent of map unit: 4 percent
Landform: Depressions
Hydric soil rating: Yes

Chatfield

Percent of map unit: 4 percent
Hydric soil rating: No

Scituate and newfields

Percent of map unit: 4 percent
Hydric soil rating: No

Boxford and eldridge

Percent of map unit: 4 percent
Hydric soil rating: No

APPENDIX E

FEMA FIRM MAP

National Flood Hazard Layer FIRMette

FEMA

70°45'51"W 43°3'50"N

70°45'14"W 43°3'23"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/10/2022 at 9:17 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

APPENDIX F

INSPECTION & LONG TERM MAINTENANCE PLAN

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors

INSPECTION & LONG-TERM MAINTENANCE PLAN
FOR
STICKNEY RESIDENCE & DADU

213 JONES AVENUE
PORTSMOUTH, NH

Introduction

The intent of this plan is to provide Donald Stickney (herein referred to as "owner") with a list of procedures that document the inspection and maintenance requirements of the stormwater management system for this development. Specifically, the detention pond and associated structures on the project site (collectively referred to as the "Stormwater Management System"). The contact information for the owner shall be kept current, and if there is a change of ownership of the property this plan must be transferred to the new owner.

The following inspection and maintenance program is necessary to keep the stormwater management system functioning properly and will help in maintaining a high quality of stormwater runoff to minimize potential environmental impacts. By following the enclosed procedures, the owner will be able to maintain the functional design of the stormwater management system and maximize its ability to remove sediment and other contaminants from site generated stormwater runoff.

Annual Report

The owner shall prepare an annual Inspection & Maintenance Report. The report shall include a summary of the system's maintenance and repair by transmission of the Inspection & Maintenance Log and other information as required. A copy of the report shall be delivered annually to the Portsmouth Code Enforcement Officer, if required.

Inspection & Maintenance Checklist/Log

The following pages contain the Stormwater Management System Inspection & Maintenance Requirements and a blank copy of the Stormwater Management System Inspection & Maintenance Log. These forms are provided to the owner as a guideline for performing the inspection and maintenance of the Stormwater Management System. This is a guideline and should be periodically reviewed for conformance with current practice and standards.

Stormwater Management System Components

The Stormwater Management System is designed to mitigate both the quantity and quality of site-generated stormwater runoff. As a result, the design includes the following elements:

Non-Structural BMPs

Non-Structural best management practices (BMP's) include temporary and permanent measures that typically require less labor and capital inputs and are intended to provide protection against erosion of soils. Examples of non-structural BMP's on this project include but are not limited to:

- Temporary and Permanent mulching
- Temporary and Permanent grass cover
- Trees
- Shrubs and ground covers
- Miscellaneous landscape plantings
- Dust control
- Tree protection
- Topsoiling
- Sediment barriers
- Stabilized construction entrance

Structural BMPs

Structural BMP's are more labor and capital-intensive structures or installations that require more specialized personnel to install. Examples on this project include but are not limited to:

- Detention Pond

Inspection and Maintenance Requirements

The following summarizes the inspection and maintenance requirements for the various BMP's that may be found on this project.

1. **Grassed areas (until established):** After each rain event of 0.5" or more during a 24-hour period, inspect grassed areas for signs of disturbance, such as erosion. If damaged areas are discovered, immediately repair the damage. Repairs may include adding new topsoil, lime, seed, fertilizer and mulch.
2. **Plantings**: Planting and landscaping (trees, shrubs) shall be monitored bi-monthly during the first year to insure viability and vigorous growth. Replace dead or dying vegetation with new stock and make adjustments to the conditions that caused the dead or dying vegetation. During dryer times of the year, provide weekly watering or irrigation during the establishment period of the first year. Make the necessary adjustments to ensure long-term health of the vegetated covers, i.e. provide

more permanent mulch or compost or other means of protection.

3. **Outlet Control Structures and Storm Drains:** Monitor accumulation of debris in outlet control structures monthly or after significant rain events. Remove sediments when they accumulate within the outlet pipe. During construction, maintain inlet protection until all roadways and parking areas have been stabilized. Prior to the end of construction, inspect the drains and basins for accumulations and remove and clean by jet-vacuuming.
4. **Detention Pond:** Mow grass at least twice yearly. Monitor pond for accumulated sediments or clogged outlets after heavy rains. Remove sediments and replace dead or dying vegetation as required.

Pollution Prevention

The following pollution prevention activities shall be undertaken to minimize potential impacts on stormwater runoff quality. The Contractor is responsible for all activities during construction. The Owner is responsible thereafter.

Spill Procedures

Any discharge of waste oil or other pollutant shall be reported immediately to the New Hampshire Department of Environmental Services (NHDES). The Contractor/Owner will be responsible for any incident of groundwater contamination resulting from the improper discharge of pollutants to the stormwater system, and may be required by NHDES to remediate incidents that may impact groundwater quality. If the property ownership is transferred, the new owner will be informed of the legal responsibilities associated with operation of the stormwater system, as indicated above.

Sanitary Facilities

Sanitary facilities shall be provided during all phases of construction.

Material Storage

No on site trash facility is provided until homes are constructed. The contractors are required to remove trash from the site. Hazardous material storage is prohibited.

Material Disposal

All waste material, trash, sediment, and debris shall be removed from the site and disposed of in accordance with applicable local, state, and federal guidelines and regulations. Removed sediments shall be if necessary dewatered prior to disposal.

Snow & Ice Management for Standard Asphalt and Walkways

Snow storage will be located such that no direct untreated discharges are possible to receiving waters from the storage site. Salt storage areas shall be covered and located such that no direct discharges are possible to receiving waters from the storage site. Salt and sand shall be used as minimally as possible.

Invasive Species

Monitor the Stormwater Management System for signs of invasive species growth. If caught early, their eradication is much easier. The most likely places where invasions start is in wetter, disturbed soils or detention ponds. Species such as phragmites and purple loose-strife are common invaders in these wetter areas. If they are found, the owner shall refer to the fact-sheet created by the University of New Hampshire Cooperative Extension or contact a wetlands scientist with experience in invasive species control to implement a plan of action for eradication. Measures that do not require the application of chemical herbicides should be the first line of defense.

Figure 1: Lythrum salicaria, Purple Loosestrife. Photo by Liz West.

Figure 2: Phragmites australis. Photo by Le Loup Gris

CLOSED DRAINAGE STRUCTURE MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	**FREQUENCY**	**MAINTENANCE REQUIREMENTS**
-Outlet Control Structures	**Every other Month**	***Check for erosion or short-circuiting*** ***Check for sediment accumulation*** ***Check for floatable contaminants***
-Drainage Pipes	**1 time per 2 years**	***Check for sediment accumulation/clogging, or soiled runoff.***

MAINTENANCE LOG	
PROJECT NAME	
INSPECTOR NAME	**INSPECTOR CONTACT INFO**
DATE OF INSPECTION	**REASON FOR INSPECTION** ☐LARGE STORM EVENT ☐PERIODIC CHECK-IN
IS CORRECTIVE ACTION NEEDED? ☐YES ☐NO	**DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE**
DATE OF MAINTENANCE	**PERFORMED BY**
NOTES	

DETENTION POND MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	**FREQUENCY**	**MAINTENANCE REQUIREMENTS**
POND SURFACE *-Check for sediment accumulation or clogged inlets/outlets.*	After heavy rains, monthly	*-Replace dead or dying vegetation* *-Remove Sediments When Required* *-Mow grasses at least twice yearly*

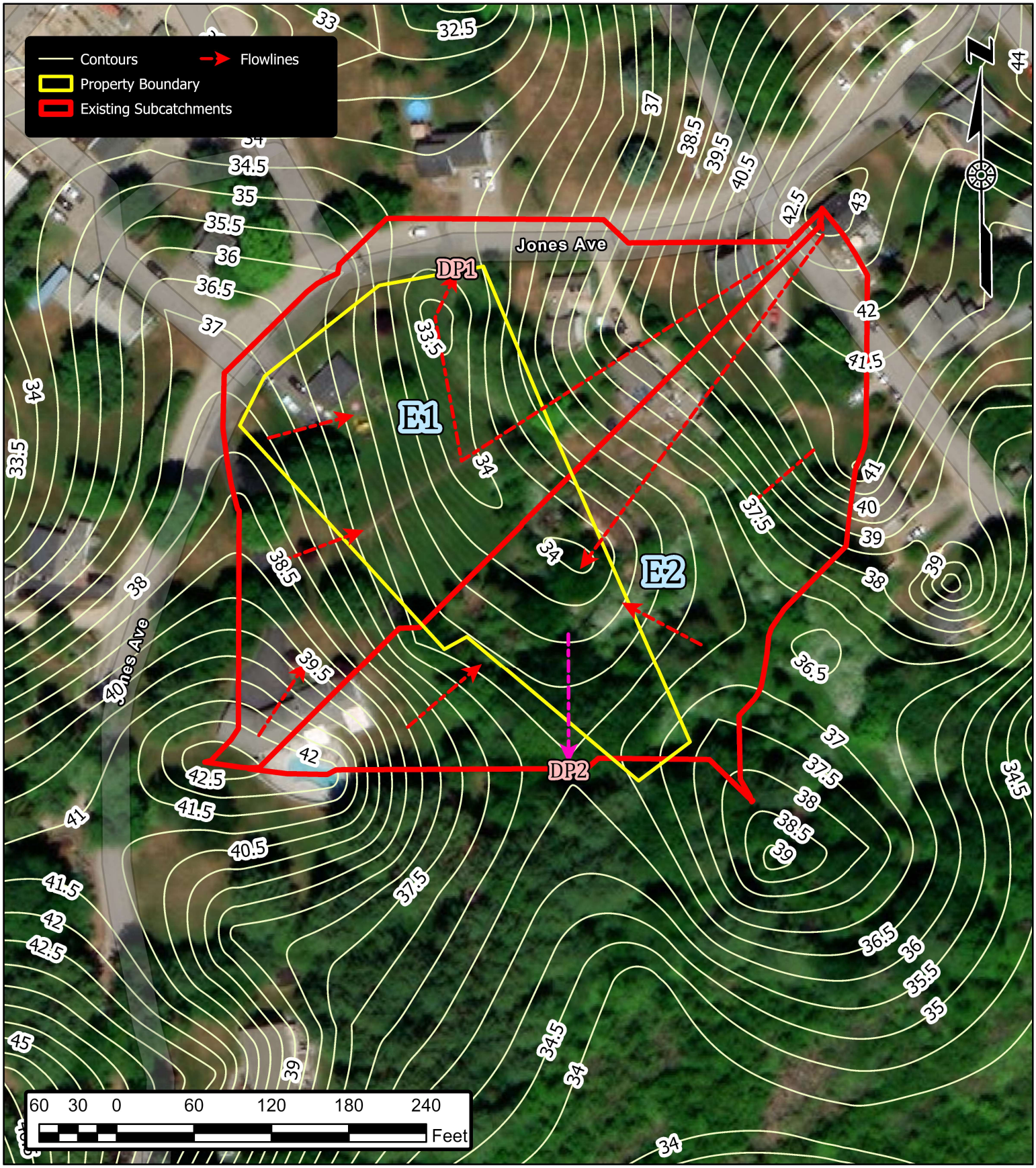
MAINTENANCE LOG	
PROJECT NAME	
INSPECTOR NAME	**INSPECTOR CONTACT INFO**
DATE OF INSPECTION	**REASON FOR INSPECTION** ☐LARGE STORM EVENT ☐PERIODIC CHECK-IN
IS CORRECTIVE ACTION NEEDED? ☐YES ☐NO	**DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE**
DATE OF MAINTENANCE	**PERFORMED BY**
NOTES	

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors

Diagram Of Existing Subcatchments

STICKNEY RESIDENCE
213 JONES AVENUE
PORTSMOUTH, N.H.

