

2542.12

April 22, 2024

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

**Re: *Conditional Use Permit Application Submittal – 0 Maplewood Avenue***  
Maplewood Avenue Drainage Improvements – North Mill Pond Outfall  
Portsmouth, NH

Dear Mr. Chellman:

On behalf of the City of Portsmouth, we are applying for a Conditional Use Permit (Wetland Impacts) for proposed improvements to the existing drainage outfall on North Mill Pond behind the cemeteries. This is work being undertaken by the Portsmouth Public Works Department and is required as part of the City's ongoing efforts to continue sewer separation in the Fleet Street Area of downtown.

- The proposed separation work in the Fleet Street Area will increase storm water flows and requires capacity upgrades at the existing outfall.
- Upgrades to the outfall include installation of an additional 48" drain pipe in parallel to the existing 48" drain pipe and replacement of the headwall.
- On site compensatory mitigation (marsh restoration) is proposed to offset permanent impacts to jurisdictional wetlands (tidal) resulting from the proposed work.
- The marsh restoration will also provide stabilization and revetement to the embankment behind the cemeteries which is currently being undercut by stormwater runoff from adjacent properties and tidal action.

Enclosed for consideration and the Board's use is one (1) hard copy of latest Construction Drawings submitted electronically as required. We understand this project is on the agenda to be discussed at the May 16<sup>th</sup> meeting.

The project was presented to the City's Conservation Commission at their April 10<sup>th</sup> meeting where the Commission recommended approval of the conditional use permit (wetlands impact). Their letter is attached for reference and included the following stipulations (with responses):

- Placement of wetlands markers in accordance with Section 10.1018.40 of the zoning ordinance.

*At this time we would like to request a waiver for this requirement. The markers would be placed in the cemetery where permanent posts cannot be installed. There is also limited vegetation (i.e. trees) at the 25' line where the markers can be affixed to.*

- An educational sign shall be installed near the restoration area.

*Note #15 has been added to Sheet #9 (DWG P-5) requiring a sign be provided identifying the restoration area.*

- Fencing should be used to keep disturbances out of the restoration area

*Note #14 has been added to Sheet #9 (DWG P-5) requiring the installation of temporary construction fencing around the perimeter of the restoration area.*

- Include a long term maintenance plan is to be included in the permit application.

*Underwood will work with a wetlands scientist to prepare and execute a long term monitoring plan which will be submitted to NHDES as part of their permitting process. Once the plan has been finalized we will submit the plan to the City Planning Department for records. The duration of the monitoring plan required by the State will be 5 years.*

- A note shall be added to the plans stating all soil and plant material excavated on site shall be removed and disposed of off-site.

*Note #10 was added to sheet #5 (DWG P-1) regarding the presence of invasive species and removal of said species and soils shall be in accordance to NHDOT Best Management Practices for Roadside Invasive Plants*

- A conservation seed mix or other appropriate native seed mix shall be used on impact areas disturbed within the wetlands buffer.

*Note #11 was added to Sheet #5 (DWG P-1) specifying conservation seed mix be used to revegetate existing vegetated areas within the 100' tidal buffer.*

- All necessary approvals from involved property owners will be acquired prior to the issuance of the City building permit.

*DPW is currently working with affected property owners to get proper easements and land rights to complete the proposed work. As noted by the Conservation Commission this is also required in order to obtain the permit from NHDES.*



In addition to above, we note the following updates that have been incorporated into the project drawings since the Conservation Committee Meeting.

- Construction drawings submitted to the Conservation Commission did not include all temporary impacts within the 100' tidal buffer zone. This was stated to the Commission when presenting the project. Limits of temporary impacts have been added to the updated set of drawings. An area up to 6,900 SF of temporary impact is identified for pipe installations, grading modifications, and restoration. The Wetland Impact Area Summary has been updated accordingly (Sheet #9, DWG P-5).
- A list of conditions were provided by NHFG as part of their project review for the American Eel. These conditions have been added to the General Notes Sheet #4 (DWG G-3). An education flier about the American Eel was also provided and has been added to this sheet.
- Note 8 on Sheet #9 (DWG P-5) has been updated to specify bare root seedlings in lieu of vegetation mats. That planting density was also updated to two (2) seedlings per sq. ft.
- Temporary erosion control details have been added to the Drawing Package. See sheets 16 and 17 (DWG D-7 and D-8). We also note that the contractor will be required to prepare and maintain a Stormwater Pollution Prevention Plan (SWPPP) as part of the Contract.
- Reference to tide elevations have been added to the plan view of the marsh restoration on Sheet #9 (DWG P-5).

We trust the information provided is sufficient for review by the Planning Board for discussion at the next meeting. If any information is missing or clarification is required please to not hesitate to contact me in advance of the meeting.

Very truly yours,

UNDERWOOD ENGINEERS, INC.



Daniel J Rochette, P.E (NH)  
Project Manager

Encl.

cc: Dave Desfosses, City of Portsmouth (via e-mail)





# CITY OF PORTSMOUTH

Planning & Sustainability  
Department  
1 Junkins Avenue  
Portsmouth, New  
Hampshire 03801  
(603) 610-7216

## CONSERVATION COMMISSION

April 12, 2024

Peter Rice  
City of Portsmouth  
680 Peaverly Hill Road  
Portsmouth, NH 03801

RE: Wetland Conditional Use Permit for property located at 0 Maplewood Avenue (LU-24-43)

Dear Owner:

The Conservation Commission, at its regularly scheduled meeting of **Wednesday, April 10, 2024**, considered your application for a Wetland Conditional Use permit for part of an overall project to separate the existing combined sewer overflow systems in downtown Portsmouth and provide additional capacity for stormwater in the downtown. This project involves the installment of new stormwater piping, additional catch basins and new treatment systems. The existing outfall in the North Mill Pond will be reconstructed and will be pulled further towards the shore to limit wetland impacts. The proposed tidal wetland impact for this project is approximately 500 SF for the installation of the new headwall, grading improvements, and restoration/stabilization efforts. As mitigation for the impacts relating to the outfall, the City is proposing to construct a marsh with a stabilized sill directly adjacent to the outfall location. The total area of marsh proposed is approximately 2,950 SF. Approximately 650 SF of tidal buffer area is also proposed.. Said property is shown on Assessor Map 124, Lot 2, Map 125 Lot 19, Map 157 Lot 2-1 and Map 164 Lot 4 and lies within the Office Research (OR) and Municipal (M). As a result of said consideration, the Commission voted to **approve** the Wetland Conditional Use Permit with the following stipulations.

1. In accordance with Section 10.1018.40 of the Zoning Ordinance, applicant shall install permanent wetland boundary markers. These markers shall be placed along the 25' vegetative buffer at intervals of every 50' along the City-owned property. These must be installed prior to the start of any construction. These can be purchased through the City of Portsmouth Planning and Sustainability Department. In addition to the wetland boundary markers, an educational sign describing the project shall be installed near the restoration area and fencing should be utilized to keep disturbances such as dogs and geese from the area.
2. A long-term maintenance schedule and plan be included in the permit application and submitted to the Planning & Sustainability Department that commits to long-term maintenance of the marsh restoration area and a commitment to ensuring a marsh migration pathway for marsh adaptation impacts from climate change on City-owned land.
3. A note will be added to the plans stating that all soil and plant material excavated on site shall be removed and disposed of off-site, as recommended by the TES Environmental Consultants LLC report.
4. All necessary approvals from involved property owners will be acquired prior to the issuance of a City building permit and prior to any associated approvals from the New Hampshire Department of Environmental Services.
5. A conservation seed mix or other appropriate native species seed mix and/or plantings shall be used for surface areas disturbed by the pipe installation within the wetland buffer.



This matter will be placed on the agenda for the Planning Board meeting scheduled for **Thursday, May 16, 2024**. One (1) hard copy of any revised plans and/or exhibits as well as an updated electronic file (in a PDF format) must be filed in the Planning & Sustainability Department and uploaded to the online permit system no later than Wednesday, April 24, 2024.

The minutes and audio recording of this meeting are available by contacting the Planning & Sustainability Department.

Very truly yours,



Samantha Collins, Chair  
Conservation Commission

cc: Daniel Rochette, Senior Project Engineer, Underwood Engineers

**CONSERVATION COMMISSION**

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Very truly yours,



Samantha Collins, Chair  
Conservation Commission

cc: Dave Desfosses, Construction Project Manager, City of Portsmouth

# City of Portsmouth, New Hampshire

## MAPLEWOOD AVENUE DRAINAGE IMPROVEMENTS

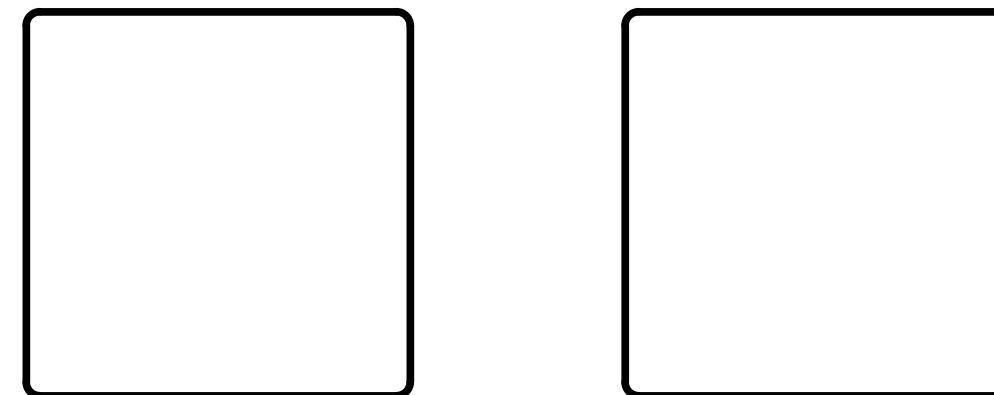


LOCATION PLAN

PROJECT AREA



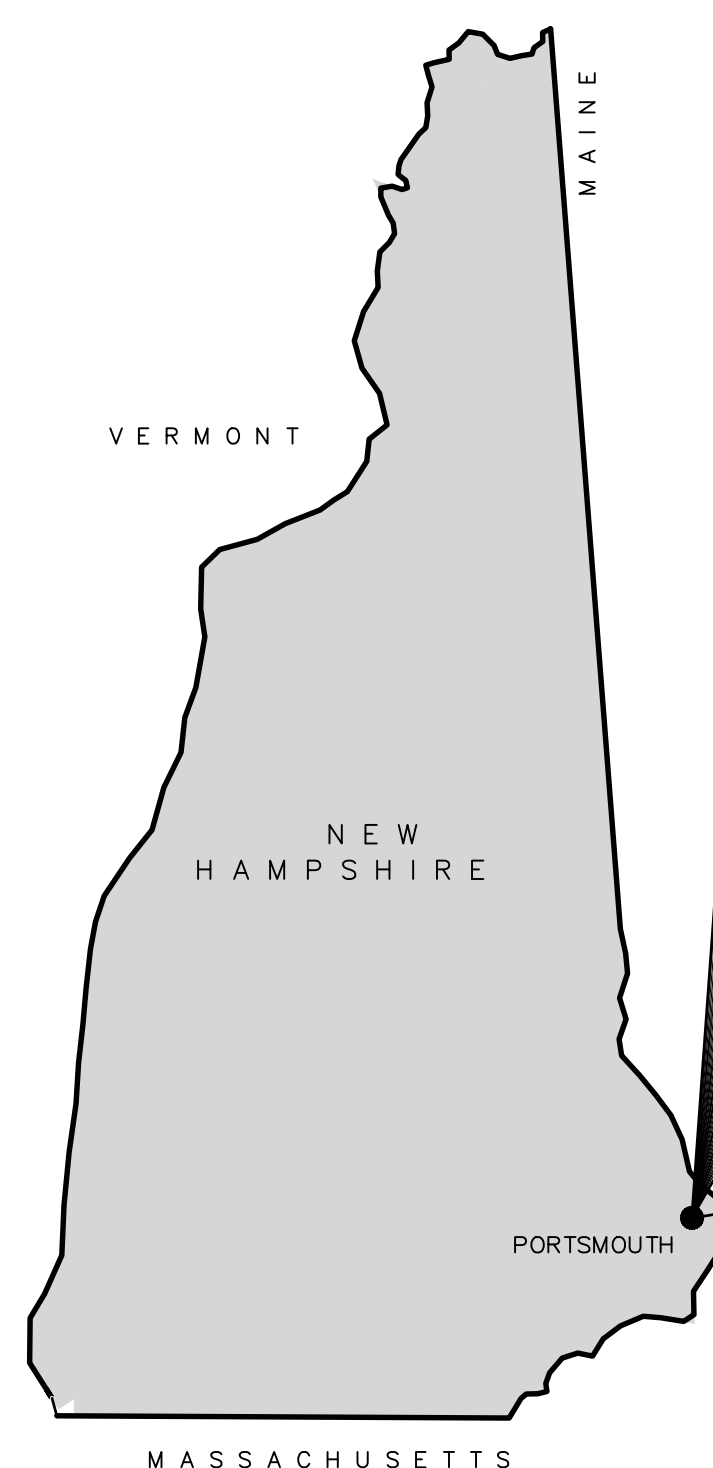
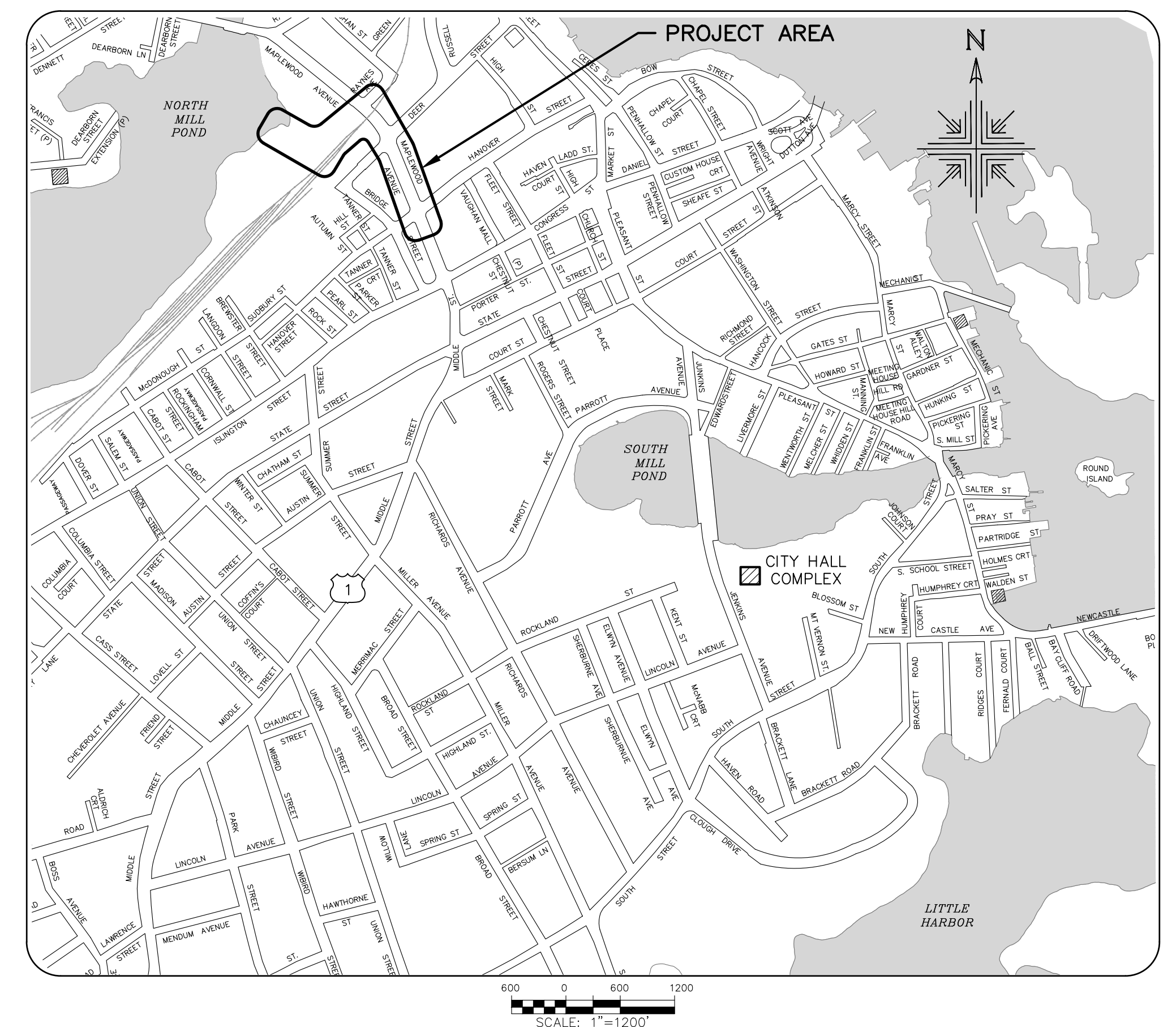
PREPARED BY  
 UNDERWOOD ENGINEERS, INC.  
 PORTSMOUTH, NEW HAMPSHIRE  
 APRIL 2024



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VICINITY MAP



UE #2542



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**LEGEND:**

| EXISTING | PROPOSED                       |
|----------|--------------------------------|
|          | STRUCTURES/BUILDINGS           |
|          | APPROXIMATE PROPERTY LINE      |
|          | PAVED ROAD/DRIVE               |
|          | VERTICAL FACED GRANITE CURB    |
|          | MODULAR BLOCK RETAINING WALL   |
|          | MORTARED BRICK RETAINING WALL  |
|          | CONCRETE RETAINING WALL        |
|          | GRANITE RETAINING WALL         |
|          | GRANITE POST                   |
|          | PARK METER KIOSK               |
|          | PARKING METER                  |
|          | BOLLARD                        |
|          | SIGN                           |
|          | HANDICAP SPACE                 |
|          | LIGHT POLE                     |
|          | UTILITY POLE WITH ARM & LIGHT  |
|          | UTILITY POLE                   |
|          | PUBLIC SERVICE CO. OF NH       |
|          | ELECTRICAL MANHOLE             |
|          | ELECTRICAL CONDUIT             |
|          | ELECTRICAL METER/BOX           |
|          | GAS METER                      |
|          | GAS SHUT OFF                   |
|          | GAS VALVE                      |
|          | WATER GATE VALVE               |
|          | WATER SHUT OFF VALVE           |
|          | HYDRANT                        |
|          | FIRE CONNECTION                |
|          | TEE CONNECTION                 |
|          | FITTINGS (11.25', 22.5', 45')  |
|          | REDUCER                        |
|          | THRUST BLOCK                   |
|          | COUPLING                       |
|          | CATCH BASIN (NEW)              |
|          | CATCH BASIN (REMOVE & REPLACE) |
|          | DRAIN MANHOLE                  |
|          | ROOF DOWNSPOUT                 |
|          | SEWER MANHOLE                  |
|          | SEWER CLEANOUT                 |
|          | TELEPHONE MANHOLE              |
|          | TELEPHONE BOX                  |
|          | CABLE MANHOLE                  |
|          | FIRE ALARM                     |
|          | DECIDUOUS TREE                 |
|          | CONIFEROUS SHRUB               |
|          | DECIDUOUS SHRUB                |
|          | OVERHEAD UTILITIES             |
|          | WATER LINE                     |
|          | SEWER LINE                     |
|          | DRAIN LINE                     |
|          | GAS LINE                       |
|          | UNDERGROUND ELECTRIC           |
|          | UNDERGROUND COMMUNICATIONS     |
|          | CEMENT CONCRETE                |
|          | BRICK PAVERS                   |
|          | LANDSCAPED AREA                |
|          | MULCHED AREA                   |

**LEGEND (cont.):**

| EXISTING | PROPOSED                                 |
|----------|--|
|          | GRASS COVER                              |
|          | SPOT GRADE                               |
|          | ELEVATION TO MATCH/NOT EXCEED            |
|          | 2' CONTOUR ELEVATION                     |
|          | 10' CONTOUR ELEVATION                    |
|          | SIGN - SEE SIGNAGE TABLE                 |
|          | TAX SHEET - LOT NUMBER                   |
|          | ROCK                                     |
|          | POLE                                     |
|          | SEWER LATERALS APPROXIMATE LOCATION      |
|          | SEWER LATERALS ASSUMED DIRECTION OF EXIT |
|          | WATER LATERALS APPROXIMATE LOCATION      |
|          | DRAIN LATERALS APPROXIMATE LOCATION      |
|          | RAILROAD SIGNAL                          |
|          | RAILROAD TRACKS                          |
|          | BORING                                   |
|          | SUBSURFACE REFUSAL                       |
|          | SUBSURFACE NO REFUSAL                    |
|          | SUBSURFACE GROUNDWATER                   |
|          | SILT BOOM                                |
|          | SILT FENCE                               |

**ABBREVIATIONS**

|        |                                     |
|--------|-------------------------------------|
| AC/ACP | ASPHALT CONCRETE PIPE               |
| CB     | CATCH BASIN                         |
| CI/CIP | CAST IRON PIPE                      |
| CL 52  | CLASS 52 PIPE                       |
| CMP    | CORRUGATED METAL PIPE               |
| DI     | DUCTILE IRON PIPE                   |
| DMH    | DRAIN MANHOLE                       |
| GIS    | CITY OF PORTSMOUTH GIS SYSTEM       |
| HDPE   | HIGH DENSITY POLYETHYLENE PIPE      |
| I      | INVERT ELEVATION                    |
| PE     | POLYETHYLENE PIPE                   |
| PVC    | POLYVINYL CHLORIDE PIPE             |
| R      | RIM ELEVATION                       |
| RCP    | REINFORCED CONCRETE PIPE            |
| RCRD   | ROCKINGHAM COUNTY REGISTRY OF DEEDS |
| RCSC   | ROCKINGHAM COUNTY SUPERIOR COURT    |
| S      | SLOPE (PIPE)                        |
| SMH    | SEWER MANHOLE                       |
| UP     | UTILITY POLE                        |

**SEWER TABLE**

|   |
|---|
| SMH# 5<br>RIM EL= 15.03<br>TOP OF TANK= 11.4±<br>(GREASE SEPERATOR)   |
| SMH# 6<br>RIM EL= 15.02<br>TOP OF TANK= 11.4±<br>(GREASE SEPERATOR)   |
| SMH# 1494<br>RIM EL= 10.62<br>CL FLOW= -1.16<br>(48" BRICK TUNNEL)  |
| SMH# 1497<br>RIM EL= 11.04<br>(1) INV IN 10" ____ = 3.51<br>(2) INV IN 15" ____ = 2.98<br>(3) INV IN 8" ____ = 2.95<br>(4) INV OUT 15"VCP= 2.91         |
| SMH# 1489<br>RIM EL= 9.39<br>(1) INV IN 12" ____ = 2.04   |
| SMH# 1499<br>RIM EL= 15.61<br>(1) INV IN 48" BRICK= -1.84<br>(2) INV IN ____ = -0.99<br>(3) INV OUT 48" BRICK= -1.94<br>(48" BRICK TUNNEL)              |
| SMH# 1500<br>NOT FIELD OBSERVED<br>(STRUCTURE & LINE ABANDONED<br>PER PORTSMOUTH DPW)   |
| SMH# 1501<br>RIM EL= 13.38<br>(1) INV IN 21" ____ = -0.57<br>(2) INV OUT 24" ____ = -0.67   |
| SMH# 1503<br>RIM EL= 15.13<br>(1) INV IN ____ = 0.53<br>(2) INV OUT ____ = ?  |
| SMH# 1519<br>RIM EL= 13.30<br>(NO INVERT DATA)  |
| SMH# 1570<br>RIM EL= 17.30<br>(1) INV IN 48" BRICK=<br>(48" BRICK TUNNEL)   |
| SMH# 2746<br>RIM EL= 14.67<br>(1) INV IN ____ = 5.4±<br>(2) INV IN ____ = 5.3±<br>(3) INV OUT ____ = 5.3±<br>(STRUCTURE INACTIVE)<br>(NO FLOW OBSERVED) |

**DRAIN TABLE**

|  |   |  |
|--|---|--|
| CB# 1352<br>RIM EL= 12.85<br>(1) INV IN 12"HDPE= 9.60<br>(2) INV OUT 12"HDPE= 9.50                       | DMH# 6<br>RIM EL= 13.65<br>(1) INV IN 18"RCP= 4.25<br>(2) INV IN 12"HDPE= 5.40<br>(3) INV OUT 18"RCP= 4.33  | DMH# 5207<br>RIM EL= 13.01<br>(1) INV IN 12"RCP= 9.62<br>(2) INV IN 12"RCP= 5.56<br>(3) INV OUT 12"RCP= 5.56   |
| CB# 3743<br>RIM EL= 12.83<br>(1) INV OUT 12"RCP= 9.58  | DMH# 7<br>RIM EL= 14.29<br>(1) INV IN 6"PVC= 6.48<br>TOP OF CONCRETE WEIR= 9.96<br>(2) INV OUT 12"HDPE= 6.30  | DMH# 5208<br>RIM EL= 13.00<br>(1) INV IN 12"RCP= 7.95<br>(2) INV IN 12"RCP= 5.78<br>(3) INV IN 12"RCP= 7.90<br>(4) INV OUT 12"RCP= 5.77                              |
| CB# 3750<br>RIM EL= 10.91<br>(1) INV OUT 12"RCP= 7.39  | DMH# 8<br>RIM EL= 13.58<br>(1) INV IN 6"PVC= 9.83<br>TOP OF CONCRETE WEIR= 11.30<br>(2) INV OUT 12"HDPE= 9.68   | DMH# 5209<br>RIM EL= 14.67<br>(1) INV IN 12"RCP= 10.39<br>(2) INV IN 12"RCP= 10.54<br>(3) INV OUT 12"RCP= 7.75   |
| CB# 3761<br>RIM EL= 10.52<br>(1) INV OUT 12"RCP= 7.03  | DMH# 4979 (4'X6' VAULT)<br>RIM EL= 10.44<br>CL FLOW 48"RCP= *1.03<br>*RECORD GIS VALUE  | DMH# 5404<br>RIM EL= 13.35<br>(1) INV IN 12"RCP= 9.45<br>(2) INV IN 12"RCP= 9.28<br>(3) INV OUT 12"RCP= 7.12   |
| CB# 3771<br>RIM EL= 15.14<br>(1) 6"PVC (PLUGGED)<br>(2) INV IN 6"PVC= 12.85<br>(3) INV OUT 12"RCP= 12.52 | DMH# 4980<br>RIM EL= 10.58<br>(1) INV IN 18"RCP= 3.03<br>(2) NO INVERT DATA<br>(3) INV OUT ____ = 1.46  | DMH# 5438 (4'X6' VAULT)<br>RIM EL= 12.79<br>CL FLOW 48"RCP= 1.24   |
| CB# 3772<br>RIM EL= 16.01<br>(1) INV OUT 12"RCP= 12.08   | DMH# 4984<br>RIM EL= 9.40<br>(1) INV IN 36"RCP= 4.15  | DMH# 5439 (4'X6' VAULT)<br>RIM EL= 7.21<br>CL FLOW 48"RCP= 0.76  |
| CB# 3773<br>RIM EL= 13.64<br>(1) INVERT INACCESSIBLE   | DMH# 5205<br>RIM EL= 15.81<br>(1) INV IN 12"RCP= 4.91<br>(2) INV IN 12"RCP= 12.26<br>(3) INV IN 18"HDPE= 8.71<br>(4) INV IN 12"RCP= 11.71<br>(5) INV OUT 18"RCP= 4.81 | DMH# 5677<br>RIM EL= 11.07<br>(1) INV IN 12"RCP= 6.97<br>(2) INV IN 10"RCP= 6.47<br>(3) INV IN 12"RCP= 6.98<br>(4) INV OUT 12"RCP= 6.37                              |
| CB# 3774<br>RIM EL= 13.25<br>(1) INV OUT 12"RCP= 8.60  | DMH# 5206<br>RIM EL= 13.32<br>(1) INV IN 12"RCP= 8.47<br>(2) INV IN 12"RCP= 9.29<br>(3) INV IN 12"RCP= 5.42<br>(4) INV OUT 12"RCP= 5.40                               | DMH# 5678<br>RIM EL= 11.32<br>(1) INV IN 12"RCP= 6.07<br>(2) FLOW LINE 36"RCP= 4.60<br>(3) INV IN 12"RCP= 7.48<br>(4) INV IN 12"RCP= 6.45<br>(5) INV IN 12"RCP= 7.88 |
| CB# 3775<br>RIM EL= 12.97<br>(1) INV OUT 12"RCP= 9.87  | CB# 3776<br>RIM EL= 12.93<br>(1) INV OUT 12"RCP= 8.25   |  |
| CB# 3776<br>RIM EL= 12.93<br>(1) INV OUT 12"RCP= 8.25  | CB# 3777<br>RIM EL= 12.94<br>(1) INV OUT 12"RCP= 8.64   |  |
| CB# 3777<br>RIM EL= 12.94<br>(1) INV OUT 12"RCP= 8.64  | CB# 3778<br>RIM EL= 14.59<br>(1) INV OUT 12"RCP= 11.09  |  |
| CB# 3778<br>RIM EL= 14.51<br>(1) INV OUT 12"RCP= 11.20   | CB# 3779<br>RIM EL= 14.51<br>(1) INV OUT 12"RCP= 11.20  |  |
| CB# 25172<br>RIM EL= 15.28<br>(1) INV OUT 18"HDPE= 10.98   |   |  |

|  |         |      |              |    |          |                |            |             |
|--|---------|------|--------------|----|----------|----------------|------------|-------------|
| ISSUE FOR BIDDING  | By      | Date | CONSTRUCTION | By | Date     | RECORD DRAWING | By         | Date        |
|  |         |      |              |    |          |                |            |             |
| APPROVED   |         |      | REVISIONS    |    |          |                |            |             |
| Drawn/Chk  | RMG     | PDM  | Checked      |    | Approved |                | Book No.   | Project No. |
|  |         |      |              |    |          |                | APRIL 2024 | 2542        |
|  |         |      |              |    |          |                | Dwg. ID    | 2542        |
|  |         |      |              |    |          |                | Scale      |             |
|  |         |      |              |    |          |                |            |             |
| 25 Vaughan Mall, Portsmouth, N.H. 03801<br>Tel. 603-436-6192 Fax. 603-431-4733 |         |      |              |    |          |                |            |             |
| <b>LEGEND &amp; ABBREVIATIONS, EXISTING STRUCTURE TABLES</b>                   |         |      |              |    |          |                |            |             |
| MAPLEWOOD AVE DRAINAGE IMPROVEMENTS  |         |      |              |    |          |                |            |             |
| CITY OF PORTSMOUTH<br>PORTSMOUTH, NEW HAMPSHIRE                                |         |      |              |    |          |                |            |             |
| DWG NO   | SHEET   |      |              |    |          |                |            |             |
| G1   | 2 OF 17 |      |              |    |          |                |            |             |

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|   |  |  |  |
|---|--|--|--|
| DWG NO<br>G2  |  | SHEET<br>3 OF 17   |  |
| <p align="center"><b>PLAN INDEX</b></p> <p align="center"><b>MAPLEWOOD AVE DRAINAGE IMPROVEMENTS</b></p> <p align="center"><b>CITY OF PORTSMOUTH</b></p> <p align="center"><b>PORTSMOUTH, NEW HAMPSHIRE</b></p> |  |  |  |
| <p><b>UNDERWOOD</b><br/>engineers</p>   |  | <p>25 Vaughan Mall, Portsmouth, N.H. 03801<br/>Tel. 603-436-6192 Fax. 603-431-4733</p> |  |
| <p>Drawn/Chk. RMG<br/>Designed FDM<br/>Approved APRIL 2024<br/>Date</p>   |  | <p>Project No. 2542<br/>Book No. 2542.prjss.M<br/>Dwg. ID. 2542.prjss.M</p>            |  |
| <p>REVISIONS</p>  |  | <p>NO.</p>   |  |
| <p>ISSUE FOR</p>  |  | <p>BIDDING</p>   |  |
| <p>By</p>   |  | <p>By</p>  |  |
| <p>Date</p>   |  | <p>Date</p>  |  |
| <p>CONSTRUCTION</p>   |  | <p>By</p>  |  |
| <p>Date</p>   |  | <p>Date</p>  |  |
| <p>RECORD DRAWING</p>   |  | <p>By</p>  |  |
| <p>Date</p>   |  | <p>Date</p>  |  |
| <p>APPD</p>   |  | <p>NO.</p>   |  |

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**GENERAL NOTES:**

1. THE LINE WORK REPRESENTING THE EXISTING UNDERGROUND STRUCTURES AND PIPES IS BASED ON A FIELD SURVEY, TIE SHEETS, AND OTHER INFORMATION AVAILABLE, INCLUDED IN THE PROJECT MANUAL APPENDIX. THE ENGINEER/SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ON THE PLANS OR THE PROJECT MANUAL APPENDIX COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE ENGINEER/SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. IN ADDITION, CONTRACTOR SHALL ANTICIPATE THAT EVERY BUILDING OR UNIT WITHIN THE PROJECT AREA HAS A LEAST ONE GAS, SEWER AND WATER SERVICE EXTENDING FROM THE MAIN IN THE STREET TO THE BUILDING. THEREFORE THE CONTRACTOR SHOULD CONSIDER CONFLICTS, HAND EXCAVATION AND POSSIBLE DELAYS IN CONSTRUCTION, WHEN PREPARING THEIR BID.

2. THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION, PROTECTION AND REPAIR (IF DAMAGED) OF ALL EXISTING UTILITY MAINS AND SERVICES. THE LOCATIONS OF KNOWN SEWER, WATER AND GAS, MAINS, SHOWN ON THESE DRAWINGS ARE APPROXIMATE. HOWEVER, WATER AND SEWER SERVICE LATERALS ARE NOT SHOWN AND THE CONTRACTOR IS TO ANTICIPATE THEIR EXISTENCE. TIE SHEETS FOR THE KNOWN UTILITIES (INCLUDING GAS AND WATER) ARE PROVIDED IN THE APPENDIX OF THE PROJECT MANUAL. VIDEO LOGS AND SANITARY SURVEYS FOR SEWER LATERALS ARE AVAILABLE FROM THE ENGINEER UPON REQUEST. NOTIFY DIG-SAFE PRIOR TO COMMENCING CONSTRUCTION (1-888-344-7233). CONTRACTOR SHALL GIVE ADEQUATE NOTICE TO THE ENGINEER OF CONFLICTS OF PROPOSED WORK WITH MARKED UTILITIES PRIOR TO CONSTRUCTING THE PROPOSED WORK.

3. ALL CONFLICTS WITH GAS LINES SHALL BE COORDINATED WITH UNITIL, SUBSIDIARY.

4. THE CONTRACTOR SHALL MAINTAIN SINGLE LANE TRAFFIC AND ACCESS TO BUSINESSES AND PROPERTIES AT ALL TIMES DURING WORKING HOURS. TRAFFIC CONTROL WARNING DEVICES SHALL BE IN ACCORDANCE WITH MUTCD (LATEST EDITION) REQUIREMENTS AND SECTION 01570 OF THE PROJECT MANUAL.

5. ALL STREET OPENINGS SHALL BE BACKFILLED AT THE END OF EACH DAYS OPERATIONS TO ENSURE SAFE VEHICULAR AND PEDESTRIAN TRAFFIC. THE CONTRACTOR SHALL MAINTAIN SAFE PASSAGE FOR 2-LANES OF TRAFFIC AT THE END OF EACH WORK DAY. DUST CONTROL OPERATIONS ARE TO BE CONTINUOUS THROUGHOUT CONSTRUCTION AND IS INCIDENTAL TO THE WORK.

6. THE USE OF PLATES TO COVER OPEN EXCAVATIONS IN LIEU OF BACKFILLING WILL NOT BE PERMITTED UNLESS PRIOR APPROVAL HAS BEEN GRANTED BY THE OWNER.

7. A NPDES PERMIT FOR CONSTRUCTION ACTIVITIES IS REQUIRED FOR THIS PROJECT. THE CONTRACTOR IS REQUIRED TO PREPARE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND TO SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA TO FULFILL PROJECT REQUIREMENTS. THE SWPPP MUST BE PREPARED IN ACCORDANCE WITH THE EPA'S REQUIREMENTS. NO WORK IS TO PROCEED UNTIL THE SWPPP AND THE NOI IS SUBMITTED AND ACCEPTED BY THE OWNER. A COPY OF THE NOI, SWPPP REQUIREMENTS, AND EXAMPLE SWPPP ARE INCLUDED IN THE PROJECT MANUAL APPENDIX.

8. THIS SET OF PLANS HAS BEEN CREATED TO BE USED IN CONJUNCTION WITH A TECHNICAL SPECIFICATION ENTITLED "PROJECT MANUAL, MAPLEWOOD AVENUE - DRAINAGE INTERCEPT, PORTSMOUTH, NH".

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL SURPLUS EARTHEN MATERIALS, LEDGE, CURB, PIPE, AND SEWER OR DRAIN STRUCTURES EXCAVATED DURING CONSTRUCTION, UNLESS MATERIALS ARE CLAIMED BY THE OWNER OR OTHERWISE INDICATED IN THE PROJECT MANUAL OR THE DRAWINGS.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PROPERTY RESTORATION BOTH PUBLIC AND PRIVATE. UTILITIES DAMAGED AS A RESULT OF THE CONTRACTORS OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

11. PAVING REPAIRS SHALL MAINTAIN EXISTING LINE AND GRADE UNLESS OTHERWISE INDICATED OR DIRECTED.

12. OVERHEAD WIRES AND WIRE DROPS TO BUILDINGS ARE NOT SHOWN IN ENTIRETY. THE CONTRACTOR SHALL ANTICIPATE THEIR EXISTENCE IN ALL OPERATIONS.

13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF ROADWAY SIGNS. ANY SIGN DAMAGED DURING THE COMPLETION OF WORK SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.

14. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.

15. CONTRACTOR SHALL NOT USE ANY ADJACENT DRIVEWAYS OR PARKING LOTS WITHOUT WRITTEN PERMISSION FOR PROPERTY OWNER. DAMAGE RESULTING FROM CONSTRUCTION LOADS OUTSIDE PROPOSED LIMITS OF WORK SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO OWNER.

16. EXISTING PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE SET OR RESET BY A LICENSED LAND SURVEYOR (LLS), SUBSIDIARY.

**REFERENCE PLANS:**

- PORTWALK SITE PLAN, PREPARED BY APPLIEDORE ENGINEERS INC., DATE/LAST REVISED 3/5/2010.
- 195 HANOVER STREET AS BUILT, PREPARED BY S.U.R., DATE/LAST REVISED 7/21/2015.
- PORTWALK AS BUILT, PREPARED BY MSC, DATE/LAST REVISED 9/15/2015.

**SURVEY NOTES:**

1. THIS PLAN IS BASED ON A FIELD SURVEY BY JAMES VERRA AND ASSOCIATES, INC. 12/2019-6/2022. ON SITE CONTROL ESTABLISHED USING SURVEY GRADE GPS UNITS. HORIZONTAL DATUM: NAD 1983 (1986 ADJUSTMENT) PRIMARY BM: NHDOT 379-0150 (PORTSMOUTH TRAFFIC CIRCLE) VERTICAL DATUM: NAVD 1988 PRIMARY BM: CITY CONTROL POINT "ALBA"

2. CONTRACTOR TO VERIFY SITE BENCHMARKS BY LEVELING BETWEEN 2 BENCHMARKS PRIOR TO THE SETTING OR ESTABLISHMENT OF ANY GRADES/ELEVATIONS. DISCREPANCIES ARE TO BE REPORTED TO JAMES VERRA AND ASSOC., INC.

3. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED UPON THE FIELD LOCATION OF ALL VISIBLE STRUCTURES (IE CATCH BASINS, MANHOLES, WATER GATES ETC.) AND INFORMATION COMPILED FROM PLANS PROVIDED BY UTILITY COMPANIES AND GOVERNMENTAL AGENCIES. ALL CONTRACTORS SHOULD NOTIFY, IN WRITING, SAID AGENCIES PRIOR TO ANY EXCAVATION WORK AND CALL DIG-SAFE @ 1-888-DIG-SAFE.

NOTE: VERY LITTLE UNDERGROUND UTILITY MARKING WAS COMPLETED PRIOR TO CONDUCTING THE FIELD SURVEY.

**SANITARY SEWER NOTES:**

1. ALL NEW SEWER SERVICE LATERALS SHALL BE 6" DIAMETER, UNLESS DIRECTED OTHERWISE. PRIOR TO CONSTRUCTION OF NEW SEWER MAINS IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY EXACT SEWER SERVICE LOCATIONS, SIZES, AND ELEVATIONS, BY VIDEO INSPECTION WITH TRANSMITTER AND LOCATOR, PAY ITEM 1.18. SEWER LATERALS SHALL BE INSTALLED TO THE PROPERTY LINE (UNLESS SHOWN OTHERWISE ON THE DRAWINGS). ANY SERVICE WORK EXTENDING PAST THE PROPERTY LINE SHALL BE APPROVED BY THE PROPERTY OWNER, THE CITY, AND THE ENGINEER PRIOR TO CONSTRUCTION. MIN. SLOPE OF SERVICE PIPE = SHALL BE 0.02 FT/FT.

2. WORK ON PRIVATE PROPERTY SHALL BE COORDINATED WITH THE CITY AND THE PROPERTY OWNER.

3. SEWER CONSTRUCTION SHALL PROCEED FROM THE LOWEST POINT UPWARD UNLESS OTHERWISE APPROVED BY THE ENGINEER.

4. SMH RIMS SHALL BE SET 1/8" TO 1/4" BELOW GRADE WHEN IN PAVEMENT OR GRAVEL ROADS (I.E., PLOWED AREAS). RIMS SHALL BE SET AT GRADE IN NON-PLOWED AREAS UNLESS OTHERWISE INDICATED.

5. ALL EXISTING SEWER STRUCTURES (PIPE AND MANHOLES) TO BE ABANDONED SHALL BE PREPARED AS FOLLOWS:

MANHOLES - SHALL BE REMOVED TO A MINIMUM DEPTH OF 4' BELOW GRADE. THE BASE OF STRUCTURES SHALL BE FILLED WITH FLOWFILL OR GRAVEL, COMPACTED IN 8" LIFTS, SUBSIDIARY, UNLESS OTHERWISE PAID FOR.  
PIPE - ALL PIPE TO BE ABANDONED IN PLACE AND SHALL BE CUT & PLUGGED AT BOTH ENDS, SUBSIDIARY. PIPES EXCEEDING 12-INCH DIAMETER, TO BE ABANDONED, WILL BE FILLED WITH FLOWABLE FILL (WHERE DIRECTED BY ENGINEER) AND PAID FOR UNDER ITEM 1.11.