JOB NUMBER: 531.01
SCALE: 1" = 100'
SUBMITTED: 02-22-2022

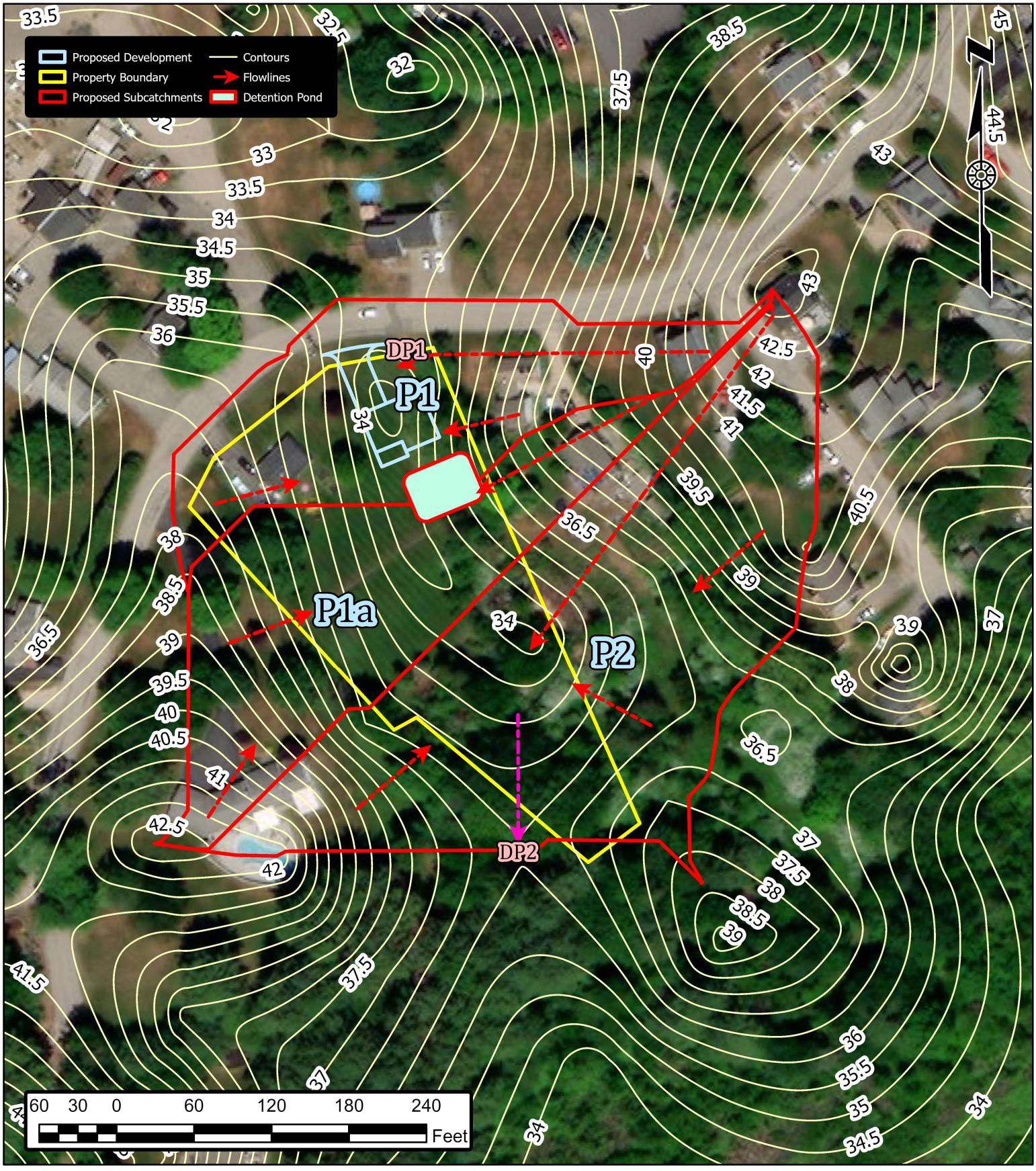


AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors

Diagram Of Proposed Subcatchments

STICKNEY RESIDENCE
213 JONES AVENUE
PORTSMOUTH, N.H.

JOB NUMBER: 531.01
SCALE: 1" = 100'
SUBMITTED: 02-22-2022



OWNER:

DONALD LOWELL STICKNEY III
213 JONES AVENUE
PORTSMOUTH, N.H. 03801
(603)988-7222

LAND SURVEYOR & CIVIL ENGINEER:

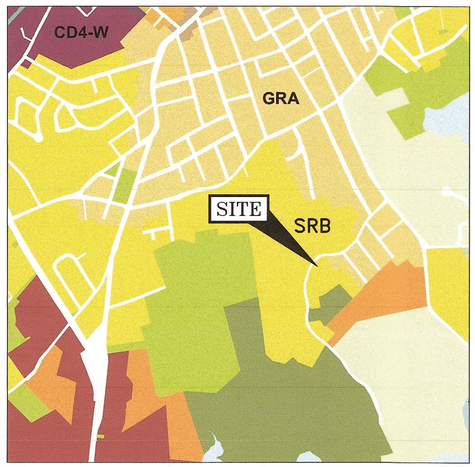
AMBIT ENGINEERING, INC.
200 GRIFFIN ROAD, UNIT 3
PORTSMOUTH, N.H. 03801-7114
TEL: (603) 430-9282
FAX: (603) 436-2315

ATTORNEY:

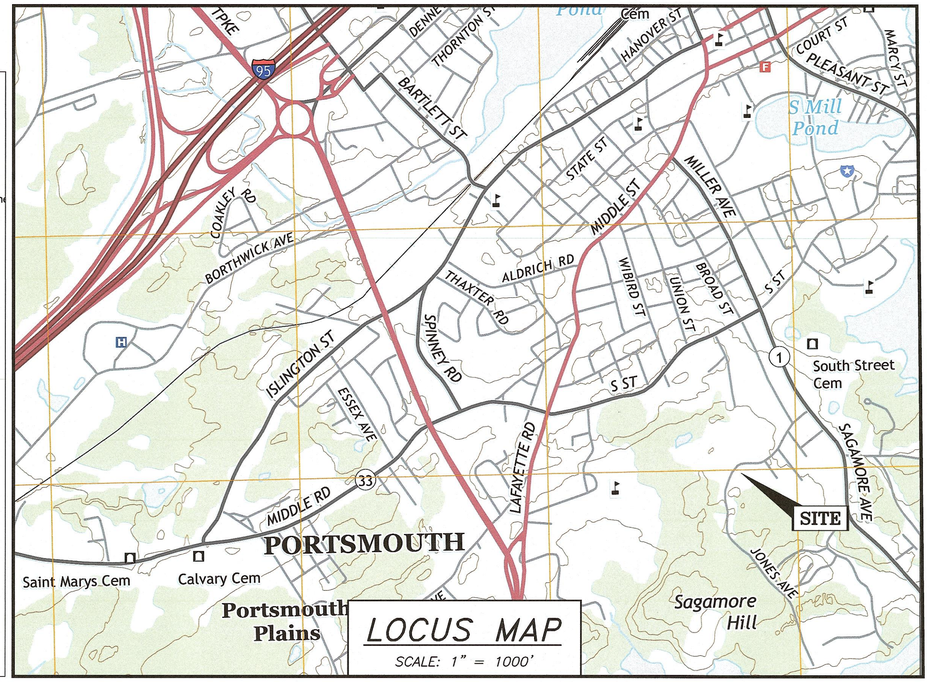
BOSEN & ASSOCIATES
266 MIDDLE STREET
PORTSMOUTH, NH 03801
TEL: (603)-427-5500

PROPOSED ADU
213 JONES AVENUE
PORTSMOUTH, NEW HAMPSHIRE
PERMIT PLANS

REQUIRED PERMITS
PORTSMOUTH CONDITIONAL USE PERMIT ADU: PENDING
PORTSMOUTH CONDITIONAL USE PERMIT WETLAND: PENDING



	R	Rural
	SRA	Single Residence A
	SRB	Single Residence B
	GRA	General Residence A
	GRB	General Residence B
	GRC	General Residence C
	GA/MH	Garden Apartment/Mobile Home
Mixed Residential Districts		
	MRO	Mixed Residential Office
	MRB	Mixed Residential Business
	G1	Gateway Cooridor
	G2	Gateway Center
Business Districts		
	GB	General Business
	B	Business
	WB	Waterfront Business
Industrial Districts		
	OR	Office Research
	I	Industrial
	WI	Waterfront Industrial
Airport Districts		
	AIR	Airport
	AI	Airport Industrial
	PI	Pease Industrial
	ABC	Airport Business Commercial
Other Districts		
	M	Municipal
	NRP	Natural Resource Protection
	TC	Transportation Corridor



LOCUS MAP
SCALE: 1" = 1000'

LEGEND:

N/F	NOW OR FORMERLY
RP	RECORD OF PROBATE
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
11/21	MAP 11/LOT 21
IR FND	IRON ROD FOUND
IP FND	IRON PIPE FOUND
IR SET	IRON ROD SET
DH FND	DRILL HOLE FOUND
DH SET	DRILL HOLE SET
	GRANITE BOUND w/IRON ROD FOUND

EXISTING	*PROPOSED*	
		PROPERTY LINE
		SETBACK LINE
FM	FM	FORCE MAIN
S	S	SEWER PIPE
SL	SL	SEWER LATERAL
G	PG	GAS LINE
D	D	STORM DRAIN
FD	FD	FOUNDATION DRAIN
W	W	WATER LINE
FS	FS	FIRE SERVICE LINE
UE	UGE	UNDERGROUND ELECTRIC SUPPLY
		UNDERGROUND ELECTRIC SERVICE
OHW	OHW	OVERHEAD ELECTRIC/WIRES
		RETAINING WALL
		EDGE OF PAVEMENT (EP)
100	100	CONTOUR
97x3	98x0	SPOT ELEVATION
		UTILITY POLE
E	E	ELECTRIC METER
		TRANSFORMER ON CONCRETE PAD
		ELECTRIC HANDHOLD/PULLBOX
WSO	WSO	WATER SHUT OFF/CURB STOP
C.O.	C.O.	PIPE CLEANOUT
	GV	GATE VALVE
	HYD	HYDRANT
CB	CB	CATCH BASIN
S	SMH	SEWER MANHOLE
D	DMH	DRAIN MANHOLE
W	WMH	WATER METER MANHOLE
#5		TEST BORING
TP 1		TEST PIT
LA		LANDSCAPED AREA
CI	CI	CAST IRON PIPE
COP	COP	COPPER PIPE
CMP	CMP	CORRUGATED METAL PIPE
DI	DI	DUCTILE IRON PIPE
PVC	PVC	POLYVINYL CHLORIDE PIPE
RCP	RCP	REINFORCED CONCRETE PIPE
HYD	HYD	HYDRANT
℄	℄	CENTERLINE
EP	EP	EDGE OF PAVEMENT
EL.	EL.	ELEVATION
FF	FF	FINISHED FLOOR
INV	INV	INVERT
TBM	TBM	TEMPORARY BENCH MARK
TYP	TYP	TYPICAL

DIG SAFE
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1-888-344-7233
CALL TOLL FREE

INDEX OF SHEETS

UTILITY CONTACTS

ELECTRIC:
EVERSOURCE
74 OLD DOVER ROAD
ROCHESTER, N.H. 03867
Tel. (603) 332-4227,
Ext. 555.5325
ATTN: MARK COLLINS
EMAIL:
mark.collins@eversource.com

NATURAL GAS:
UNITIL
325 WEST ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 6294-5147
ATTN: SUSAN DUPLISA
dupliseas@unitil.com

CABLE:
XFINITY BY COMCAST
180 GREENLEAF AVE.
PORTSMOUTH, N.H. 03801
Tel. (603) 266-2278
ATTN: MIKE COLLINS

SEWER & WATER:
PORTSMOUTH DEPARTMENT
OF PUBLIC WORKS
680 PEVERLY HILL ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 427-1530
ATTN: JIM TOW

COMMUNICATIONS:
FAIRPOINT
COMMUNICATIONS
1575 GREENLAND ROAD
GREENLAND, N.H. 03840
Tel. (603) 427-5525
ATTN: JOE CONSIDINE
EMAIL:
jconsidine@fairpoint.com

APPROVED BY THE PORTSMOUTH PLANNING BOARD

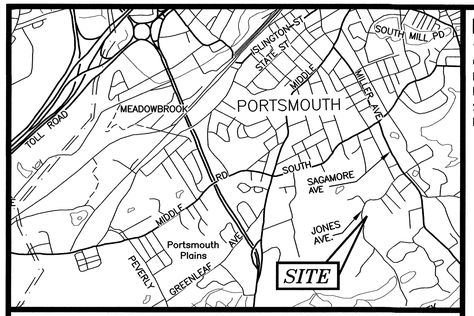
CHAIRMAN _____ DATE _____

PROPOSED ADU
213 JONES AVENUE
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: 11 FEBRUARY 2022

531.01



LOCATION MAP SCALE: 1" = 2,000'

REFERENCE PLAN:

1) LOT LINE RELOCATION PLAN TAX MAP 222 – LOTS 69 & 70, OWNERS: THE ALICE F. WENTWORTH REVOCABLE TRUST OF 2002 & DONALD LOWELL STICKNEY III, 213 & 215 JONES AVENUE, CITY OF PORTSMOUTH, COUNTY OF ROCKINGHAM, STATE OF NEW HAMPSHIRE, SCALE: 1" = 40', DATED NOVEMBER 2019, PREPARED BY AMBIT ENGINEERING, INC., RCRD D–42275

LEGEND:

N/F	NOW OR FORMERLY
RP	RECORD OF PROBATE
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
RR SPK	RAILROAD SPIKE
11/21	MAP 11/LOT 21
○ IR FND	IRON ROD FOUND
○ IP FND	IRON PIPE FOUND
● IR SET	IRON ROD SET
◉ DH FND	DRILL HOLE FOUND
○ DH SET	DRILL HOLE SET
▣ NHHB	NHDOT BOUND FOUND
▣ TB	TOWN BOUND
▣ BND w/DH	BOUND WITH DRILL HOLE
▣ ST BND w/DH	STONE BOUND WITH DRILL HOLE

WETLAND NOTES:

1) WETLAND LINE DELINEATED BY STEVEN D. RIKER, CWS ON 8/25/21 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.

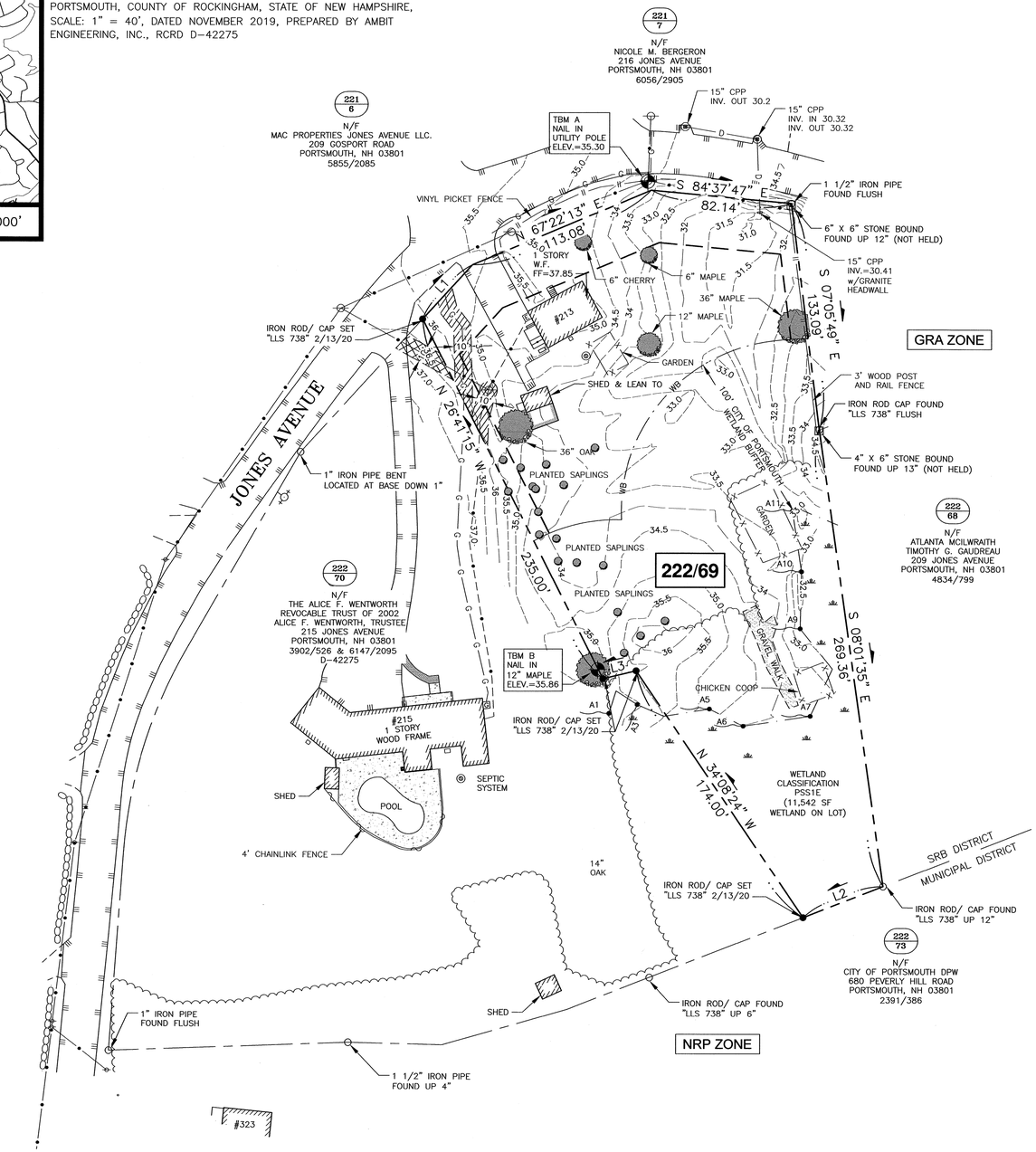
B) FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 8.2, USDA–NRCS, 2018 AND (FOR DISTURBED SITES) FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 4. NEIWPCC WETLANDS WORK GROUP (2019).

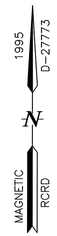
C) NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS: NORTHEAST (REGION 1). USFWS (MAY 1988).

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) WETLAND FLAGS WERE FIELD LOCATED BY AMBIT ENGINEERING, INC.





LENGTH TABLE

LINE	BEARING	DISTANCE
L1	N42°28'40"E	43.00'
L2	N68°42'45"E	50.00'
L3	N76°46'01"E	20.00'

EASEMENT TO BENEFIT ASSESSOR'S MAP 222 LOT 70 FOR UTILITIES OVER ASSESSOR'S MAP 222 LOT 69

GRAPHIC SCALE

40 30 20 10 0 50 100 150 FEET
10 5 0 10 20 30 40 50 METERS

''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.''

2.11.22

JOHN R. CHAGNON, LLS DATE

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 738 JOHN R. CHAGNON

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 222 AS LOTS 69.

2) OWNER OF RECORD:
DONALD LOWELL STICKNEY III
213 JONES AVENUE
PORTSMOUTH, NH 03801
5754/2748 & 6147/2092
D–42275

3) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON FIRM PANEL 33015C0270F. EFFECTIVE JANUARY 29, 2021.

4) EXISTING LOT AREA:
62,528 S.F.
1.4354 ACRES

5) PARCEL IS LOCATED IN SINGLE RESIDENCE B (SRB) DISTRICT.

6) DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA:	15,000 S.F.
FRONTAGE:	100 FEET
SETBACKS:	
FRONT	30 FEET
SIDE	10 FEET
REAR	30 FEET
MAXIMUM STRUCTURE HEIGHT:	35 FEET
MAXIMUM BUILDING COVERAGE:	20%
MINIMUM OPEN SPACE:	40%

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS ON ASSESSOR'S MAP 222 LOT 69 IN THE CITY OF PORTSMOUTH.