6. IN ORDER OF PREFERENCE SEWER SERVICE CLEANOUTS SHALL BE PLACED:

- 1) BEHIND CONCRETE SIDEWALKS.
- 2) IN BRICK STRIP.
- 3) IN CONCRETE SIDEWALKS.

7. ALL SEWER PIPE SHALL BE SDR 35 PVC UNLESS SHOWN OTHERWISE ON THE DRAWINGS.

**DRAINAGE SYSTEM NOTES**

1. IN GENERAL, NEW CB'S WILL BE SET AT THE LOCATIONS SHOWN. EXISTING CB STRUCTURES ARE TO BE REMOVED. (SUBSIDIARY). ALL FRAMES AND GRATES SHALL BE DELIVERED TO THE PORTSMOUTH DPW (SUBSIDIARY). ALL NEW CATCH BASIN RIMS SHALL BE SET 1/2" BELOW FINISH GRADE ELEVATION. REMOVAL OF CB'S OUTSIDE NORMAL EXCAVATION LIMITS WILL BE PAID AS ITEM 202.5.

2. MANHOLE AND CATCH BASIN BASES, RISERS, CONE SECTIONS, AND SLAB TOPS SHALL BE DESIGNED SUCH THAT THERE EXISTS A MINIMUM 6" PERIPHERY OF MONOLITHIC SOLID WALL SEPARATION BETWEEN OPENINGS (CORINGS AND SECTIONS).

3. ALL CATCH BASINS, DRAIN MANHOLES, & DRAIN LINES SHALL BE CLEANED PRIOR TO ACCEPTANCE.

4. ALL REQUIRED STORM DRAIN SERVICES MAY NOT BE SHOWN ON THE PLANS, AND SHALL BE PROVIDED WHERE DIRECTED BY THE ENGINEER.

5. DMH RIMS SHALL BE SET 1/8" TO 1/4" BELOW GRADE WHEN IN PAVEMENT OR GRAVEL ROADS (I.E., PLOWED AREAS). RIMS SHALL BE SET AT GRADE IN NON-PLOWED AREAS UNLESS OTHERWISE INDICATED.

6. LOCATIONS OF NEW DRAIN SERVICES ARE BASED ON EXISTING ROOF LEADERS OBSERVED. ACTUAL LOCATION AND CONFIGURATION MAY CHANGE BASED ON FINAL REVIEW WITH PROPERTY OWNER DURING CONSTRUCTION.

**WATER DISTRIBUTION SYSTEM NOTES:**

1. THE CONTRACTOR SHALL MAINTAIN AND PROTECT THE EXISTING WATER SYSTEM AT ALL TIMES. LOCATE AND IDENTIFY ALL EXISTING MAINS AND SERVICE LOCATIONS IN ADVANCE.

2. WATER BOXES, OR OTHER CASTINGS, DISTURBED OR RELOCATED BY CONSTRUCTION ACTIVITIES SHALL BE ADJUSTED TO EXISTING LINE AND GRADE, UNLESS SHOWN OTHERWISE ON THESE PLANS OR AS DIRECTED BY THE ENGINEER (SUBSIDIARY).

**CONSTRUCTION SEQUENCE:**

PERFORM WORK IN ACCORDANCE WITH APPROVED SCHEDULE, GENERALLY ACCEPTED INDUSTRY ORDER OF OPERATIONS UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEER.

1. PRIOR TO THE START OF CONSTRUCTION PROVIDE A WRITTEN NARRATIVE OF THE CONSTRUCTION METHODS TO BE USED AND INCLUDE A PRELIMINARY SCHEDULE OF KEY MILESTONES, INCLUDING COORDINATION OF UTILITY PIPE INSTALLATIONS AND COORDINATION WITH GAS COMPANY, AND OTHER UTILITIES AS APPLICABLE.

2. REFER TO SECTION 01010 (SUMMARY OF WORK) AND SECTION POW (PROSECUTION OF WORK) FOR ADDITIONAL SCHEDULE AND PROJECT REQUIREMENTS.

3. INSTITUTE EXPLORATORY EXCAVATION PROGRAM WITH ENGINEER TO IDENTIFY POTENTIAL CONFLICTS AT UTILITY CROSSINGS. EXPLORATORY EXCAVATION COMPLETED WITHOUT PRIOR APPROVAL FROM THE ENGINEER WILL BE AT NO ADDITIONAL COST TO THE OWNER.

4. INSTALL AND MAINTAIN TEMPORARY AND PERMANENT EROSION CONTROL DEVICES THROUGHOUT THE CONSTRUCTION PERIOD (INCLUDING WINTER SHUT DOWN PERIODS AS REQUIRED) AS SHOWN IN THE APPROVED SWPPP, ON THE DRAWINGS, OR AS APPROVED BY THE ENGINEER.

5. PRE-DRAIN AND/OR DEWATER EXCAVATIONS BEFORE INSTALLING PIPE. INSTALL PIPE ON STABLE BEDDING (IN DRY CONDITIONS) TO THE ELEVATIONS SHOWN ON DRAWINGS.

6. DISPOSE OF SURPLUS AND UNSUITABLE MATERIALS AS THE WORK PROGRESSES. STOCKPILE OF MATERIALS WILL ONLY BE PERMITTED IN AREAS APPROVED BY THE CITY OF PORTSMOUTH, DPW.

7. INSTALL CRUSHED GRAVEL OR RECLAIMED BASE AS SHOWN ON DRAWINGS, IN TRENCH AT END OF EACH DAY. VISUAL INSPECTION, ALIGNMENT TESTS AND DEFLECTION TESTS OF PIPES SHALL BE COMPLETED NO LESS THAN THIRTY (30) DAYS FOLLOWING INSTALLATION. CONSTRUCT PAVEMENT REPAIRS AS SOON AS PRACTICAL, FOLLOWING UTILITY INSTALLATIONS AND TESTING.

8. IMMEDIATELY STABILIZE DISTURBED AREAS AFTER PIPE INSTALLATION AND REESTABLISH TEMPORARY EROSION CONTROL DEVICES MOVED DURING CONSTRUCTION.

9. FINISH GRADING, LOAM AND SEED DISTURBED AREAS AND BACK UP PAVEMENT WITH GRAVEL IMMEDIATELY FOLLOWING PAVEMENT REPAIRS.

10. REMOVE ALL TEMPORARY EROSION CONTROL DEVICES AS SOON AS VEGETATION IS ESTABLISHED AND AREAS ARE STABILIZED.

**NEW HAMPSHIRE FISH AND GAME CONDITIONS::**

1. AMERICAN EEL (STATE SPECIES OF SPECIAL CONCERN) OCCUR WITHIN THE VICINITY OF THE PROJECT AREA. BASED ON THE DETAILS PROVIDED IN THE MATERIALS REVIEWED FOR THE PROPOSED PROJECT AND THE LOCATION OF THE PROJECT SITE, NHFG DOES NOT ANTICIPATE IMPACTS TO THESE SPECIES AT THIS TIME. HOWEVER, ALL OPERATORS AND PERSONNEL WORKING ON OR ENTERING THE SITE SHALL BE MADE AWARE OF THE POTENTIAL PRESENCE OF THESE SPECIES AND SHALL BE PROVIDED FLYERS FOR THE RARE EEL SPECIES THAT HELP TO IDENTIFY THESE SPECIES, ALONG WITH NHFG CONTACT INFORMATION. SEE THE FLYER ON THIS SHEET.

2. RARE SPECIES INFORMATION (E.G. IDENTIFICATION, OBSERVATION AND REPORTING OF OBSERVATIONS, WHEN TO CONTACT NHFG IMMEDIATELY AND NHFG CONTACT INFORMATION) SHALL BE COMMUNICATED DURING MORNING TAILGATE MEETINGS PRIOR TO WORK COMMENCEMENT DURING THE CONSTRUCTION PHASE OF THE PROJECT. SEE THE FLYER ON THIS SHEET.

3. ALL MANUFACTURED EROSION AND SEDIMENT CONTROL PRODUCTS, WITH THE EXCEPTION OF TURF REINFORCEMENT MATS, UTILIZED FOR, BUT NOT LIMITED TO, SLOPE PROTECTION, RUNOFF DIVERSION, SLOPE INTERRUPTION, PERIMETER CONTROL, INLET PROTECTION, CHECK DAMS, AND SEDIMENT TRAPS SHALL NOT CONTAIN PLASTIC, OR MULTIFILAMENT OR MONOFILAMENT POLYPROPYLENE NETTING OR MESH WITH AN OPENING SIZE OF GREATER THAN 1/8 INCHES.

4. ALL OBSERVATIONS OF THREATENED OR ENDANGERED SPECIES ON THE PROJECT SITE SHALL BE REPORTED IMMEDIATELY TO THE NHFG NONGAME AND ENDANGERED WILDLIFE ENVIRONMENTAL REVIEW PROGRAM BY PHONE AT 603-271-2461 AND BY EMAIL AT NHFGREVIEW@WILDLIFE.NH.GOV, WITH THE EMAIL SUBJECT LINE CONTAINING THE NHB DATACHECK TOOL RESULTS LETTER ASSIGNED NUMBER, THE PROJECT NAME, AND THE TERM WILDLIFE SPECIES OBSERVATION.

5. PHOTOGRAPHS OF THE OBSERVED SPECIES AND NEARBY ELEMENTS OF HABITAT OR AREAS OF LAND DISTURBANCE SHALL BE PROVIDED TO NHFG IN DIGITAL FORMAT AT THE ABOVE EMAIL ADDRESS FOR VERIFICATION, AS FEASIBLE.

6. IN THE EVENT A THREATENED OR ENDANGERED SPECIES IS OBSERVED ON THE PROJECT SITE DURING THE TERM OF THE PERMIT, THE SPECIES SHALL NOT BE DISTURBED, HANDLED, OR HARMED IN ANY WAY PRIOR TO CONSULTATION WITH NHFG AND IMPLEMENTATION OF CORRECTIVE ACTIONS RECOMMENDED BY NHFG.

A. SITE OPERATORS SHALL BE ALLOWED TO RELOCATE WILDLIFE ENCOUNTERED IF DISCOVERED WITHIN THE ACTIVE WORK ZONE IF IN DIRECT HARM FROM PROJECT ACTIVITIES. WILDLIFE SHALL BE RELOCATED IN CLOSE PROXIMITY TO THE CAPTURE LOCATION BUT OUTSIDE OF THE WORK ZONE AND IN THE DIRECTION THE INDIVIDUAL WAS HEADING. NHFG SHALL BE CONTACTED IMMEDIATELY IF THIS ACTION OCCURS.

7. NHFG, INCLUDING ITS EMPLOYEES AND AUTHORIZED AGENTS, SHALL HAVE ACCESS TO THE PROPERTY DURING THE TERM OF THE PERMIT.

## American Eel

*(Anguilla rostrata)*  
New Hampshire Species of Concern








- Long, slender snake-like fish with thick, slimy skin
- Small mouth and tiny scales
- Has one continuous fin that runs the length of the eel's body and wraps around the tail
- Found in almost any freshwater habitat that can be accessed from the ocean

**Immediately report sightings to NH Fish and Game**  
**Melissa Winters (603-479-1129) or**  
**Josh Megyesy (978-578-0802)**  
*Please report promptly, noting specific location and date*  
**Photographs strongly encouraged**



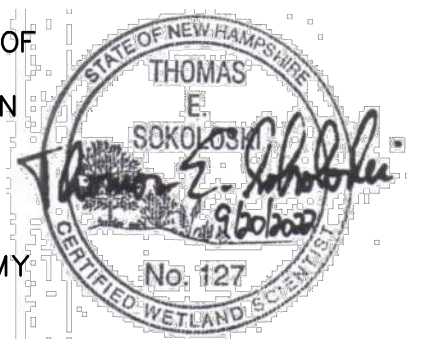

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|  | ISSUE FOR BIDDING      | By _____ Date _____                | CONSTRUCTION           | By _____ Date _____ | RECORD DRAWING | By _____ Date _____ |
| ▽  | ▽                      | ▽                                  | ▽                      | ▽                   | ▽              | NO.                 |
| Drawn/Chk. _____<br>Designed _____<br>Checked _____<br>Approved _____<br>Date: APRIL 2024.   | RMG _____<br>PDM _____ | Book No. _____<br>Project No. 2542 | Dwg. ID 2542_general_M | Scale _____         | REVISIONS      | APPD                |
|  <p style="font-size: small;">25 Vaughan Mall, Portsmouth, N.H. 03801<br/>Tel. 603-436-6192 Fax. 603-431-4733</p> |                        |                                    |                        |                     |                |                     |
| <p><b>UTILITY PLAN NOTES</b></p> <p><b>MAPLEWOOD AVE DRAINAGE IMPROVEMENTS</b></p> <p><b>CITY OF PORTSMOUTH</b></p> <p><b>PORTSMOUTH, NEW HAMPSHIRE</b></p>  |                        |                                    |                        |                     |                |                     |
| DWG NO<br>G3   | SHEET<br>4 OF 17       |                                    |                        |                     |                |                     |

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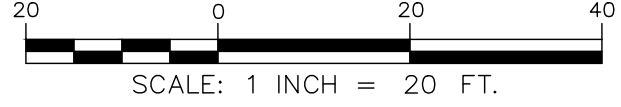
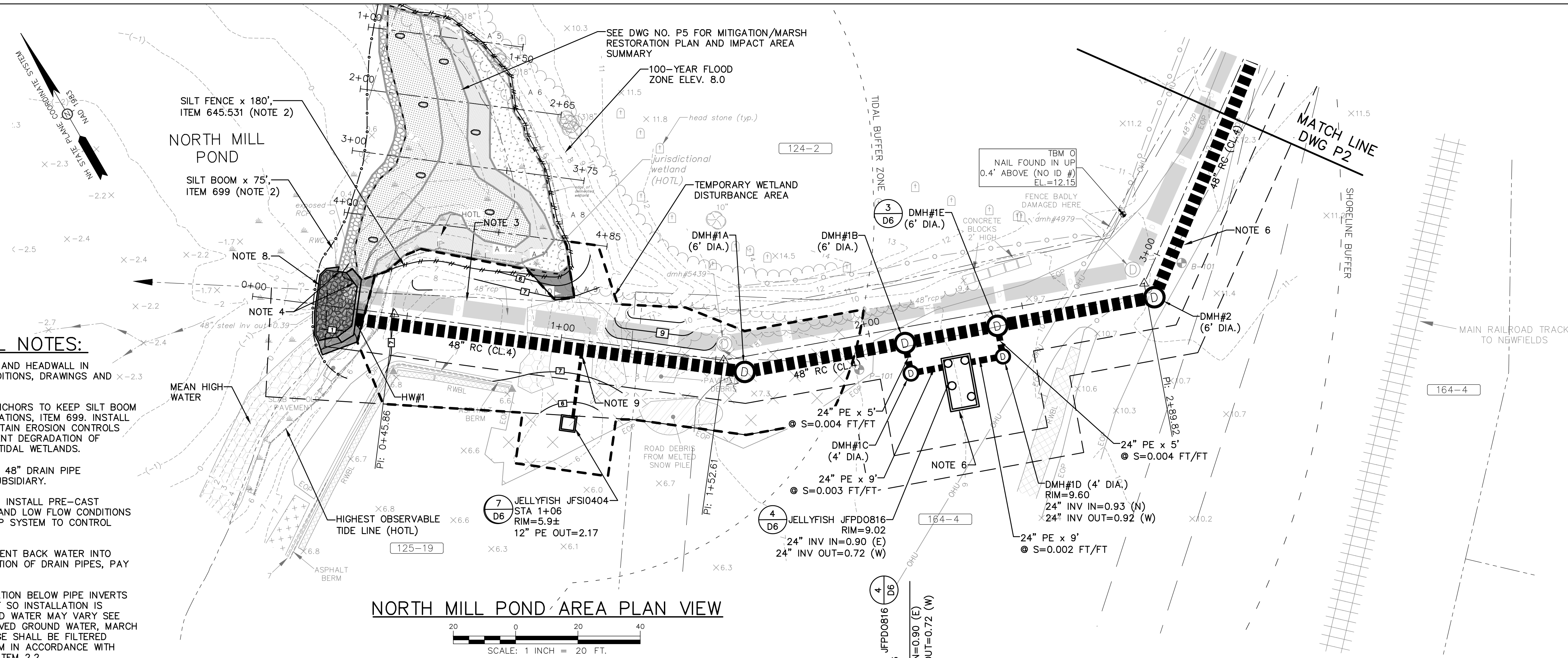


**DRAINAGE OUTFALL NOTES:**

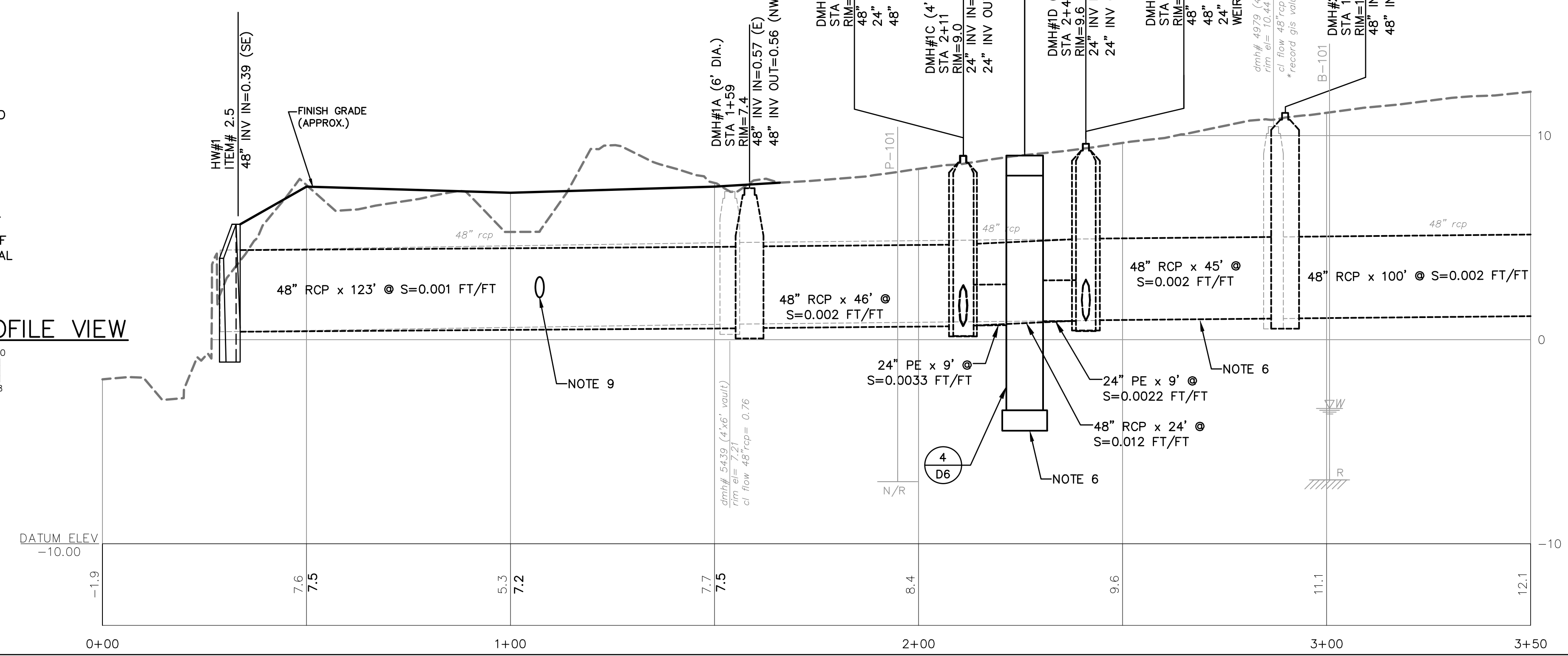
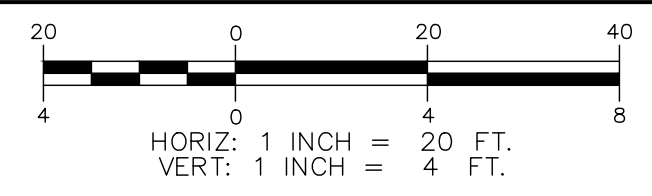
- CONSTRUCT DRAINAGE OUTFALL AND HEADWALL IN ACCORDANCE WITH PERMIT CONDITIONS, DRAWINGS AND SPECIFICATIONS.
- INSTALL SILT BOOM AND SET ANCHORS TO KEEP SILT BOOM IN PLACE DURING TIDAL FLUCTUATIONS, ITEM 699. INSTALL SILT FENCE, ITEM 645.531. MAINTAIN EROSION CONTROLS THROUGH CONSTRUCTION, PREVENT DEGRADATION OF DOWNSTREAM PROPERTIES AND TIDAL WETLANDS.
- MAINTAIN FLOW IN THE EXISTING 48" DRAIN PIPE THROUGHOUT CONSTRUCTION, SUBSIDIARY.
- REMOVE EXISTING HEADWALL AND INSTALL PRE-CAST HEADWALL DURING LOW WATER AND LOW FLOW CONDITIONS OR INSTALL SHEETING AND PUMP SYSTEM TO CONTROL BACK WATER, PAY AS ITEM 2.5.
- INSTALL TIDE VALVES AND PREVENT BACK WATER INTO DRAIN PIPES DURING CONSTRUCTION OF DRAIN PIPES, PAY AS ITEM 2.6.
- MAINTAIN GROUND WATER ELEVATION BELOW PIPE INVERTS AND BOTTOM OF JELLYFISH UNIT SO INSTALLATION IS COMPLETED IN THE DRY. GROUND WATER MAY VARY SEE B-101, APPENDIX A FOR OBSERVED GROUND WATER, MARCH 2022. GROUND WATER DISCHARGE SHALL BE FILTERED THROUGH A CONTROLLED SYSTEM IN ACCORDANCE WITH CONTRACTORS SWPPP, PAY AS ITEM 2.2.
- THOMAS SOKOLOSKI, CERTIFIED WETLAND SCIENTIST #127, OF TES ENVIRONMENTAL CONSULTANTS, L.L.C. OF BOW, NH, PERFORMED THE WETLAND IDENTIFICATION AND DELINEATION ON JUNE 28, 2022 ACCORDING TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL AND THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTH-CENTRAL AND NORTHEAST REGION, VERSION 2.0, JANUARY 2012, US ARMY CORPS OF ENGINEERS.
- CONSTRUCT STABILIZED OUTLET. SEE DETAILS (DWG D6).
- CONNECT 12" PE TO 48" RCP WITH INSERT TEE TYPE CONNECTION. 12" PE INVERT=1.97, INCIDENTAL TO ITEM 603.82212.
- INVASIVE PLANT SPECIES ARE PRESENT IN THE AREA INCLUDING BUT ARE NOT LIMITED TO: ORIENTAL BITTERSWEET, GLOSSY BUCKTHORN, MULTIFLORA ROSE, AND BLACK SWALLOWWORT. ALL SOIL AND PLANT MATERIALS REMOVED FROM THE SITE SHALL NOT BE REUSED AND DISPOSED BY THE CONTRACTOR IN ACCORDANCE TO THE NHDOT BEST MANAGEMENT PRACTICES FOR ROADSIDE INVASIVE PLANTS (LATEST EDITION)
- CONSERVATION SEED MIX (HYDRAULIC APPLICATION) SHALL BE USED TO RE-VEGETATE DISTURBED AREAS OUTSIDE LIMITS OF EXISTING PAVEMENT AND OUTSIDE THE LIMITS OF THE PROPOSED MARSH RESTORATION WITHIN THE 100' TIDAL BUFFER ZONE.



**NORTH MILL POND AREA PLAN VIEW**



**NORTH MILL POND AREA PROFILE VIEW**



|                |              |            |           |          |
|----------------|--------------|------------|-----------|----------|
| ISSUE FOR      | By           | Date       | REVISIONS | APPROVAL |
| BIDDING        |              |            |           |          |
| CONSTRUCTION   |              |            |           |          |
| RECORD DRAWING |              |            |           |          |
| NO.            |              |            |           |          |
| Drawn/Chk      | RMG          |            |           |          |
| Designed       | FDM          |            |           |          |
| Checked        |              |            |           |          |
| Approved       |              | APRIL 2024 |           |          |
| Date           |              |            |           |          |
| Book No.       |              |            |           |          |
| Project No.    | 2542         |            |           |          |
| Dwg. ID        | 2542.phase_M |            |           |          |
| Scale          |              |            |           |          |

**UNDERWOOD**  
engineers

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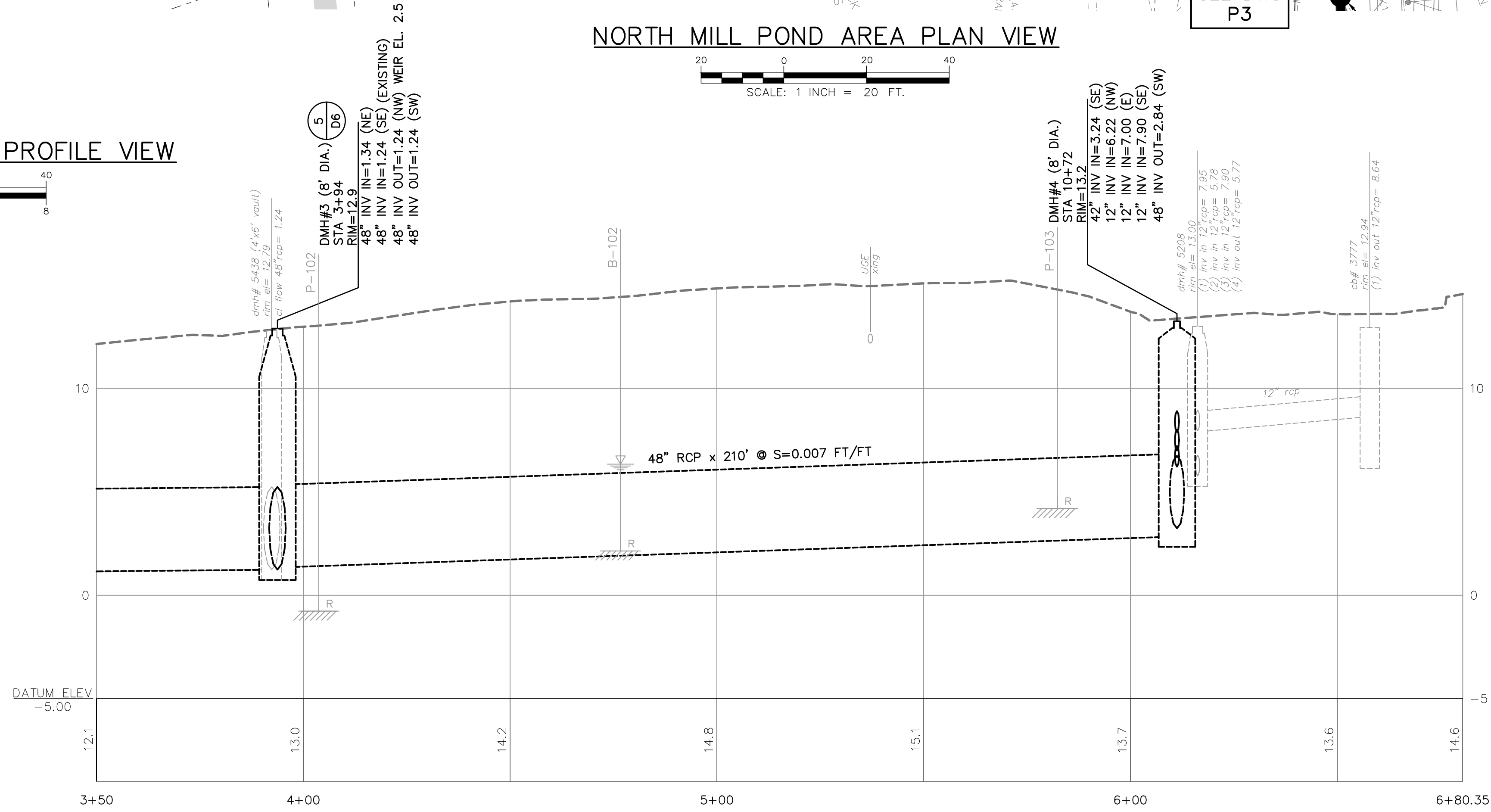
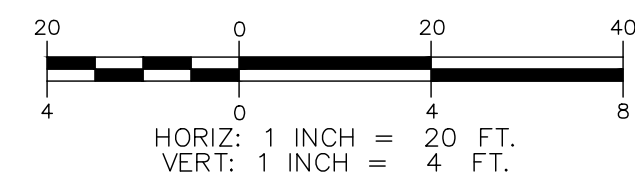
**NORTH MILL POND DRAINAGE OUTFALL PIPE PLAN AND PROFILES**

**MAPLEWOOD AVE DRAINAGE IMPROVEMENTS**

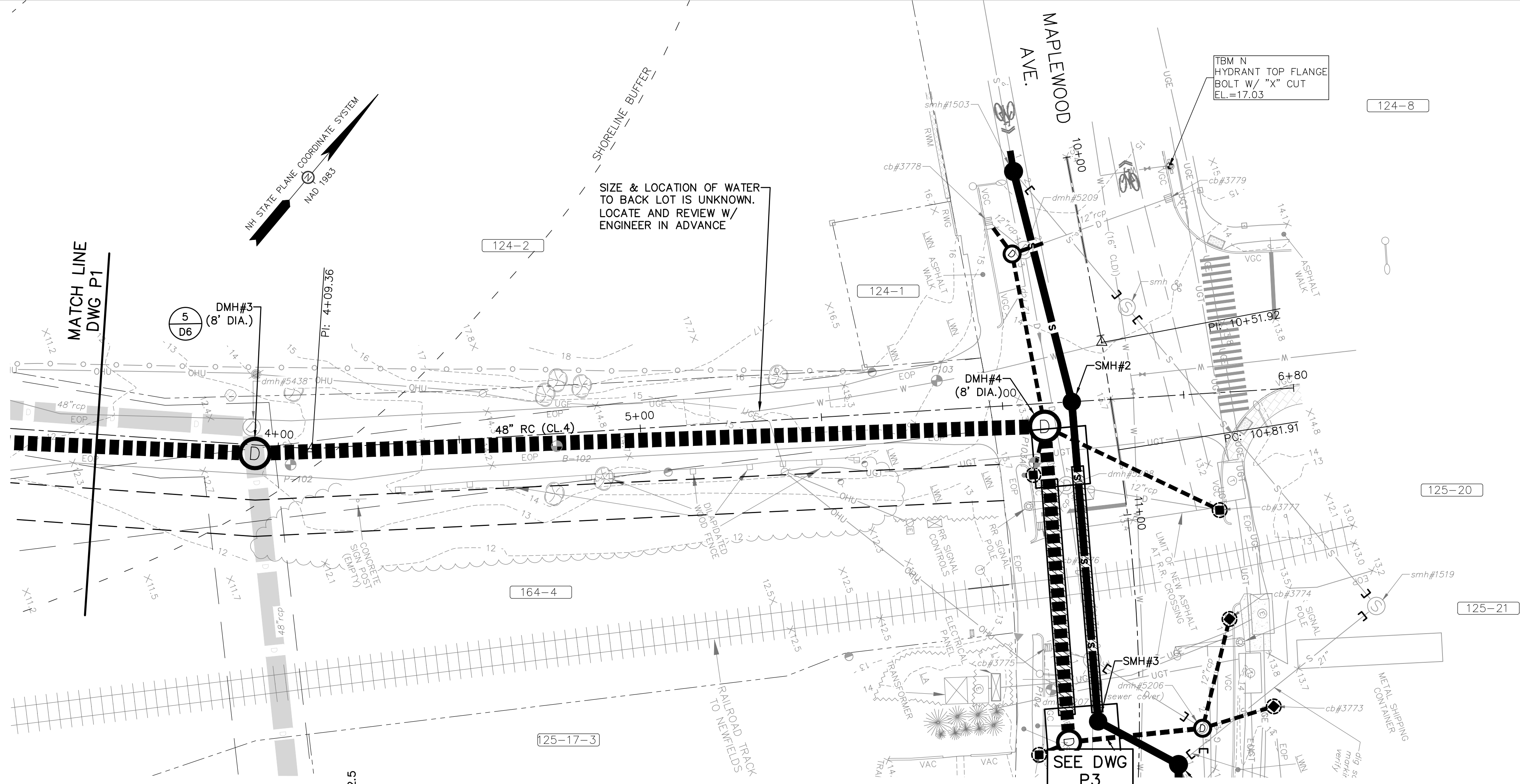
**CITY OF PORTSMOUTH**  
**PORTSMOUTH, NEW HAMPSHIRE**



**NORTH MILL POND AREA PROFILE VIEW**



**NORTH MILL POND AREA PLAN VIEW**



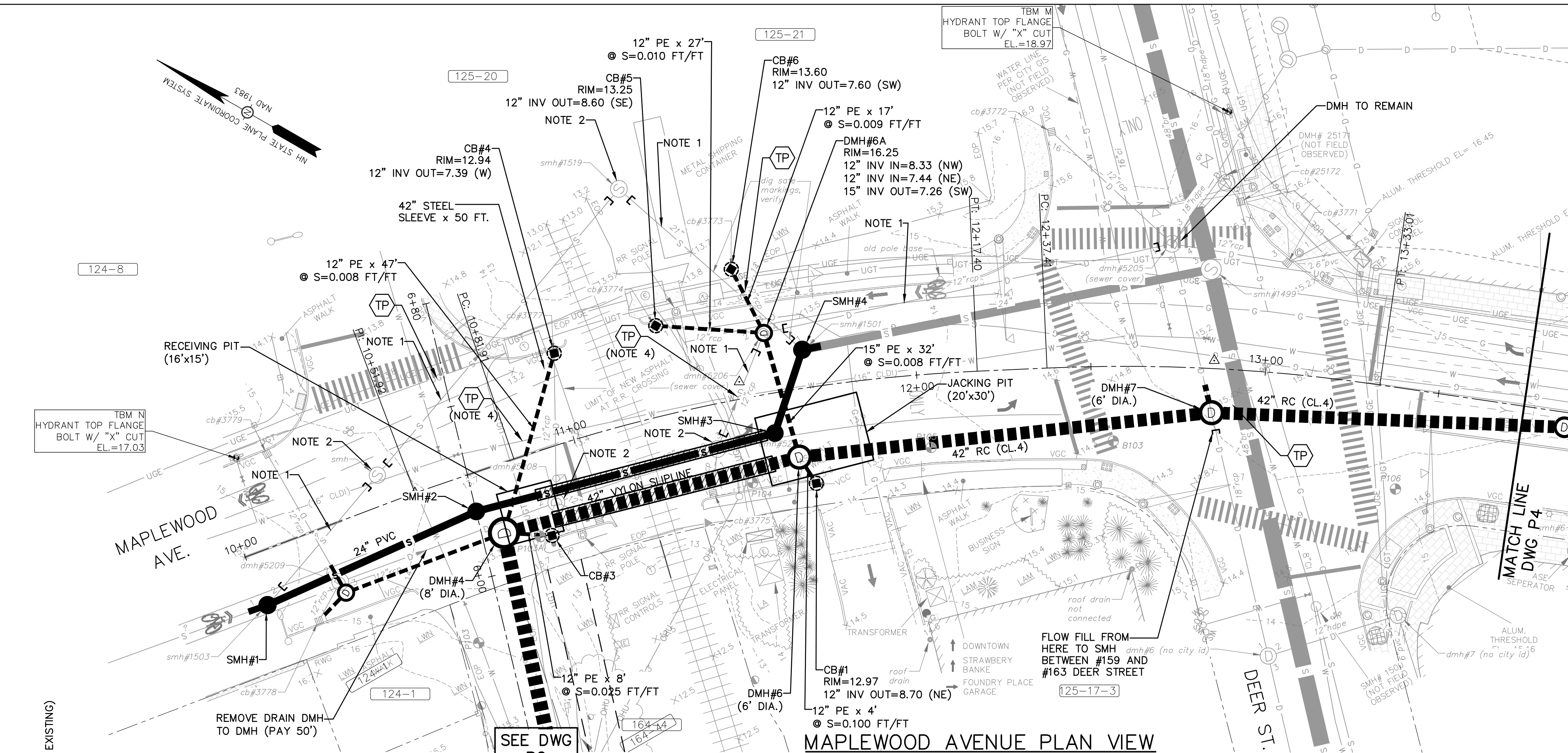
SIZE & LOCATION OF WATER TO BACK LOT IS UNKNOWN. LOCATE AND REVIEW W/ ENGINEER IN ADVANCE

TBM N HYDRANT TOP FLANGE BOLT W/ "X" CUT EL=17.03

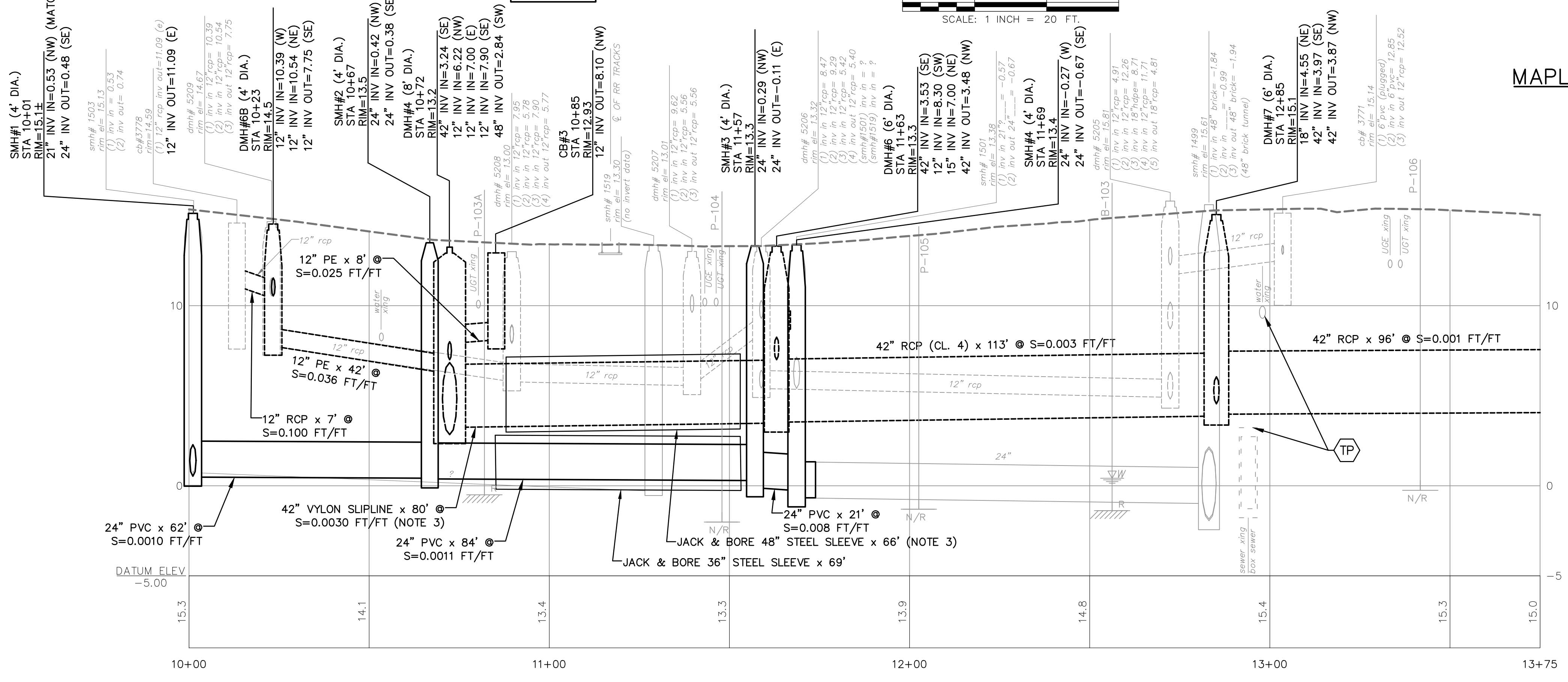
|  |              |  |      |
|--|--------------|--|------|
| DWG NO<br>P2   |              | SHEET<br>6 OF 17   |      |
| <p><b>NORTH MILL POND AREA PIPE PLAN AND PROFILES</b></p> <p><b>MAPLEWOOD AVE DRAINAGE IMPROVEMENTS</b></p> <p><b>CITY OF PORTSMOUTH</b></p> <p><b>PORTSMOUTH, NEW HAMPSHIRE</b></p> |              |  |      |
| <p><b>UNDERWOOD</b><br/>engineers</p>  |              | 25 Vaughan Mall, Portsmouth, N.H. 03801<br>Tel. 603-436-6192 Fax. 603-431-4733 |      |
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| Drawn/Chk  | RMG          | REVISIONS  | APPD |
| Designed   | FDM          | NO.  |      |
| Checked  |              |  |      |
| Approved   |              |  |      |
| Date   | APRIL 2024   |  |      |
| Book No.   |              |  |      |
| Project No.  | 2542         |  |      |
| Dwg. ID  | 2542_p02as_M |  |      |
| Scale  |              |  |      |
| ISSUE FOR<br>BIDDING<br>Date<br>By   |              | CONSTRUCTION<br>Date<br>By   |      |
| RECORD DRAWING<br>Date<br>By   |              |  |      |

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- NOTES:**
1. ABANDON EXISTING PIPES IN PLACE. PLUG AND CAP PIPE AT MANHOLES AND FILL WITH FLOWABLE FILL.
  2. REMOVE EXISTING MANHOLE FOLLOWING INSTALLATION OF NEW SEWER.
  3. DURING THE JACKING OPERATION THE FRONT OF THE CASING PIPE SHALL BE PROVIDED WITH MECHANICAL ARRANGEMENTS OR DEVICES THAT WILL POSITIVELY PREVENT THE AUGER FROM LEADING THE PIPE SO THAT NO UNSUPPORTED EXCAVATION IS AHEAD OF THE PIPE. CSXT PIPELINE SPECS. PAGE 23, ii, (c)
  4. CONTRACTOR TO PERFORM TEST PIT TO CONFIRM LOCATION OF WATER MAIN PRIOR TO JACKING AND RECEIVING PIT EXCAVATION.



|             |               |                |
|-------------|---------------|----------------|
| Drawn/Chk   | RMG           | ISSUE FOR      |
| Designed    | FDM           | BIDDING        |
| Checked     |               | Date           |
| Approved    |               | By             |
| Date        | APRIL 2024    | CONSTRUCTION   |
| Book No.    |               | Date           |
| Project No. | 2542          | By             |
| Dwg. ID     | 2542.phases_M | RECORD DRAWING |
| Scale       |               | Date           |
|             |               | By             |
|             |               | REVISIONS      |
|             |               | APP'D          |
|             |               | NO.            |
| DWG NO      | P3            | SHEET          |
|             |               | 7 OF 17        |

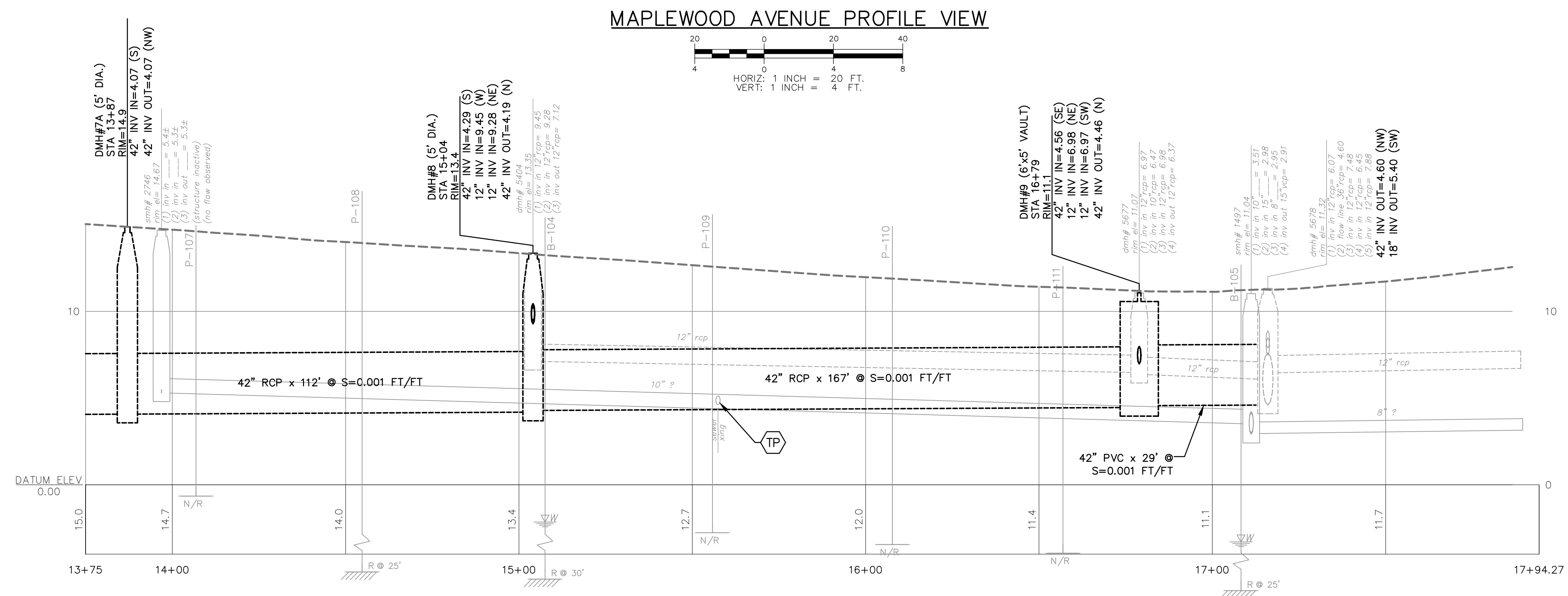
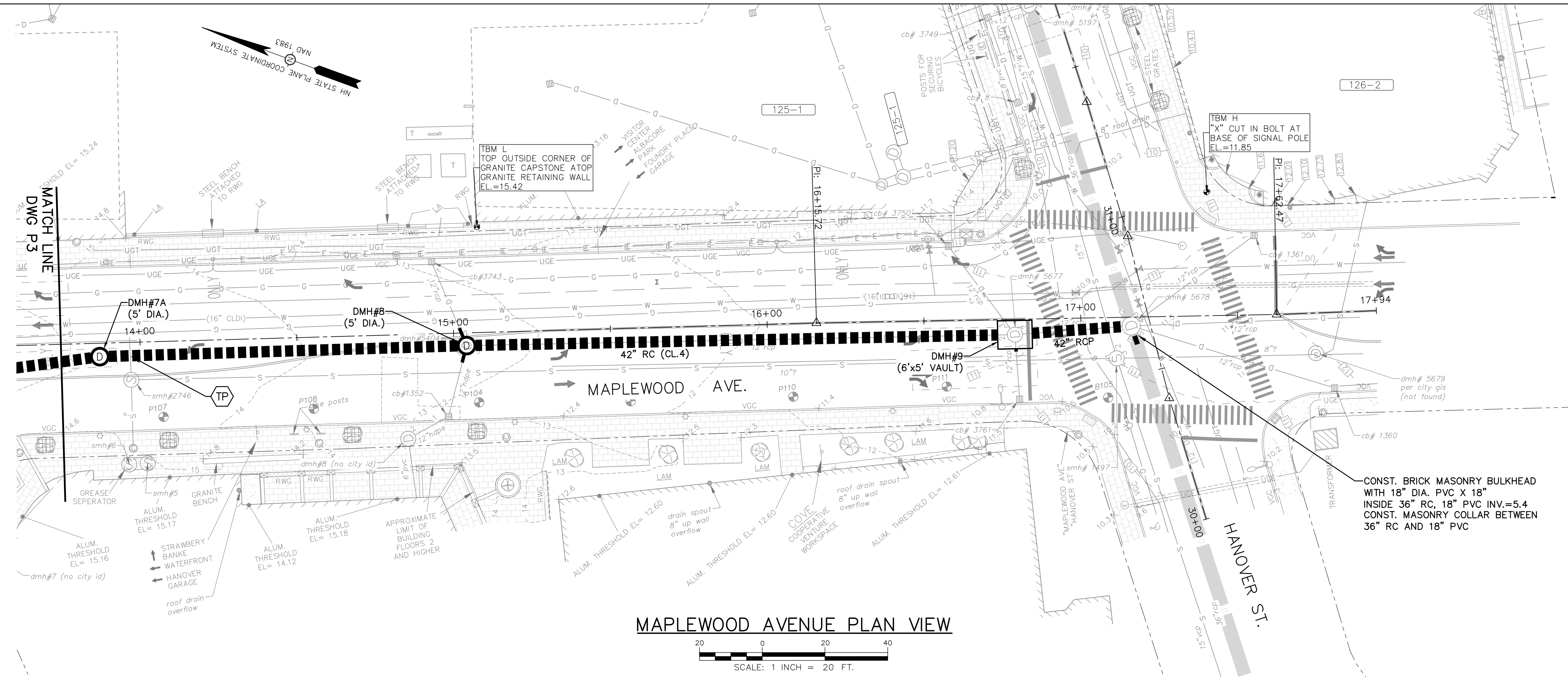
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**MAPLEWOOD AVENUE  
PIPE PLAN AND PROFILES**

**MAPLEWOOD AVE DRAINAGE IMPROVEMENTS**

**CITY OF PORTSMOUTH  
PORTSMOUTH, NEW HAMPSHIRE**



|   |  |                                      |
|---|--|--------------------------------------|
| Drawn/Chk: RMG<br>Designed: FDM<br>Checked: _____<br>Approved: APRIL 2024<br>Date: _____<br>Book No.: _____<br>Project No.: 2542<br>Dwg. ID: 2542_p08ss_M<br>Scale: _____ |  | REVISIONS<br>NO. _____<br>APPD _____ |
| ISSUE FOR<br>BIDDING<br>Date: _____<br>By: _____<br>CONSTRUCTION<br>Date: _____<br>By: _____<br>RECORD DRAWING<br>Date: _____<br>By: _____                                |  |                                      |

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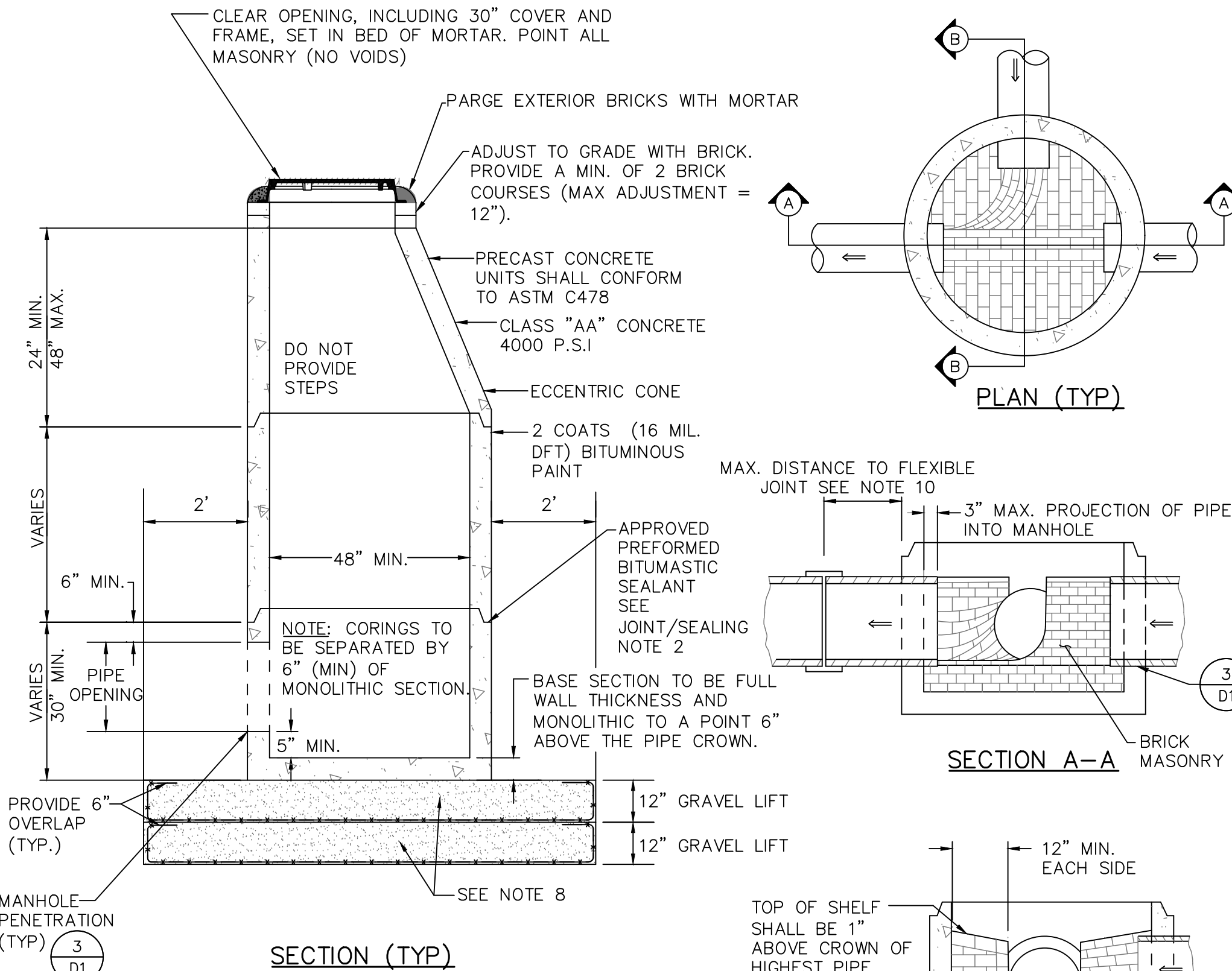




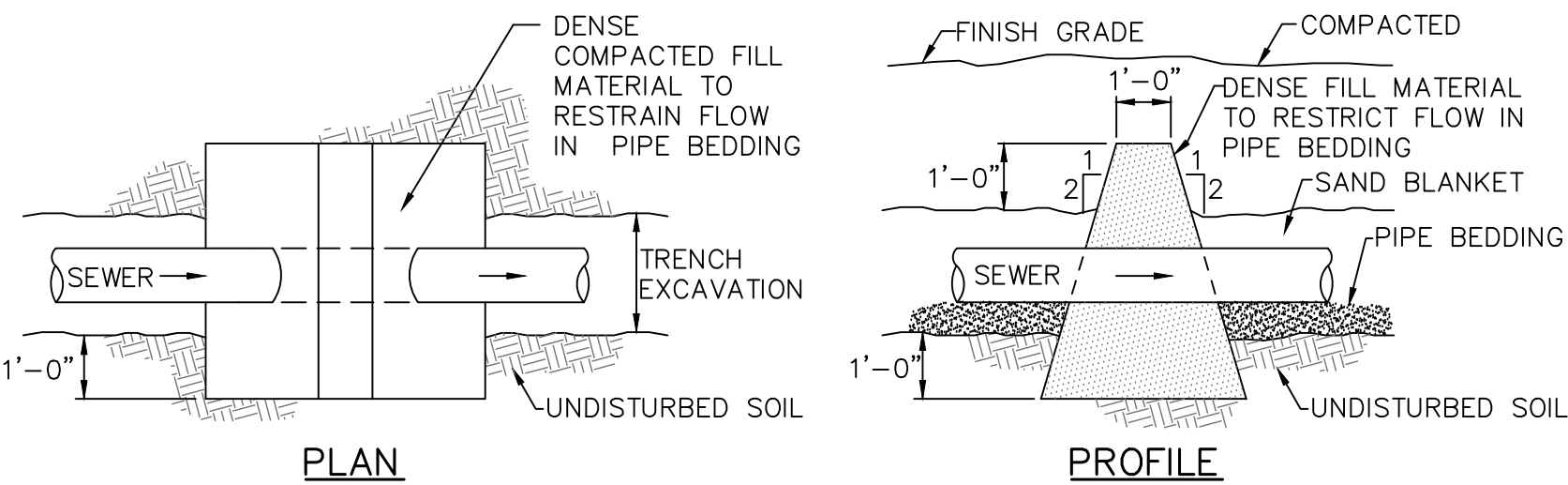


**STANDARD MANHOLE NOTES:**

- GENERAL:** SEWER MANHOLES, INCLUDING ALL COMPONENT PARTS, SHALL BE ASSEMBLED OF PRECAST SECTIONS, WITH STEEL REINFORCEMENT. IN ANY APPROVED MANHOLE, THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS (H2O LOADING) WITHOUT FAILURE, AND TO PREVENT LEAKAGE IN EXCESS OF ONE GALLON PER DAY PER VERTICAL FOOT OF MANHOLE, CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE. A PERIOD GENERALLY IN EXCESS OF 25 YEARS IS TO BE UNDERSTOOD IN BOTH CASES.
- BARRELS AND CONE SECTIONS:** SHALL BE PRECAST REINFORCED CONCRETE.
- PRECAST CONCRETE:** BARREL SECTIONS, CONES, AND BASES SHALL CONFORM TO ASTM C478.
- LEAKAGE TEST:** SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS. INVERT AND SHELF TO BE PRIOR TO BACKFILL PLACED AFTER TESTING.
- INVERTS AND SHELVES:** MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT. INVERT BRICKS SHALL BE LAID ON EDGE. AT CHANGES IN DIRECTION, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO AN ELEVATION OF 1" ABOVE THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY.
- FRAMES AND COVERS:** MANHOLE FRAMES AND COVERS SHALL BE CITY OF PORTSMOUTH STANDARD AND SHALL BE PICKED UP BY THE CONTRACTOR AT PORTSMOUTH DPW.
- BEDDING:** SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33. STONE SIZE NO. 67.  
100% PASSING 1" INCH SCREEN  
90-100% PASSING 3/4" INCH SCREEN  
20-55% PASSING 3/8" INCH SCREEN  
0-10% PASSING #4 SIEVE  
0-5% PASSING #8 SIEVE
- WHERE THE MATERIAL BELOW MANHOLE STRUCTURE IS SOFT OR YIELDING, AND WHERE DIRECTED BY THE ENGINEER, INSTALL DOUBLE LAYER OF GEOGRID (TENSAR TX160 OR EQUAL). PAY AS ITEM 1.8B (Lfx2).
- SHALLOW MANHOLE:** IN LIEU OF A CONE SECTION, WHEN MANHOLE IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER HAVING AN ECCENTRIC ENTRANCE AND CAPABLE OF SUPPORTING H-20 LOADS MAY BE USED.
- FLEXIBLE JOINT:** A FLEXIBLE JOINT SHALL BE PROVIDED WITHIN THE FOLLOWING DISTANCES:  
RCP AND CI PIPE - ALL SIZES - 48"  
AC AND VC PIPE - UP THROUGH 12" DIA. - 18"  
AC AND VC PIPE - LARGER THAN 12" DIA. - 36"  
DI PIPE - NONE REQUIRED  
PVC - UP THROUGH 15" DIA. - NONE REQUIRED  
PVC - LARGER THAN 15" DIA. - 48"/60"  
ABS (ASTM D2680) - ALL SIZES - SAME AS VC ABOVE.
- SPECIFICATIONS:** ADDITIONAL CONSTRUCTION SPECIFICATIONS ARE INCLUDED IN THE CONTRACT DOCUMENTS. THESE STANDARD MANHOLE DRAWINGS ARE NOT COMPLETE WITHOUT THESE SPECIFICATIONS.



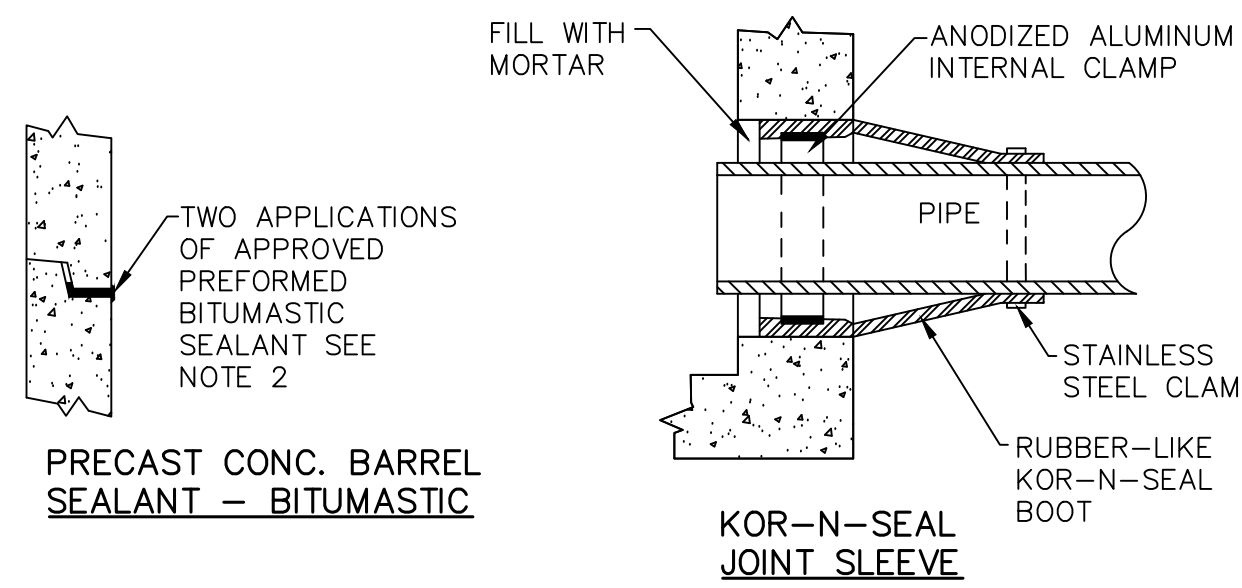
**1 SEWER MANHOLE**  
D1 NOT TO SCALE



**4 TRENCH DAM**  
D1 NOT TO SCALE

**JOINTING AND SEALING NOTES**

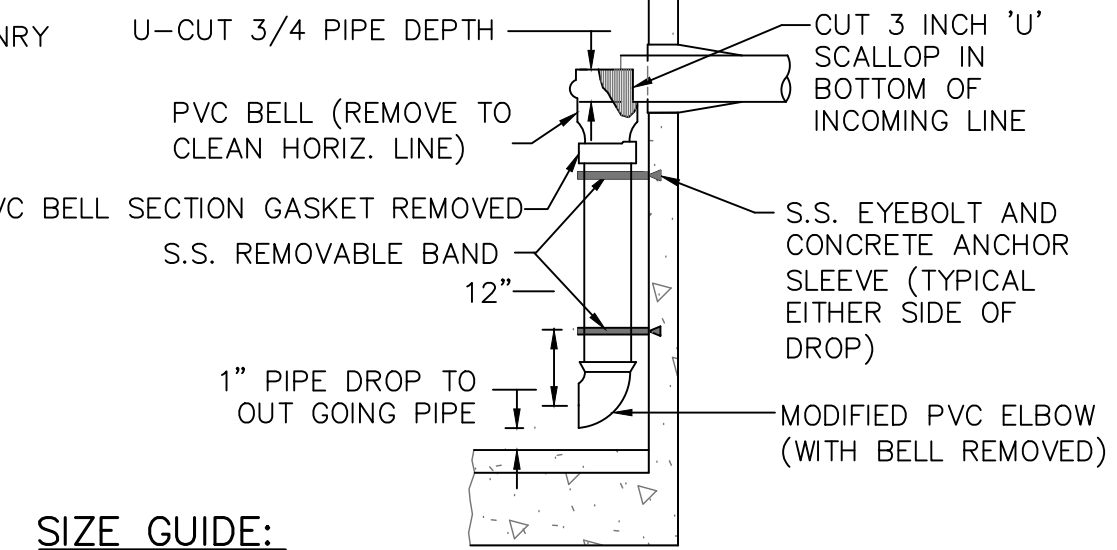
- PIPE TO MANHOLE JOINTS SHALL BE ONLY AS APPROVED BY THE ENGINEER AND IN GENERAL, WILL DEPEND UPON AN ELASTOMERIC SEALANT FOR WATERTIGHTNESS.
- FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT LEAST 75% OF THE JOINT CAVITY. APPROVED BITUMASTIC SEALANTS: RAM-NEK E Z KENT SEAL NO.2
- ALL GASKETS, SEALANTS, MORTAR, ETC., SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.



**3 MANHOLE PENETRATIONS**  
D1 NOT TO SCALE

**GRAVITY SEWER TRENCH NOTES:**

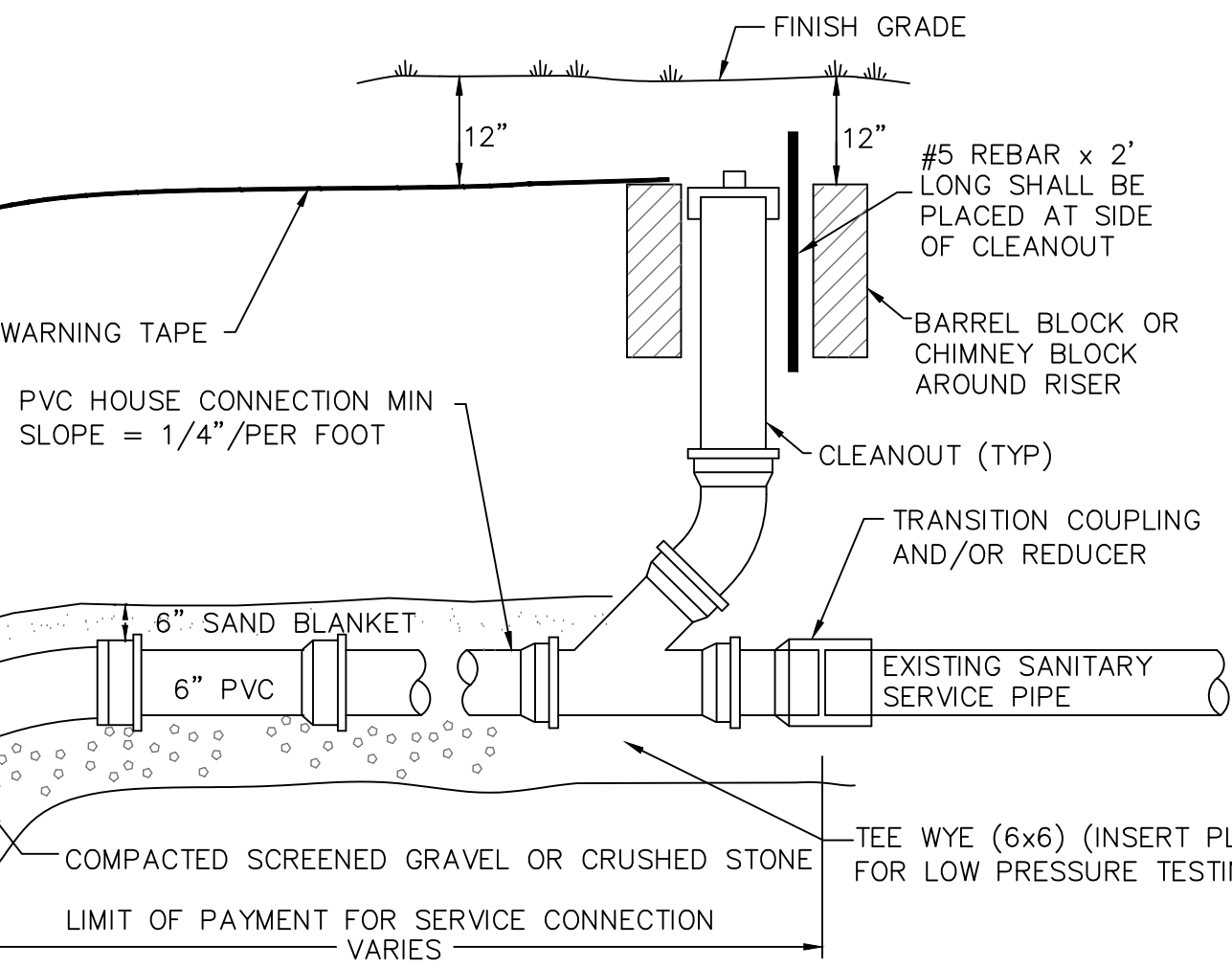
- ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE:** BACKFILL AS STATED IN THE TECHNICAL SPECIFICATIONS OR AS SHOWN ON THE DRAWINGS.
- BEDDING:** SEE NOTE 7 OF STANDARD MANHOLE NOTES. WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, GRADED SCREENED GRAVEL OR CRUSHED STONE 1/2 INCH TO 1-1/2 INCH AND/OR THE USE OF GEOGRID FABRIC (ITEM 1.8B) MAY BE REQUIRED.
- SAND BLANKET:** CLEAN SAND FREE FROM ORGANIC MATTER, SO GRADED THAT 90-100% PASSES A 1/2 INCH SIEVE AND NOT MORE THAN 15% WILL PASS A #200 SIEVE. BLANKET MAY BE OMITTED FOR CAST-IRON, DUCTILE IRON, AND REINFORCED CONCRETE PIPE PROVIDED HOWEVER, THAT NO STONE LARGER THAN 2" IS IN CONTACT WITH THE PIPE.
- SUITABLE MATERIAL:** IN ROADS, ROAD SHOULDERS, WALKWAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT; ORGANIC MATTER; TOP SOIL; ALL WET OR SOFT MUCK, PEAT, OR SOFT CLAY; ALL EXCAVATED LEDGE MATERIAL; ALL ROCKS OVER 6 INCHES IN LARGEST DIMENSION; AND ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION. IN CROSS-COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK, OR PEAT, IF HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE SEWER, FOR MAINTENANCE AND POSSIBLY RECONSTRUCTION, WILL BE PRESERVED.
- BASE COURSE AND PAVEMENT** SHALL MEET THE REQUIREMENTS OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES - DIVISIONS 300 AND 400 RESPECTIVELY.
- W = MAXIMUM ALLOWABLE TRENCH PAYMENT WIDTH** FOR ROCK EXCAVATION, FOR ORDERED EXCAVATION BELOW GRADE AND HANDLING OF EXCAVATED CONTAMINATED SOILS. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES IN NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE OUTSIDE DIAMETER (O.D.)
- FOR CROSS COUNTRY CONSTRUCTION, BACKFILL OR FILL SHALL BE MOUNDING TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
- WHERE TRENCH BOTTOM IS SOFT OR YIELDING, AND WHERE DIRECTED BY THE ENGINEER, INSTALL SINGLE LAYER OF GEOGRID (TX160 OR EQUAL) ACROSS THE ENTIRE WIDTH OF TRENCH BOTTOM. PAY AS ITEM 1.8A (L.F.).



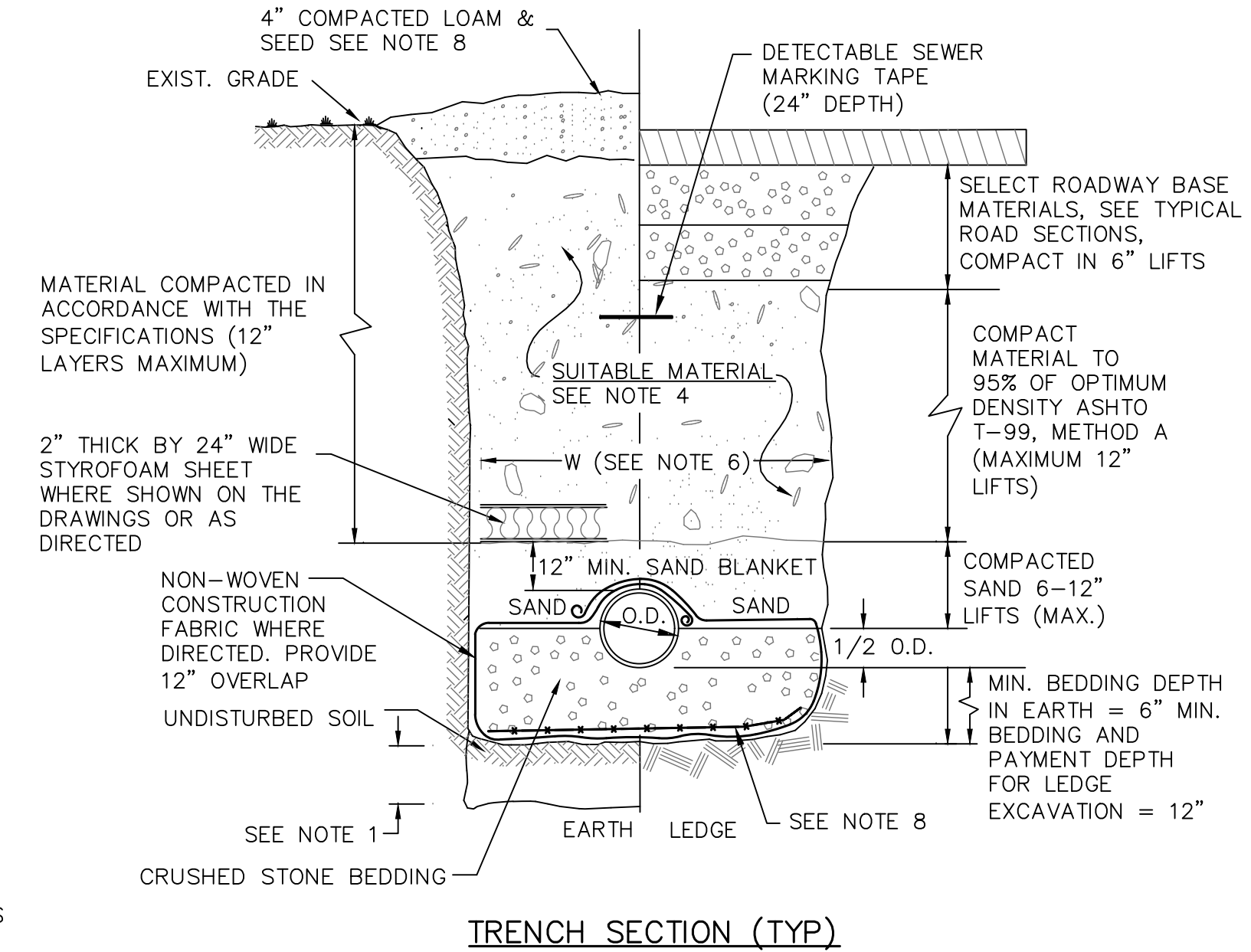
**5 DROP MANHOLE**  
D1 NOT TO SCALE

**SIZE GUIDE:**

- 1-8" OR 10" DROP: 4'-0" DIA. M.H.
- 2-8" OR 10" DROP: 5'-0" DIA. M.H.
- 1-12" DROP: 5'-0" DIA. M.H.
- 1-15" DROP: 5'-0" DIA. M.H.

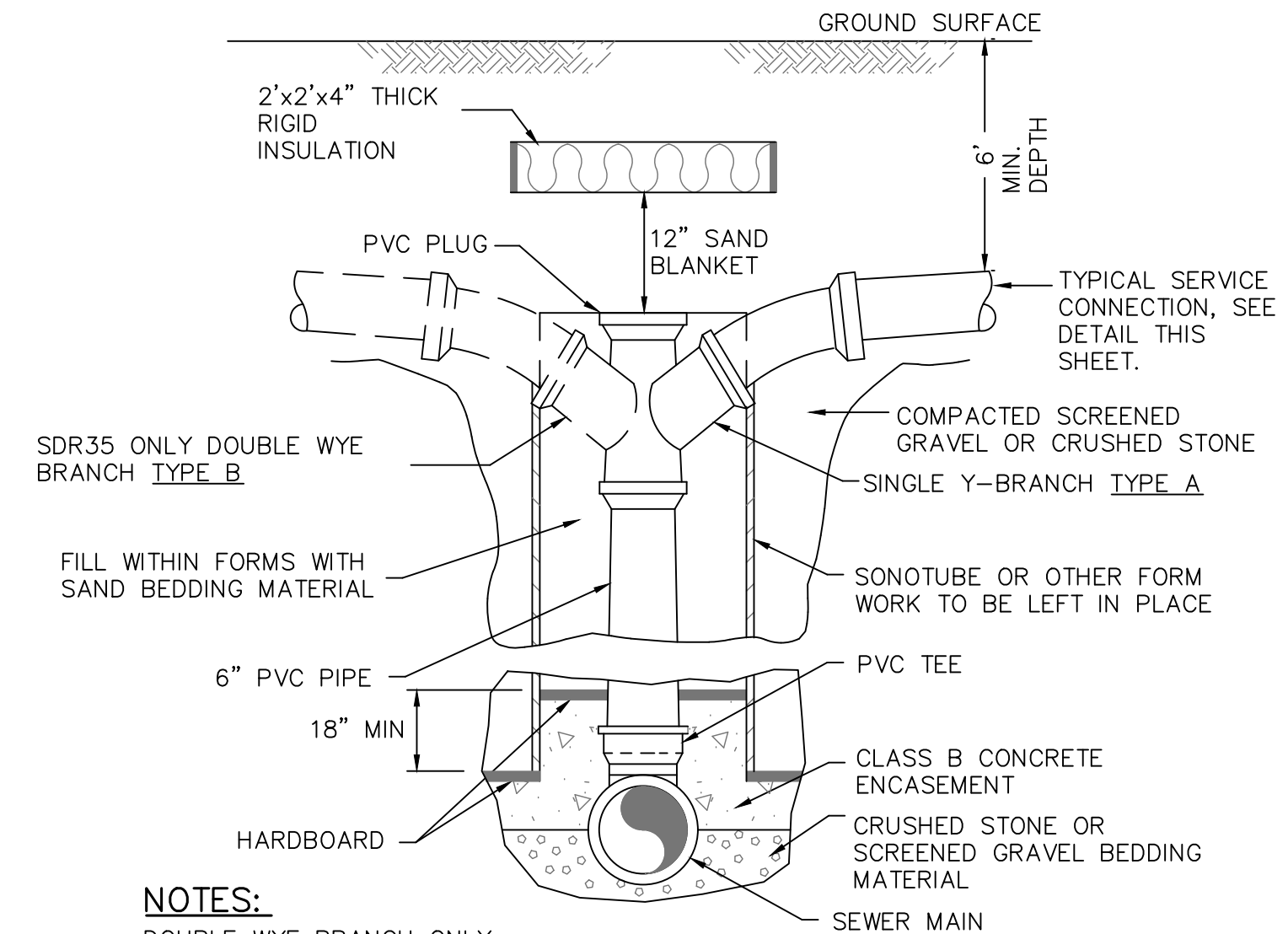


**6 SERVICE CONNECTION**  
D1 NOT TO SCALE



**TRENCH SECTION (TYP)**

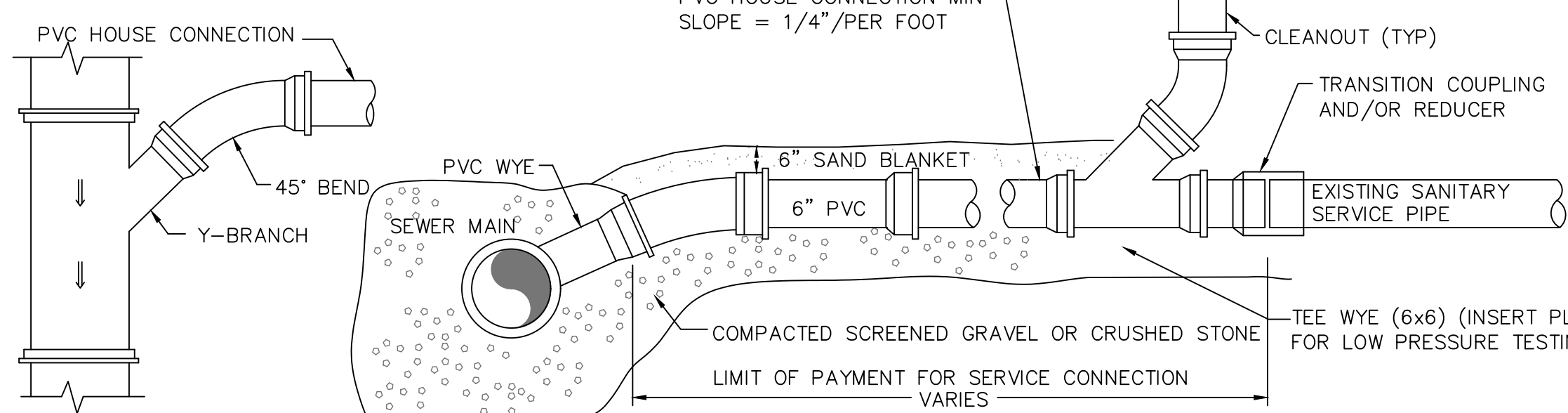
**2 TRENCH - GRAVITY SEWER**  
D1 NOT TO SCALE



**7 PVC SEWER SERVICE CHIMNEY WITH WYE**  
D1 NOT TO SCALE

**SERVICE CONNECTION NOTES:**

- SEE DETAILS FOR SERVICE CONNECTION REQUIREMENTS.
- SERVICE CONNECTION SHALL BE INSTALLED BELOW WATER MAIN WHERE POSSIBLE.
- CLEANOUTS SHALL BE INSTALLED AT EACH SERVICE CONNECTION.
- REBAR SHALL BE PLACED AT SIDE OF CLEANOUT.
- CLEANOUT SHALL BE USED TO PLUG AND TEST ALL NEW LATERALS WITH MINIMAL INTERRUPTION TO OPERATION OF HOMEOWNER SANITARY SYSTEM.
- CLEANOUT RISER PIPE AND FITTINGS SHALL BE INCIDENTAL AND SHALL NOT BE CONSIDERED FOR PAYMENT.