8) VERTICAL DATUM IS NAVD88 (MEAN SEA LEVEL). BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

STICKNEY RESIDENCE
213 JONES AVENUE
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
2	TBM A	2/11/22
1	FF, INVERTS	1/4/22
0	ISSUED FOR COMMENT	9/23/21

REVISIONS

SCALE: 1" = 40' SEPTEMBER 2021

EXISTING CONDITIONS PLAN

C1

FB 324 PG 60

531.01

J:\JOBS\JN500s\JN530s\JN531\2021 ADU\Plans & Specs\Site\531.01 Existing Conditions2021.dwg, 2/23/2022 8:33:56 AM, Canon TX-3000.pc3

IMPERVIOUS SURFACE AREAS
TO PROPERTY LINE

STRUCTURE	PRE-CONSTRUCTION IMPERVIOUS (S.F.)	POST-CONSTRUCTION IMPERVIOUS (S.F.)
BUILDING	886	886+1,824
STAIRS/STEPS	24+8	24+8
SHED	360	360
DECK & PATIOS	0	264
PORCH	51	51
BULKHEAD	37	37
PAVED DRIVE	1396	1396+787
GRAVEL APRON	0	79
TOTAL	2762	5716
LOT SIZE	62528	62528
% LOT COVERAGE	4.4%	9.1%

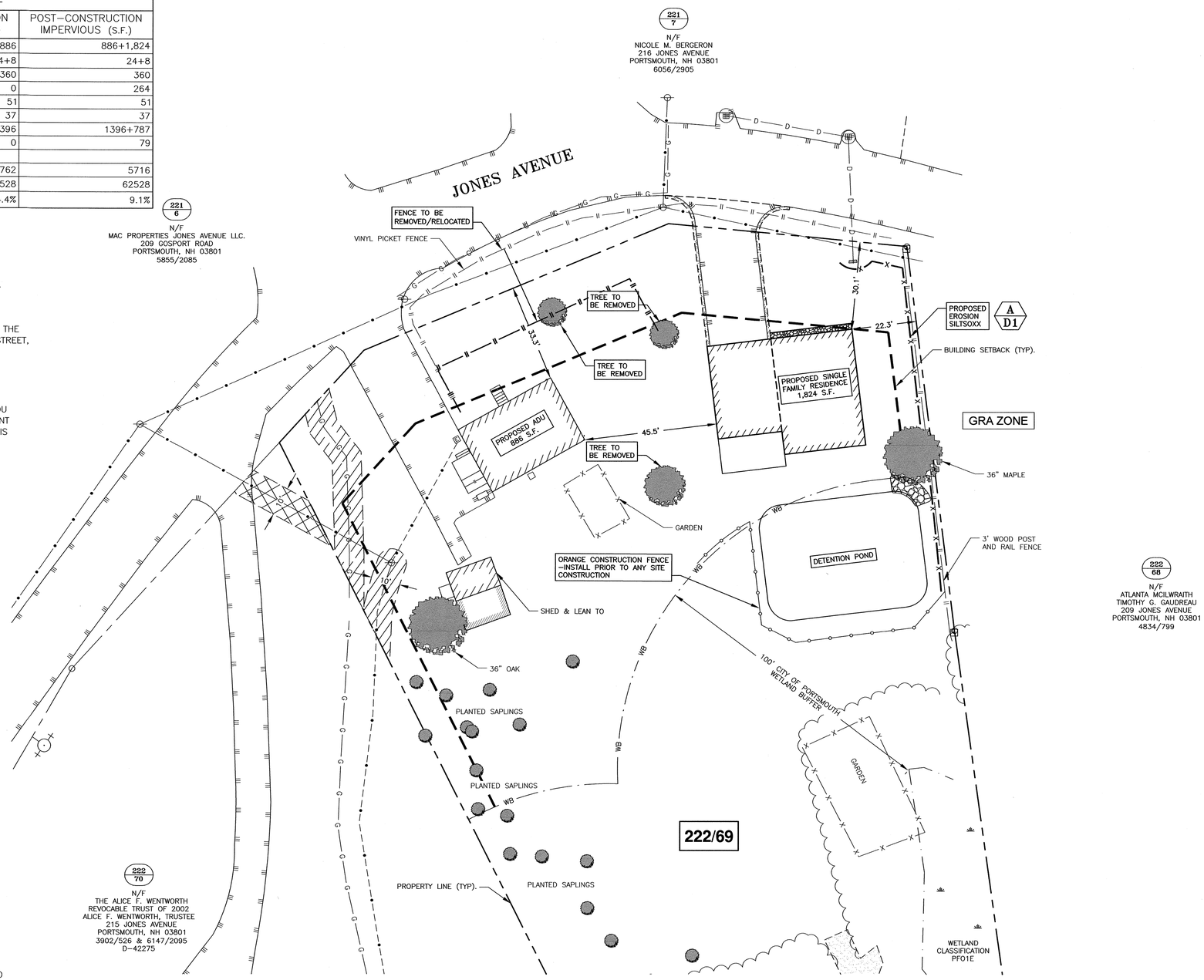
PROPOSED WAIVERS:

WAIVER FROM SECTION 10.814.52 TO PERMIT 886 S.F. TOTAL GROSS FLOOR AREA WHERE 750 S.F. IS THE MAXIMUM ALLOWED.

WAIVER FROM SECTION 10.814.53 TO PERMIT 42% OF THE COMBINED VISIBLE FAÇADE AREAS FACING THE SAME STREET, WHERE 40% IS THE MAXIMUM ALLOWED.

DADU FACADE: 36.4'
PRIMARY STRUCTURE FACADE: 50.0'

WAIVER FROM SECTION 10.814.55 TO PERMIT THE DADU FRONT WALL TO BE SET BACK 3.2 FT FROM THE FRONT SETBACK OF THE PRIMARY STRUCTURE WHERE 10 FT IS THE MINIMUM ALLOWED.



GRAPHIC SCALE
10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR
No. 738
JOHN R. CHAGNON
SURVEYOR

"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."

2.11.22
JOHN R. CHAGNON, LLS DATE

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

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 222 AS LOTS 69.

2) OWNER OF RECORD:
DONALD LOWELL STICKNEY III
213 JONES AVENUE
PORTSMOUTH, NH 03801
5754/2748 & 6147/2092
D-42275

3) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON FIRM PANEL 33015C0270F. EFFECTIVE JANUARY 29, 2021.

4) EXISTING LOT AREA:
62,528 S.F.
1.4354 ACRES

5) PARCEL IS LOCATED IN SINGLE RESIDENCE B (SRB) DISTRICT.

6) DIMENSIONAL REQUIREMENTS:

MIN. LOT AREA:	15,000 S.F.
FRONTAGE:	100 FEET
SETBACKS:	
FRONT	30 FEET
SIDE	10 FEET
REAR	30 FEET
MAXIMUM STRUCTURE HEIGHT:	35 FEET
MAXIMUM BUILDING COVERAGE:	20%
MINIMUM OPEN SPACE:	40%

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED SITE DEVELOPMENT ON ASSESSOR'S MAP 222 LOT 69 IN THE CITY OF PORTSMOUTH.

8) VERTICAL DATUM IS NAVD88 (MEAN SEA LEVEL). BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

PROPOSED DADU
213 JONES AVENUE
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	2/11/22

REVISIONS

STATE OF NEW HAMPSHIRE
JOHN R. CHAGNON
No. 7851
LICENSED
PROFESSIONAL ENGINEER

SCALE: 1" = 20' FEBRUARY 2022

CUP DADU SITE PLAN

C2

FB 324 PG 60

531.01

J:\JOBS\JN500s\JN530s\JN531\2021 ADU\Plans & Specs\Site\531.01 Survey 2021.dwg, 2/23/2022 12:13:27 PM, Canon TX-3000.pc3

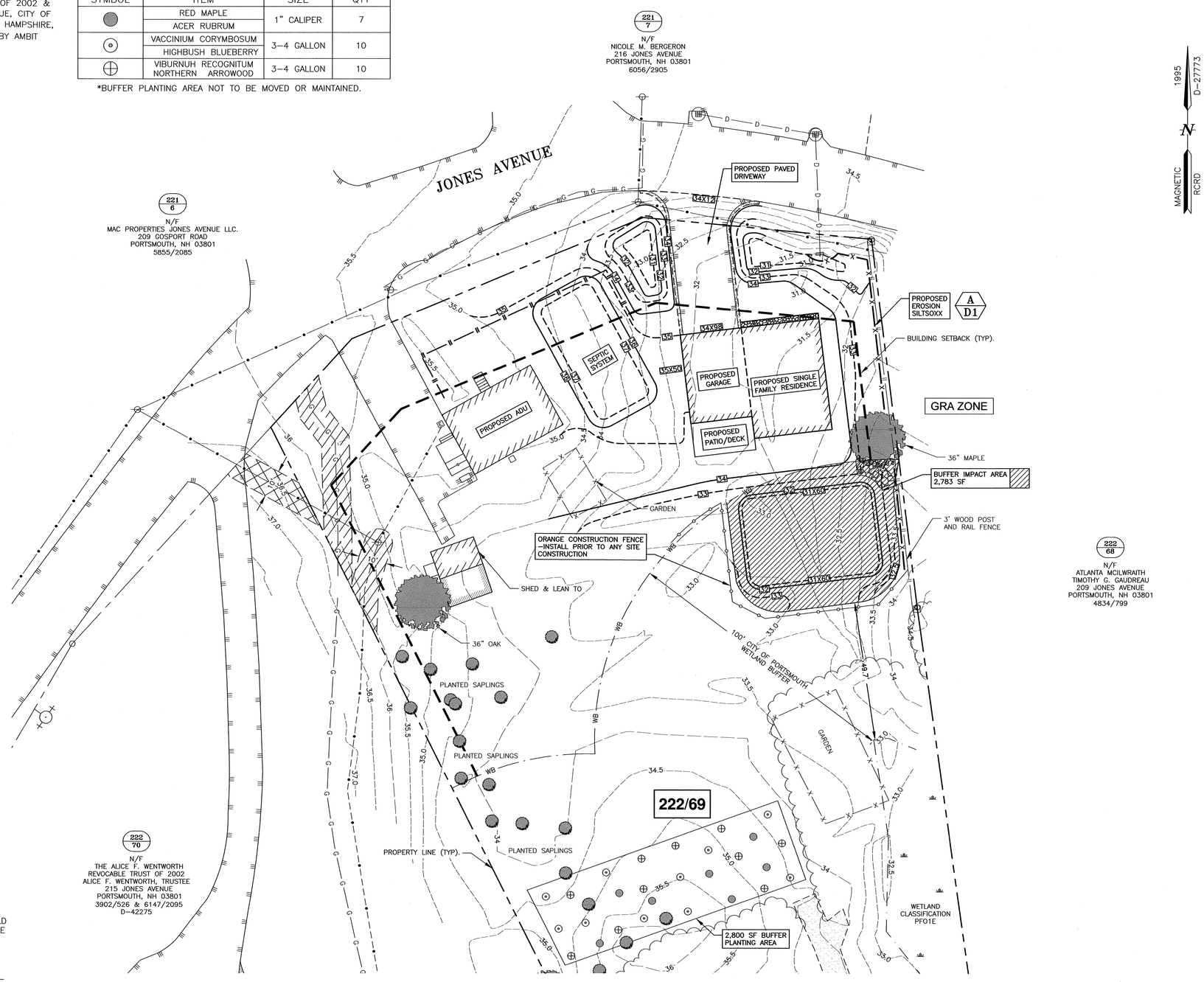
REFERENCE PLAN:

1) LOT LINE RELOCATION PLAN TAX MAP 222 – LOTS 69 & 70, OWNERS: THE ALICE F. WENTWORTH REVOCABLE TRUST OF 2002 & DONALD LOWELL STICKNEY III, 213 & 215 JONES AVENUE, CITY OF PORTSMOUTH, COUNTY OF ROCKINGHAM, STATE OF NEW HAMPSHIRE, SCALE: 1" = 40', DATED NOVEMBER 2019, PREPARED BY AMBIT ENGINEERING, INC., RCRD D–42275

BUFFER PLANTING SCHEDULE

SYMBOL	ITEM	SIZE	QTY
●	RED MAPLE ACER RUBRUM	1" CALIPER	7
⊙	VACCINIUM CORYMBOSUM HIGHBUSH BLUEBERRY	3–4 GALLON	10
⊕	VIBURNUH RECOGNITUM NORTHERN ARROWOOD	3–4 GALLON	10

*BUFFER PLANTING AREA NOT TO BE MOVED OR MAINTAINED.



1995 D–27773
N
MAGNETIC RCRD

GRAPHIC SCALE
10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

"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."

2.11.22

JOHN R. CHAGNON, LLS — DATE

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN — DATE

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:

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2) OWNER OF RECORD:
DONALD LOWELL STICKNEY III
213 JONES AVENUE
PORTSMOUTH, NH 03801
5754/2748 & 6147/2092
D–42275

3) 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.

4) 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.

5) 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).

6) PLANTING AND MAINTENANCE SHALL BE IN ACCORDANCE WITH NOFA STANDARDS FOR ORGANIC LAND USE.

7)THE PURPOSE OF THIS PLAN IS TO SHOW THE WETLAND BUFFER IMPACT ON ASSESSOR'S MAP 222 LOT 69 IN THE CITY OF PORTSMOUTH.

8) VERTICAL DATUM IS NAVD88 (MEAN SEA LEVEL). BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS. (CONTOUR INTERVAL 0.5')

PROPOSED DADU
213 JONES AVENUE
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	2/11/22

REVISIONS

SCALE: 1" = 20'

CUP WETLANDS SITE PLAN

C3

FB 324 PG 60

531.01

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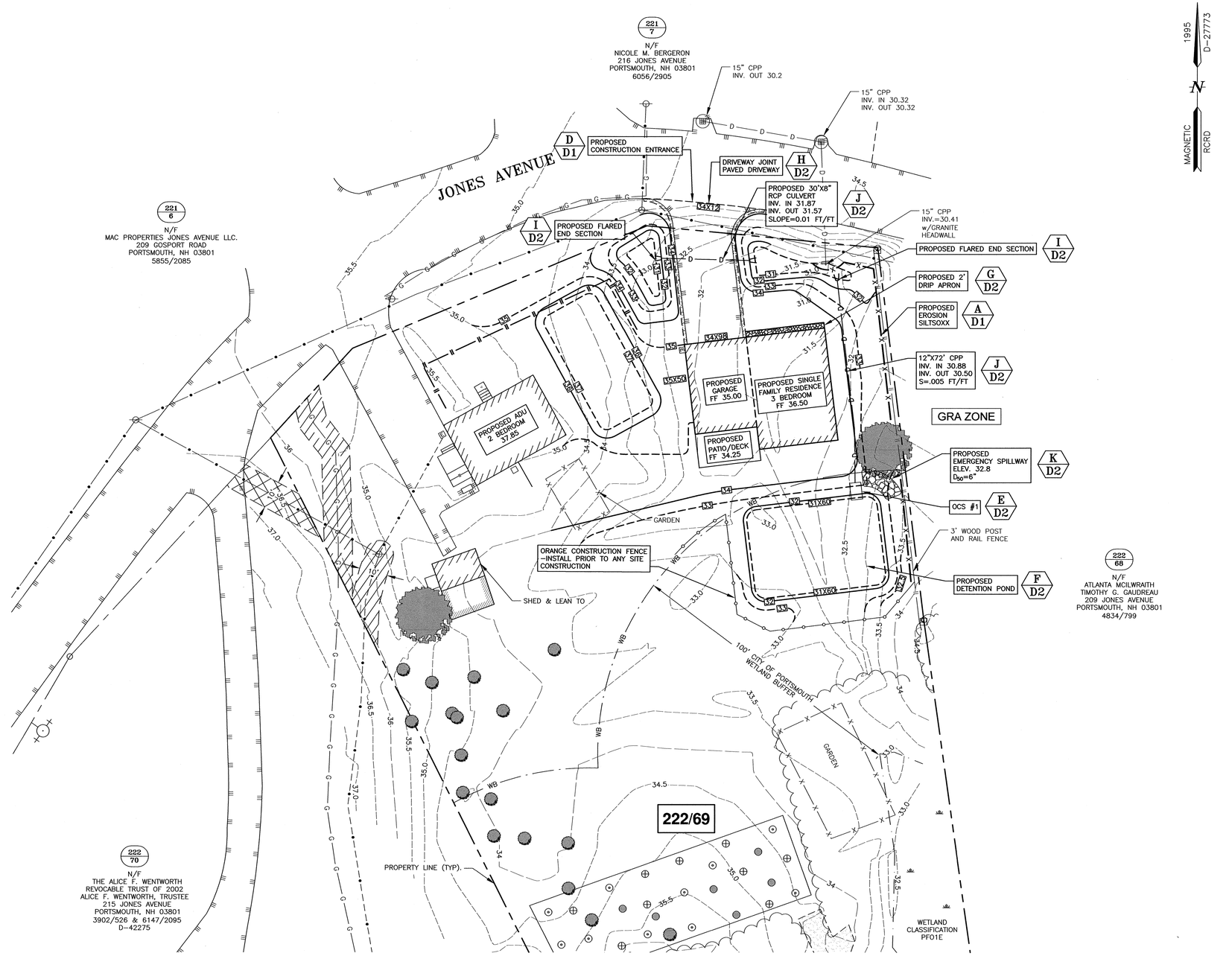

GRAPHIC SCALE

10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

STATE OF NEW HAMPSHIRE
NO. 738
JOHN R. CHAGNON
LICENSED LAND SURVEYOR
SIGNATURE

"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."

2.11.22

JOHN R. CHAGNON, LLS — DATE

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN — DATE

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road - Unit 3
Portsmouth, N.H. 03801-7114
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NOTES:

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PROPOSED DADU
213 JONES AVENUE
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	2/11/22

REVISIONS

STATE OF NEW HAMPSHIRE
JOHN R. CHAGNON
No. 7851
LICENSED PROFESSIONAL ENGINEER

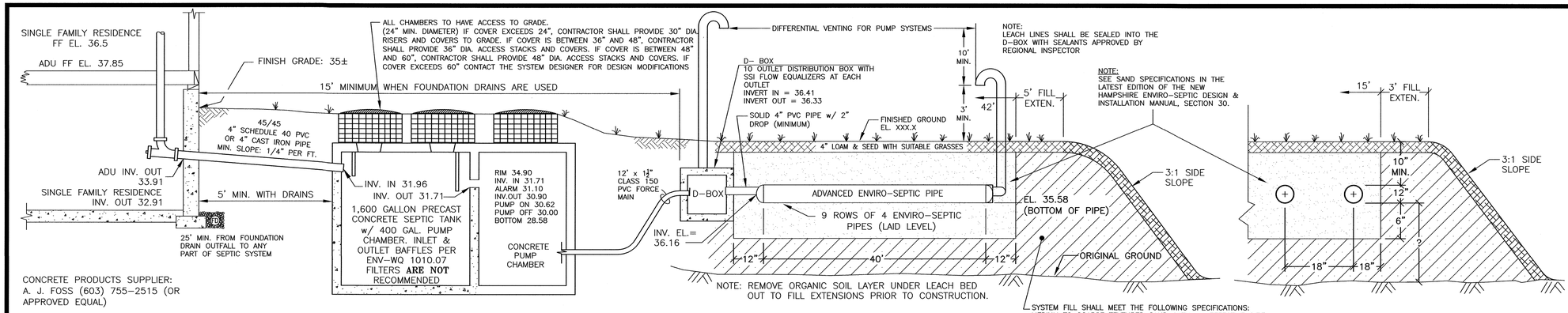
SCALE: 1" = 20'

GRADING, DRAINAGE & EROSION CONTROL PLAN

C4

FB 324 PG 60

531.01



CONCRETE PRODUCTS SUPPLIER:
A. J. FOSS (603) 755-2515 (OR APPROVED EQUAL)

COLLECTION SYSTEM PROFILE

NTS

LEACH FIELD PROFILE

NTS

LEACH FIELD SECTION

NTS

LEGEND:

100	EXISTING CONTOUR
100	PROPOSED CONTOUR
TP	TEST PIT
PT	PERC TEST
ST	SEPTIC TANK
FF	FINISH FLOOR
INV.	INVERT
MIN.	MINIMUM
FD	FOUNDATION DRAIN

MINIMUM DISTANCES:
(UNLESS OTHERWISE GOVERNED BY LOCAL CODE)

SURFACE WATER TO:
TANK 75' – FIELD 75'
PRIVATE WELL TO:
TANK 75' – FIELD 75'
PRESSURE WATER LINE TO:
TANK 10' – FIELD 25'
SUCTION WATER LINE TO:
TANK 50' – FIELD 50'
PROPERTY LINE TO:
TANK 10' – FIELD 10'

HYDRAULIC CALCULATIONS:
PROPOSED FLOW: 750 GPD
FLOW PER DOSE: 750/10 = 75 GALLONS PER DOSE
REQUIRED STORAGE WITH PUMP CHAMBER STATION: 0.62'
HEAD LOSS CALCULATION:
STATIC HEAD + FRICTION HEAD
(36.41 – 30.0) + (0.12 x 4.01) = 6.89'
USE MEYERS SSM33 EFFLUENT PUMP
PUMP RUN TIME AT TDH = 75 GAL./30 GPM = 2.5 MINUTES

TEST PIT #1

Date:	10/28/21
Logged by:	STEVE RIKER
ESHWT:	17"
Observed Water:	22"
Restrictive layer:	23"
REFUSAL:	NONE TO 48"
Percolation rate:	16 min./inch

DEPTH	DESCRIPTION
0" – 17"	10YR 3/2 FSL, 6, F
17" – 23"	10YR 4/2 FSL, 6, F
23" – 48"	2.5YR 5/2 LOAMY CLAY, FIRM, MASSIVE

TEST PIT #2

Date:	10/28/21
Logged by:	STEVE RIKER
ESHWT:	17"
Observed Water:	NONE
Restrictive layer:	21"
REFUSAL:	NONE TO 53"
Percolation rate:	16 min./inch

DEPTH	DESCRIPTION
0" – 17"	10YR 3/2 FSL, 6, F
17" – 21"	10YR 4/2 FSL, 6, F
21" – 53"	2.5YR 5/2 LOAMY CLAY, FIRM, MASSIVE

SPACE RESERVED FOR N.H.D.E.S.