**6 SERVICE CONNECTION**  
D1 NOT TO SCALE

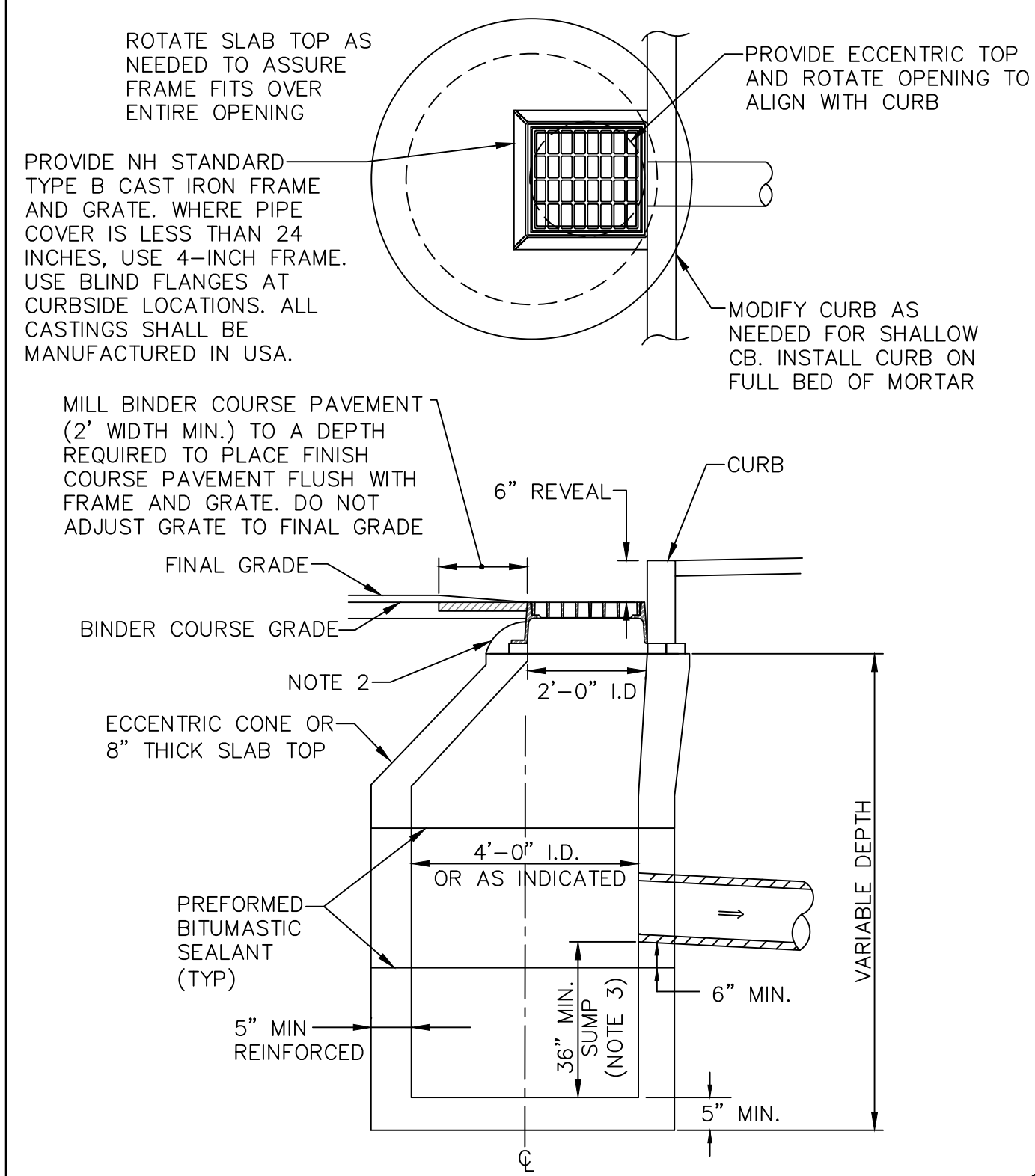
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| NO.         |     |            |              |    |      |                |    |      |
| Drawn/Chk.  | RMG |            |              |    |      |                |    |      |
| Designed    |     |            |              |    |      |                |    |      |
| Checked     |     |            |              |    |      |                |    |      |
| Approved    |     | APRIL 2024 |              |    |      |                |    |      |
| Date        |     |            |              |    |      |                |    |      |
| Book No.    |     |            |              |    |      |                |    |      |
| Project No. |     | 2552       |              |    |      |                |    |      |
| Dwg. ID     |     | 2542.dwg   |              |    |      |                |    |      |
| Scale       |     |            |              |    |      |                |    |      |



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**SEWER DETAILS**  
**MAPLEWOOD AVE DRAINAGE IMPROVEMENTS**  
**CITY OF PORTSMOUTH**  
**PORTSMOUTH, NEW HAMPSHIRE**

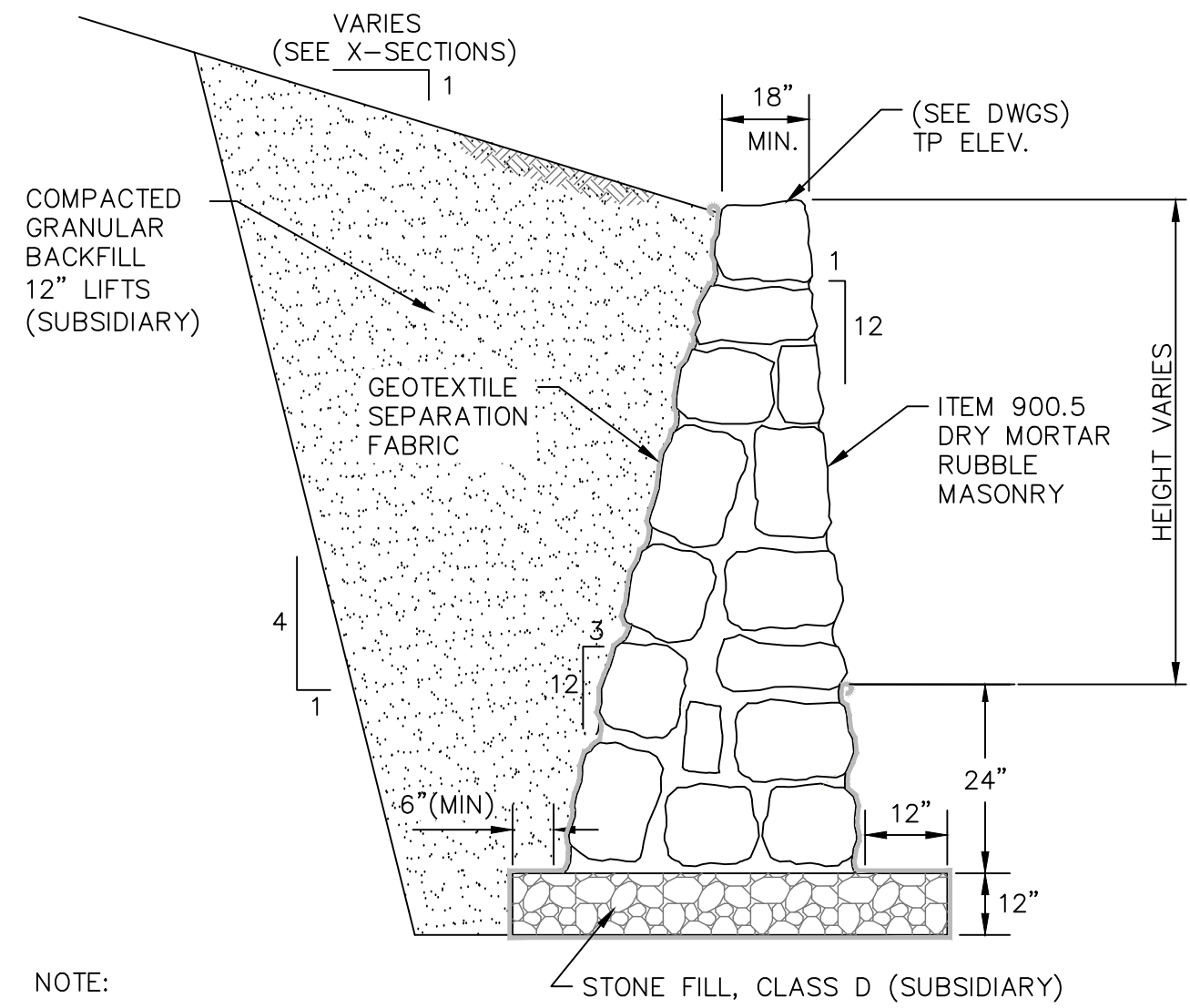




**1 CATCH BASIN DETAIL**  
D2 NOT TO SCALE

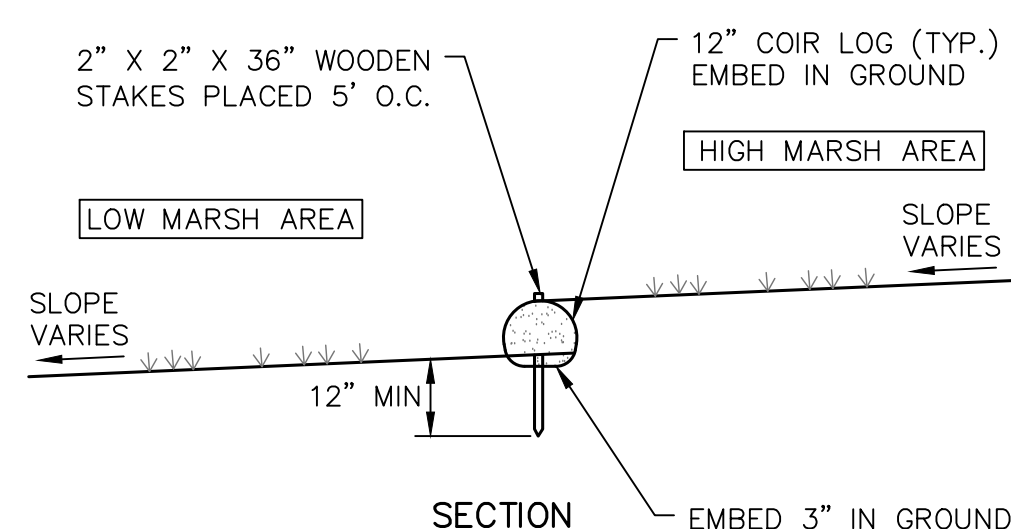
**CATCH BASIN NOTES:**

- ENTIRE STRUCTURE SHALL BE CAPABLE OF WITHSTANDING AN H - 20 LOAD DETAILS OF REINFORCEMENT TO BE FURNISHED BY MANUFACTURER.
- ADJUST FRAME AND GRATE TO BINDER COURSE ELEVATION, WITH BRICK SET IN A FULL BED OF MORTAR. POINT ALL MASONRY (NO VOIDS) AND PARGE EXTERIOR BRICK WITH MORTAR.
- WHERE SUMP IS OMITTED PROVIDE MASONRY INVERT PER DETAIL

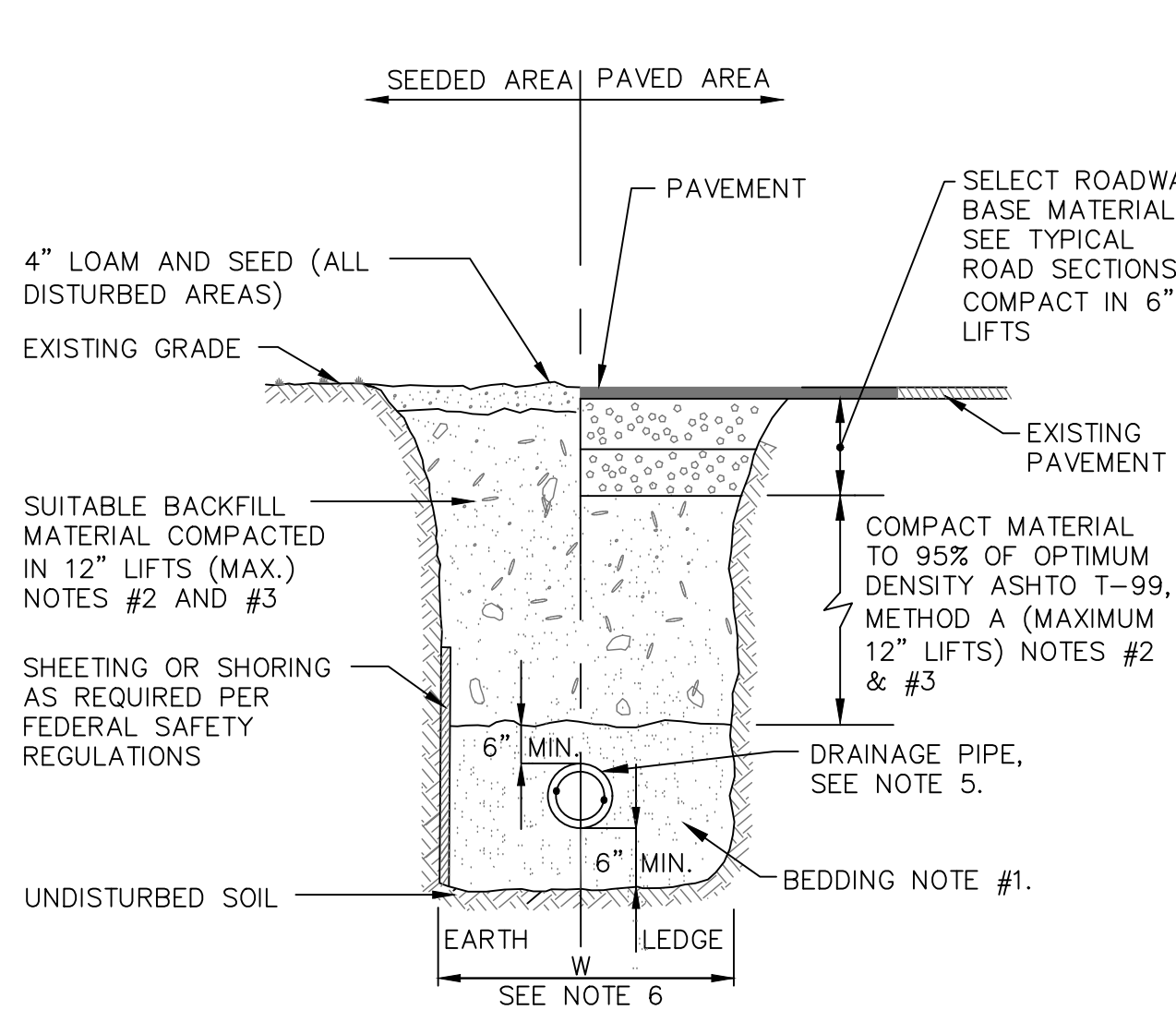


- NOTE:**
- THE CONTRACTOR MAY REUSE GRANITE FROM EXISTING HEAD WALL. RETAIN STABLE SECTIONS OF EXISTING HEADWALLS REVIEW RE-CONSTRUCTION LIMITS WITH THE ENGINEER BEFORE COMMENCING WITH THE WORK.
  - UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH STRUCTURAL FILL.
  - IF GROUNDWATER IS ENCOUNTERED, DEWATERING MEASURES WILL BE NECESSARY TO PREVENT DISRUPTANCE OF THE BEARING SOILS. PUMPING EQUIPMENT AND SUMP AREAS SHOULD BE LOCATED OUTSIDE. PUMP DISCHARGE SHALL BE PROPERLY FILTERED TO PREVENT THE DISCHARGE OF SILT TO WETLANDS.
  - WALLS SHALL BLEND INTO EXISTING SLOPES.

**2 MORTAR RUBBLE MASONRY RETAINING DETAIL**  
D2 NOT TO SCALE



**7 COIR LOG DETAIL**  
D2 NOT TO SCALE



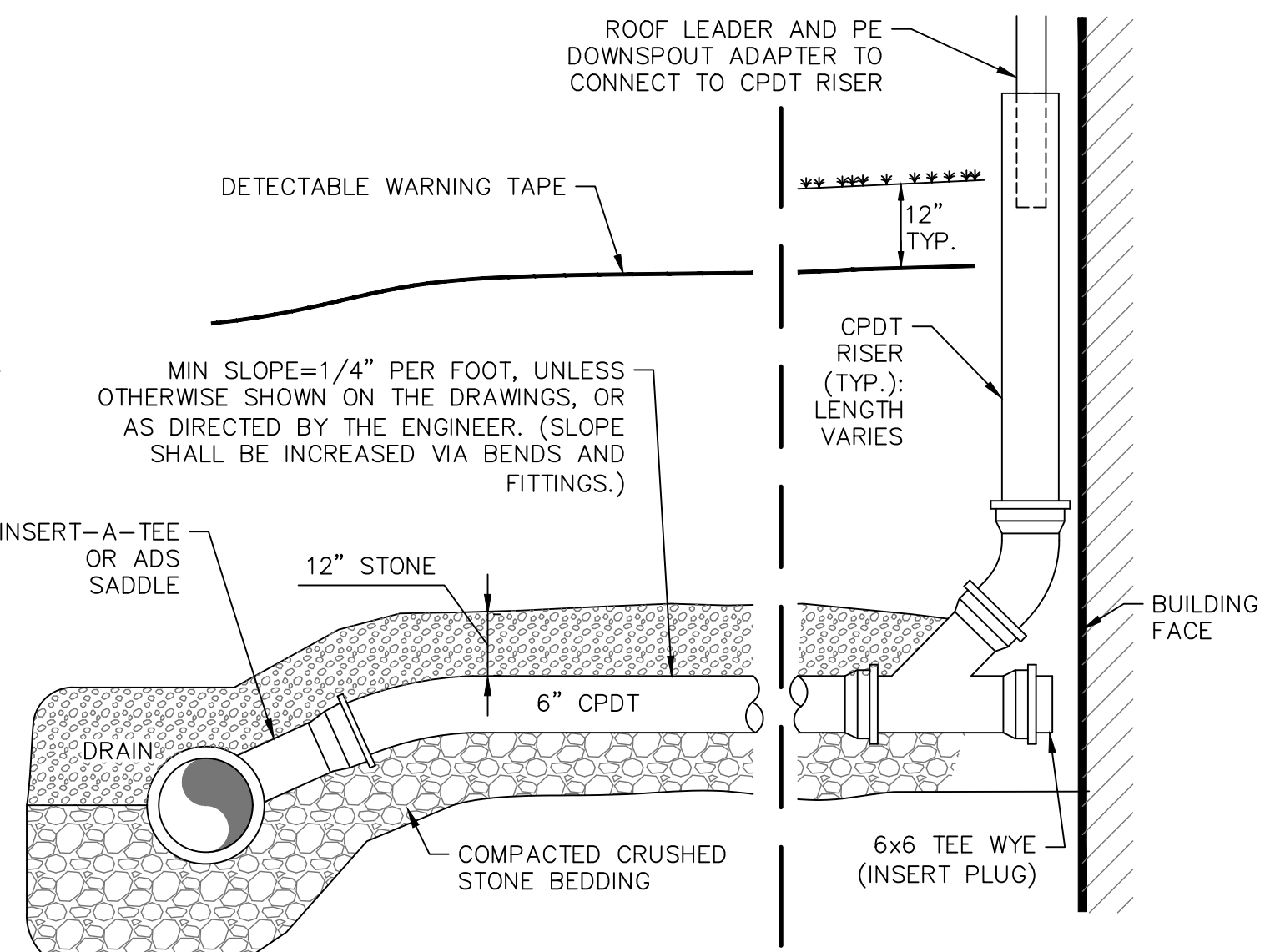
**3 TRENCH DETAIL - STORM DRAIN**  
D2 NOT TO SCALE

**TRENCH NOTES - STORM DRAIN**

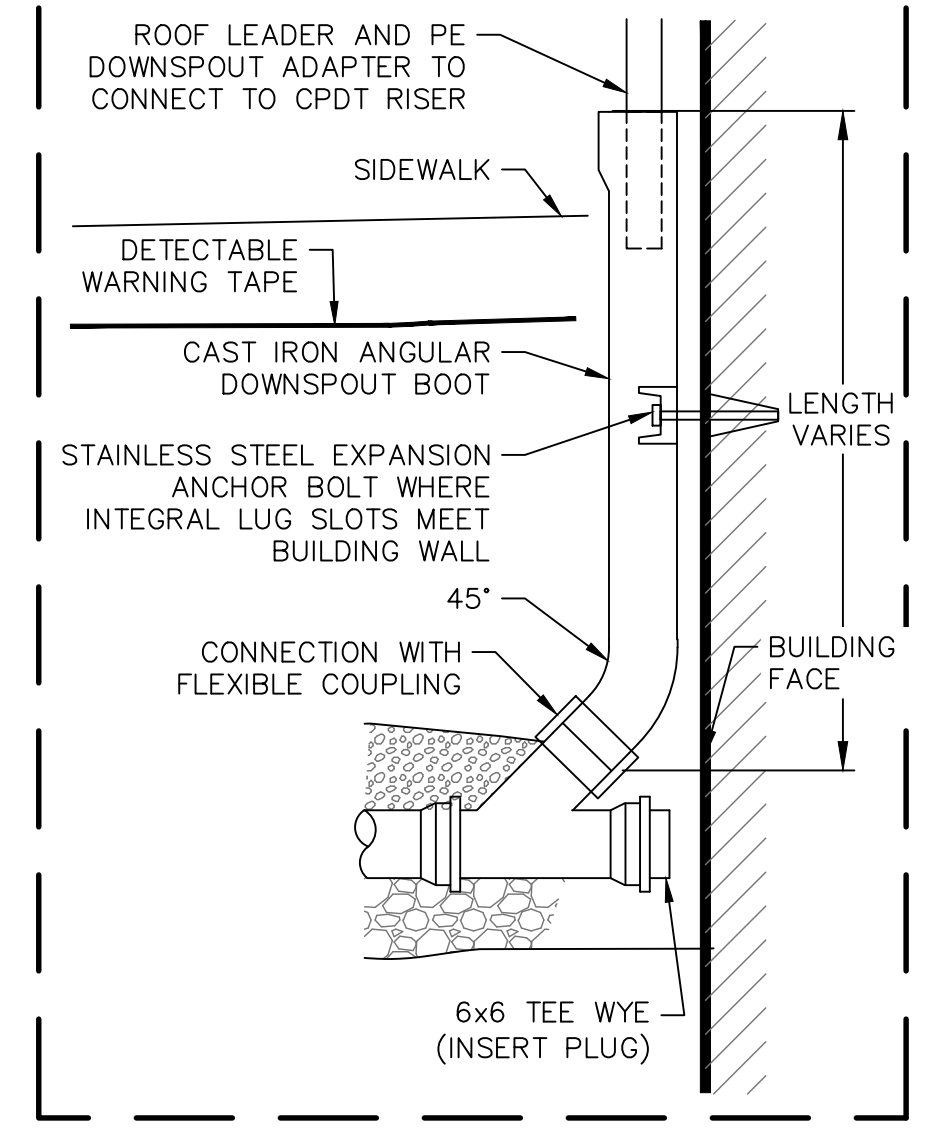
- BEDDING:** BEDDING FOR PIPES SHALL CONSIST OF PREPARING THE BOTTOM OF THE TRENCH TO SUPPORT THE ENTIRE LENGTH OF THE PIPE AT A UNIFORM SLOPE AND ALIGNMENT. CRUSHED GRAVEL (NHDOT ITEM 304.3) OR CRUSHED STONE SHALL BE USED TO BED THE PIPE TO THE ELEVATION SHOWN ON THE DRAWINGS.
- COMPACTION:** ALL BACKFILL SHALL BE COMPACTED AT OR NEAR OPTIMUM MOISTURE CONTENT BY PNEUMATIC TAMPERS, VIBRATORY COMPACTORS OR OTHER APPROVED MEANS. BACKFILL BENEATH PAVED SURFACES SHALL BE COMPACTED TO NOT LESS THAN 95 PERCENT OF AASHTO T99, METHOD C.
- SUITABLE MATERIAL:** IN ROADS, ROAD SHOULDERS, WALKWAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS; PIECES OF PAVEMENT; ORGANIC MATTER; TOP SOIL; ALL WET OR SOFT MUCK, PEAT, OR CLAY; ALL EXCAVATED LEDGE MATERIAL; ROCKS OVER 6 INCHES IN LARGEST DIMENSION; FROZEN EARTH AND ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION. IN SEEDED AREAS, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, ROCKS UNDER 12", FROZEN EARTH OR CLAY, IF HE/SHE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE PIPE WILL BE PRESERVED.
- BASE COURSE AND PAVEMENT:** SHALL MEET THE REQUIREMENTS OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES - DIVISIONS 300 AND 400 RESPECTIVELY.
- DRAINAGE PIPE:** PIPE MATERIALS SHALL BE EITHER PVC SDR 35 OR POLYETHYLENE (PE).
- W=MAXIMUM ALLOWABLE TRENCH WIDTH:** FOR ROCK EXCAVATION, FOR ORDERED EXCAVATION BELOW GRADE AND HANDLING OF EXCAVATED CONTAMINATED SOILS. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES IN NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE OUTSIDE DIAMETER (O.D.)

- NOTES:**
- SERVICE LATERALS WILL BE PROVIDED AT EACH DOWNSPOUT AS WELL AS A SEPARATE CLEANOUT FOR EACH PROPERTY TO FACILITATE PRIVATE SUMP PUMP /DRAIN SERVICE CONNECTIONS. CLEANOUTS SHALL BE INSTALLED AT THE PROPERTY LINE FOR EACH SERVICE LATERAL.
  - REBAR OR 2X4 SHALL BE PLACED AT SIDE OF CLEANOUT.
  - CLEANOUT RISER PIPE AND FITTINGS ARE INCIDENTAL AND WILL NOT BE CONSIDERED FOR PAYMENT.
  - SERVICES SHALL BE ORIENTED @ 10:30 OR 1:30 (TYP.) UNDER NO CIRCUMSTANCES SHALL SERVICES BE LOCATED BETWEEN 3:00 AND 9:00.
  - LOCATE ROOF LEADER CONNECTIONS AT ADJACENT BUILDING CORNERS, TWO DOWNSPOUTS MAY BE CONNECTED TO ONE LATERAL USING APPROPRIATE WYE (AND OTHER) FITTING(S).

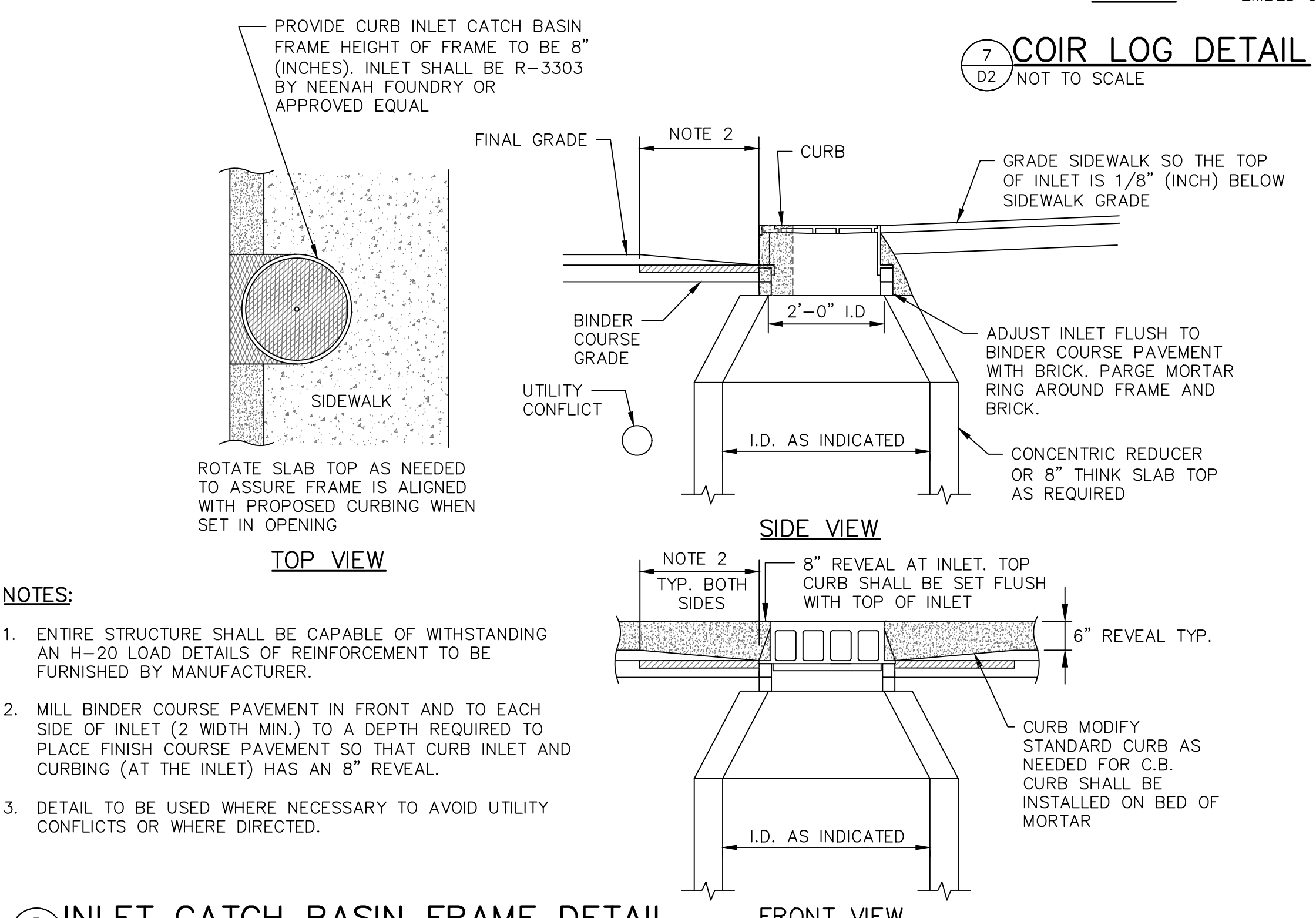
**6 DRAIN LATERAL & ROOF LEADER CONNECTION**  
D2 NOT TO SCALE



**RISER FOR ROOF LEADER BEHIND SIDEWALK**

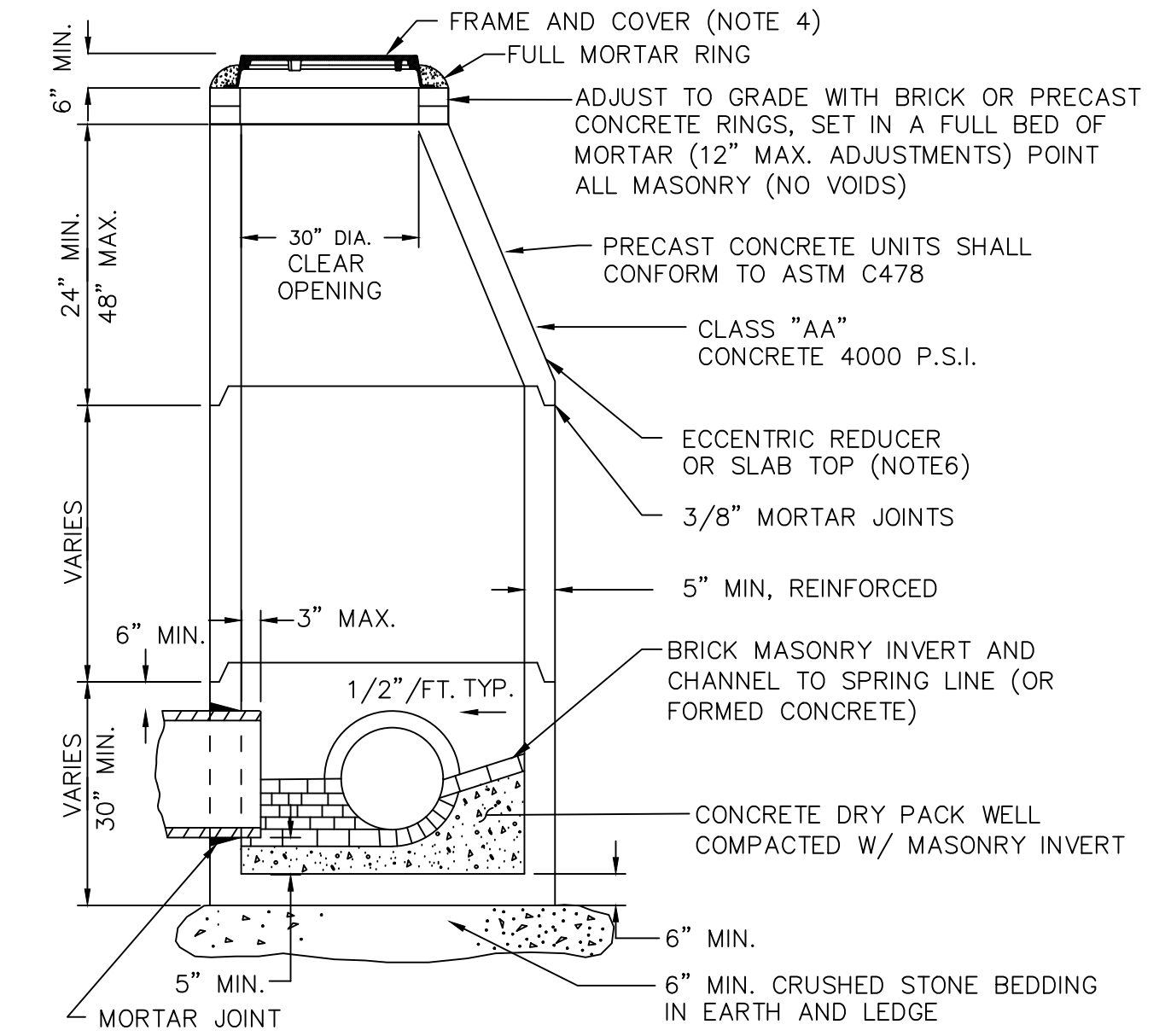


**DOWNSPOUT BOOT FOR ROOF LEADER AT BACK OF SIDEWALK OR PARKING LOT**



**5 INLET CATCH BASIN FRAME DETAIL**  
D2 NOT TO SCALE

- NOTES:**
- ENTIRE STRUCTURE SHALL BE CAPABLE OF WITHSTANDING AN H-20 LOAD DETAILS OF REINFORCEMENT TO BE FURNISHED BY MANUFACTURER.
  - MILL BINDER COURSE PAVEMENT IN FRONT AND TO EACH SIDE OF INLET (2' WIDTH MIN.) TO A DEPTH REQUIRED TO PLACE FINISH COURSE PAVEMENT SO THAT CURB INLET AND CURBING (AT THE INLET) HAS AN 8" REVEAL.
  - DETAIL TO BE USED WHERE NECESSARY TO AVOID UTILITY CONFLICTS OR WHERE DIRECTED.



**4 TYPICAL DRAINAGE MANHOLE**  
D2 NOT TO SCALE

**DRAIN MANHOLE NOTES:**

- BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE.
- PRECAST CONCRETE BARREL SECTIONS, CONES, AND BASES SHALL CONFORM TO ASTM C478.
- INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT (OR FORMED CONCRETE), CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE INVERT. INVERT BRICKS SHALL BE LAID ON EDGE. AT CHANGES IN DIRECTION, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST POSSIBLE TANGENT TO THE CENTER LINE OF THE PIPES. SHELVES SHALL BE CONSTRUCTED TO AN ELEVATION OF 1/2 THE PIPE DIA. AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL.
- FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE HINGED, ERGO XL BY EAST JORDON IRON WORKS, AND PROVIDE A 30-INCH (MIN.) CLEAR OPENING. THE WORD "DRAIN" IN 3-INCH LETTERS SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
- BEDDING:** SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33. STONE SIZE NO. 67.  
100% PASSING 1 INCH SCREEN  
90-100% PASSING 3/4 INCH SCREEN  
20- 55% PASSING 3/8 INCH SCREEN  
0-10% PASSING #4 SIEVE  
0- 5% PASSING #8 SIEVE
- SLAB TOP COVERS: MAY BE APPROVED IN LIEU OF A CONE SECTION, WHEN MANHOLE IS LESS THAN 5 FEET AND FOR LARGE DIAMETER MANHOLES. SLAB TOP COVERS SHALL BE REINFORCED CONCRETE HAVING AN ECCENTRIC ENTRANCE AND CAPABLE OF SUPPORTING H-20 LOADS.

WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR CRUSHED STONE 1-1/2 INCH TO 1/2 INCH OR USE OF GEOGRID FABRIC (ITEM 1.8B) MAY BE REQUIRED.

|                   |    |      |              |    |      |                |    |      |
|-------------------|----|------|--------------|----|------|----------------|----|------|
| ISSUE FOR BIDDING | By | Date | CONSTRUCTION | By | Date | RECORD DRAWING | By | Date |
|                   |    |      |              |    |      |                |    |      |
| REVISIONS         |    |      |              |    |      |                |    |      |
| NO.               |    |      |              |    |      |                |    |      |
| APPD              |    |      |              |    |      |                |    |      |
| Scale             |    |      |              |    |      |                |    |      |
| Dwg. ID           |    |      |              |    |      |                |    |      |
| Project No.       |    |      |              |    |      |                |    |      |
| Book No.          |    |      |              |    |      |                |    |      |
| Approved          |    |      |              |    |      |                |    |      |
| Checked           |    |      |              |    |      |                |    |      |
| Designed          |    |      |              |    |      |                |    |      |
| Drawn/Chk. RMG    |    |      |              |    |      |                |    |      |
| Date              |    |      |              |    |      |                |    |      |
| APRIL 2024        |    |      |              |    |      |                |    |      |

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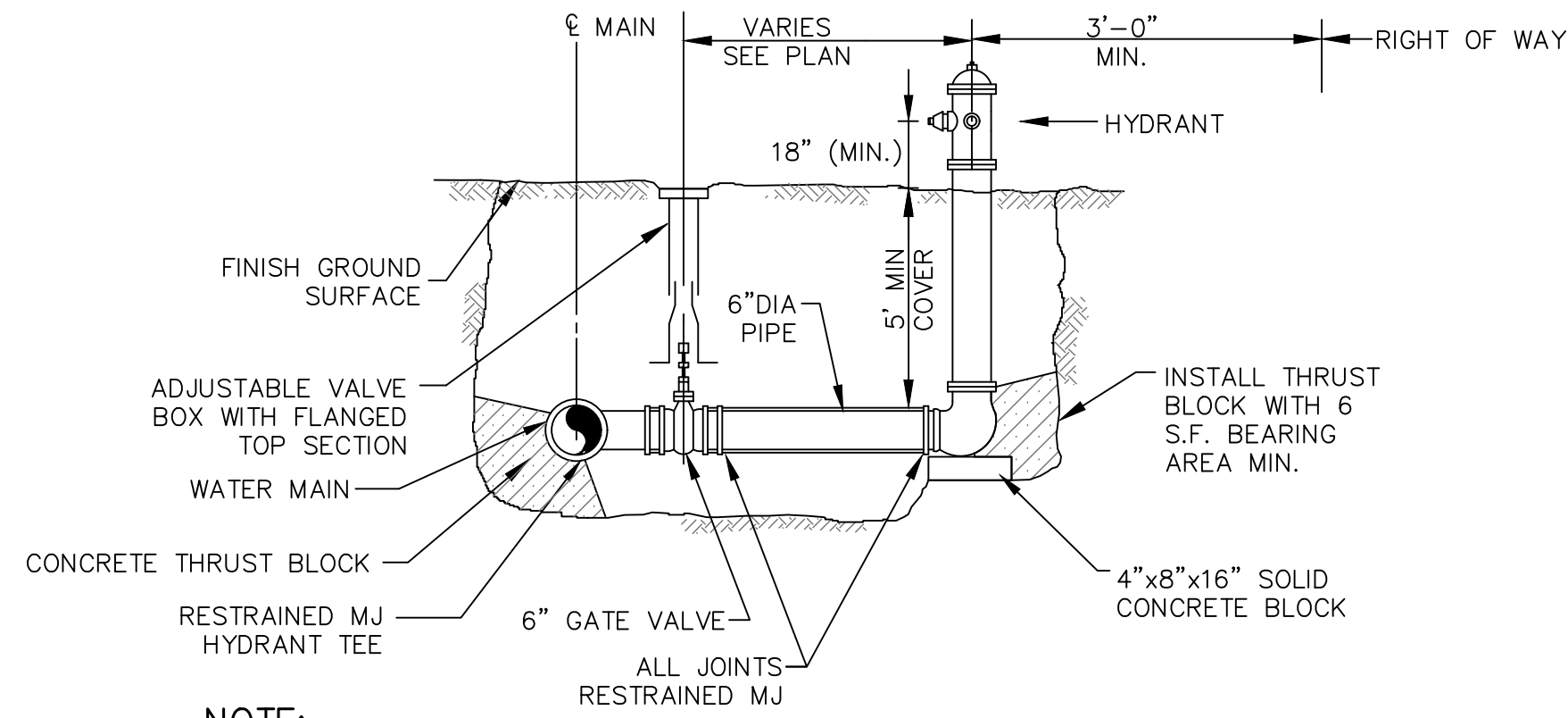
**DRAINAGE DETAILS**

**MAPLEWOOD AVE DRAINAGE IMPROVEMENTS**

**CITY OF PORTSMOUTH**

**PORTSMOUTH, NEW HAMPSHIRE**



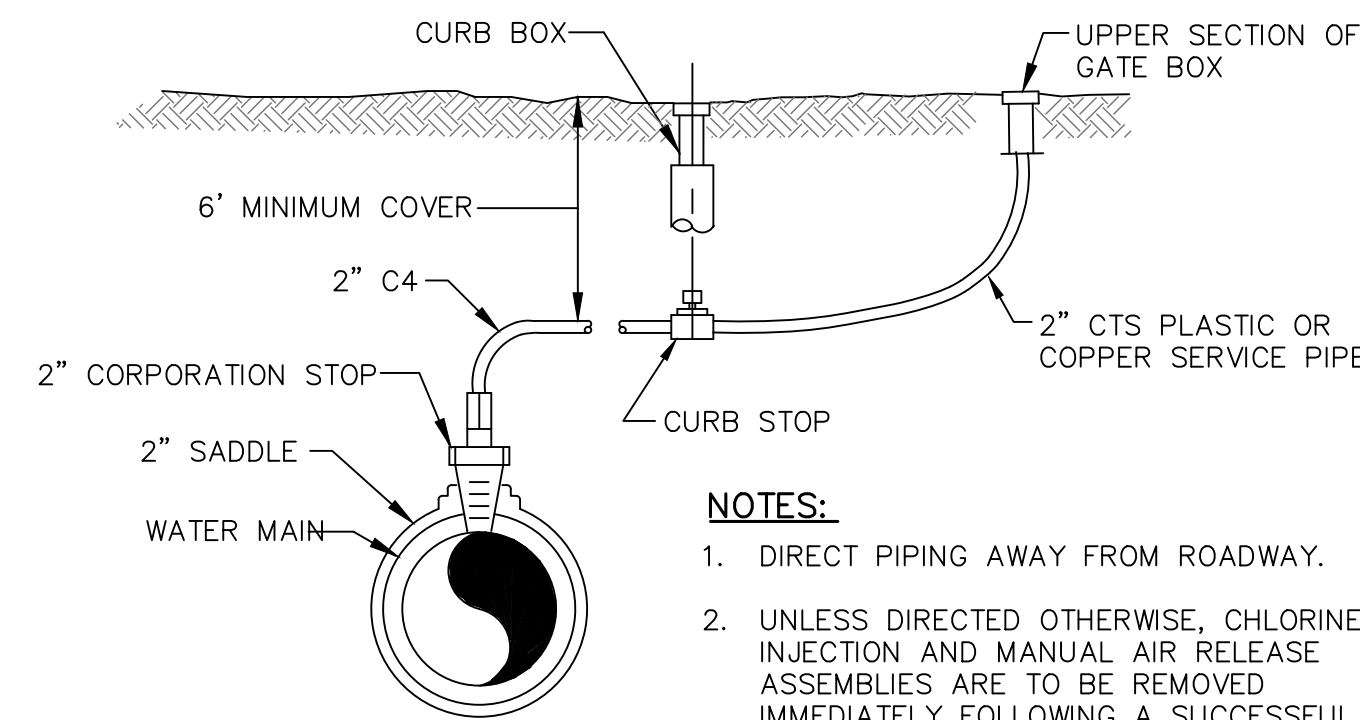


**NOTE:**

1. HYDRANTS SHALL BE DELIVERED FROM FACTORY W/O DRAIN HOLES.
2. HYDRANT ASSEMBLY INCLUDES MJ HYDRANT TEE.
3. HYDRANT SHALL BE KENNEDY K-81A GUARDIAN, PER CITY OF PORTSMOUTH STANDARDS.
4. LOCATE HYDRANTS A MINIMUM OF 18" BEHIND CURBING UNLESS OTHERWISE DIRECTED. REVIEW HYDRANT LOCATIONS WITH PROJECT REPRESENTATIVE PRIOR TO WATER MAIN INSTALLATIONS.