DESIGN INTENT:
THE PURPOSE OF THIS DESIGN IS TO MAINTAIN 2.5' ABOVE SEASONAL HIGH WATER TABLE & 2.5' ABOVE LEDGE OR ANY IMPERMEABLE SUBSTRATUM BY CONSTRUCTING THE BOTTOM OF THE PIPE AT ELEVATION 35.58 WHICH IS 13" ABOVE EXISTING GROUND AT THE HIGHEST POINT. (HP 34.5)

UTILITY NOTES:

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LOT LOADING CALCULATIONS (NHDES):

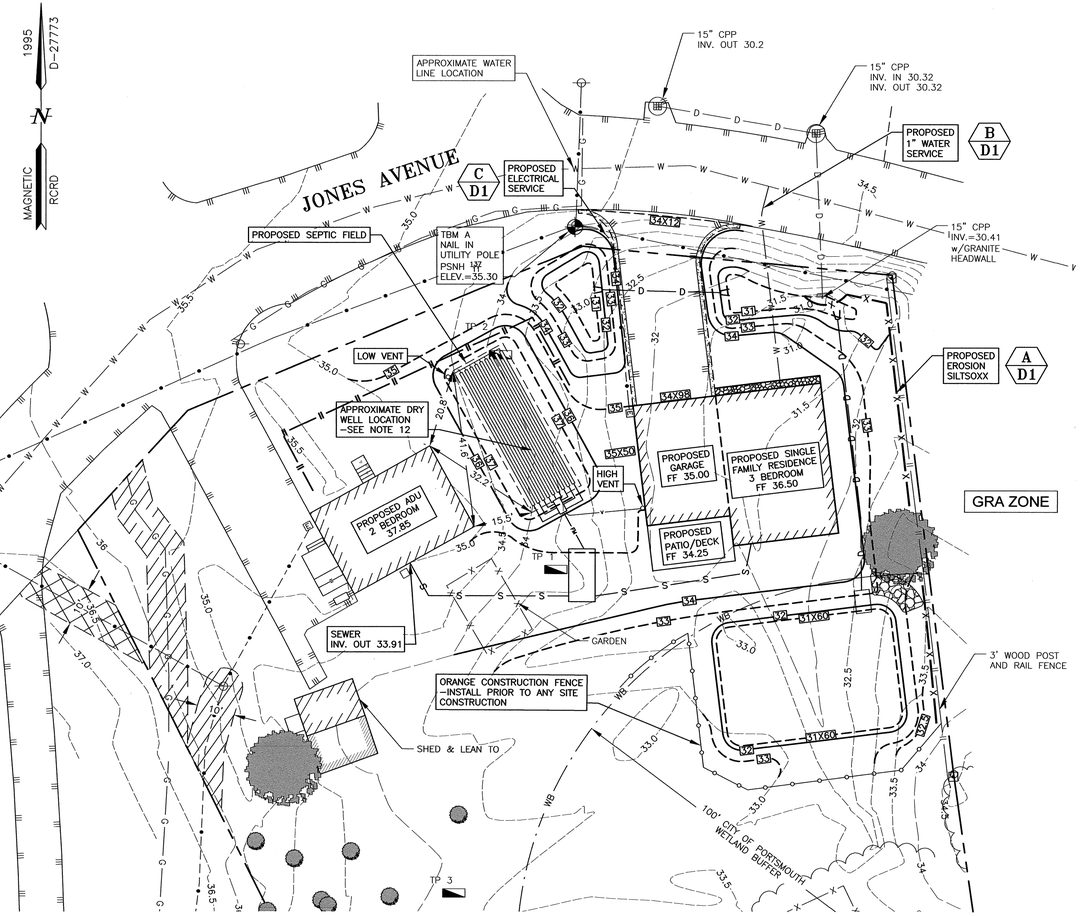
EXISTING LOT:
LOT SIZE: 62,528 S.F., 1.4354 ACRES
AREA OF WETLAND ON LOT: 11,542 S.F.
USABLE LOT AREA: 50,986 S.F.

ALLOWABLE LOADING:
((50,986/43,560)X2000)/1.76 = 1,330GPD

NOTE:
1/2' CONTOUR INTERVAL SHOWN

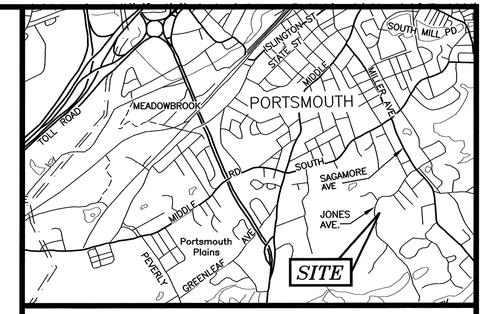
NEW HAMPSHIRE Designer of Subsurface Disposal Systems * * * John R. Chagnon No. 785 Department of Environmental Services

THIS IS A DESIGN FOR AN ADVANCED ENVIRO-SEPTIC TREATMENT SYSTEM. ADVANCED ENVIRO-SEPTIC TREATMENT SYSTEMS ARE APPROVED BY NHDES AS AN ITA IN ACCORDANCE WITH PART Env-Ws 1024.08(c) AND 1024.10. THE SYSTEM IS DESIGNED IN ACCORDANCE WITH THE ADVANCED ENVIRO-SEPTIC DESIGN AND INSTALLATION MANUAL, NEW HAMPSHIRE EDITION. FOR INFORMATION, CALL 1-800-473-5298.



GRAPHIC SCALE
10 0 20 40 60 80 FEET
5 0 5 10 15 20 25 METERS

Wetlands were delineated on the basis of hydrophytic vegetation, hydric soils and wetland hydrology in accordance with the techniques outlined in the "Corps of Engineers Wetland Delineation Manual, Technical Report Y-87-1", January 1987. The hydric soil component was determined by using the "Field Indicators for Identifying Hydric Soils in New England, Version 3", NEIWPCC Wetlands Work Group (April 2004).



LOCATION MAP 1" = 2000'

NOTES:

1) PROPOSED FLOW: PROPOSED 3 BEDROOM RESIDENCE & 2 BEDROOM ADU.
5 BEDROOMS TOTAL:
5 BEDROOMS X 150 GPD = 750 GPD
2) PROPOSED FIELD SIZE: AT 16 MINUTE PERC
CONVENTIONAL EFFLUENT DISPOSAL AREA: 1,688 S.F.
ADVANCED ENVIRO-SEPTIC REQUIRED LENGTH: 350 FEET
360 FEET OF ENVIRO-SEPTIC PIPE PROVIDED.
3) THIS PLAN IS PREPARED FOR SEPTIC SYSTEM DESIGN ONLY, IT IS NOT A BOUNDARY SURVEY.
4) FOUNDATION DRAINS: NONE PROVIDED
5) FLOOD HAZARD: LOT IS NOT IN A FLOOD HAZARD ZONE AS SHOWN ON FIRM PANEL 33015C0270F. EFFECTIVE JANUARY 29, 2021.
6) ANY CHANGES TO THE SPECIFICATIONS SHOWN HEREON SHALL BE SUBMITTED TO THE DESIGNER, IN WRITING, FOR APPROVAL PRIOR TO ANY CONSTRUCTION ON SAID CHANGES.
7) IN THE EVENT OF SYSTEM FAILURE: REBUILD IN PLACE.
8) WATER SUPPLY: CITY OF PORTSMOUTH
9) THE OWNER IS RESPONSIBLE TO OPERATE THIS SYSTEM WITHIN ITS DESIGN CAPACITY. THE AVERAGE DAILY FLOW TO THE LEACHFIELD SHOULD BE NO MORE THAN 1/2 ITS APPROVED DESIGN CAPACITY. FOR SUCCESSFUL OPERATION OF DISPOSAL SYSTEM, MAINTENANCE IS REQUIRED.
   - HAVE TANK PUMPED AS REQUIRED (3 YEAR MAXIMUM).
   - DO NOT DISPOSE BULKY WASTES, TOXIC MATERIALS, OR OIL INTO SYSTEM.
   - DO NOT DISPOSE GREASE INTO THE SYSTEM. CLEAN SEPTIC TANK FILTER WHEN PUMPING TANK.
   - DO NOT ALLOW VEHICLES OR LIVESTOCK ONTO SYSTEM UNLESS SPECIFICALLY DESIGNED FOR SUCH LOADS.
   - DO NOT USE COLORED TOILET PAPER.
   - CONSULT THE SYSTEM DESIGNER PRIOR TO PLACING ANY ADDITIONAL LOADING ON THE SYSTEM, SUCH AS: KITCHEN GARBAGE GRINDERS, HOT TUBS, WHIRLPOOLS, OR BACKWASH SYSTEMS.
10) THIS SEPTIC SYSTEM SHALL BE INSTALLED BY OR UNDER THE SUPERVISION OF A NHDES LICENSED INSTALLER. INSTALLER IS RESPONSIBLE FOR PLACING THE LEACH FIELD IN LOCATION SHOWN ON THIS PLAN, USING TIES PROVIDED. ANY DISCREPANCY BETWEEN THESE PLANS AND THE APPARENT FIELD CONDITIONS SHALL BE REPORTED TO THE DESIGNER PRIOR TO CONSTRUCTION. SYSTEM MUST BE INSPECTED AND APPROVED BY NH-DES PRIOR TO BACKFILLING.
11) CONSTRUCTION APPROVAL FOR THIS SYSTEM SHALL EXPIRE 4 YEARS FROM DATE OF ISSUE.
12) EXITING DRY WELL AND SEPTIC SYSTEM SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH NHDES RULES AND REGULATIONS.

SOIL TYPE: 140B CHATFIELD-HOLLIS-CANTON & UDORTHENTS

BENCHMARK: SPIKE SET IN UTILITY POLE PSNH 127

DATUM: NAVD88 ELEV. 35.30

DISTANCE TO NEAREST SURFACE WATER: GREATER THAN 100'

DIRECTIONS TO SITE

FROM THE PORTSMOUTH TRAFFIC CIRCLE, EXIT THE TRAFFIC CIRCLE ONTO US-1 BYP S, TURN LEFT ONTO GREENLEAF AVE, SLIGHT LEFT ONTO LAFAYETTE RD, TURN RIGHT ONTO SOUTH ST, TURN RIGHT ONTO BROAD ST, TURN RIGHT ONTO JONES AVE, DESTINATION WILL BE ON THE LEFT.

PROPOSED DETACHED DADU
TAX MAP 222 LOT 69 SUBSURFACE DISPOSAL SYSTEM PLAN
213 JONES AVE, PORTSMOUTH, NH

REGISTRY: ROCKINGHAM
BOOK / PAGE: 5754/2748 & 6147/2092
NHDES SUBDIVISION APPROVAL NO.: PRE 1967
NHDES SYSTEM APPROVAL NO.: PENDING

OWNER: DONALD LOWELL STICKNEY III
213 JONES AVENUE
PORTSMOUTH, NH 03801

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road – Unit 3
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Tel (603) 430-9282
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C5

SCALE : AS SHOWN DATE : FEBRUARY 2022

FB 324 PG 60 JOB 531.01

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CONSTRUCTION SEQUENCE

DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.

INSTALL PERIMETER CONTROLS, i.e., SILTSOXX AROUND THE LIMITS OF DISTURBANCE AND DRAINAGE CONSTRUCTION FENCE BEFORE ANY EARTH MOVING OPERATIONS. THE USE OF HAYBALES IS NOT ALLOWED.

CUT BRUSH AND TREES AS REQUIRED. STUMP SITE AND CLEAR TOPSOIL.

INSTALL FOUNDATION AND BACKFILL; ROUGH GRADE DRIVEWAY

ROUGH GRADE SITE, PROVIDE TEMPORARY EROSION PROTECTION TO DITCHES AND SWALES IN THE FORM OF MULCHING, JUTE MESH OR DITCH DAMS.

CONSTRUCT BUILDING & SEPTIC SYSTEM.

PLANT LANDSCAPING IN AREAS OUT OF WAY OF BUILDING CONSTRUCTION. PREPARE AND STABILIZE FINAL SITE GRADING BY ADDING TOPSOIL, SEED, MULCH AND FERTILIZER. PER CITY OF PORTSMOUTH ZONING ORDINANCE, ARTICLE 10.1018.24 FERTILIZERS: THE USE OF ANY FERTILIZER IS PROHIBITED IN A WETLAND, VEGETATED BUFFER STRIP OR LIMITED CUT AREA; AND THE USE OF FERTILIZERS OTHER THAN LOW PHOSPHATE AND SLOW RELEASE NITROGEN FERTILIZERS IS PROHIBITED IN ANY PART OF A WETLAND BUFFER.

FINISH ALL REMAINING LANDSCAPE WORK.

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.

NOFA STANDARDS FOR ORGANIC LAND CARE

*REFERENCE NOFA STANDARDS FOR ORGANIC LAND CARE MANUAL FOR ALL LAND CARE PRACTICES AT THIS SITE.

NEW LAWN INSTALLATION

-ORDER OF PROCESSES:
1. SOIL TESTING. SOIL TYPE PREFERRED IS CLOSE TO NEUTRAL PH AND HAS A BALANCED FUNGAL TO BACTERIAL RATIO.
2. PLANTING BED PREPARATION WITH SOIL AMENDMENTS AS SPECIFIED BY SOIL TEST RESULTS.
3. SEEDING WITH AN APPROPRIATE MIX OF SEEDS BY HAND, USING A SPREADER OR SEED DRILLER, OR BY ORGANIC HYDROSEEDING.
4. WATERING FREQUENTLY BUT SHALLOWLY, MAINTAINING A "UNIFORMLY MOIST" SEEDBED DURING GERMINATION AND ESTABLISHMENT.

LAWN MAINTENANCE

-GRASS SHOULD BE ALLOWED TO GROW 3" OR TALLER IN HEIGHT PRIOR TO FIRST MOWING. GRASS CLIPPINGS SHOULD BE LEFT IN PLACE.
-REMOVE NO MORE THAN ⅓ OF GRASS LENGTH PER MOWING.

FERTILIZING

-ORGANIC FERTILIZERS ONLY. OMRI CERTIFIED PRODUCTS (ORGANIC MATERIALS REVIEW INSTITUTE) ARE PREFERRED.

EROSION CONTROL NOTES

VEGETATIVE PRACTICE

FOR PERMANENT MEASURES AND PLANTINGS:
LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF 2 TONS PER ACRE.

ORGANIC FERTILIZERS ONLY. OMRI CERTIFIED PRODUCTS (ORGANIC MATERIALS REVIEW INSTITUTE) ARE PREFERRED.

FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. PER CITY OF PORTSMOUTH ZONING ORDINANCE, ARTICLE 10.1018.24 FERTILIZERS: THE USE OF ANY FERTILIZER IS PROHIBITED IN A WETLAND, VEGETATED BUFFER STRIP OR LIMITED CUT AREA; AND THE USE OF FERTILIZERS OTHER THAN LOW PHOSPHATE AND SLOW RELEASE NITROGEN FERTILIZERS IS PROHIBITED IN ANY PART OF A WETLAND BUFFER.

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.
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. PER CITY OF PORTSMOUTH ZONING ORDINANCE, ARTICLE 10.1018.24 FERTILIZERS: THE USE OF ANY FERTILIZER IS PROHIBITED IN A WETLAND, VEGETATED BUFFER STRIP OR LIMITED CUT AREA; AND THE USE OF FERTILIZERS OTHER THAN LOW PHOSPHATE AND SLOW RELEASE NITROGEN FERTILIZERS IS PROHIBITED IN ANY PART OF A WETLAND BUFFER.

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. PER CITY OF PORTSMOUTH ZONING ORDINANCE, ARTICLE 10.1018.24 FERTILIZERS: THE USE OF ANY FERTILIZER IS PROHIBITED IN A WETLAND, VEGETATED BUFFER STRIP OR LIMITED CUT AREA; AND THE USE OF FERTILIZERS OTHER THAN LOW PHOSPHATE AND SLOW RELEASE NITROGEN FERTILIZERS IS PROHIBITED IN ANY PART OF A WETLAND BUFFER. ORGANIC FERTILIZERS ONLY. OMRI CERTIFIED PRODUCTS (ORGANIC MATERIALS REVIEW INSTITUTE) ARE PREFERRED.

THE SWALES WILL BE CHECKED WEEKLY AND REPAIRED WHEN NECESSARY UNTIL ADEQUATE VEGETATION IS ESTABLISHED.

SILTSOXX BARRIER SHALL BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.

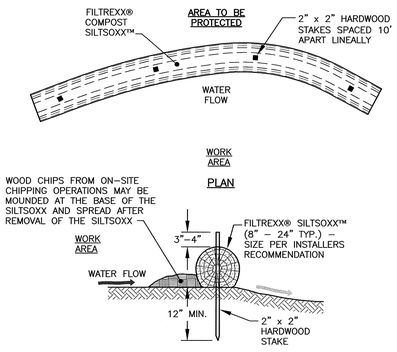
SILT FENCING AND SILTSOXX SHALL BE REMOVED ONCE VEGETATION IS ESTABLISHED, AND DISTURBED AREAS RESULTING FROM SILT FENCE AND SILTSOXX REMOVAL SHALL BE PERMANENTLY SEEDED.

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.

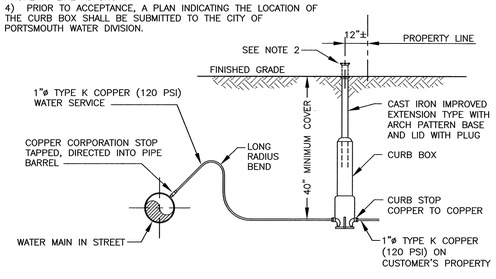
AFTER NOVEMBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.



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/C4 FILTREXX® SILTSOXX™ FILTRATION SYSTEM
NTS

NOTE:
1) INSTALLATION OF WATER MAIN TAP & CURB STOP & BOX SHALL ONLY BE PERFORMED BY THOSE AUTHORIZED BY THE PUBLIC WORKS DEPARTMENT.
2) IN AREAS OF HEAVY GROWTH THE CURB BOX COVER SHALL BE SET 6" ABOVE FINISH GRADE AND A WITNESS STAKE SET.
3) CURB BOX SHALL BE SET APPROXIMATELY 12" OUTSIDE PROPERTY LINE AS SHOWN.
4) PRIOR TO ACCEPTANCE, A PLAN INDICATING THE LOCATION OF THE CURB BOX SHALL BE SUBMITTED TO THE CITY OF PORTSMOUTH WATER DIVISION.



B/C5 WATER SERVICE CONNECTION
NTS

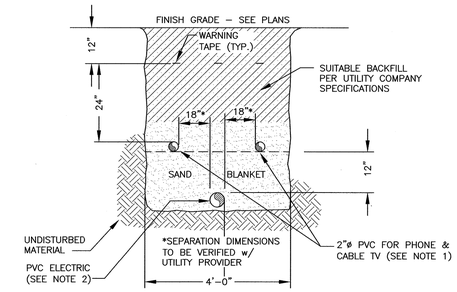
NOTES:
1) ALL CONDUIT TO BE U.L. LISTED, SCH. 80 UNDER ALL TRAVEL WAYS, & SCHED. 40 FOR THE REMAINDER.

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.

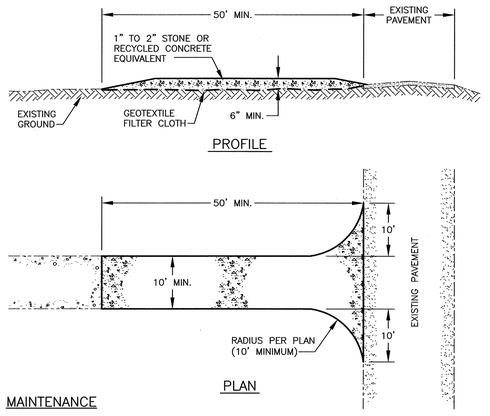
3) ALL WORK TO CONFORM TO THE NATIONAL ELECTRICAL CODE (LATEST REVISION)

4) INSTALL A 200# PULL ROPE FOR EACH CONDUIT

5) VERIFY ALL CONDUIT SPECIFICATIONS WITH UTILITY COMPANY'S PRIOR TO ANY CONSTRUCTION.



C/C5 BURIED ELEC/COMM CABLE
NTS



MAINTENANCE

1) MUD AND SOIL PARTICLES WILL EVENTUALLY CLOG THE VOIDS IN THE GRAVEL AND THE EFFECTIVENESS OF THE GRAVEL PAD WILL NOT BE SATISFACTORY. WHEN THIS OCCURS, THE PAD SHOULD BE TOP DRESSED WITH NEW STONE. COMPLETE REPLACEMENT OF THE PAD MAY BE NECESSARY WHEN THE PAD BECOMES COMPLETELY CLOGGED.
2) IF WASHING FACILITIES ARE USED, THE SEDIMENT TRAPS SHOULD BE CLEANED OUT AS OFTEN AS NECESSARY TO ASSURE THAT ADEQUATE TRAPPING EFFICIENCY AND STORAGE VOLUME IS AVAILABLE. VEGETATIVE FILTER STRIPS SHOULD BE MAINTAINED TO INSURE A VIGOROUS STAND OF VEGETATION AT ALL TIMES.