**1 TYPICAL HYDRANT ASSEMBLY SECTION**

D3 NOT TO SCALE

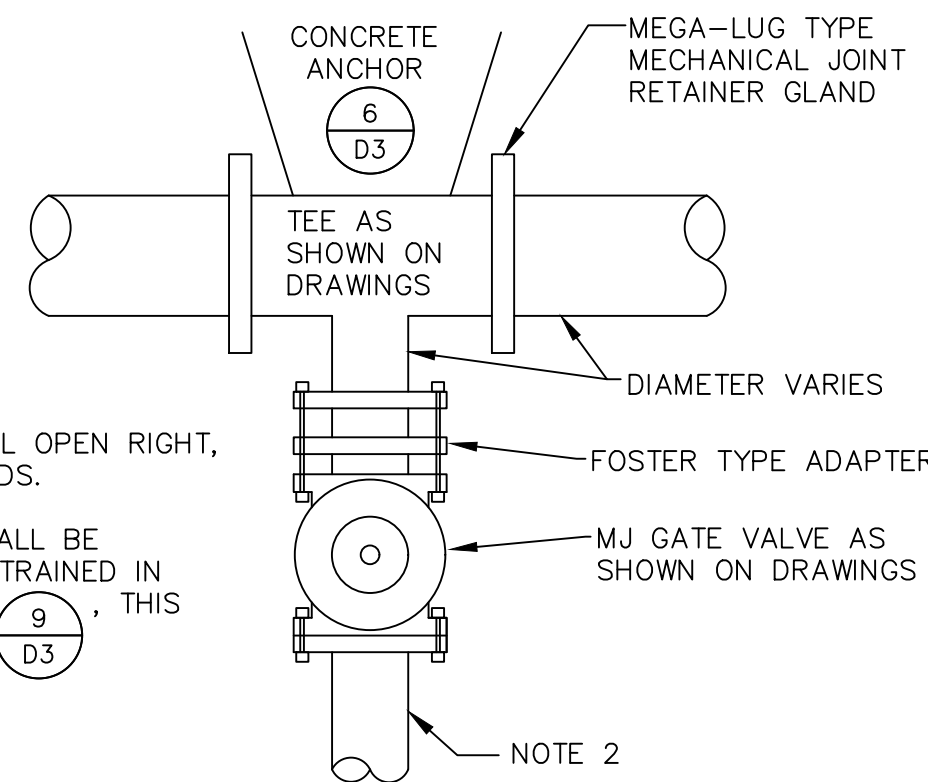


**NOTES:**

1. DIRECT PIPING AWAY FROM ROADWAY.
2. UNLESS DIRECTED OTHERWISE, CHLORINE INJECTION AND MANUAL AIR RELEASE ASSEMBLIES ARE TO BE REMOVED IMMEDIATELY FOLLOWING A SUCCESSFUL BACTERIA TEST. LEAVE THE CORPORATION STOP AND 12" LENGTH OF TUBING (WITH A CRIMPED END) IN PLACE.

**2 TEMPORARY BLOW-OFF TAP ASSEMBLY**

D3 NOT TO SCALE

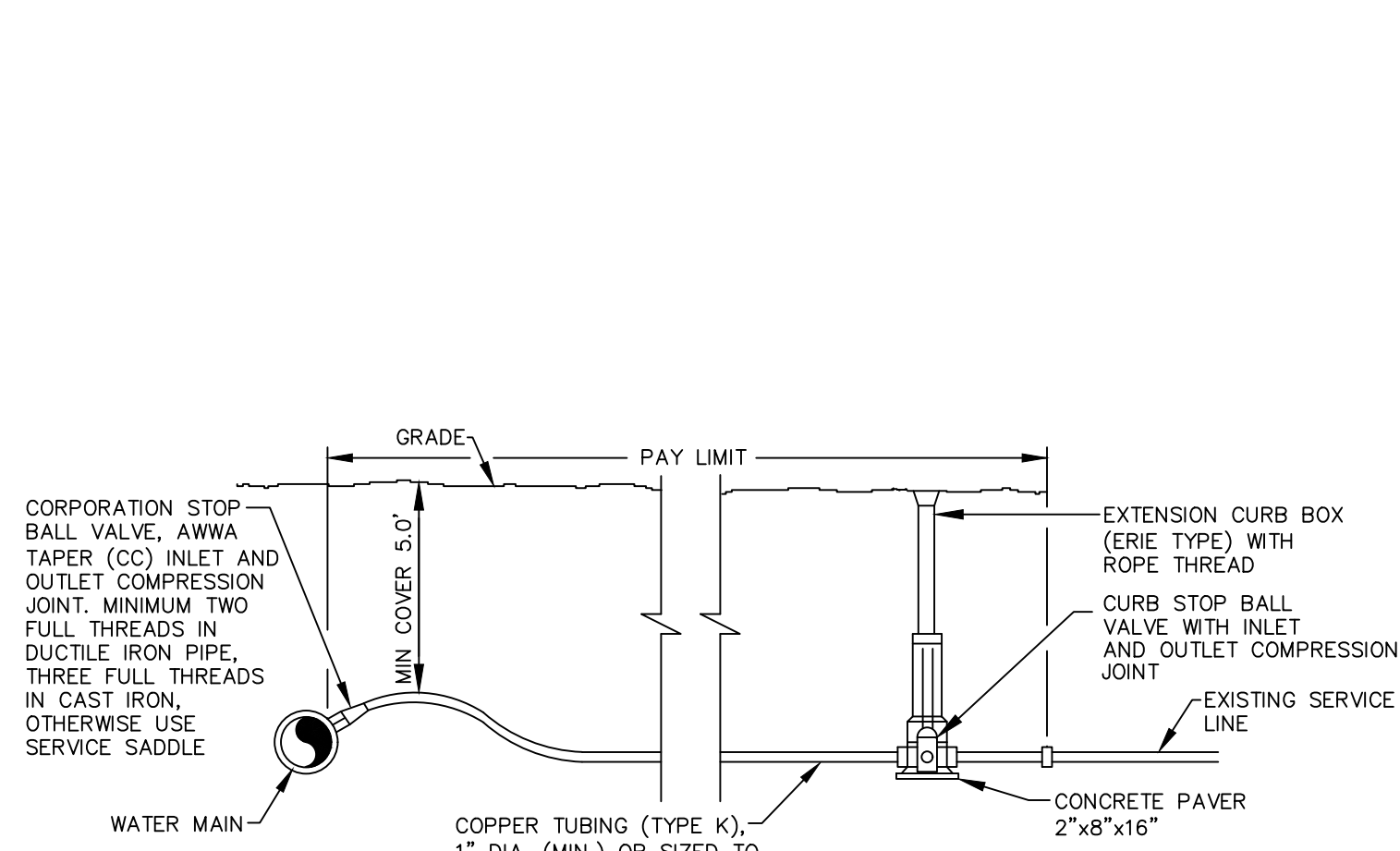


**NOTE:**

1. GATE VALVES SHALL OPEN RIGHT, PER CITY STANDARDS.
2. BRANCH PIPING SHALL BE MECHANICALLY RESTRAINED IN ACCORDANCE WITH THIS SHEET.

**5 TEE & GATE VALVE ASSEMBLY DETAIL (TYP.)**

D3 NOT TO SCALE

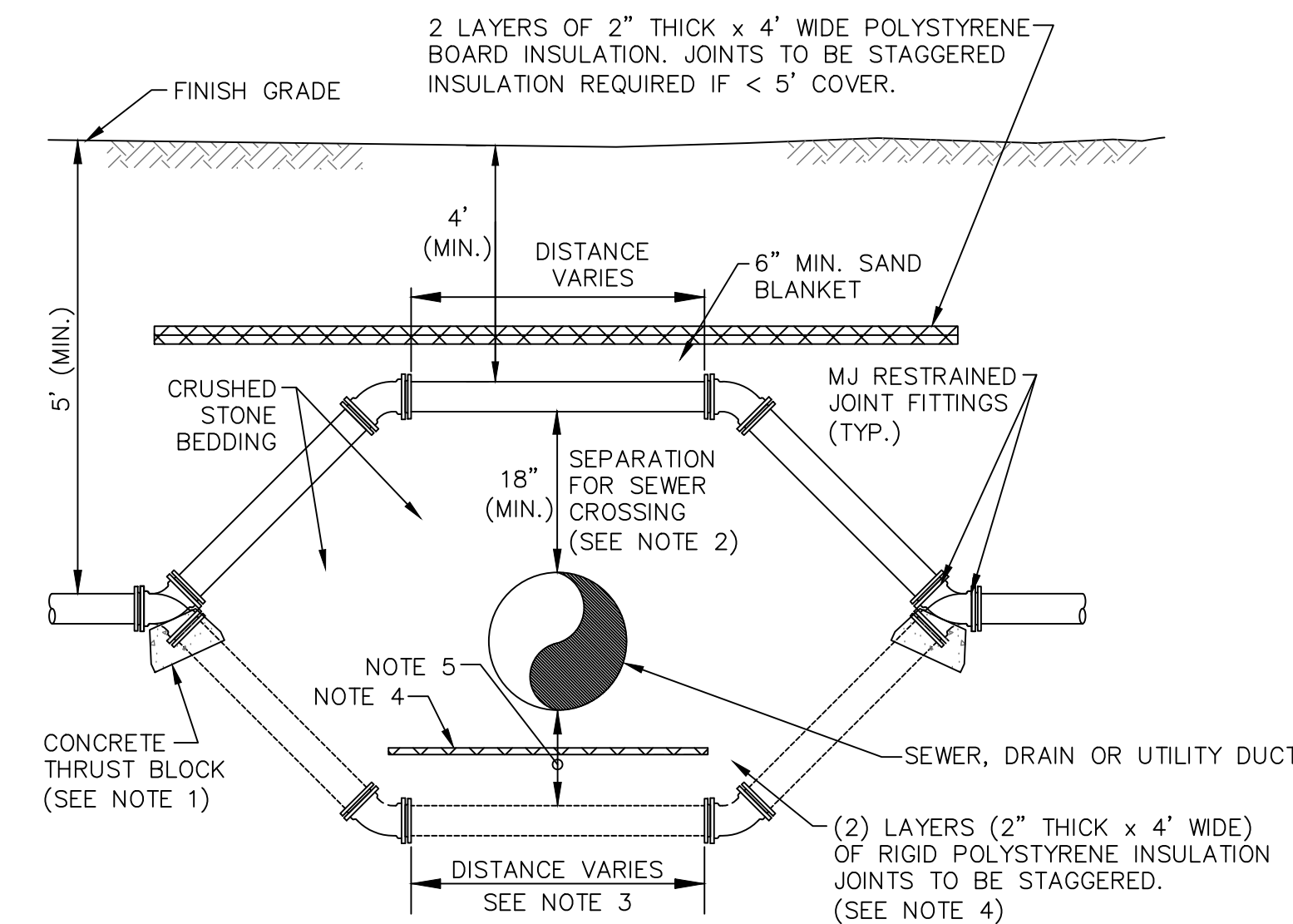


**NOTES:**

1. PROVIDE NEW LINE USING CONTINUOUS LENGTHS OF COPPER. NO COUPLING ALLOWED IN ROADWAY WITHOUT APPROVAL OF ENGINEER.
2. TAPS TO BE MADE AT APPROX. 2:00 AND 10:00.
3. PROVIDE FOR SERVICE LINE CONTRACTION AND EXPANSION BY INSTALLING "S" IN SERVICE LINE NEAR MAIN.
4. IF SERVICE IS INSTALLED WITH LESS THAN 5' COVER, INSULATE OVER LINE.
5. REMOVE EXISTING CURB STOP (SALVAGE AS IDENTIFIED IN SECT. 01611).
6. CONNECT CURB STOP TO EXISTING SERVICE LINE AT PROPERTY LINE OR AT LOCATION APPROVED BY THE ENGINEER (NO COUPLING WITHOUT APPROVAL OF ENGINEER) AFTER PRESSURE TESTING AND DISINFECTION.
7. SHUT OFF EXISTING CORPORATION AND REMOVE OR ABANDON EXISTING SERVICE LINE.
8. CURB BOX SHALL BE SET IN THE GRASS AREA BETWEEN CURB AND SIDEWALK UNLESS DIRECTED OTHERWISE.
9. 2" SERVICE CONNECTIONS SHALL USE A STAINLESS STEEL SERVICE SADDLE.
10. MAINTAIN 18" SEPARATION BETWEEN THE NEW WATER SERVICE AND THE NEW OR EXISTING SEWER MAIN (WATER SHALL BE OVER SEWER).

**4 TYPICAL SERVICE CONNECTION**

D3 NOT TO SCALE



**NOTE:**

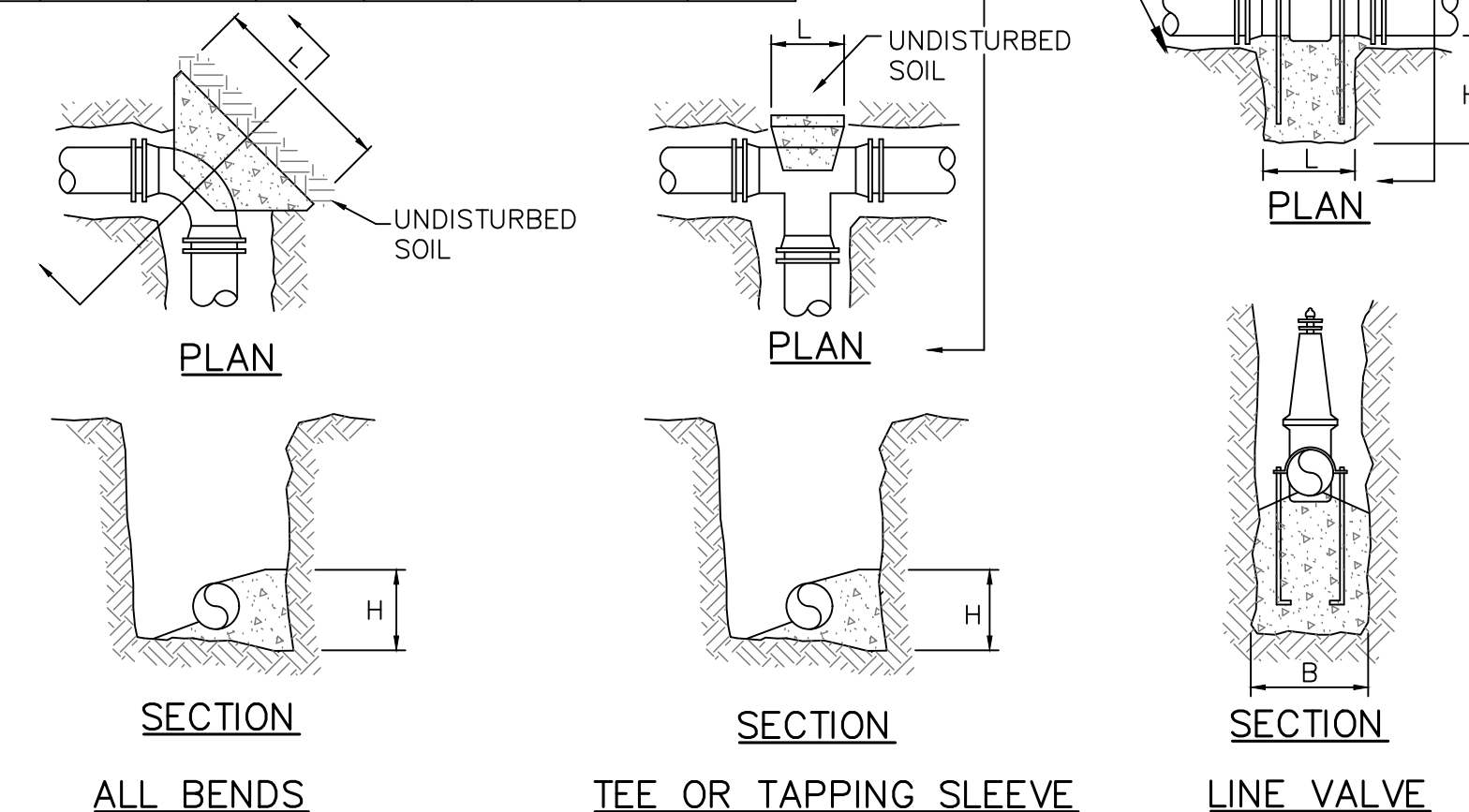
1. INSTALL (4) FOUR 45° MJ BENDS WITH RESTRAINED JOINT FITTINGS.
2. VERTICAL SEPARATION DEPTH BETWEEN WATER AND SEWER SHALL BE AT LEAST 18", WITH WATER ABOVE SEWER, PER NHDES ENV-Wq 704.12. VERTICAL SEPARATION OF LESS THAN 18" ALLOWED ONLY WITH WAIVER FROM NHDES. IF CONSTRUCTION OF WATER MAIN UNDER SEWER MAIN IS UNAVOIDABLE, SEWER MAIN SHALL BE CONSTRUCTED OF C900 PVC PIPE FROM MANHOLE TO MANHOLE.
3. CENTER CROSSING PIPE BETWEEN BELLS. SEWER PIPE JOINT SHALL BE A MINIMUM OF 6 FT. HORIZONTALLY FROM THE WATER MAIN.
4. PROVIDE INSULATION IF DRAIN CROSSES OVER WATER MAIN.
5. PROVIDE 8" TO 12" SEPARATION FOR DRAIN OR OTHER UTILITY CROSSINGS.

**7 WATER MAIN CONFLICT - CROSSING DETAIL**

D3 NOT TO SCALE

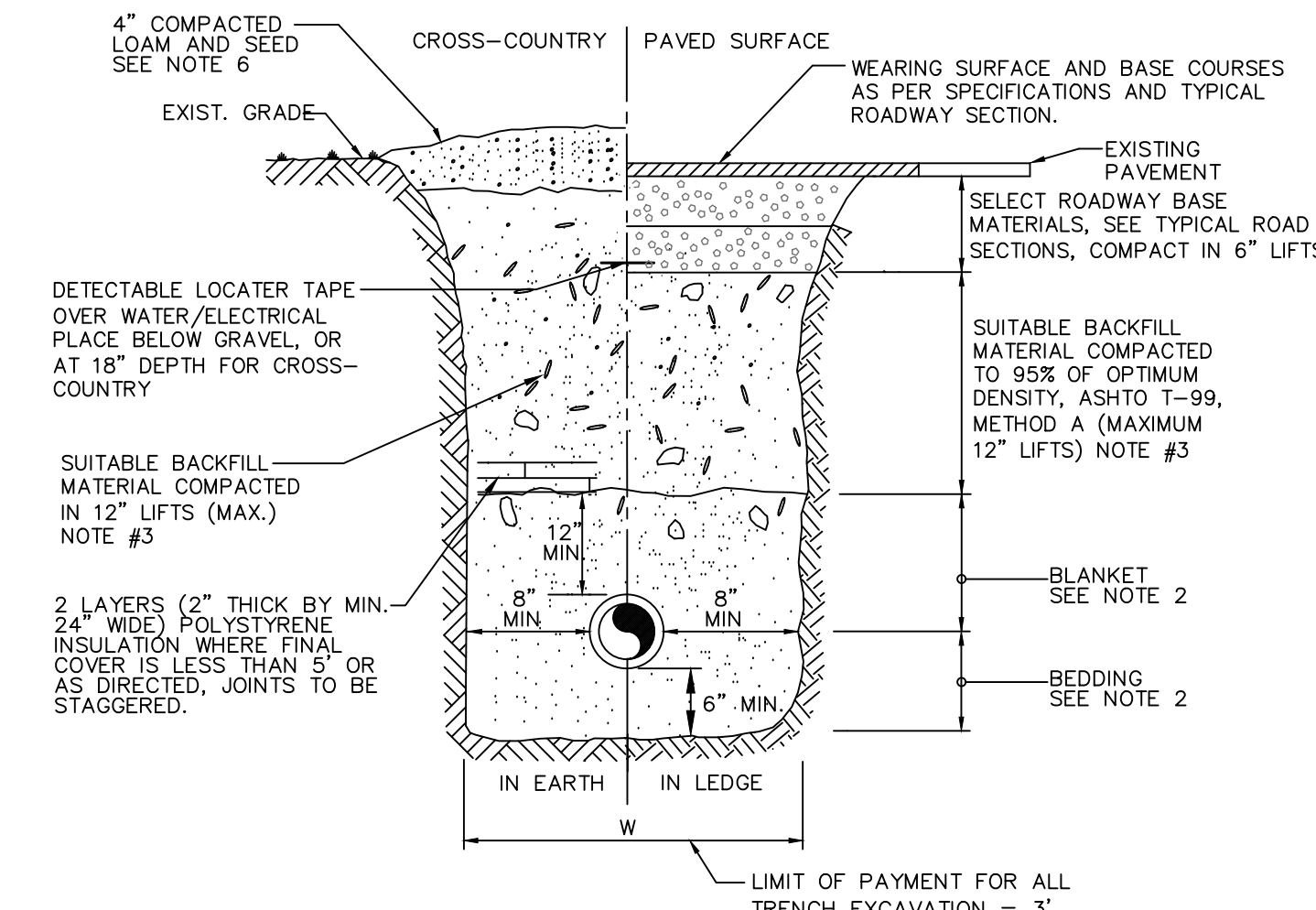
| MINIMUM CONCRETE ANCHOR DIMENSIONS |                 |     |               |      |                     |     |     |                  |
|------------------------------------|-----------------|-----|---------------|------|---------------------|-----|-----|------------------|
| PIPE SIZE INCHES                   | TEE OR PLUG FT. |     | ALL BENDS FT. |      | ALL LINE VALVES FT. |     |     | PIPE SIZE INCHES |
|                                    | H               | L   | H             | L    | H                   | L   | B   |                  |
| 6                                  | 1.5             | 3.0 | 2.0           | 3.5  | 1.5                 | 3.0 | 2.5 | 6                |
| 8                                  | 2.0             | 4.0 | 2.5           | 5.0  | 2.0                 | 4.0 | 3.0 | 8                |
| 10                                 | 2.5             | 5.0 | 3.0           | 6.0  | 3.0                 | 4.0 | 3.0 | 10               |
| 12                                 | 3.0             | 6.0 | 3.0           | 8.0  | 3.0                 | 5.0 | 4.0 | 12               |
| 16                                 | 3.0             | 6.5 | 3.0           | 10.0 | 3.0                 | 4.5 | 4.0 | 16               |

BASIS: SOIL BEARING CAPACITY OF 2000 PSF AND 5 FEET COVER IN GRANULAR SOIL. HEIGHT OF BLOCK MUST BE LESS THAN 1/2 DEPTH OF TRENCH. 6 MIL THICK POLYETHYLENE SHALL BE PLACED AROUND FITTINGS PRIOR TO CONCRETE PLACEMENT. USE FOR HORIZONTAL OR DOWNWARD THRUST ONLY.



**6 CONCRETE ANCHORS**

D3 NOT TO SCALE



**8 TYPICAL TRENCH DETAIL**

D3 NOT TO SCALE

**STANDARD TRENCH NOTES**

1. ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE: BACKFILL AS STATED IN THE TECHNICAL SPECIFICATIONS OR AS SHOWN ON THE DRAWINGS.
2. BEDDING AND BLANKET: CLEAN SAND FREE FROM ORGANIC MATTER (SECTION 02228). BLANKET MAY BE OMITTED FOR DUCTILE IRON AND REINFORCED CONCRETE PIPE, PROVIDED HOWEVER, THAT NO STONE LARGER THAN 2" IS IN CONTACT WITH THE PIPE.
3. BACKFILL MATERIAL: IN ROADS, ROAD SHOULDERS, WALKWAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS; PIECES OF PAVEMENT; ORGANIC MATTER; TOP SOIL; ALL WET OR SOFT MUCK, PEAT, OR CLAY; ALL EXCAVATED LEDGE MATERIAL; ALL ROCKS OVER 6 INCHES IN LARGEST DIMENSION; AND ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION.
- IN CROSS-COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK, OR PEAT, IF ENGINEER IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE PIPE LINE, FOR MAINTENANCE AND POSSIBLY RECONSTRUCTION, WILL BE PRESERVED.
4. MINIMUM COVER: NOT LESS THAN 5.5 FEET, 7 MAX, EXCEPT TO AVOID SUBSURFACE STRUCTURES.
6. FOR CROSS COUNTRY CONSTRUCTION, BACKFILL OR FILL SHALL BE MOUND TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
7. DRIVEWAYS: CRUSHED GRAVEL IN DRIVEWAYS SHALL MATCH EXISTING WITH A MINIMUM OF 6", EXISTING GRAVEL SHALL BE REMOVED AND REPLACED AND SHALL NOT BE MEASURED FOR PAYMENT.

**HORIZONTAL BENDS:**

| Nominal Pipe Diameter | Bend Angle |     |       |        |
|-----------------------|------------|-----|-------|--------|
|                       | 90°        | 45° | 22.5° | 11.25° |
| 4"                    | 6'         | 3'  | 2'    | 1'     |
| 6"                    | 9'         | 4'  | 2'    | 2'     |
| 8"                    | 11'        | 5'  | 3'    | 2'     |
| 10"                   | 13'        | 6'  | 3'    | 2'     |
| 12"                   | 16'        | 7'  | 3'    | 2'     |
| 16"                   | 20'        | 9'  | 4'    | 2'     |

**REDUCERS:**

| Nom. Diameter of Large Pipe | Nominal Diameter of Small Pipe (Note 4) |     |     |     |
|-----------------------------|---|-----|-----|-----|
|                             | 4"                                      | 6"  | 8"  | 10" |
| 8"                          | 17'                                     | 10' | -   | -   |
| 10"                         | 23'                                     | 17' | 10' | -   |
| 12"                         | 29'                                     | 24' | 18' | 10' |
| 16"                         | 39'                                     | 36' | 31' | 28' |

**DEAD ENDS:**

| Nom. Pipe Diameter | Restraint Length (ft) |
|--------------------|-----------------------|
| 4"                 | 13'                   |
| 6"                 | 18'                   |
| 8"                 | 23'                   |
| 10"                | 28'                   |
| 12"                | 33'                   |
| 16"                | 43'                   |

**TEES:**

| Nominal Pipe | Nominal Branch Diameter (Note 5) |     |     |     |
|--------------|----------------------------------|-----|-----|-----|
|              | 8"                               | 10" | 12" | 16" |
| 8"           | 6'                               | -   | -   | -   |
| 10"          | 8'                               | 11' | -   | -   |
| 12"          | 1'                               | 7'  | 16' | -   |
| 16"          | 1'                               | 1'  | 9'  | 25' |

**NOTES:**

1. ALL FITTINGS SHALL HAVE MECHANICAL RETAINING GLANDS AT ALL ENDS AND A MINIMUM OF ONE JOINT SHALL BE RESTRAINED BEYOND EACH SIDE OF FITTING.
2. PIPE EXTENDING FROM ALL FITTINGS SHALL BE MECHANICALLY RESTRAINED TO THE MINIMUM LENGTHS SHOWN.
3. ALL MINIMUM LENGTHS SHOWN ABOVE WERE CALCULATED USING THE EBAA IRON RESTRAINT LENGTH CALCULATOR VERSION 6.3 USING THE FOLLOWING ASSUMPTIONS: DUCTILE IRON PIPE, TYPE 4 TRENCH, 5 FOOT DEPTH OF BURY, A TEST PRESSURE OF 150 PSI AND SOILS CONSISTING OF WELL GRADED SANDS AND GRAVELLY SANDS WITH LITTLE OR NO FINES.
4. ENGINEER RESERVES THE RIGHT TO MODIFY RESTRAINT LENGTHS REQUIRED BASED ON VARYING TRENCH CONDITIONS, DEPTH OF BURY OR PIPE MATERIALS.
5. FOR REDUCERS, RESTRAINT LENGTH SHOWN IS FOR THE LARGER PIPE.
6. MECHANICALLY RESTRAIN ONE JOINT ON EITHER SIDE OF THE NOMINAL PIPE OF TEE AT A MINIMUM DISTANCE OF 5'.

**9 MECHANICAL JOINT RESTRAINT**

D3 NOT TO SCALE

ISSUE FOR BIDDING By Date CONSTRUCTION By Date RECORD DRAWING By Date REVISIONS APP'D NO. Drawn/Chk. RMG PDM Designed PDM Checked Approved Date APRIL 2024 Book No. 2542 Project No. 2542 Dwg. ID Scale

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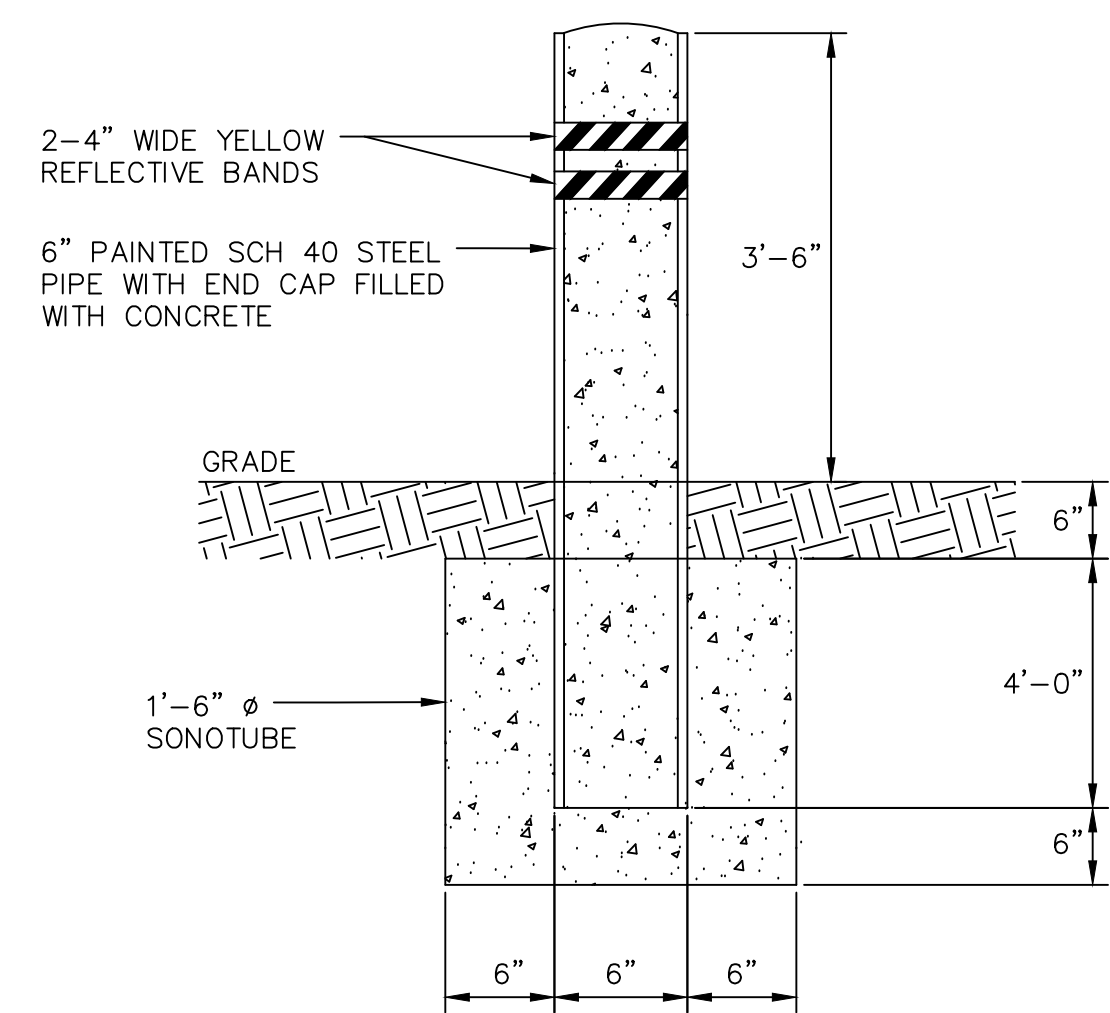
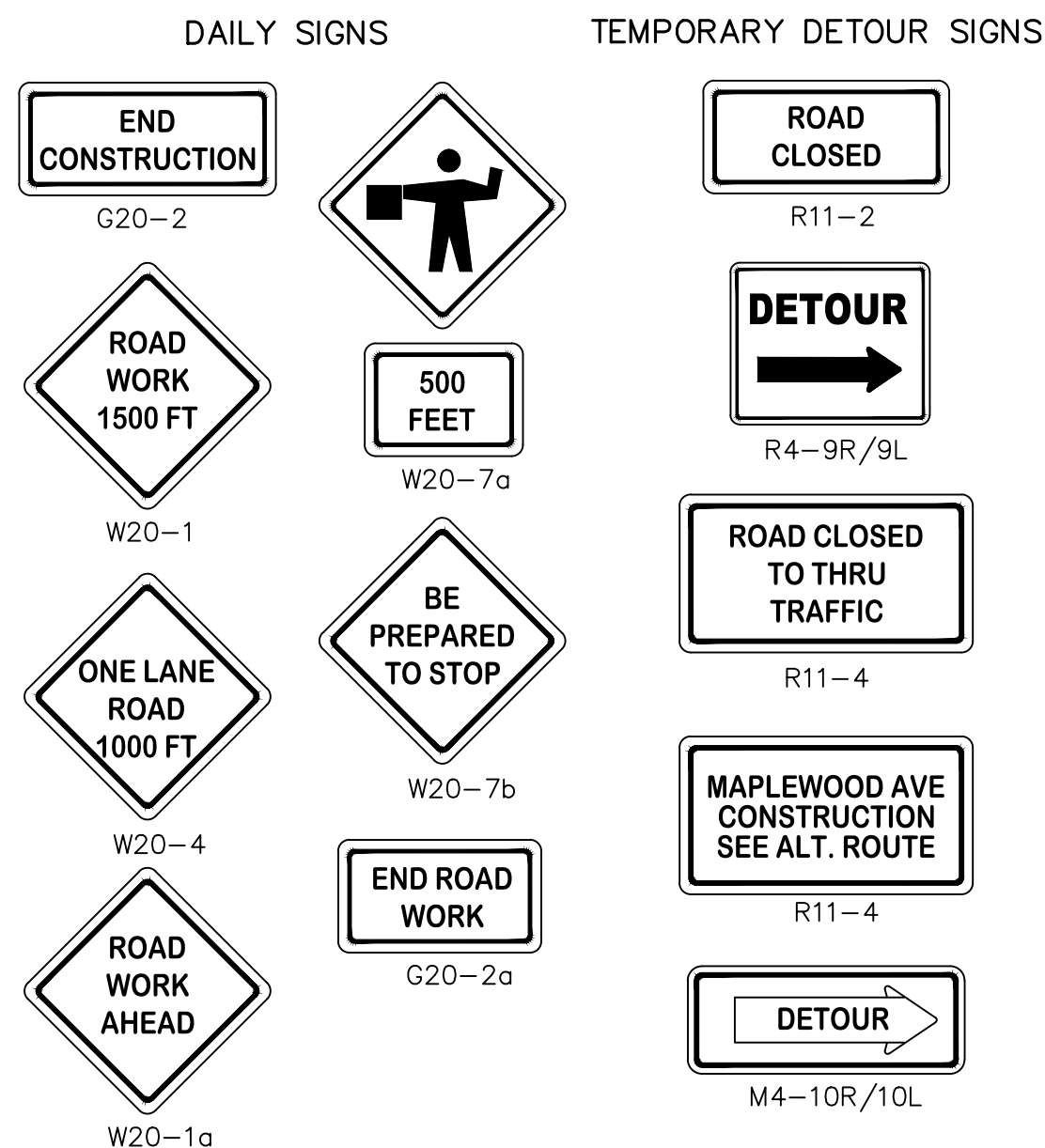
**WATER DETAILS**  
MAPLEWOOD AVE DRAINAGE IMPROVEMENTS  
CITY OF PORTSMOUTH  
PORTSMOUTH, NEW HAMPSHIRE

DWG NO D3 SHEET 12 OF 17



**TRAFFIC CONTROL NOTES:**

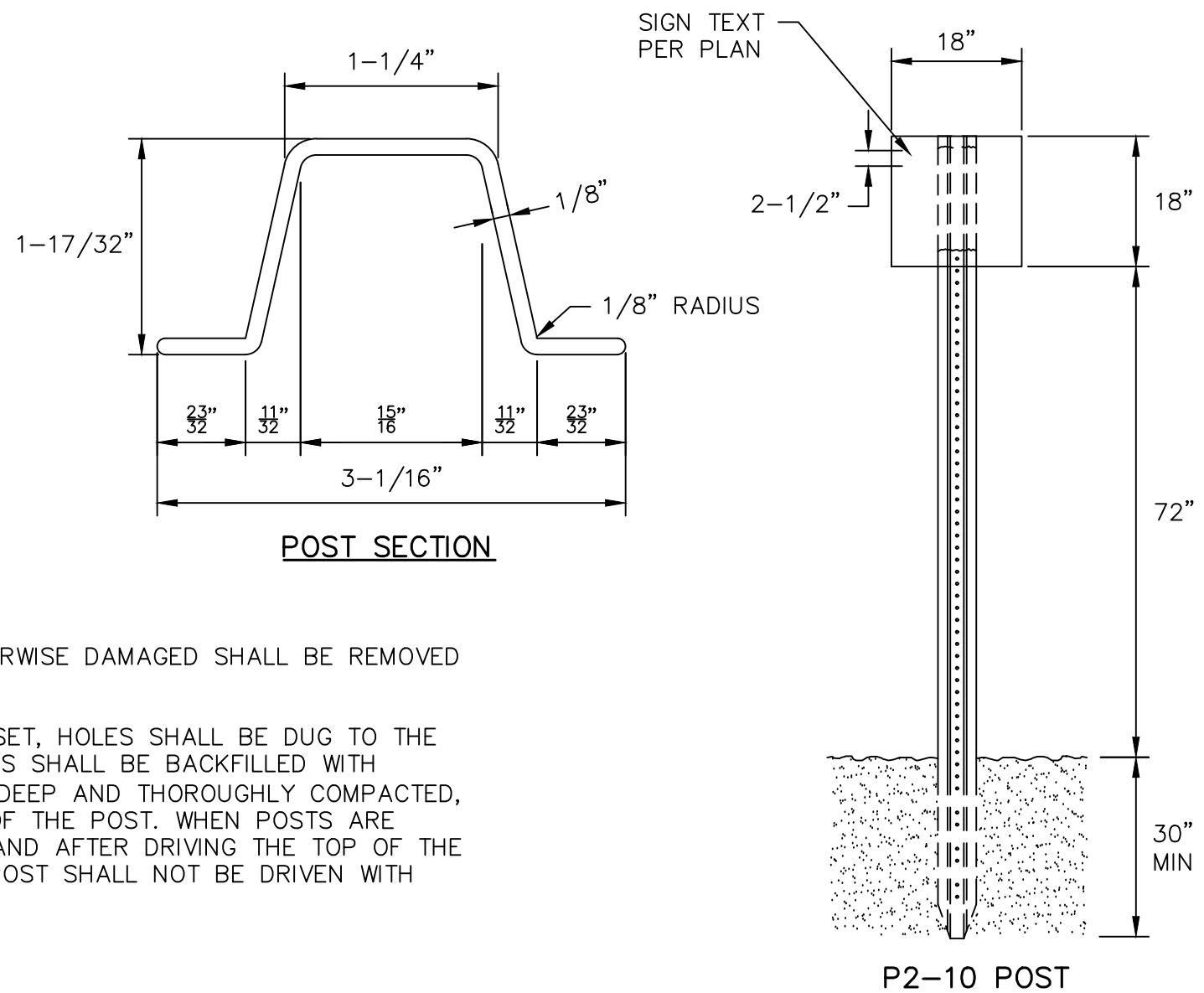
1. TYPICAL SIGN DETAILS ARE BASED ON THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND IS NOT INTENDED AS AN ALL-INCLUSIVE LIST. ALL SIGNAGE AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MUTCD (LATEST EDITION) AND NHDOT REQUIREMENTS.
2. CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING THE TRAFFIC CONTROL PLAN AS SHOWN. ANY MODIFICATIONS MUST BE SUBMITTED IN WRITING FOR APPROVAL BY THE ENGINEER, CITY OF PORTSMOUTH AND THE NHDOT. SEE PROJECT MANUAL FOR ADDITIONAL REQUIREMENTS.
3. CONTRACTOR SHALL ERECT ALL DAILY USE SIGNS IN THE MORNING PRIOR TO WORK BEGINNING AND REMOVE ALL DAILY USE SIGNS AT THE END OF EACH DAY.
4. DAILY SIGNS SHALL INCLUDE SIGNAGE NECESSARY TO ENSURE THE SAFETY OF THE PUBLIC (I.E. ROAD CLOSED, FLAGGER AHEAD, ONE LANE TRAFFIC, ETC).
5. DETOUR SIGNS ARE TO BE USED WITH PHASE I CONSTRUCTION (CULVERT INSTALLATION) ONLY. REFER TO PROSECUTION OF WORK ON SHEET G-1)
6. ALL SIGNS SHALL BE ERECTED AND PLACED IN ACCORDANCE WITH MUTCD (LATEST EDITION).



**3 STEEL BOLLARD DETAIL**  
D4 NOT TO SCALE

**1 TRAFFIC CONTROL SIGNS**  
D4 NOT TO SCALE

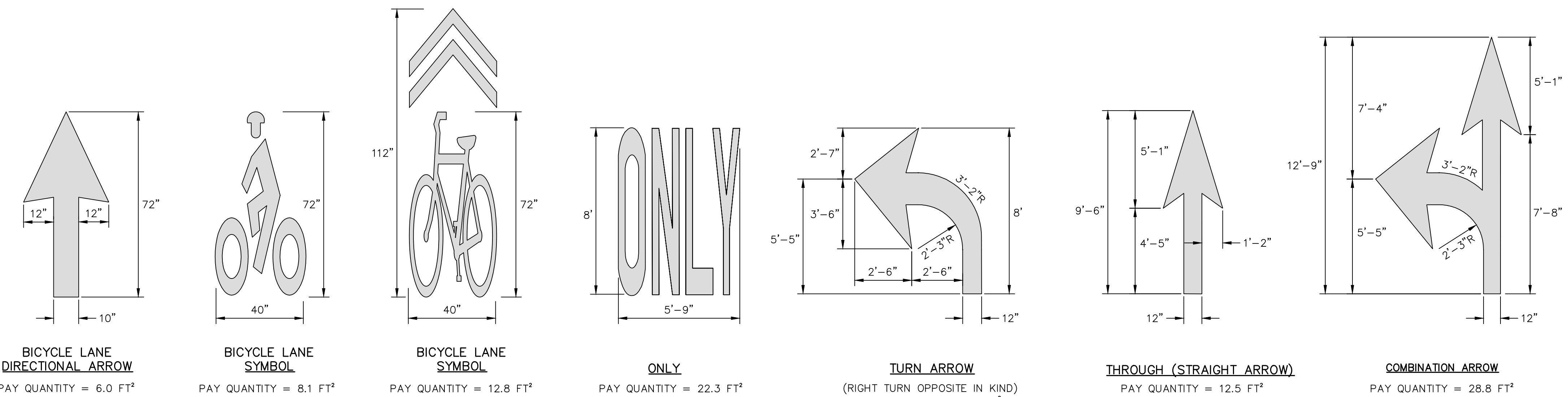
LENGTH (P2-10): 10'-0"  
WEIGHT PER LINEAR FOOT: 2.00 LBS  
HOLES: 3/8" DIA., 1" C-C FULL LENGTH  
STEEL: SHALL CONFORM TO ASTM A-499 (AISI C1060)  
FINISH: SHALL BE PAINTED WITH TWO COATS OF AN APPROVED MED. GREEN, BAKED PAINT OR AIR DRIED, PAINT OF WEATHER-RESISTANT QUALITY, ALL FABRICATION SHALL BE COMPLETED BEFORE PAINTING.



- NOTES:**
1. POSTS SHALL BE P2-10 AS REQUIRED.
  2. POSTS SHALL BE PLUMB; ANY POST BENT OR OTHERWISE DAMAGED SHALL BE REMOVED AND PROPERLY PLACED.
  3. POSTS MAY BE SET OR DRIVEN. WHEN POSTS ARE SET, HOLES SHALL BE DUG TO THE PROPER DEPTH; AFTER INSERTING POSTS, THE HOLES SHALL BE BACKFILLED WITH SUITABLE MATERIAL IN LAYERS NOT TO EXCEED 6" DEEP AND THOROUGHLY COMPACTED, CARE BEING TAKEN TO PRESERVE THE ALIGNMENT OF THE POST. WHEN POSTS ARE DRIVEN, A SUITABLE DRIVING CAP SHALL BE USED AND AFTER DRIVING THE TOP OF THE POST; BATTERING HEADS WILL NOT BE ACCEPTED. POST SHALL NOT BE DRIVEN WITH THE SIGN ATTACHED TO THE POST.

**2 SIGN DETAIL**  
D4 NOT TO SCALE

- GENERAL NOTES:**
1. ALL WORDS AND SYMBOLS SHALL BE RETROREFLECTIVE WHITE AND SHALL CONFORM TO THE LATEST VERSION OF THE MUTCD.
  2. MULTI-WORD MESSAGES SHALL READ "UP"; THAT IS, THE FIRST WORD SHALL BE NEAREST THE APPROACHING DRIVER.
  3. THE WORD "ONLY" SHALL NOT BE USED WITH THROUGH OR COMBINATION ARROWS, AND SHALL NOT BE USED ADJACENT TO A BROKEN LANE LINE. A WORD/SYMBOL SHALL PRECEDED THE WORD "ONLY".
  4. PREFORMED WORDS AND SYMBOLS SHALL BE PRE-CUT BY THE MANUFACTURER.
  5. WRONG-WAY ARROWS SHALL NOT BE SUBSTITUTED FOR THROUGH ARROWS.
  6. ALL STOP BARS, WORDS, SYMBOLS AND ARROWS SHALL BE THERMOPLASTIC.



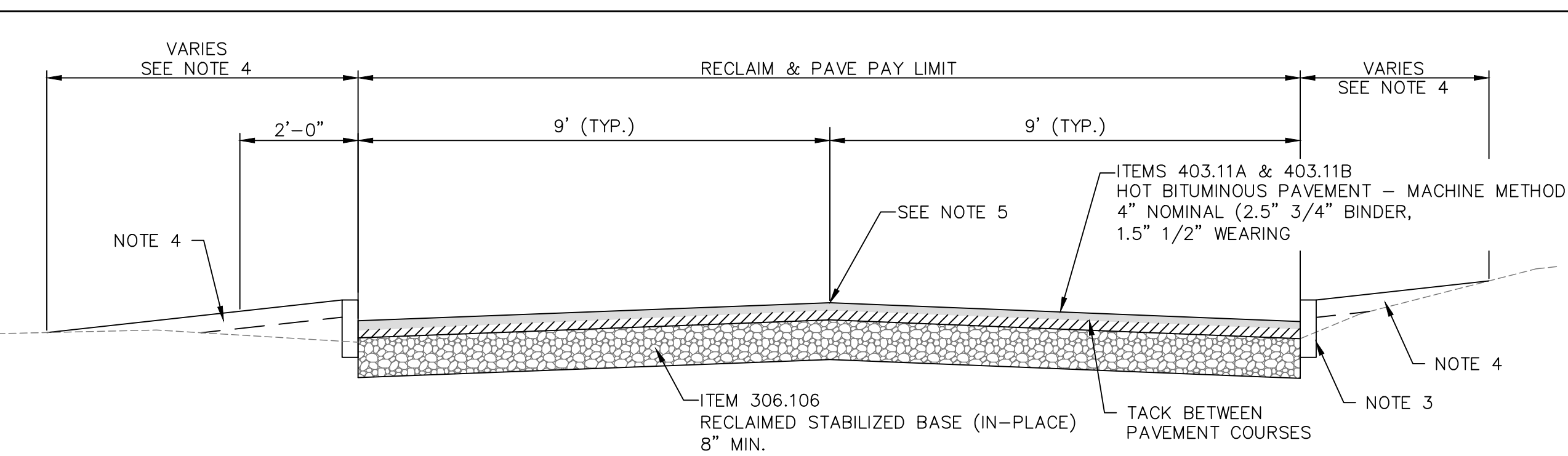
**4 PAVEMENT MARKING - WORD AND SYMBOLS**  
D4 NOT TO SCALE

|                |               |            |           |       |
|----------------|---------------|------------|-----------|-------|
| ISSUE FOR      | By            | Date       | REVISIONS | APP'D |
| BIDDING        |               |            |           |       |
| CONSTRUCTION   |               |            |           |       |
| RECORD DRAWING |               |            |           |       |
| NO.            |               |            |           |       |
| Drawn/Chk.     | RMG           |            |           |       |
| Designed       | PDM           |            |           |       |
| Checked        |               |            |           |       |
| Approved       |               | APRIL 2024 |           |       |
| Book No.       |               |            |           |       |
| Project No.    | 2552          |            |           |       |
| Dwg. ID        | 252_details_M |            |           |       |
| Scale          |               |            |           |       |

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**TRAFFIC CONTROL SIGNS & PAVEMENT MARKINGS**  
MAPLEWOOD AVE DRAINAGE IMPROVEMENTS  
CITY OF PORTSMOUTH  
PORTSMOUTH, NEW HAMPSHIRE

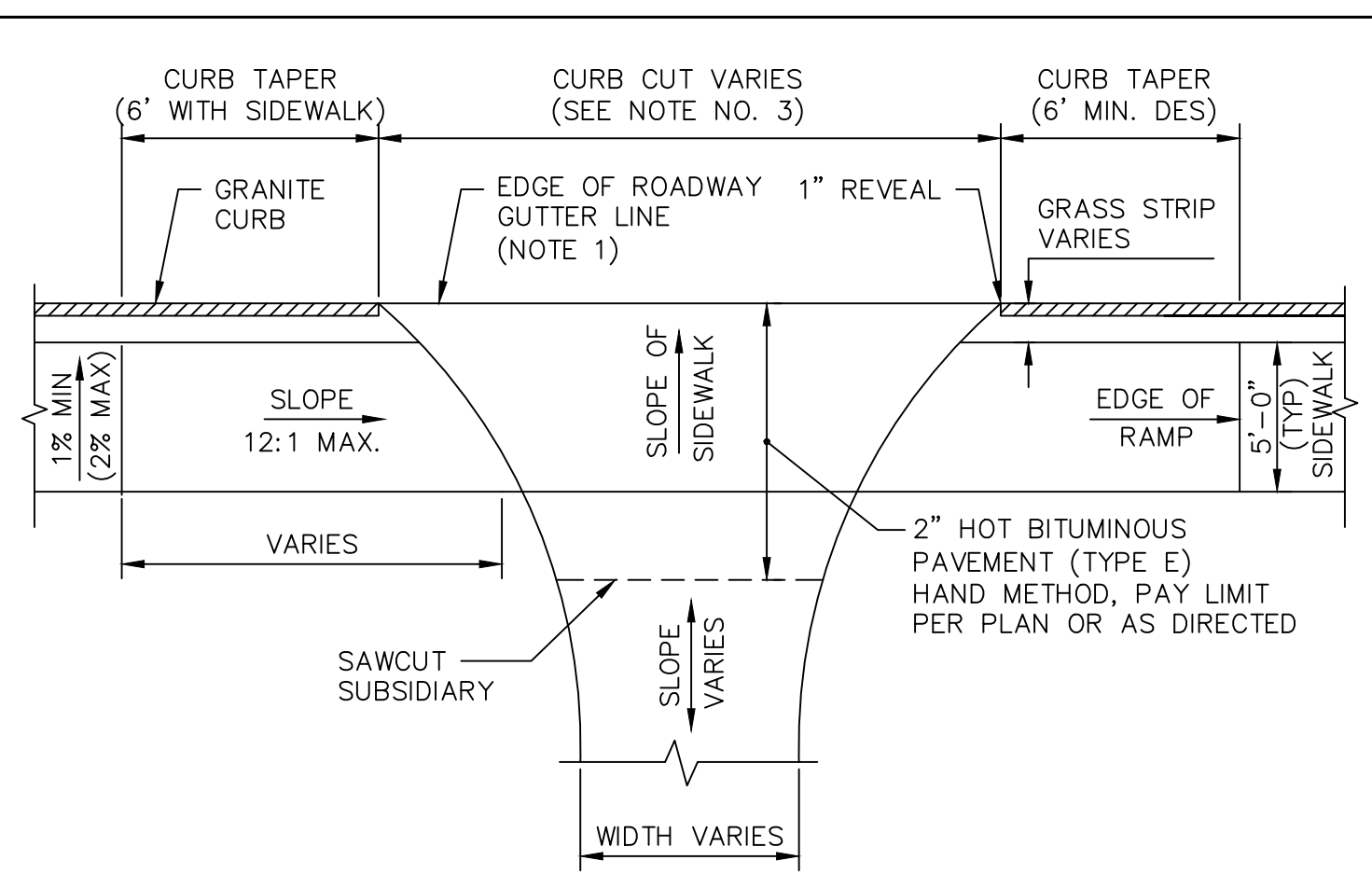
|        |          |
|--------|----------|
| DWG NO | SHEET    |
| D4     | 13 OF 17 |



**ROAD RE-CONSTRUCTION NOTES:**

1. SAWCUT DRIVEWAYS AND CONSTRUCT DRIVEWAY APRON FOLLOWING CONSTRUCTION OF PAVEMENT BINDER COURSE (SEE DRIVEWAY APRON DETAILS, THIS DRAWING).
2. GRADE RECLAIM (UNIFORMLY) TO MINIMIZE IMPACTS TO DRIVEWAYS AND SIDE SLOPES. REVIEW GRADING WITH ENGINEER IN ADVANCE OF RECLAIM. RECLAIM AT 10" DEPTH, REMOVE AND DISPOSE OF SURPLUS RECLAIM WHERE DIRECTED TO MINIMIZE GRADING IMPACTS, SUBSIDIARY. TYPICAL CROSS SLOPE = 3% UNLESS DIRECTED OTHERWISE.T. SUBSIDIARY.
3. INSTALL GRANITE CURB (WHERE DIRECTED), ITEM 609.01. SEE DETAIL (6 D5).
4. LOAM, SEED & MULCH ROADSIDE SLOPES, PAY AS ITEM 912.
5. ALL SEAMS AND JOINTS SHALL BE RAKED AND LUTED PRIOR TO COMPACTION AND ROLLING.

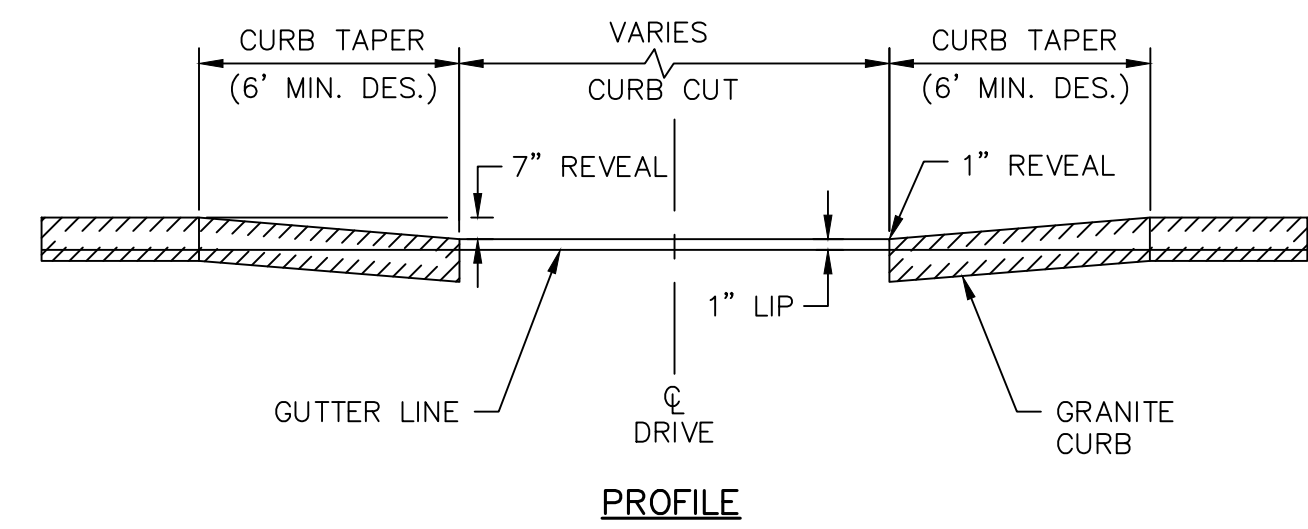
**1 D5 TYPICAL ROADWAY SECTION - RAILROAD EASEMENT AREA**  
NOT TO SCALE



**PLAN VIEW WITH SIDEWALK RAMP**

**NOTES:**

1. ALL PAVEMENT MATCHES AT DRIVEWAY SHALL BE SAWCUT AND KEYED FOR SMOOTH TRANSITION (SUBSIDIARY)

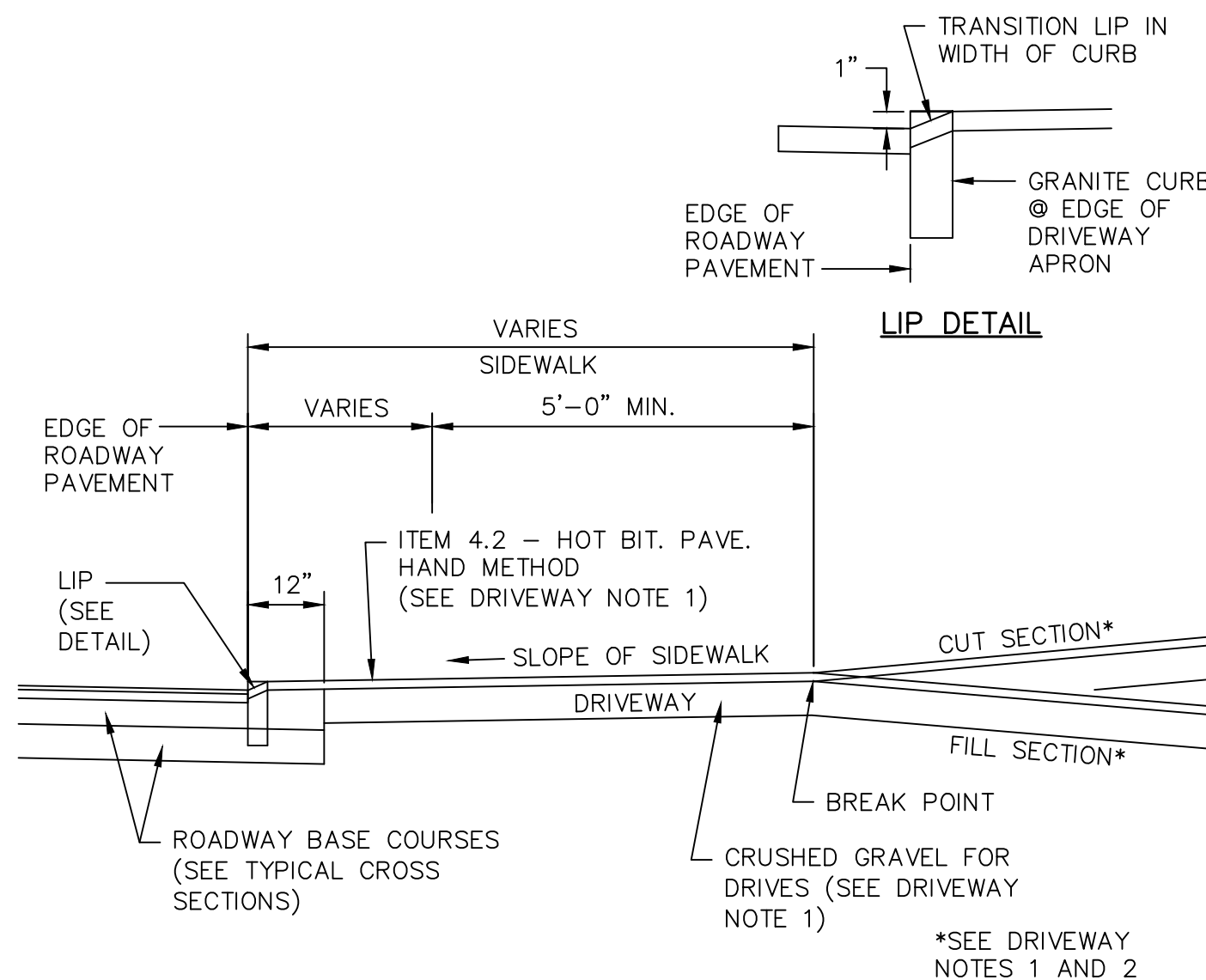


**PROFILE**

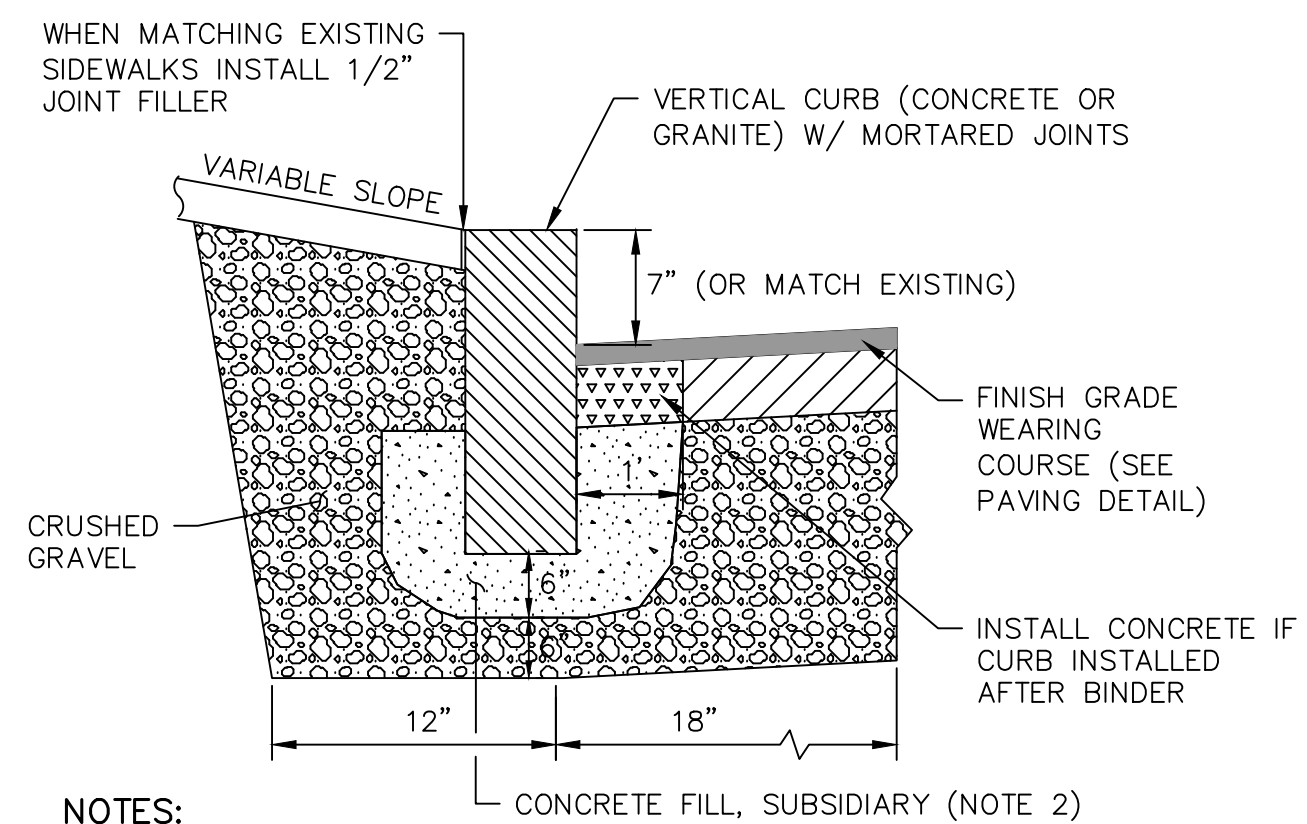
**DRIVEWAY NOTES:**

1. PAVEMENT & GRAVEL DEPTHS FOR RESIDENTIAL DRIVES SHALL BE 8" CRUSHED GRAVEL WITH 2" H.B.P. (HAND METHOD) SINGLE COURSE.
2. CURBING CAN BE FLARED TO FIT DRIVE RADII IF APPROPRIATE OR ENDED AS DETAILED ABOVE.
3. DRIVEWAY CURB CUTS SHALL MATCH EXISTING APRON WIDTHS UNLESS OTHERWISE DIRECTED.
4. FOR UNPAVED DRIVES, THE PAVED APRON NORMALLY ENDS AT THE RADIUS TANGENT POINT OR BACK OF SIDEWALK, WHICHEVER IS GREATER.

**4 D5 DRIVEWAY APRON/CURB CUT (FINAL GRADING PLAN)**  
NOT TO SCALE



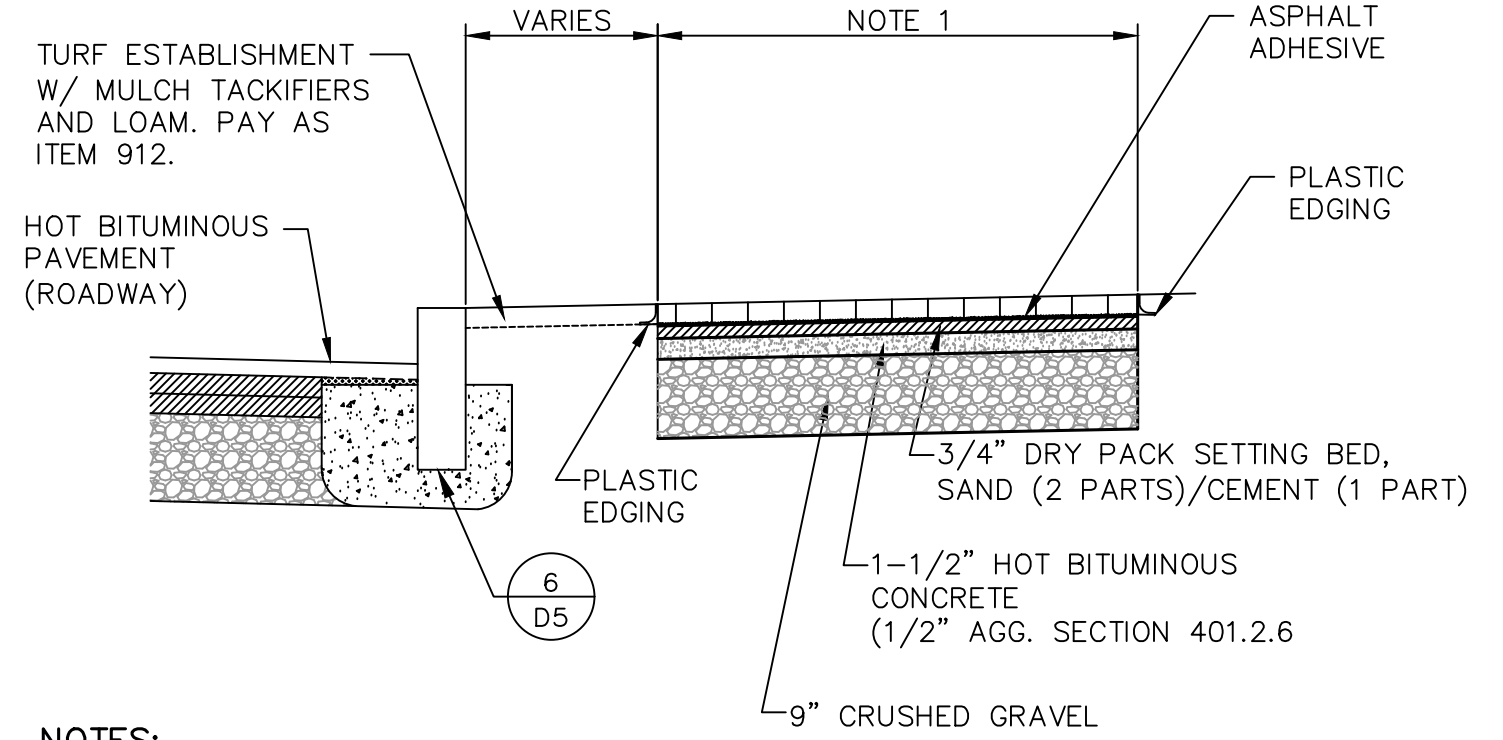
**5 D5 TYPICAL URBAN CURBED DRIVE IN CUT/FILL SECTION**  
NOT TO SCALE



**NOTES:**

1. DAMAGED OR IMPACTED CURB (WHETHER GRANITE OR CONCRETE) IS TO BE REPLACED AT THE CONTRACTOR'S OWN EXPENSIVE, UNLESS OTHERWISE NOTED ON PLAN.
2. CLASS AA CONCRETE FILL SHALL BE PLACED IN VOIDS IN FRONT, BEHIND, AND BELOW CURBING PRIOR TO INSTALLATION OF GRAVEL BACKING AND FINISH GRADE WEARING COURSE PAVEMENT.

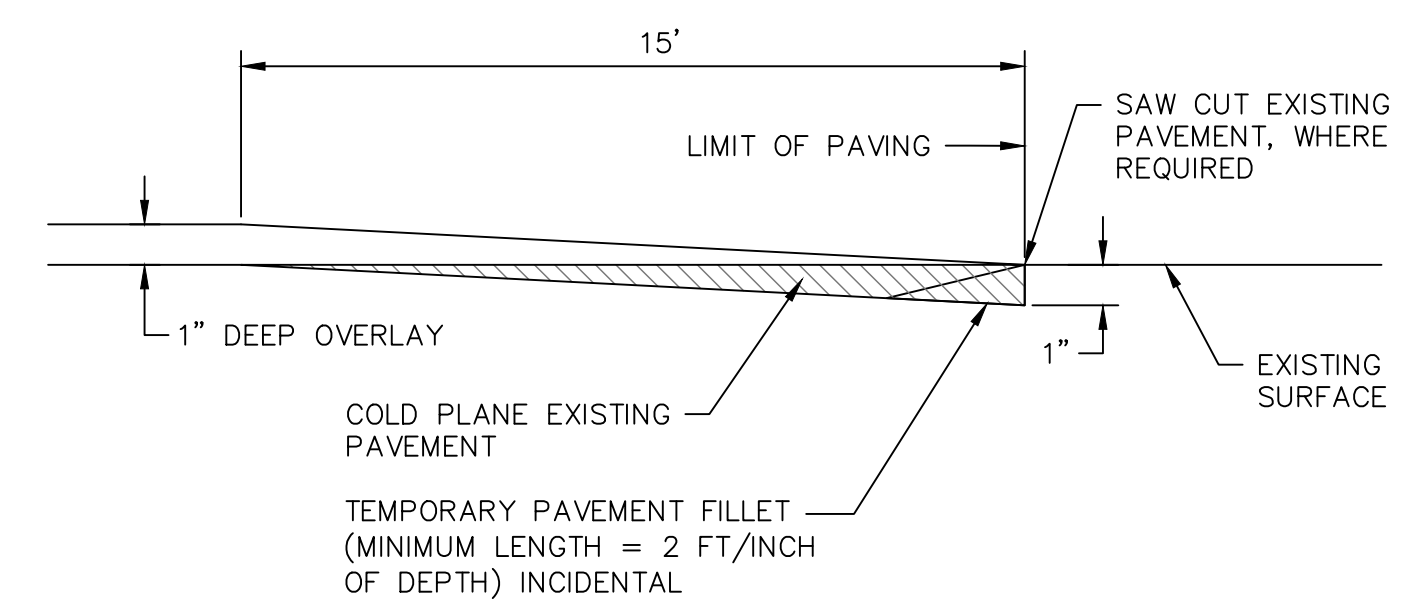
**6 D5 VERTICAL CURB (NEW OR RESET) (GRANITE OR CONCRETE)**  
NOT TO SCALE



**NOTES:**

1. RE-CONSTRUCT CURB AND SIDEWALKS IMPACTED FROM CONSTRUCTION OR WHERE DIRECTED. CURB AND SIDEWALKS DAMAGED OUTSIDE TRENCH LIMITS (THREE- FEET FROM OUTSIDE OF PIPE) SHALL BE RESTORED AT CONTRACTOR'S COST AND WILL NOT BE MEASURED FOR PAYMENT.

**7 D5 BRICK SIDEWALK DETAIL (NEW OR RECONSTRUCT)**  
NOT TO SCALE



**NOTES:**

- THE LENGTH OF THE TAPER MAY BE ADJUSTED AS ORDERED TO PROVIDE FOR VARYING FIELD CONDITIONS OR CHANGES IN SINGLE COURSE DEPTH.

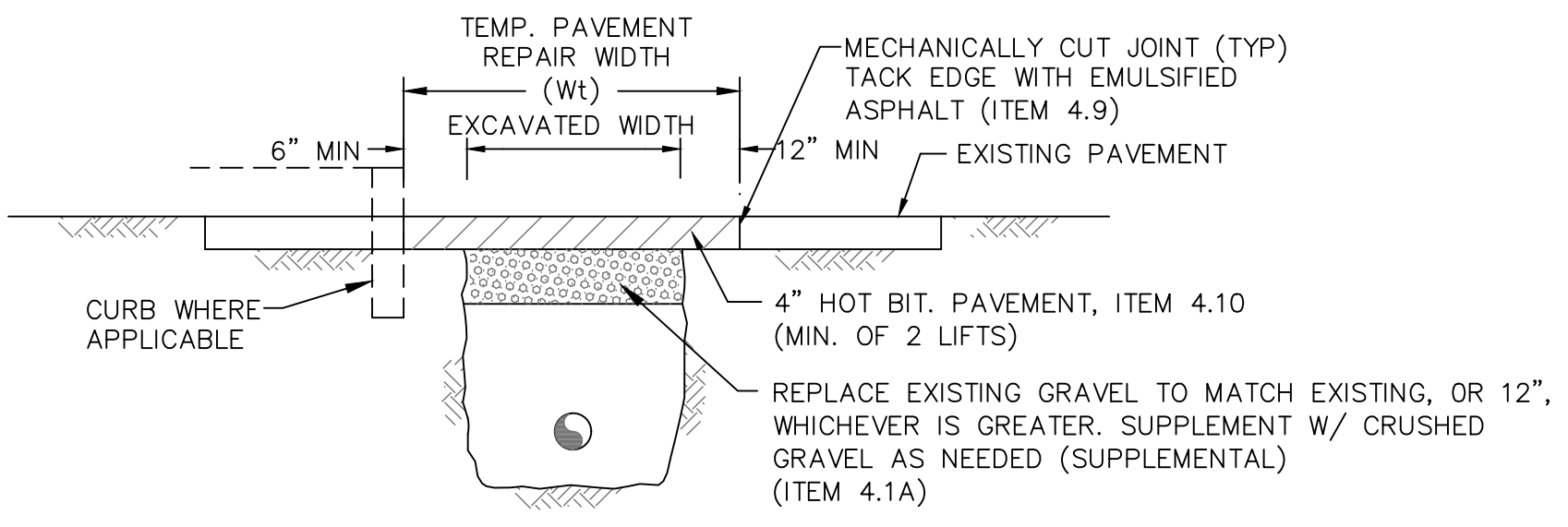
**8 D5 OVERLAY PAVEMENT MATCH**  
NOT TO SCALE

**MINIMUM TRENCH PAVEMENT WIDTHS**

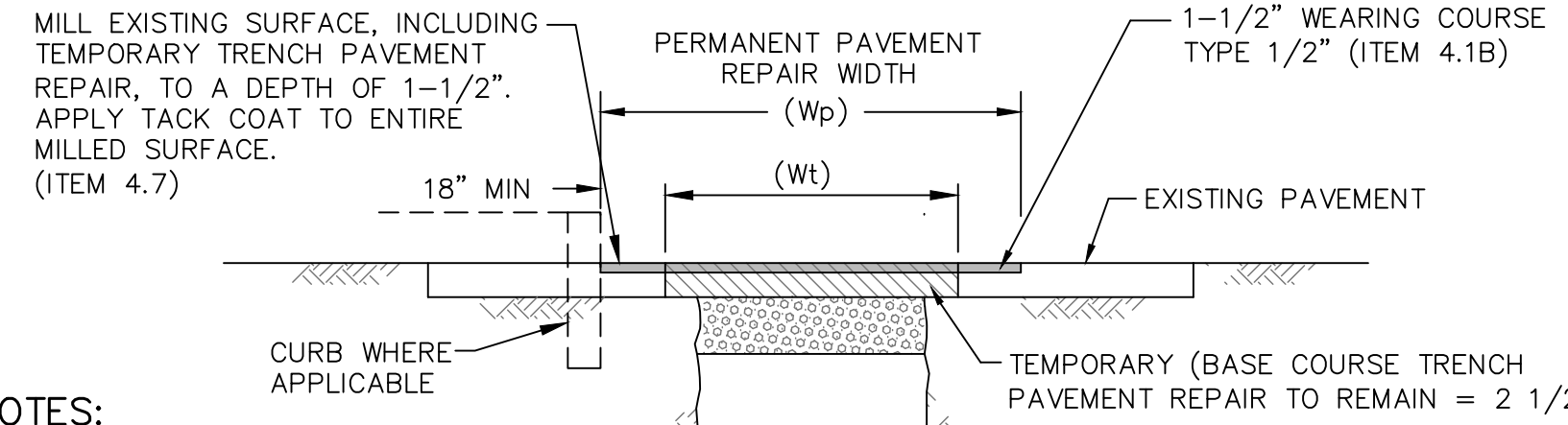
| PIPE I.D.    | Wt (INCHES) | Wp (INCHES) |
|--------------|-------------|-------------|
| 1-21 INCHES  | 84          | 108         |
| 24-30 INCHES | 96          | 120         |
| > 30 INCHES  | 108         | 132         |

**NOTE:**

THE DIMENSIONS SHOWN SHALL BE CONSIDERED MAXIMUM PAVEMENT PAYMENT WIDTHS FOR 0-10' DEEP CONSTRUCTION. Wt AND Wp SHALL BE INCREASED BY 4'-0" FOR TRENCHES 10' TO 15' AND BY 8'-0" FOR TRENCHES 15' TO 20' IN DEPTH.



**2 D-5 TEMPORARY TRENCH PAVEMENT REPAIR**  
NOT TO SCALE



**NOTES:**

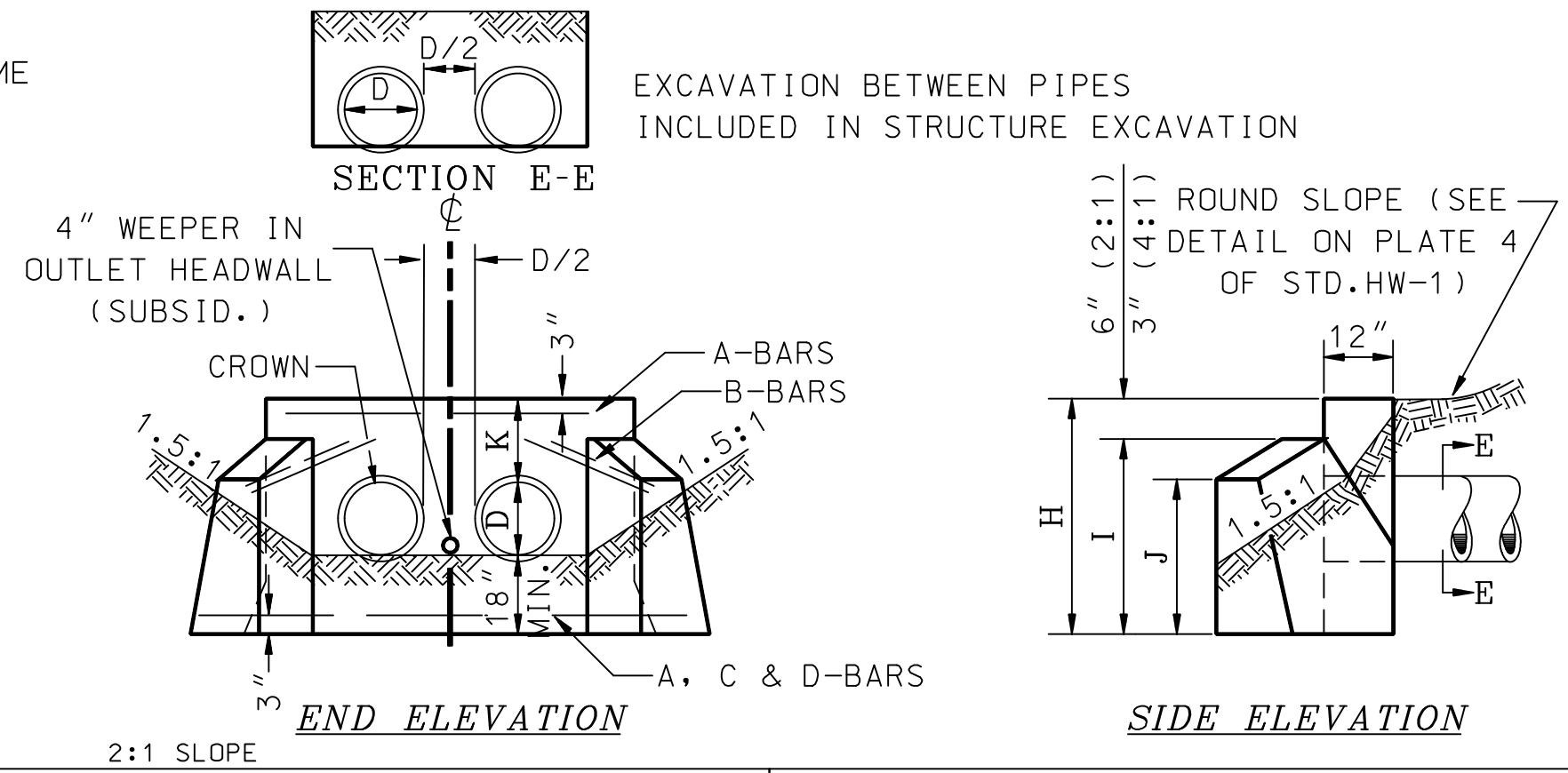
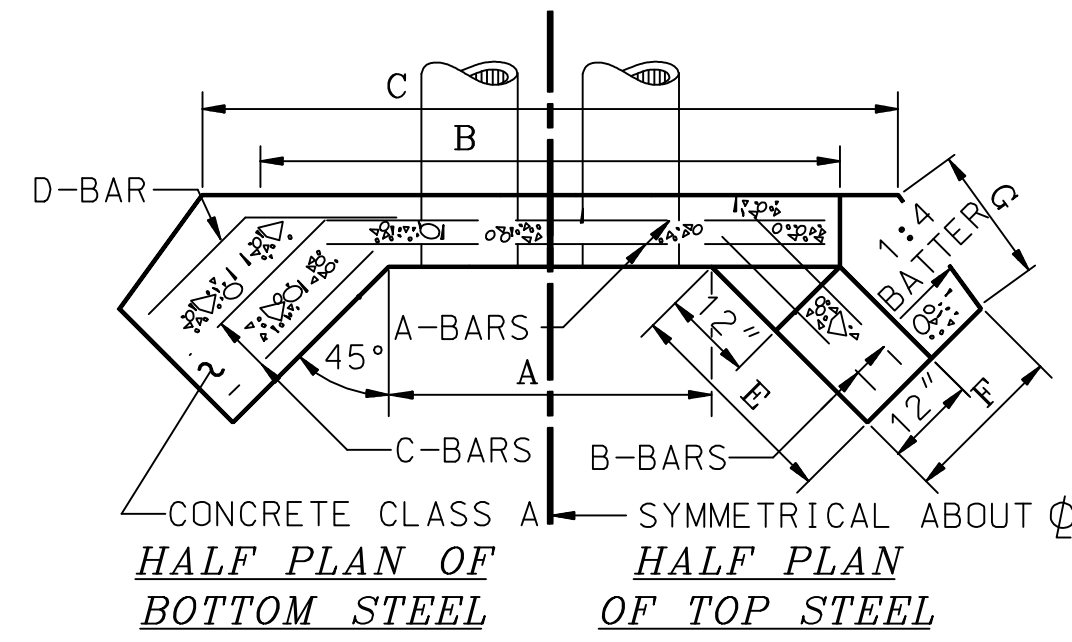
1. ALL PAVEMENT REMOVAL SHALL BE PRECEDED BY MACHINE CUTTING.
2. ALL TEMPORARY, DAMAGED OR DEFECTIVE PAVEMENT SHALL BE REMOVED PRIOR TO PLACEMENT OF PERMANENT TRENCH REPAIRS.
3. SEE TABLE IN "TEMPORARY TRENCH PAVEMENT REPAIRS" FOR MINIMUM TRENCH WIDTHS.