CONSTRUCTION SPECIFICATIONS

1) STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2) THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
3) THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4) THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICHEVER IS GREATER.
5) GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER CLOTH IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENCE LOT.
6) ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7) THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT 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, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.
8) WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY, WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

D/C4 STABILIZED CONSTRUCTION ENTRANCE
SUBSTITUTE FODS IF DESIRED
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

NOTES:

1) 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.

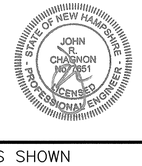
2) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

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).

PROPOSED DADU
213 JONES AVENUE
PORTSMOUTH, NH

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	2/11/22

REVISIONS



SCALE: AS SHOWN FEBRUARY 2022

EROSION NOTES & DETAILS

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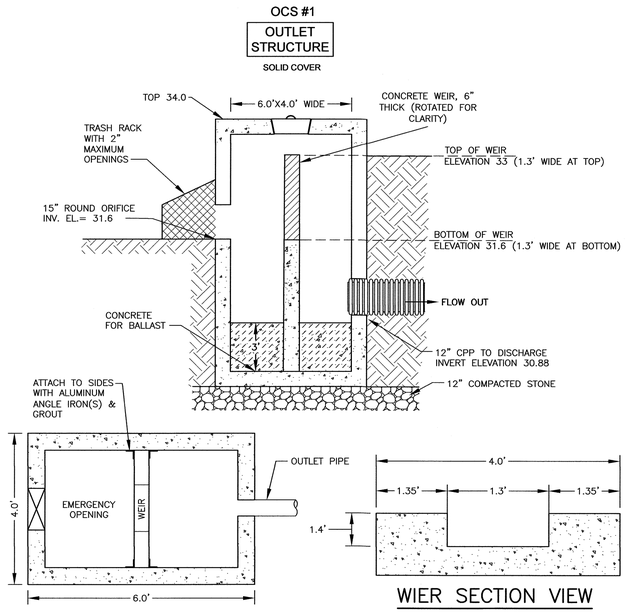
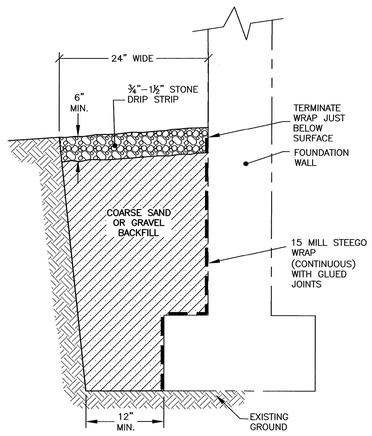
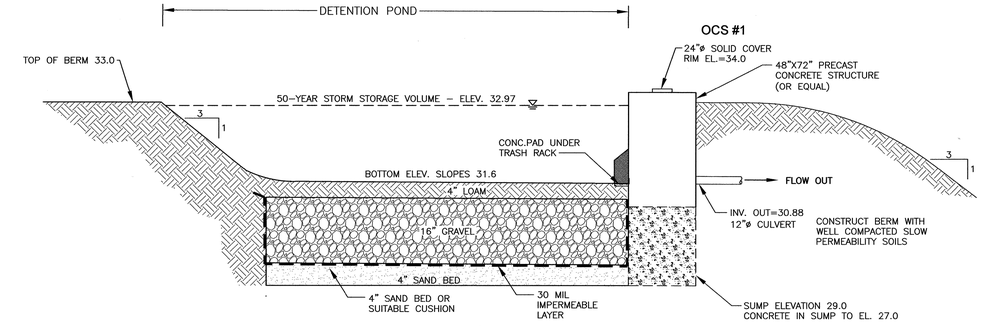


E C4 OUTLET CONTROL STRUCTURE #1
NTS



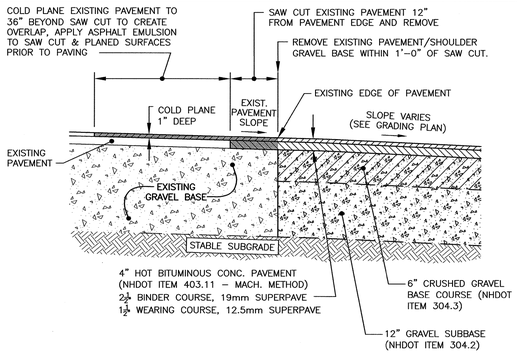
G C4 STONE DRIP APRON
(UNDER BUILDING DRIP LINE) NTS



F C4 STORMWATER DETENTION BASIN DETAIL
NTS

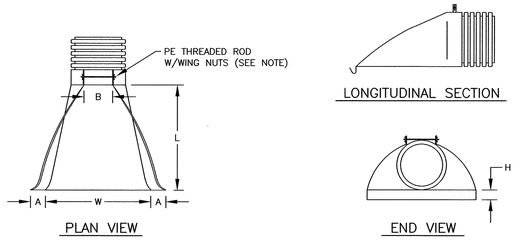
CONSTRUCTION NOTE:
1. POND SHALL BE COVERED WITH 4" OF TOPSOIL AND APPLY LIME, MULCH, FERTILIZER, AND SEED PER NOFA SPECIFICATIONS. AFTER SITE IS STABILIZED, REMOVE ANY ERODED SOIL AND RE-SEED BASIN BOTTOM.
2. DO NOT DISCHARGE SEDIMENT-LADEN WATER FROM CONSTRUCTION ACTIVITIES (RUNOFF, DEWATERING) TO BASIN UNTIL FACILITY AND CONTRIBUTING AREA IS STABILIZED.
3. DO NOT SUBJECT EXPOSED SOIL SURFACE TO CONSTRUCTION EQUIPMENT. TO THE GREATEST EXTENT FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE POND.
4. AFTER THE POND IS EXCAVATED TO SUB GRADE, THE BOTTOM OF THE POND WILL RECEIVE A 30 MIL IMPERMEABLE LINER OVER A 4" SAND BED.

SEEDING NOTES:
1. SEED SHALL BE PIERSON NURSERIES INC. "RAIN GARDEN MIX" 207-499-2994



NOTES:
1) PAVEMENT SHALL CONFORM TO NHDOT STANDARD SPECIFICATIONS - SECTION 401.
2) CRUSHED GRAVEL AND GRAVEL SUBBASE SHALL CONFORM TO NHDOT STANDARD SPECIFICATIONS - SECTION 304, TABLE 1E, AND SHALL BE COMPACTED AS INDICATED IN SECTION 304, 3.6 COMPACTION, AND 3.7 DENSITY TESTING, AND CITY OF PORTSMOUTH CONSTRUCTION STANDARDS, SECTION VIII B AND C.

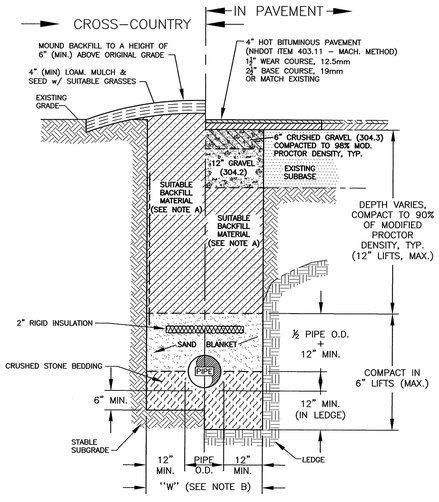
H C4 PAVEMENT / PAVEMENT JOINT DETAIL
NTS



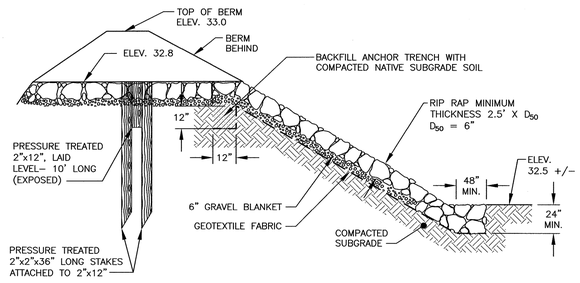
PART NO.	PIPE SIZE	A	B (MAX)	H	L	W
1210-NP	12" / 300 mm	6.5" / 165mm	10" / 254mm	6.5" / 165mm	25" / 635mm	29" / 735mm
1210-NP	15" / 375 mm	6.5" / 165mm	10" / 254mm	6.5" / 165mm	25" / 635mm	29" / 735mm
1810-NP	18" / 450 mm	7.5" / 190mm	15" / 380mm	6.5" / 165mm	32" / 812mm	35" / 890mm
2410-NP	24" / 600 mm	7.5" / 190mm	18" / 450mm	6.5" / 165mm	36" / 900mm	45" / 1140mm
3012-NP	30" / 750 mm	10.5" / 266mm	N/A	7.0" / 178mm	53" / 1345mm	68" / 1725mm
3612-NP	36" / 900 mm	10.5" / 266mm	N/A	7.0" / 178mm	53" / 1345mm	68" / 1725mm

NOTE: PE THREADED ROD W/WING NUTS PROVIDED FOR END SECTIONS 12"-24", 30" & 36" END SECTIONS TO BE WELDED TO PIPE PER MANUFACTURERS RECOMMENDATIONS.

I C4 ADVANCED DRAINAGE SYSTEM (ADS) FLARED END SECTION
OR APPROVED EQUAL NTS



J C4 TYPICAL DRAINAGE PIPE TRENCH



K C4 EMERGENCY SPILLWAY SECTION
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

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).

4) PURSUANT TO RSA 483-B:9 11 (D), NO FERTILIZER SHALL BE APPLIED TO VEGETATION OR SOILS LOCATED WITHIN 25 FEET OF THE REFERENCE LINE OF ANY PUBLIC WATER. BEYOND 25 FEET, SLOW OR CONTROLLED RELEASE FERTILIZER MAY BE USED. SLOW RELEASE NITROGEN MUST CONTAIN NO MORE THAN 2% PHOSPHORUS, AND A NITROGEN COMPONENT WHICH IS AT LEAST 50% SLOW RELEASE NITROGEN COMPONENTS.

5) PURSUANT TO RSA 483-B:9, V (A) (2) (A), NO CHEMICALS INCLUDING PESTICIDES OR HERBICIDES OF ANY KIND, SHALL BE APPLIED TO GROUND, TURF, OR ESTABLISHED VEGETATION WITHIN THE WATERFRONT BUFFER, EXCEPT IF APPLIED BY HORTICULTURE PROFESSIONAL WHO HAVE AN APPLICATION LICENSE OR AS ALLOWED BY SPECIAL PERMIT ISSUED UNDER RSA 541-A. NO CALCIUM CHLORIDE SHALL BE APPLIED WITHIN THE WATERFRONT BUFFER.

PROPOSED DADU
213 JONES AVENUE
PORTSMOUTH, NH

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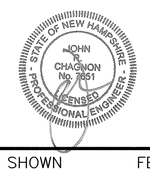
0	ISSUED FOR COMMENT	2/11/22

REVISIONS



SCALE: AS SHOWN FEBRUARY 2022

DETAILS

D2

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