**3 D-5 PERMANENT TRENCH PAVEMENT REPAIR**  
NOT TO SCALE

|  |              |         |              |                 |                  |                     |       |      |
|--|--------------|---------|--------------|-----------------|------------------|---------------------|-------|------|
| ISSUE FOR BIDDING  | By           | Date    | CONSTRUCTION | By              | Date             | RECORD DRAWING      | By    | Date |
|  |              |         |              |                 |                  |                     |       |      |
| REVISIONS  | NO.          | DATE    | BY           | APP'D           |                  |                     |       |      |
| Drawn/Chk. RMG   | Designed PDM | Checked | Approved     | Date APRIL 2024 | Project No. 2552 | Dwg. ID 252 details | Scale |      |
| <b>UNDERWOOD engineers</b>   |              |         |              |                 |                  |                     |       |      |
| 25 Vaughan Mall, Portsmouth, N.H. 03801<br>Tel. 603-436-6192 Fax. 603-431-4733 |              |         |              |                 |                  |                     |       |      |
| <b>ROADWAY AND SIDEWALK DETAILS</b>  |              |         |              |                 |                  |                     |       |      |
| <b>MAPLEWOOD AVE DRAINAGE IMPROVEMENTS</b>                                     |              |         |              |                 |                  |                     |       |      |
| <b>CITY OF PORTSMOUTH</b>  |              |         |              |                 |                  |                     |       |      |
| <b>PORTSMOUTH, NEW HAMPSHIRE</b>   |              |         |              |                 |                  |                     |       |      |
| DWG NO   | SHEET        |         |              |                 |                  |                     |       |      |
| D5   | 14 OF 17     |         |              |                 |                  |                     |       |      |



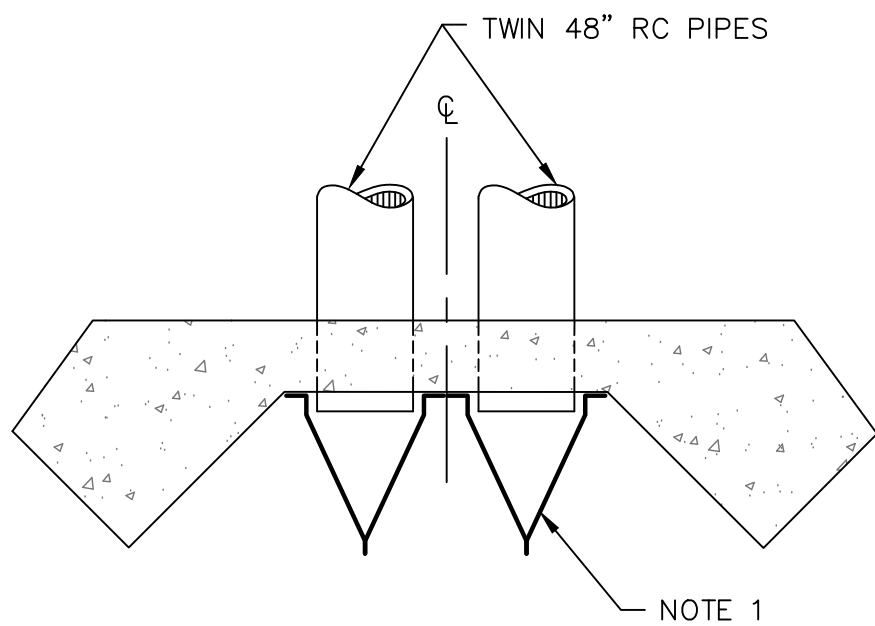
NOTE:  
ALL LIKE BARS IN EACH HEADWALL ARE THE SAME SIZE. EACH STD. HEADER HAS 4 A, B & C-BARS, AND 2 D-BARS.



| DIA. D INCHES | QUANTITIES PER HEADER |           |                           | DIMENSIONS |        |        |       |        |       |       |       |        |       |       |      | REINFORCING STEEL |       |       |       |            |       |  |  |  |  |
|---------------|-----------------------|-----------|---------------------------|------------|--------|--------|-------|--------|-------|-------|-------|--------|-------|-------|------|-------------------|-------|-------|-------|------------|-------|--|--|--|--|
|               | CONC. CU. YD.         | STEEL LB. | EXC. FOR 1' DEPTH CU. YD. | A          | B      | C      | E     | F      | G     | H     | I     | J      | K     | D/2   | SIZE | LENGTH            |       |       |       | D-BARS, D1 |       |  |  |  |  |
| 24            | 2.44                  | 46        | 1.96                      | 6'-0"      | 8'-10" | 10'-0" | 3'-0" | 1'-11" | 2'-3" | 5'-0" | 4'-6" | 3'-10" | 1'-6" | 1'-0" | #4   | 8'-6"             | 3'-2" | 3'-0" | 4'-8" | 2'-5"      | 2'-3" |  |  |  |  |
| 30            | 3.18                  | 53        | 2.28                      | 7-5        | 10-3   | 11-9   | 3-7   | 2-0    | 2-9   | 5-6   | 5-0   | 4-1    | 1-6   | 1-3   | #4   | 9-11              | 3-9   | 3-7   | 5-3   | 2-6        | 2-9   |  |  |  |  |
| 36            | 3.99                  | 61        | 2.69                      | 8-10       | 11-8   | 13-7   | 4-2   | 2-1    | 3-3   | 6-0   | 5-6   | 4-4    | 1-6   | 1-6   | #4   | 11-4              | 4-3   | 4-1   | 5-10  | 2-8        | 3-2   |  |  |  |  |
| 42            | 5.43                  | 161       | 3.22                      | 10-3       | 13-1   | 15-6   | 5-1   | 2-2    | 4-0   | 6-9   | 6-3   | 4-10   | 1-9   | 1-9   | #6   | 12-9              | 5-3   | 4-11  | 7-10  | 3-10       | 4-0   |  |  |  |  |
| 48            | 6.53                  | 180       | 3.64                      | 11-8       | 14-6   | 17-3   | 5-9   | 2-3    | 4-6   | 7-3   | 6-9   | 5-1    | 1-9   | 2-0   | #6   | 14-2              | 5-11  | 5-7   | 8-5   | 3-10       | 4-7   |  |  |  |  |
| 54            | 7.76                  | 197       | 4.00                      | 13-1       | 15-11  | 19-1   | 6-4   | 2-4    | 5-0   | 7-9   | 7-3   | 5-4    | 1-9   | 2-3   | #6   | 15-7              | 6-7   | 6-1   | 9-2   | 4-1        | 5-1   |  |  |  |  |
| 60            | 9.10                  | 214       | 4.45                      | 14-6       | 17-4   | 20-10  | 6-11  | 2-5    | 5-6   | 8-3   | 7-9   | 5-8    | 1-9   | 2-6   | #6   | 17-0              | 7-1   | 6-8   | 9-9   | 4-1        | 5-8   |  |  |  |  |
| 66            | 10.56                 | 232       | 4.84                      | 15-11      | 18-9   | 22-5   | 7-6   | 2-6    | 6-0   | 8-9   | 8-3   | 5-11   | 1-9   | 2-9   | #6   | 18-5              | 7-8   | 7-3   | 10-5  | 4-2        | 6-3   |  |  |  |  |
| 72            | 12.28                 | 249       | 5.25                      | 17-4       | 20-2   | 24-2   | 8-2   | 2-7    | 6-6   | 9-3   | 8-9   | 6-3    | 1-9   | 3-0   | #6   | 19-10             | 8-3   | 7-10  | 11-0  | 4-3        | 6-9   |  |  |  |  |

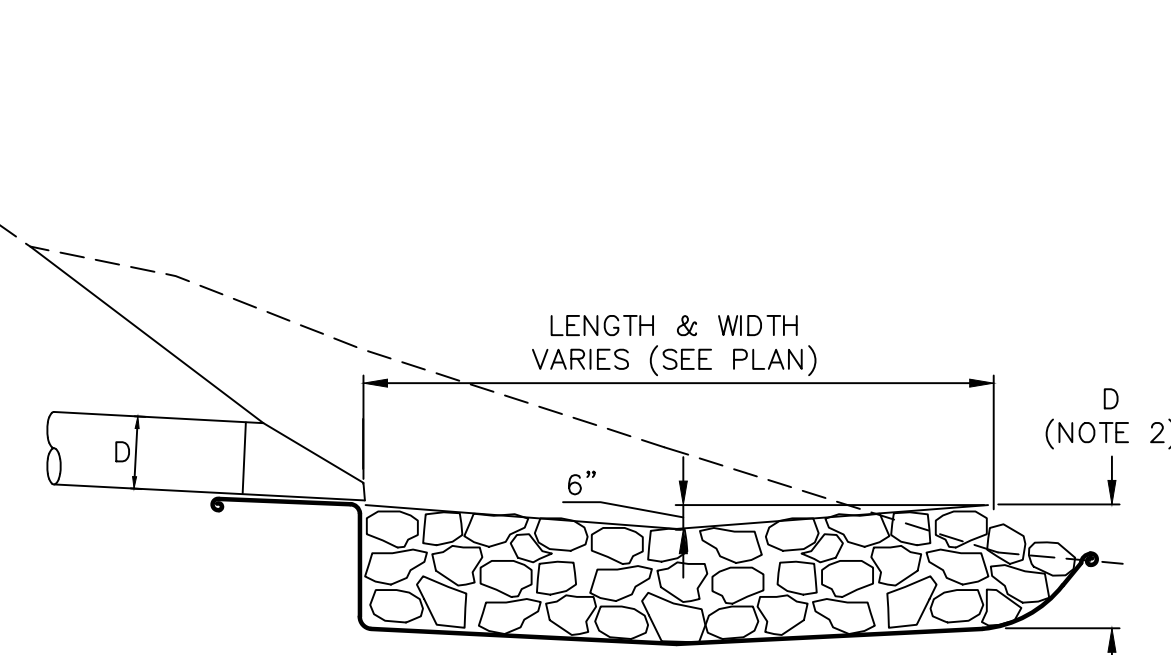
| DIA. D INCHES | QUANTITIES PER HEADER |           |                           | DIMENSIONS |        |        |        |       |       |       |       |       |       |       |      | REINFORCING STEEL |       |       |       |            |       |  |  |  |  |
|---------------|-----------------------|-----------|---------------------------|------------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|------|-------------------|-------|-------|-------|------------|-------|--|--|--|--|
|               | CONC. CU. YD.         | STEEL LB. | EXC. FOR 1' DEPTH CU. YD. | A          | B      | C      | E      | F     | G     | H     | I     | J     | K     | D/2   | SIZE | LENGTH            |       |       |       | D-BARS, D1 |       |  |  |  |  |
| 24            | 3.05                  | 53        | 2.29                      | 6'-0"      | 8'-10" | 10'-0" | 3'-11" | 2'-1" | 3'-2" | 5'-0" | 4'-9" | 4'-3" | 1'-6" | 1'-0" | #4   | 8'-6"             | 4'-3" | 4'-0" | 5'-6" | 2'-6"      | 3'-0" |  |  |  |  |
| 30            | 3.92                  | 61        | 2.70                      | 7-5        | 10-3   | 11-9   | 4-8    | 2-2   | 3-9   | 5-6   | 5-3   | 4-7   | 1-6   | 1-3   | #4   | 9-11              | 5-0   | 4-8   | 6-3   | 2-8        | 3-7   |  |  |  |  |
| 36            | 5.09                  | 70        | 3.15                      | 8-10       | 11-8   | 13-7   | 5-5    | 2-3   | 4-5   | 6-0   | 5-9   | 5-0   | 1-6   | 1-6   | #4   | 11-4              | 5-9   | 5-4   | 7-1   | 2-10       | 4-3   |  |  |  |  |
| 42            | 6.97                  | 185       | 3.78                      | 10-3       | 13-1   | 15-6   | 6-7    | 2-5   | 5-4   | 6-9   | 6-6   | 5-6   | 1-9   | 1-9   | #6   | 12-9              | 6-11  | 6-5   | 9-3   | 4-0        | 5-3   |  |  |  |  |
| 48            | 8.44                  | 204       | 4.24                      | 11-8       | 14-6   | 17-3   | 7-4    | 2-6   | 6-0   | 7-3   | 7-0   | 5-11  | 1-9   | 2-0   | #6   | 14-2              | 7-8   | 7-1   | 10-1  | 4-2        | 5-11  |  |  |  |  |
| 54            | 10.13                 | 225       | 4.74                      | 13-1       | 15-11  | 19-1   | 8-2    | 2-7   | 6-9   | 7-9   | 7-6   | 6-3   | 1-9   | 2-3   | #6   | 15-7              | 8-6   | 7-10  | 10-11 | 4-3        | 6-8   |  |  |  |  |
| 60            | 11.90                 | 245       | 5.23                      | 14-6       | 17-4   | 20-10  | 8-11   | 2-8   | 7-4   | 8-3   | 8-0   | 6-7   | 1-9   | 2-6   | #6   | 17-0              | 9-3   | 8-8   | 11-9  | 4-4        | 7-5   |  |  |  |  |
| 66            | 13.87                 | 266       | 5.75                      | 15-11      | 18-9   | 22-5   | 9-8    | 2-9   | 8-0   | 8-9   | 8-6   | 7-0   | 1-9   | 2-9   | #6   | 18-5              | 10-0  | 9-5   | 12-8  | 4-7        | 8-1   |  |  |  |  |
| 72            | 16.13                 | 283       | 6.29                      | 17-4       | 20-2   | 24-2   | 10-6   | 2-10  | 8-8   | 9-3   | 9-0   | 7-4   | 1-9   | 3-0   | #6   | 19-10             | 10-10 | 9-9   | 13-5  | 4-8        | 8-9   |  |  |  |  |

1 CONCRETE HEADWALLS WITH 45° WINGS FOR TWIN R.C. PIPE (48" DIA. W/4:1 SLOPE)  
D6 NOT TO SCALE



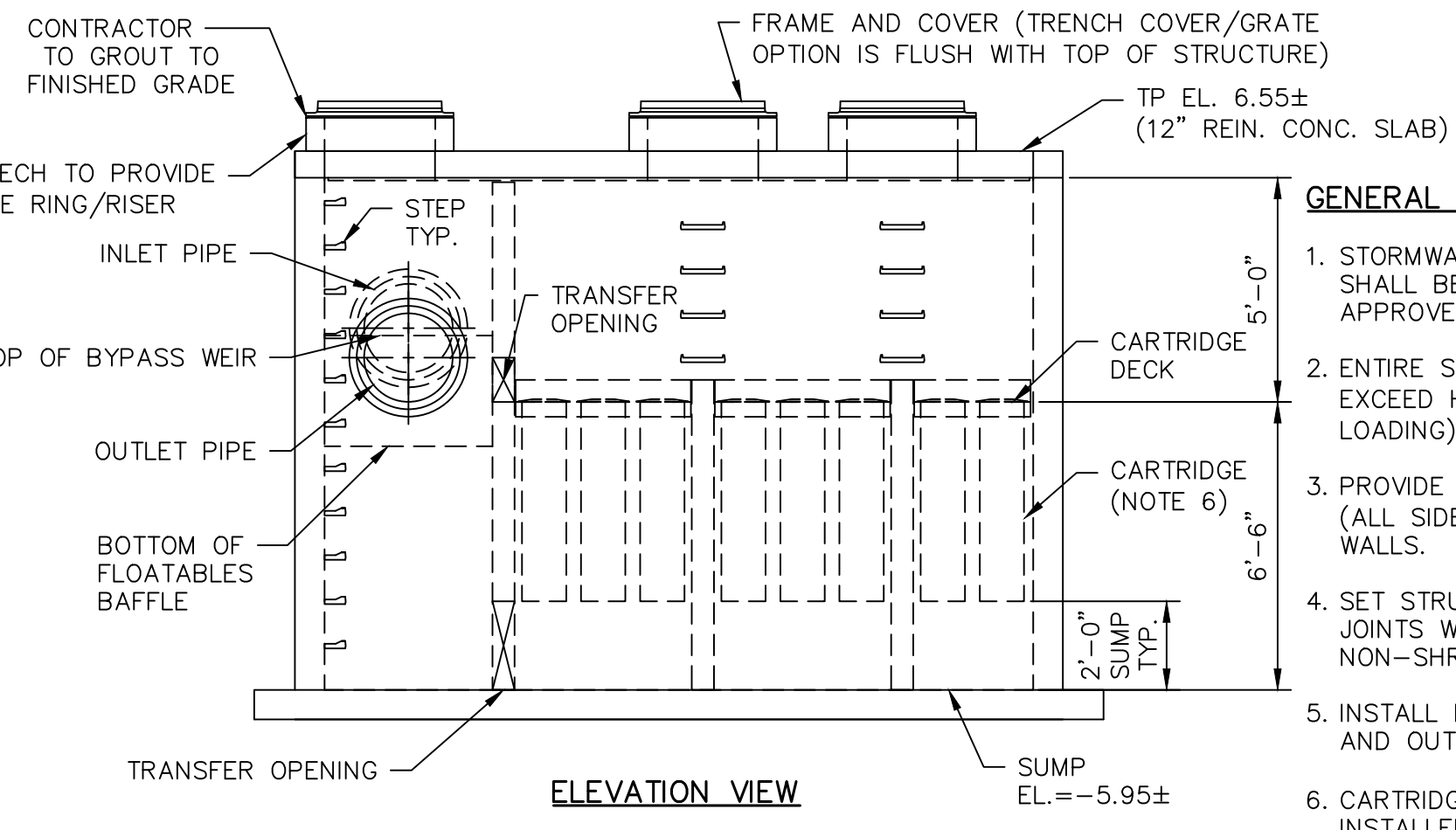
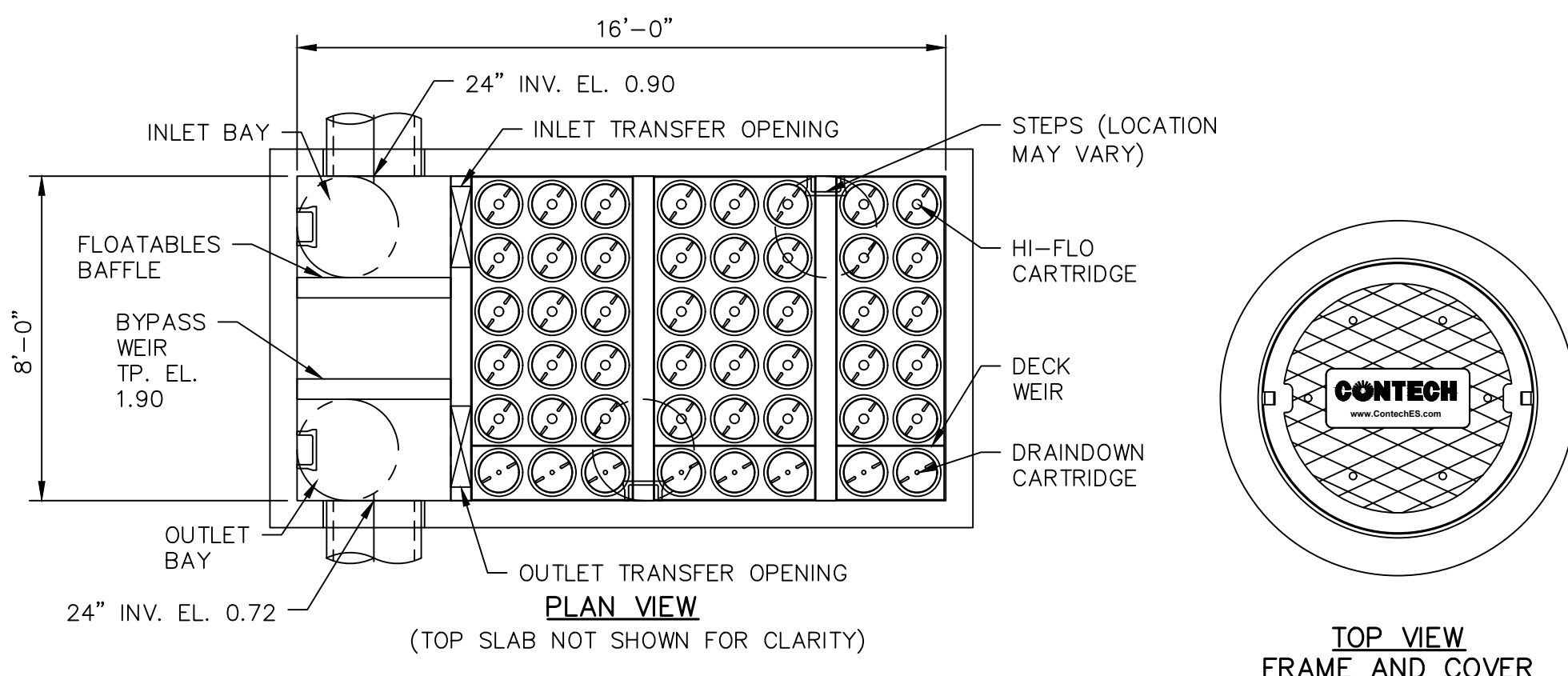
- NOTES:
- TIDE VALVES SHALL BE TIDE FLEX TF-1 OR APPROVED EQUAL. ATTACH DIRECTLY TO HEADWALL USING THIMBLE PLATE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. PROVIDE THIMBLE PLATE INSTALLATION DETAILS OR RECOMMENDED ALTERNATIVE. THE TIDE VALVES WILL BE MOUNTED TO THE HEADWALL.

2 TIDE VALVE DETAIL  
D6 NOT TO SCALE



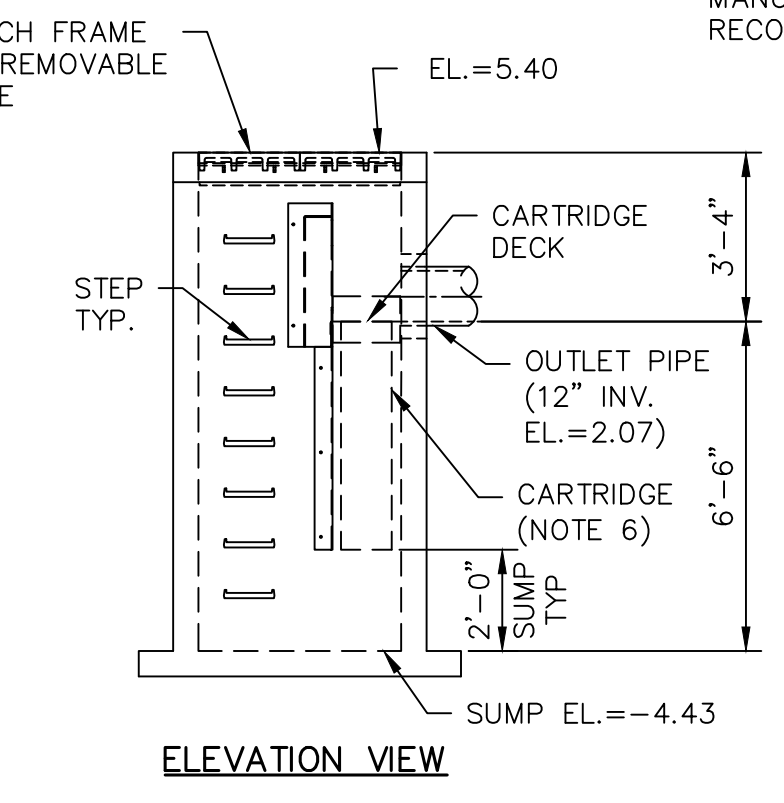
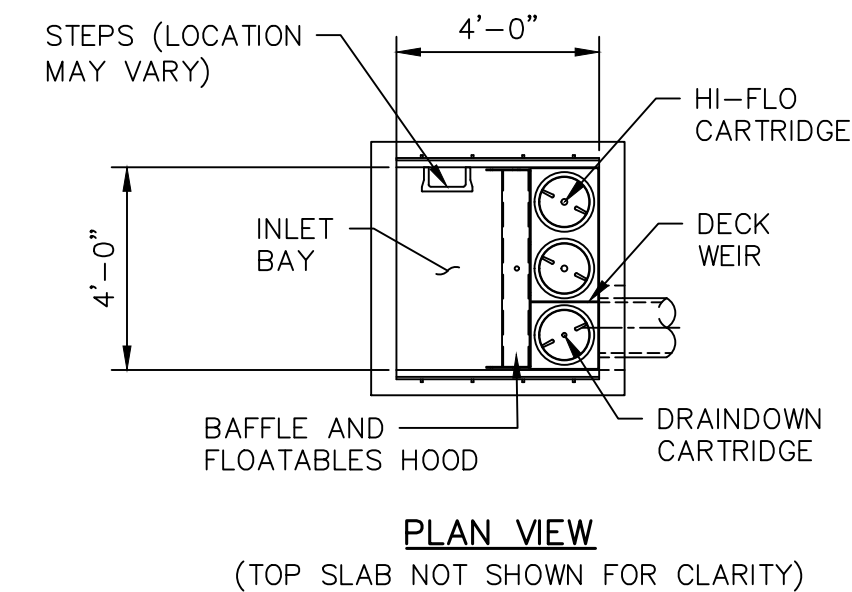
- CONSTRUCTION SPECIFICATIONS:
- THE SUBGRADE FOR THE GEOTEXTILE FABRIC AND STONE FILL SHALL BE PREPARED TO LINES AND GRADES SHOWN ON THE PLANS.
  - GRADATION: CLASS B STONE CONFORMING TO 585.2.1.2 SHALL BE USED. DEPTH OF STONE SHALL BE 18".
  - GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE RIPRAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 18 INCHES.
  - THE RIPRAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
  - CONSTRUCT FLARED END SECTIONS (OR HEADWALLS) AS SHOWN ON THE PLANS. MATERIALS AND SIZES SHALL BE CONSISTENT WITH NHDOT STANDARD DETAILS.

6 STABILIZED DRAIN OUTLET  
D6 NOT TO SCALE

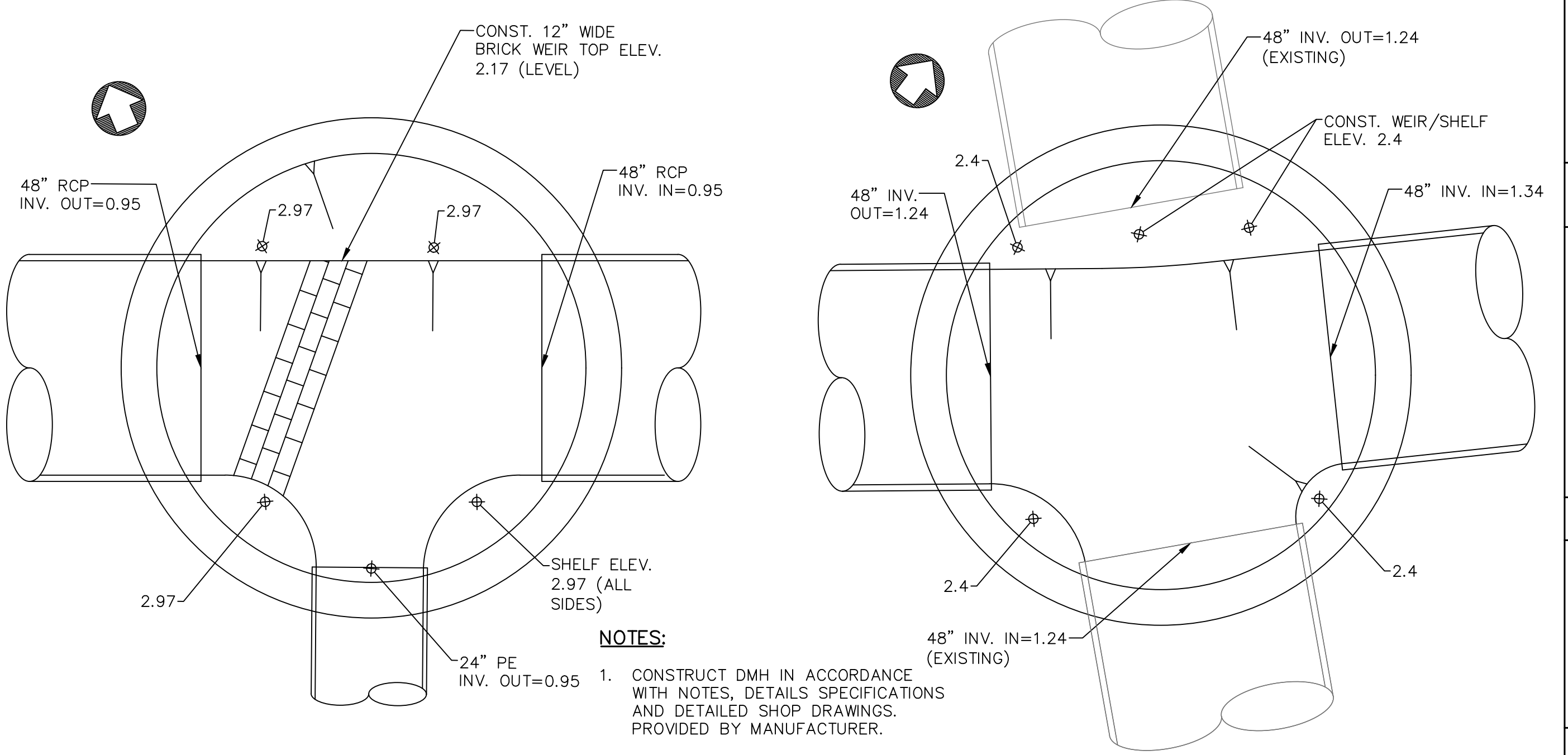


4 JELLYFISH (JFPD0816) DETAILS  
D6 NOT TO SCALE

- GENERAL NOTES:
- STORMWATER TREATMENT STRUCTURE SHALL BE PROVIDED BY CONTECH OR APPROVED EQUIVALENT.
  - ENTIRE STRUCTURE SHALL MEET OR EXCEED HS-20 RATING (HEAVY LOADING).
  - PROVIDE ANTI-FLOTATION COLLARS (ALL SIDES), TO EXTEND 12" BEYOND WALLS.
  - SET STRUCTURE LEVEL. SEAL ALL JOINTS WITH APPROVED SEALANT OR NON-SHRINK GROUT.
  - INSTALL FLEXIBLE BOOT AT INLET AND OUTLET.
  - CARTRIDGE LENGTH SHALL BE 54", INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.



7 JELLYFISH (JFSI0404) DETAILS  
D6 NOT TO SCALE



- NOTES:
- CONSTRUCT DMH IN ACCORDANCE WITH NOTES, DETAILS SPECIFICATIONS AND DETAILED SHOP DRAWINGS. PROVIDED BY MANUFACTURER.
  - FORM BRICK CHANNEL TO SPRING LINE AND CONSTRUCT SHELF TO ELEVATIONS PROVIDED.
  - CONST. BRICK WEIR OR REMOVABLE PLATE WEIR TO ELEVATION PROVIDED.

3 DMH#1E  
D6 NOT TO SCALE

5 DMH#3  
D6 NOT TO SCALE

- GENERAL NOTES:
- STORMWATER TREATMENT STRUCTURE SHALL BE PROVIDED BY CONTECH OR APPROVED EQUIVALENT.
  - ENTIRE STRUCTURE SHALL MEET OR EXCEED HS-20 RATING (HEAVY LOADING).
  - PROVIDE ANTI-FLOTATION COLLARS (ALL SIDES), TO EXTEND 12" BEYOND WALLS.
  - SET STRUCTURE LEVEL. SEAL ALL JOINTS WITH APPROVED SEALANT OR NON-SHRINK GROUT.
  - INSTALL FLEXIBLE BOOT OUTLET.
  - CARTRIDGE LENGTH SHALL BE 54", INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

|                |     |             |           |       |
|----------------|-----|-------------|-----------|-------|
| ISSUE FOR      | By  | Date        | REVISIONS | APP'D |
| BIDDING        |     |             |           |       |
| CONSTRUCTION   |     |             |           |       |
| RECORD DRAWING |     |             |           |       |
| Drawn/Chk.     | RMG |             |           |       |
| Designed       | PDM |             |           |       |
| Checked        |     |             |           |       |
| Approved       |     | APRIL 2024  |           |       |
| Book No.       |     | 2552        |           |       |
| Project No.    |     | 2552        |           |       |
| Dwg. ID        |     | 252_details |           |       |
| Scale          |     |             |           |       |

UNDERWOOD engineers  
25 Vaughan Mall, Portsmouth, N.H. 03801  
Tel. 603-436-6192 Fax. 603-431-4733

DRAINAGE OUTFALL DETAILS  
MAPLEWOOD AVE DRAINAGE IMPROVEMENTS  
CITY OF PORTSMOUTH  
PORTSMOUTH, NEW HAMPSHIRE

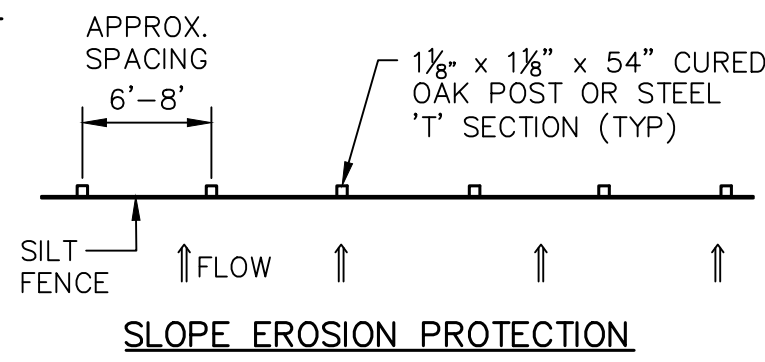
|        |          |
|--------|----------|
| DWG NO | SHEET    |
| D6     | 15 OF 17 |

**STORMWATER MANAGEMENT, EROSION & SEDIMENT CONTROL NOTES:**

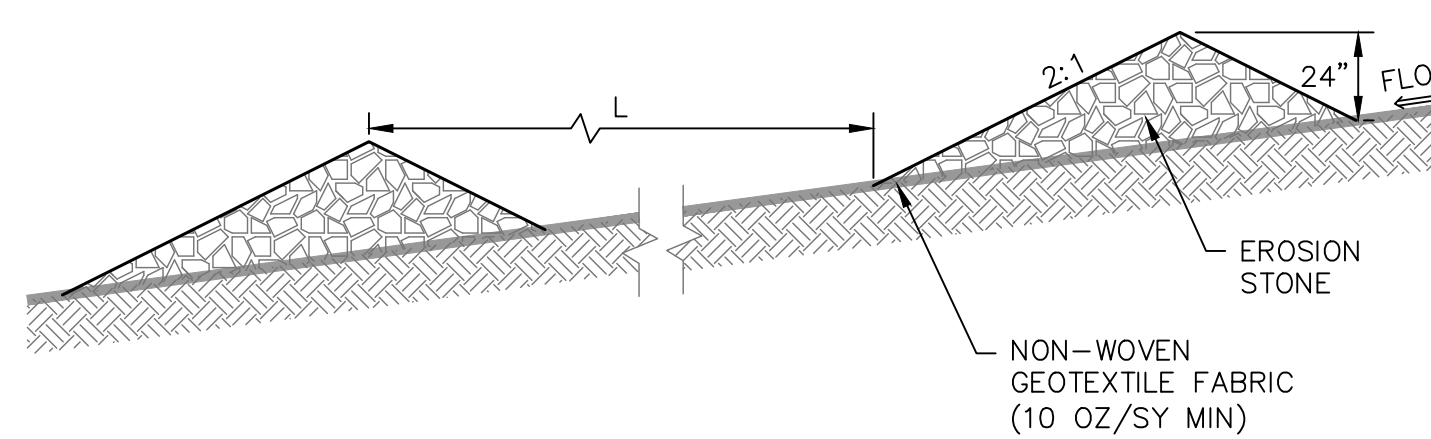
1. THE CONTRACTOR MUST SUBMIT A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) TO THE OWNER AND A NOTICE OF INTENT (NOI) TO THE USEPA REGION ONE FOR CONSTRUCTION ACTIVITY IF GREATER THAN 1 ACRE IS DISTURBED AT ANY TIME. THE SWPPP IS TO BE PREPARED IN ACCORDANCE WITH USEPA REQUIREMENTS.
2. THE CONTRACTOR SHALL SUBMIT, FOR REVIEW AND APPROVAL, A SCHEDULE TO INCLUDE ALL EARTHWORK ACTIVITIES.
3. EXCAVATION AND EARTHWORK SHALL BE CONDUCTED IN A MANNER THAT WILL MINIMIZE EFFECTS OF EROSION THROUGHOUT CONSTRUCTION.
4. THE CONTRACTOR SHALL, TO THE EXTENT POSSIBLE, PHASE EARTHWORK ACTIVITIES SO THAT THE SMALLEST PRACTICAL LAND AREA IS EXPOSED AT ANY GIVEN TIME, FOR THE SHORTEST PRACTICAL PERIOD OF TIME.
5. THE CONTRACTOR SHALL LOAM, SEED, AND MULCH ALL CUT SLOPES IMMEDIATELY FOLLOWING FINAL GRADING. TEMPORARY SEEDING AND MULCH SHALL BE APPLIED AT ALL UNVEGETATED AREAS THAT WILL BE EXPOSED FOR A PERIOD EXCEEDING TWENTY (20) DAYS. AREAS TO BE SEEDING SHALL BE ROUGH GRADED AND COVERED WITH LOAM 4 INCHES DEEP AFTER LIGHT ROLLING AND CONFORMING WITH EXISTING LINE AND GRADES.
6. SHALLOW SLOPES (SHALLOWER THAN 3:1) NOT SHOWN TO BE OTHERWISE COVERED SHALL BE SEEDING WITH PARK MIXTURE, SECTION 02935.
7. STEEP SLOPES (STEEPER THAN 3:1) NOT SHOWN TO BE OTHERWISE COVERED SHALL BE EITHER SODDED OR SEEDING WITH A SLOPE MIXTURE, SECTION 02935. AFTER SEEDING, STEEP SLOPES SHALL BE MULCHED WITH EXCELSIOR OR EQUAL AND A CHEMICAL TACKIFIER SHALL BE APPLIED TO ALL SIDE SLOPES STEEPER THAN 3:1. RATE OF APPLICATION SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
8. HAY BALES, SILT FENCING, AND EROSION STONE SHALL BE INSTALLED WHERE NECESSARY TO MINIMIZE THE EFFECTS OF EROSION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ANY ADDITIONAL MEASURES WHICH MAY BE REQUIRED WHERE NECESSARY TO OBTAIN THE OBJECTIVES DESCRIBED HEREIN. ALL WORK SHALL BE COMPLETED IN CONFORMANCE WITH THE LATEST EDITION OF "STORMWATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE". PREVENT THE DEGRADATION OF DOWNSTREAM PROPERTIES AND DRAINAGE.
9. DRAINAGE SWALES SHALL BE MONITORED AND MAINTAINED THROUGHOUT CONSTRUCTION. SILT SHALL BE PERIODICALLY REMOVED FROM SWALES AS NECESSARY TO PREVENT MIGRATION.
10. HAY BALE BARRIERS SHALL BE INSTALLED ALONG SWALES AT 100 FOOT INTERVALS, AROUND CATCH BASINS, AND AT ALL AREAS WHERE STORMWATER OR TRENCHWATER IS CONCENTRATED.
11. HAY BALE BARRIERS AND SEDIMENT TRAPS ARE TO BE MAINTAINED AND KEPT CLEAN UNTIL ALL EXPOSED AREAS HAVE A HEALTHY STAND OF GROUND COVER, AT WHICH TIME TEMPORARY MEASURES ARE TO BE REMOVED. CONTRACTOR IS RESPONSIBLE FOR PROPER DISPOSAL OF TEMPORARY MATERIALS REMOVED AND SILT.
12. DISTURBED AREAS SHALL BE LOAMED AND SEEDING. MINIMUM DEPTH OF LOAM SHALL BE FOUR (4) INCHES.
13. PROVIDE SEED (PARK MIXTURE), LIME, FERTILIZER, AND MULCH PER SECTION 644 OF THE SPECIFICATIONS.

**SILT FENCE CONSTRUCTION NOTES:**

1. SILT FENCE TO BE CONSTRUCTED AT LOCATIONS SHOWN ON THE PLANS BEFORE CONSTRUCTION PROCEEDS. FENCE SHALL BE MAINTAINED THROUGHOUT ENTIRE DURATION OF CONSTRUCTION UNTIL GROUND COVER IS ESTABLISHED.
2. PLACE HAY BALES BEHIND SILT FENCE AS REQUIRED TO MAINTAIN FENCE IN AND UPRIGHT POSITION, OR AS DIRECTED BY THE ENGINEER.



**SLOPE EROSION PROTECTION**



**SWALES/DITCHES DRAINAGE**

**NOTES:**

1. INSTALL TEMPORARY STONE CHECK DAMS IN UNSTABILIZED DITCHES AND SWALES.
2. SPACE CHECK DAMS SUCH THAT LENGTH (L) SPANS THE DISTANCE FOR WHICH THE BASE (TOE) UPSTREAM DAM IS EQUAL TO THE PEAK ELEVATION OF THE DOWN STREAM DAM OR A MINIMUM OF 50'.

**TEMPORARY STONE CHECK DAM**

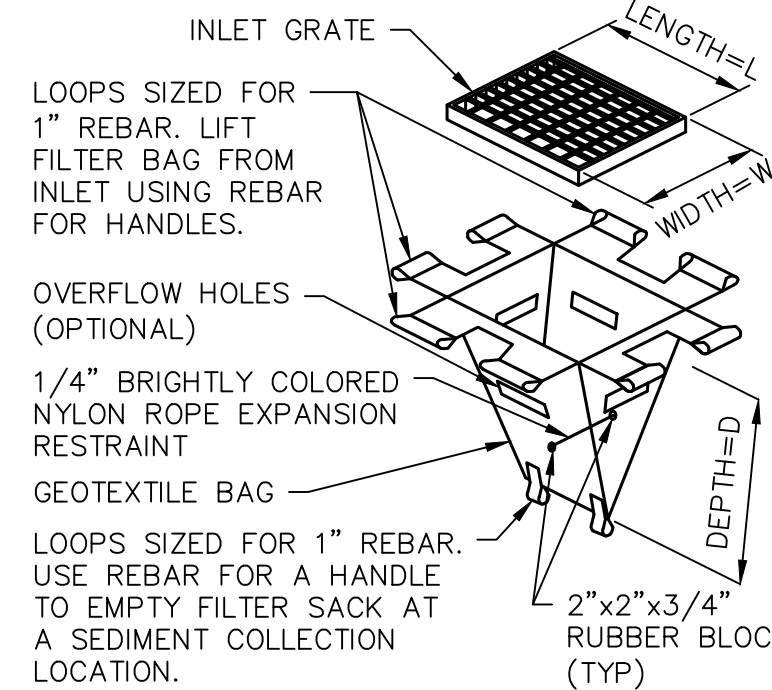
NOT TO SCALE

**SILT FENCE DETAIL**

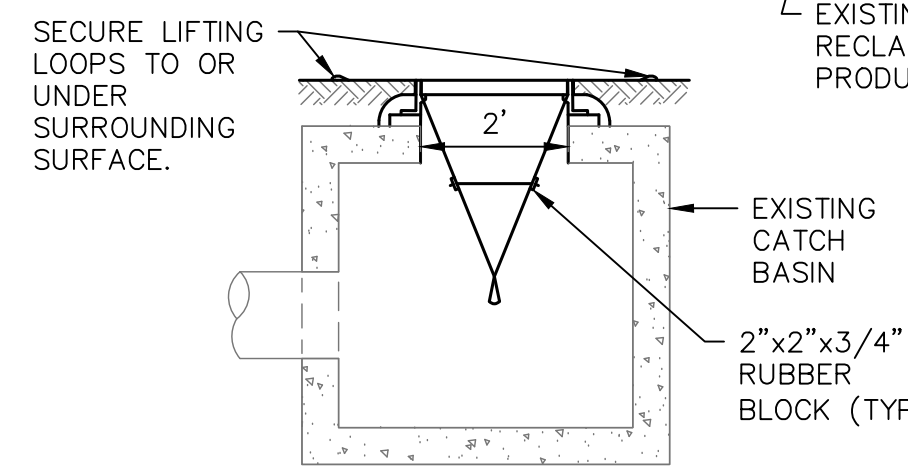
NOT TO SCALE

**NOTES:**

1. ACCEPTED MANUFACTURERS:
  - A. "SILT SACK" INLET SEDIMENT CONTROL DEVICE BY "ACF ENVIRONMENTAL, INC" 2831 CARDWELL RD., RICHMOND VA 23234, (800)448-3636
  - B. "DANDY SACK" BY "DANDY PRODUCTS, INC.", P.O. BOX 1980, WESTERVILLE, OH 43086, (800) 591-2284.
2. ALTERNATIVE CATCH BASIN INLET PROTECTION MEASURES MAY INCLUDE THE NHDES "BLOCK AND GRAVEL METHOD" PER THE NH STORMWATER MANUAL (VOL. 3).
3. EMPTY FILTER SACK WHEN BRIGHTLY COLORED EXPANSION RESTRAINT CAN NO LONGER BE SEEN.
4. GEOTEXTILE WILL BE A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS REQUIREMENTS IN THE SPECIFICATIONS TABLE.
5. AN OIL ADSORBENT PAD OR PILLOW CAN BE USED WHEN OIL SPILLS ARE A CONCERN.
6. INSPECT PER REGULATORY REQUIREMENTS.
7. THE WIDTH, "W", OF THE FILTER SACK WILL MATCH THE INSIDE WIDTH OF THE CATCH BASIN FRAME.
8. THE DEPTH, "D", OF THE FILTER SACK WILL BE BETWEEN 18 INCHES AND 36 INCHES.
9. THE LENGTH, "L", OF THE FILTER SACK WILL MATCH THE INSIDE LENGTH OF THE CATCH BASIN FRAME.

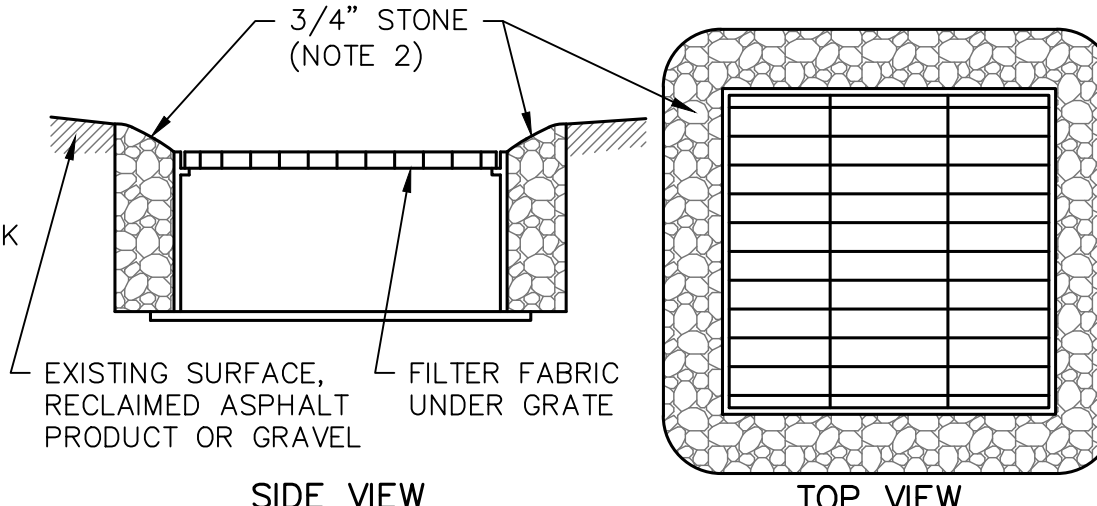


**FILTER SACK-ISOMETRIC VIEW**



**FILTER SACK-INSTALLED CROSS-SECTION VIEW**

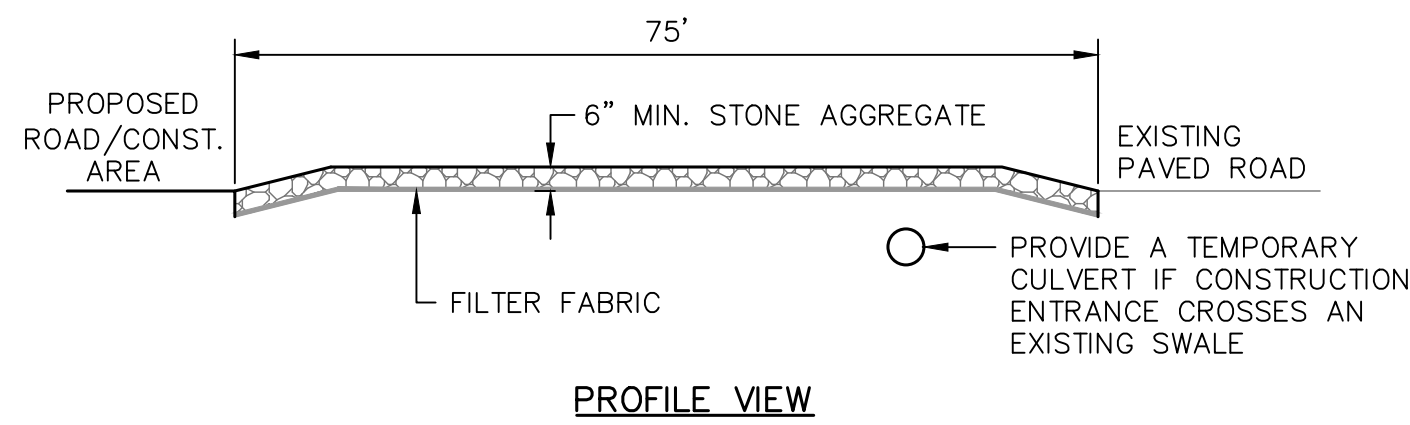
| TYPE HF MODERATE TO HIGH FLOW GEOTEXTILE FABRIC SPECIFICATION TABLE |             |                   |
|---|-------------|-------------------|
| PROPERTIES  | TEST METHOD | UNITS             |
| GRAB TENSILE STRENGTH   | ASTM D-4632 | 265 LBS           |
| GRAB TENSILE ELONGATION   | ASTM D-4632 | 20%               |
| PUNCTURE  | ASTM D-4833 | 135 LBS           |
| MULLEN BURST  | ASTM D-3786 | 420 PSI           |
| TRAPEZOID TEAR  | ASTM D-4533 | 45 LBS            |
| UV RESISTANCE   | ASTM D-4355 | 90%               |
| APPARENT OPENING SIZE   | ASTM D-4751 | 20 US SIEVE SIZE  |
| FLOW RATE   | ASTM D-4491 | 200 GAL/MIN/SQ FT |
| PERMITTIVITY  | ASTM D-4491 | 1.5 SEC - 1       |



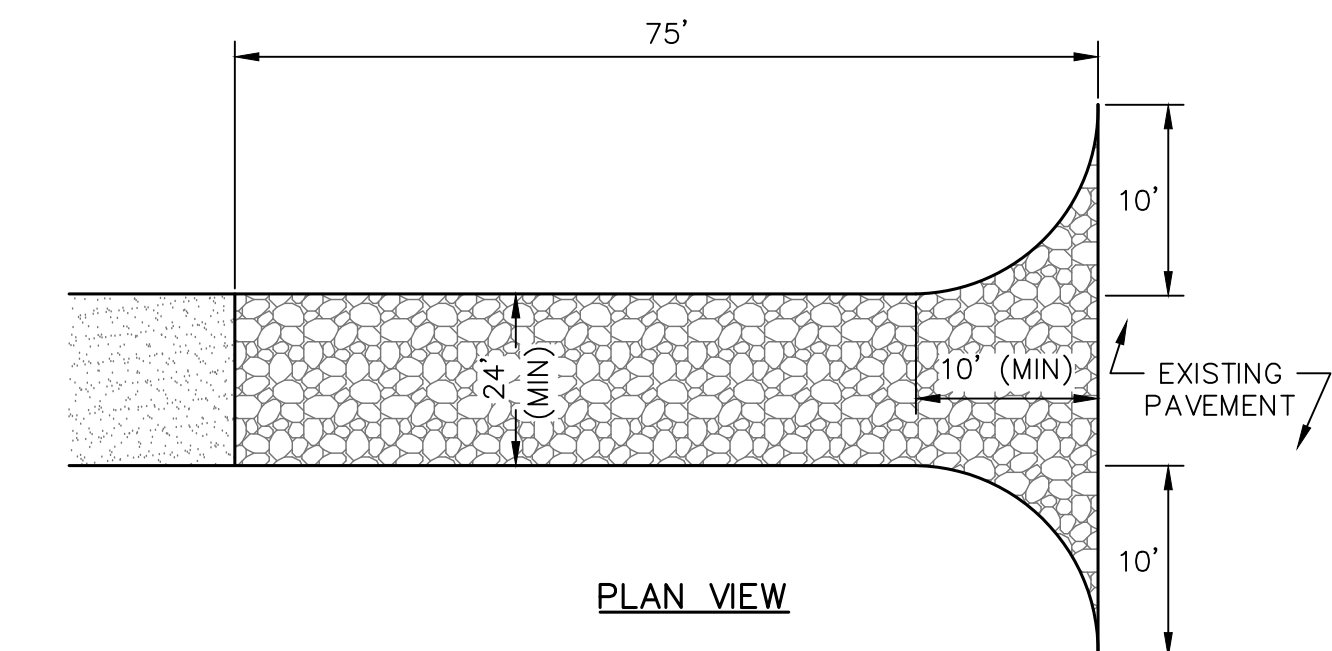
**CATCH BASIN PROTECTION DETAIL**

**NOTES:**

1. INSPECT AND MAINTAIN STONE & FILTER FABRIC AFTER 1/2" RAIN EVENT OR WEEKLY
2. WHEN EXISTING CATCH BASIN IS NOT BEING MODIFIED (RAISED, LOWERED, ETC.), CONSTRUCT 4" HIGH x 6" WIDE STONE BERM AROUND PERIMETER OF GRATE.



**PROFILE VIEW**



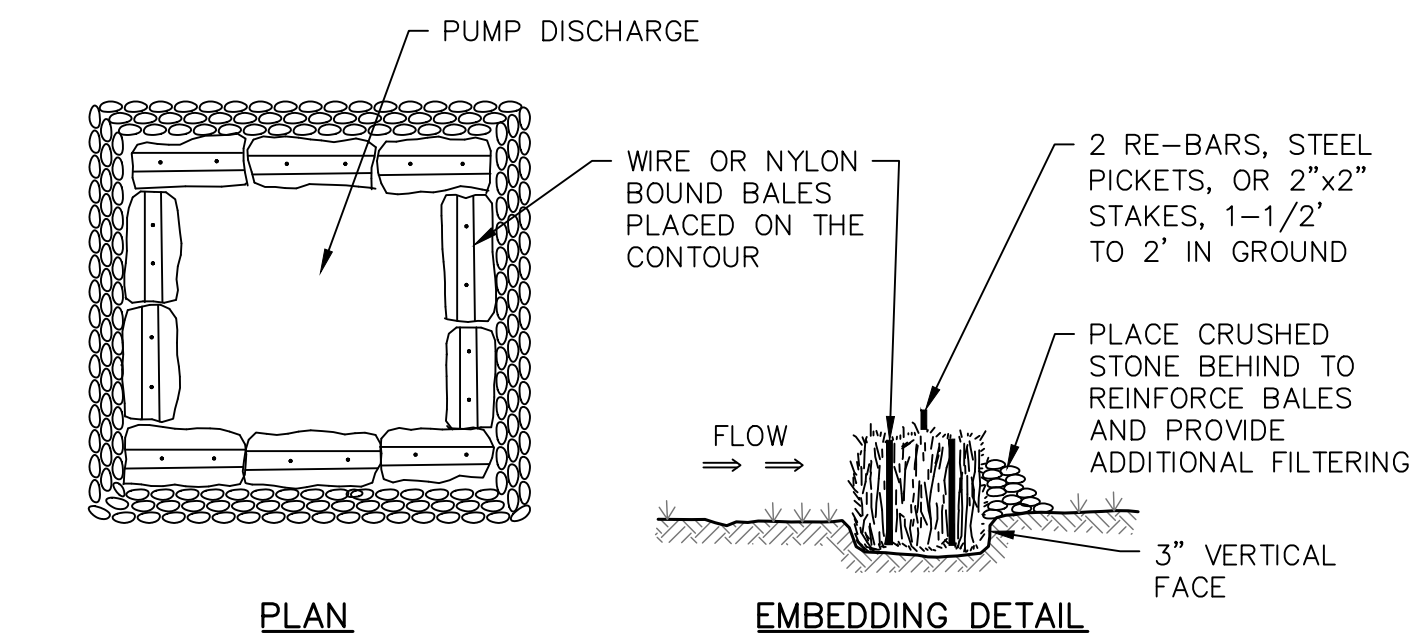
**PLAN VIEW**

**STABILIZED CONSTRUCTION ENTRANCE**

NOT TO SCALE

**STABILIZED CONSTRUCTION ENTRANCE SPECIFICATIONS:**

1. THE TEMPORARY STABILIZED CONSTRUCTION ENTRANCE SHALL CONSIST OF PLACING 1"-2" STONE, RECLAIMED STONE OR RECYCLED CONCRETE EQUIVALENT, AT THE LOCATION WHERE CONSTRUCTION VEHICLES EXIT THE SITE IN ORDER TO MINIMIZE MIGRATION OF DIRT ONTO THE ADJOINING PAVED ROADS.
2. STONE SHALL BE 1" TO 2" FRACTURED ROCK.
3. STONE SHALL BE PLACED OVER GEOTEXTILE FABRIC.
4. THE MINIMUM STONE DEPTH SHALL BE 6 INCHES.
5. THE MIN. DIMENSIONS OF THE STABILIZED ENTRANCE SHALL BE 24 FEET WIDE BY 75 FEET LONG.
6. SURFACE WATER RUNOFF FROM THE PAVED ROAD SHALL NOT BE PERMITTED TO COME IN CONTACT WITH THE STONE ENTRANCE. USE A CROSS CULVERT UNDER THE NEW ENTRANCE OR CONSTRUCT A BERM ALONG THE EDGE OF EXISTING PAVEMENT TO DIVERT WATER AWAY FROM THE STONE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC ROADWAYS. TOP DRESS OR REPLACE STONE AS NEEDED. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAYS SHALL BE IMMEDIATELY REMOVED.
8. THE ENTRANCE SHALL BE MAINTAINED UNTIL THE SITE CONDITIONS WARRANT ITS REMOVAL.



**PLAN**

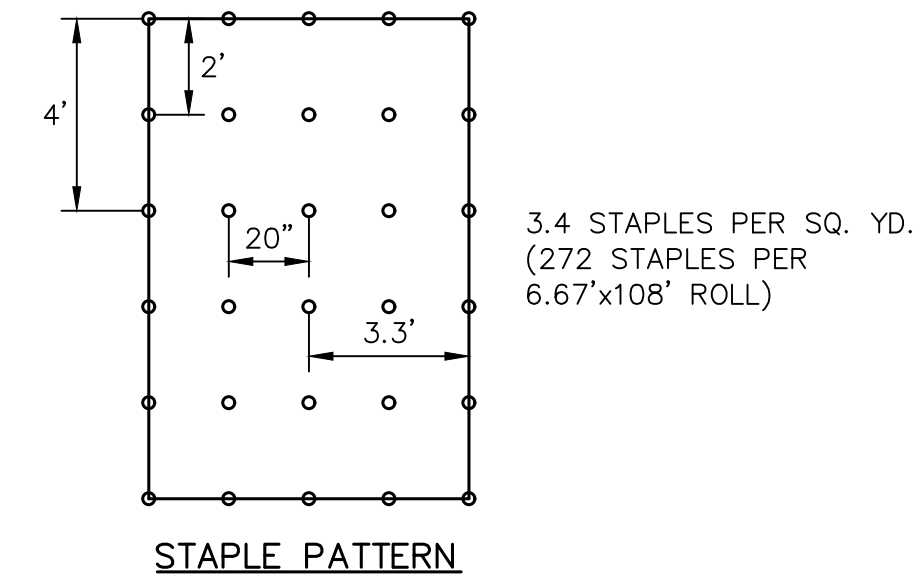
**EMBEDDING DETAIL**

**HAY BALE BARRIER CONSTRUCTION SPECIFICATIONS:**

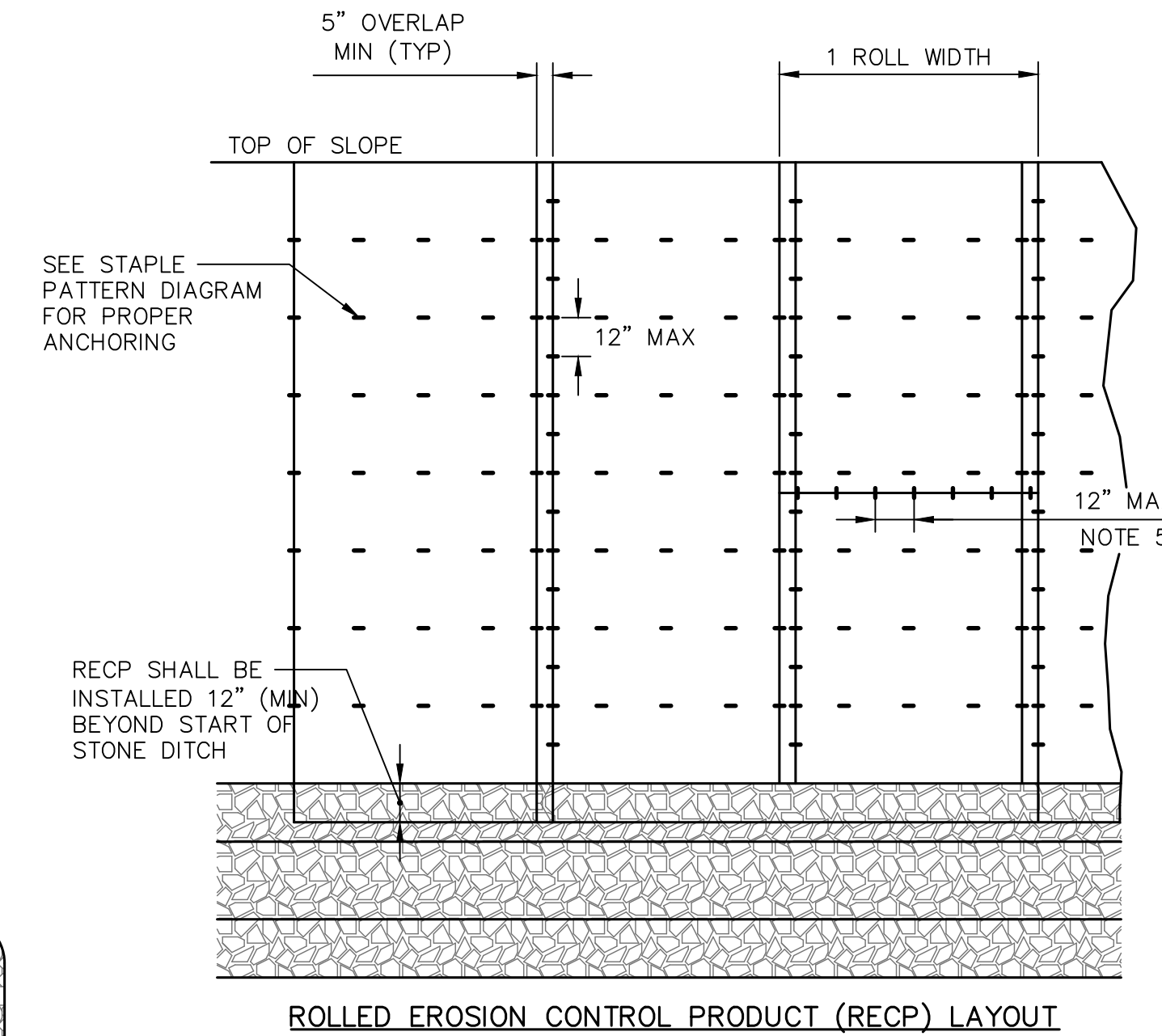
1. BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY BUTTED.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 3".
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY STAKES OR RE-BARS DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
4. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.

**PUMP DISCHARGE SEDIMENT TRAP**

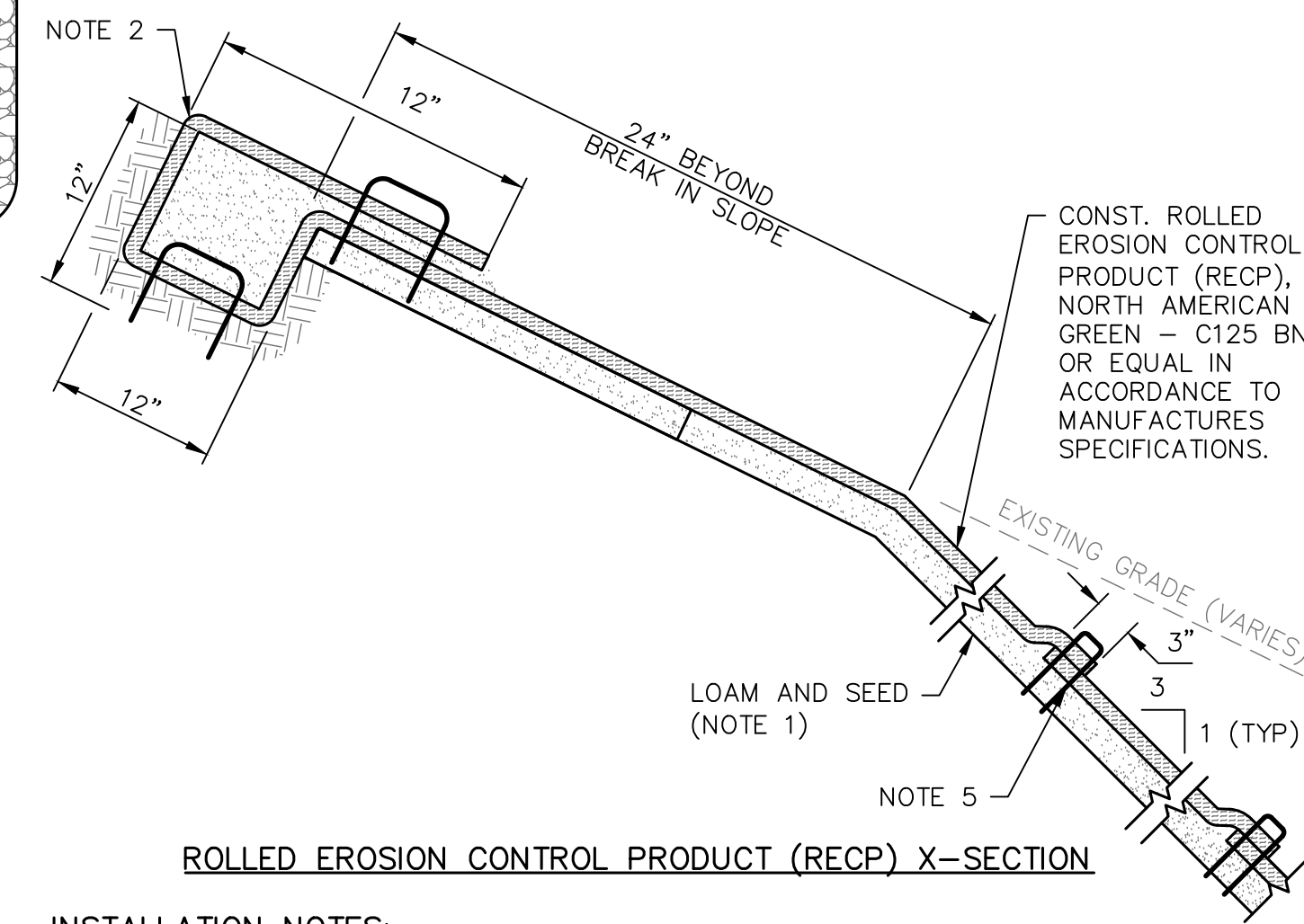
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**STAPLE PATTERN**



**ROLLED EROSION CONTROL PRODUCT (RECP) LAYOUT**



**ROLLED EROSION CONTROL PRODUCT (RECP) X-SECTION**

**INSTALLATION NOTES:**

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPs), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPs IN A 6" DEEP x 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECPs EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECPs WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECPs BACK OVER SEED AND COMPACTED SOIL. SECURE RECPs OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECPs.
3. ROLL THE RECPs DOWN OR HORIZONTALLY ACROSS THE SLOPE. ALL RECPs MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN DIAGRAM.
4. THE EDGES OF PARALLEL RECPs MUST BE STAPLED WITH APPROXIMATELY 5" OVERLAP.
5. CONSECUTIVE RECPs SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE RECPs WIDTH.
6. INSTALL RECPs WHERE FINISH GRADE EXCEEDS 3 HORIZONTAL:1 VERTICAL.

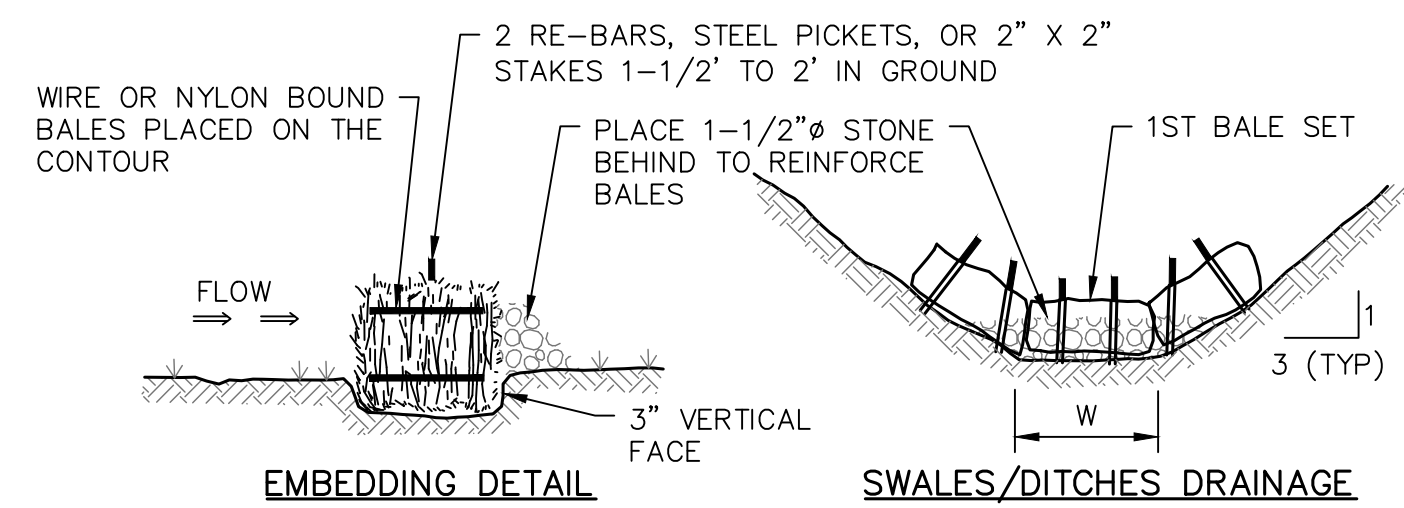
**SLOPE STABILIZATION DETAIL**

NOT TO SCALE

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| ISSUE FOR                                     | By           | Date       | REVISIONS  |
| BIDDING                                       |              |            |  |
| CONSTRUCTION                                  |              |            |  |
| RECORD DRAWING                                |              |            |  |
|   |              |            | APP'D  |
| Drawn/Chk.                                    | RMG          |            |  |
| Designed                                      | PDM          |            |  |
| Checked                                       |              |            |  |
| Approved                                      |              | APRIL 2024 |  |
| Book No.                                      | 2552         |            |  |
| Project No.                                   | 2552         |            |  |
| Dwg. ID                                       | 252.detailed |            |  |
| Scale   |              |            |  |
|   |              |            | 25 Vaughan Mall, Portsmouth, N.H. 03801<br>Tel. 603-436-6192 Fax. 603-431-4733 |
| <b>EROSION &amp; SEDIMENT CONTROL DETAILS</b> |              |            | <b>MAPLEWOOD AVE DRAINAGE IMPROVEMENTS</b>                                     |
| DWG NO<br>D7                                  |              |            | SHEET<br>16 OF 17  |

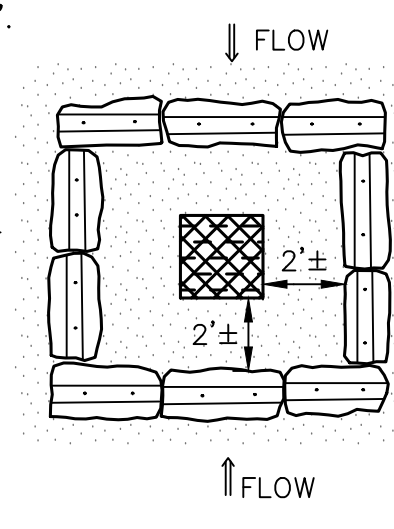
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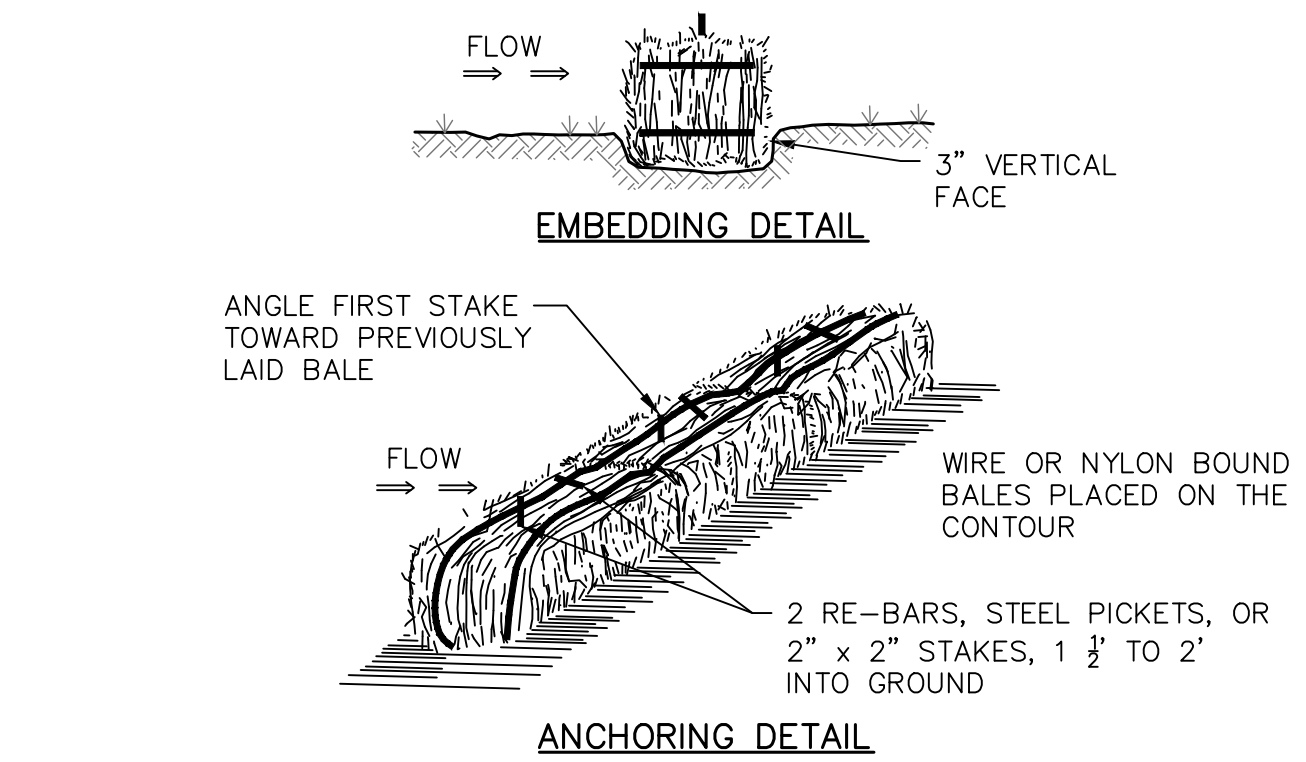
**HAY BALE BARRIER CONSTRUCTION SPECIFICATIONS:**

1. BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY BUTTED.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 3".
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY STAKE OR RE-BARS DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
4. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
5. BALES SHALL BE REMOVED, WHEN THEY HAVE SERVED THEIR PURPOSE, SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
6. BARRIERS SHALL BE SPACED AT 100' ALONG DRAINAGE SWALES/ DITCHES.



**HAY BALE DETAIL**

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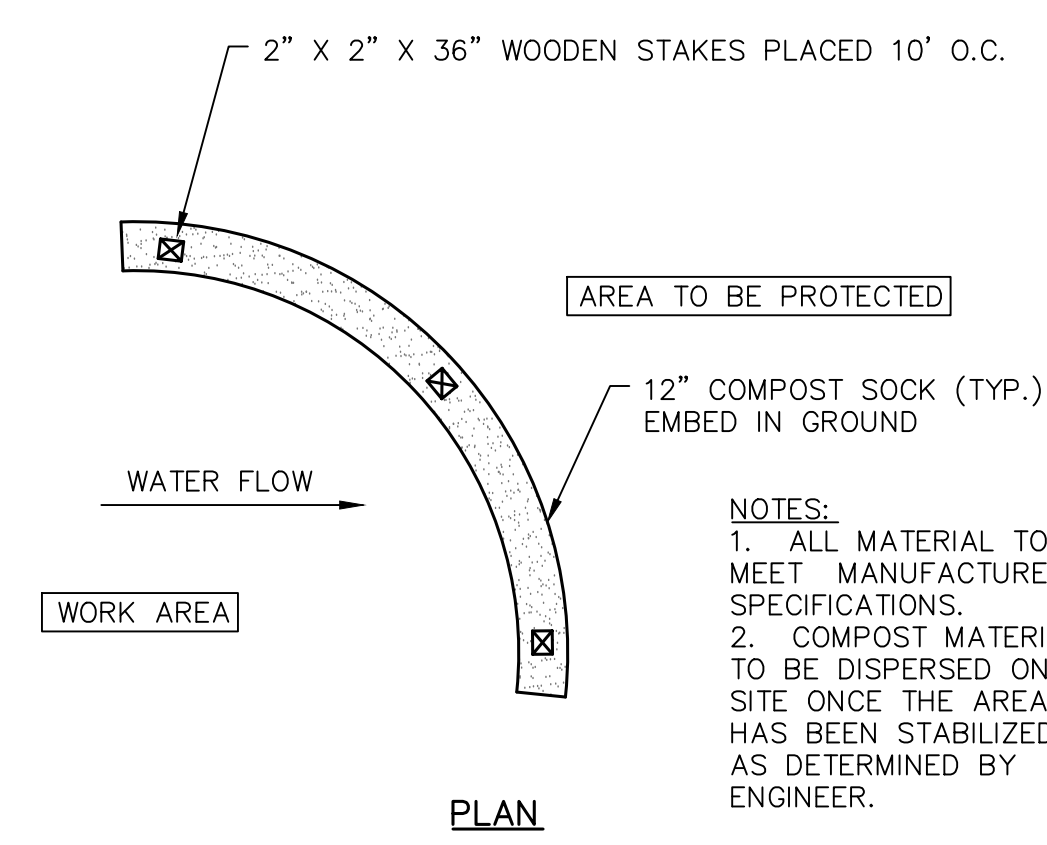
**CONSTRUCTION SPECIFICATIONS:**

1. BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 3".
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY STAKES OR RE-BARS DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
4. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
5. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

**STRAW OR HAYBALE BARRIER**

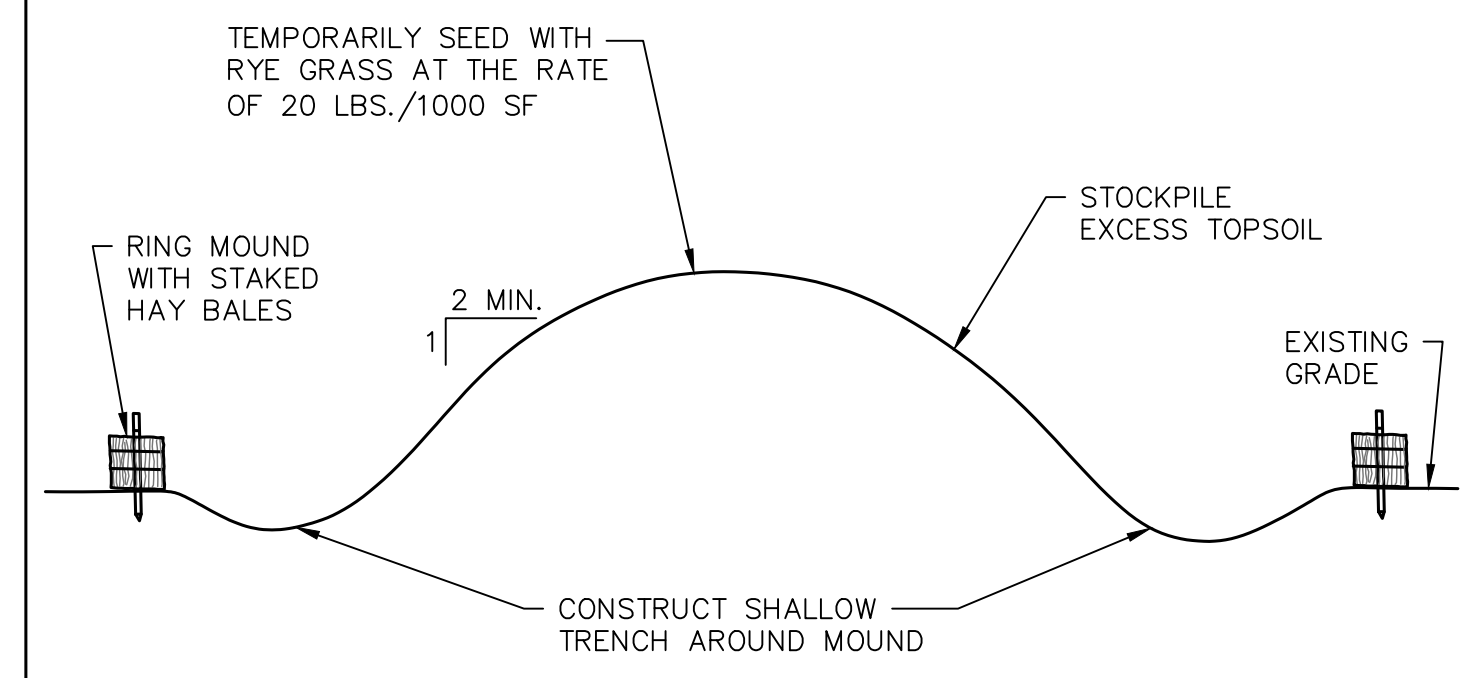
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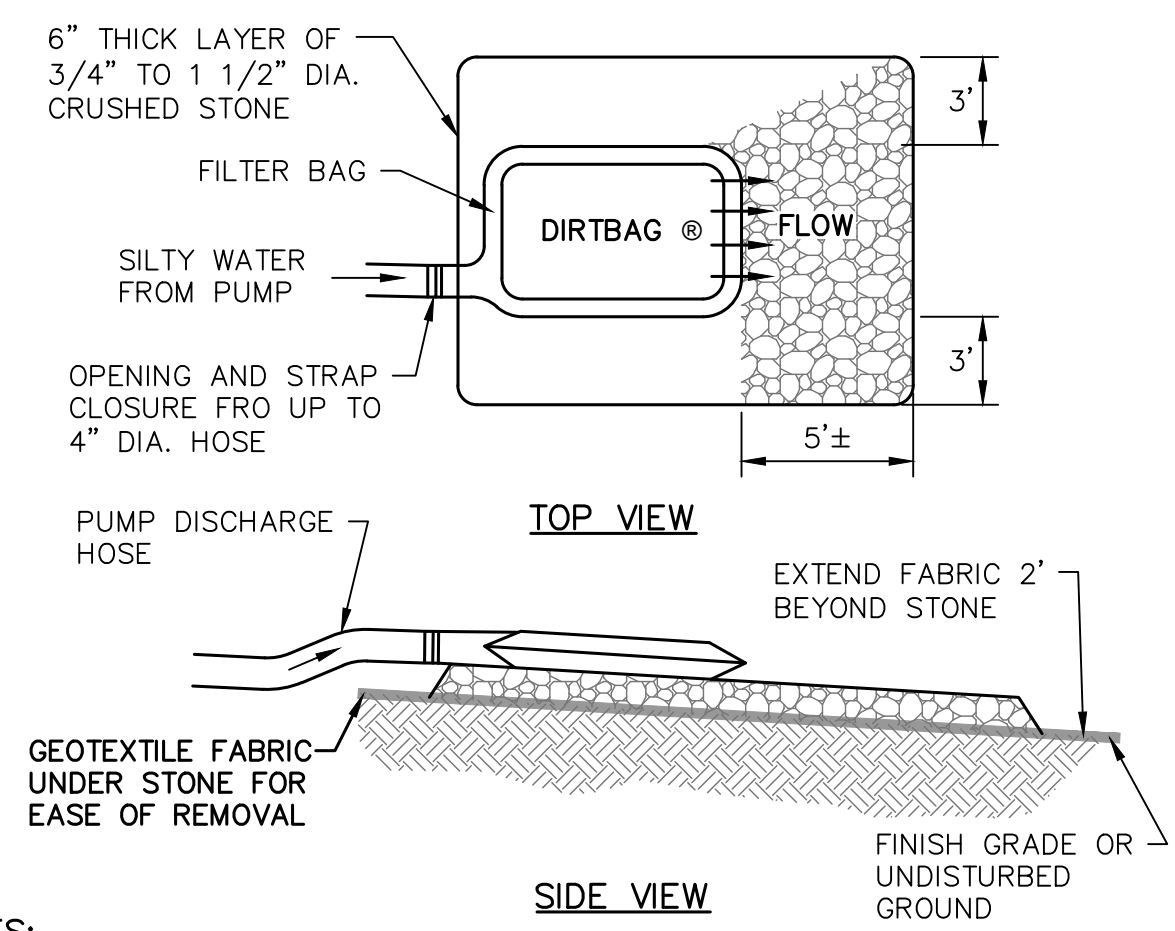
**COMPOST SOCK DETAIL**

NOT TO SCALE



**TOPSOIL STOCKPILE MOUND**

NOT TO SCALE

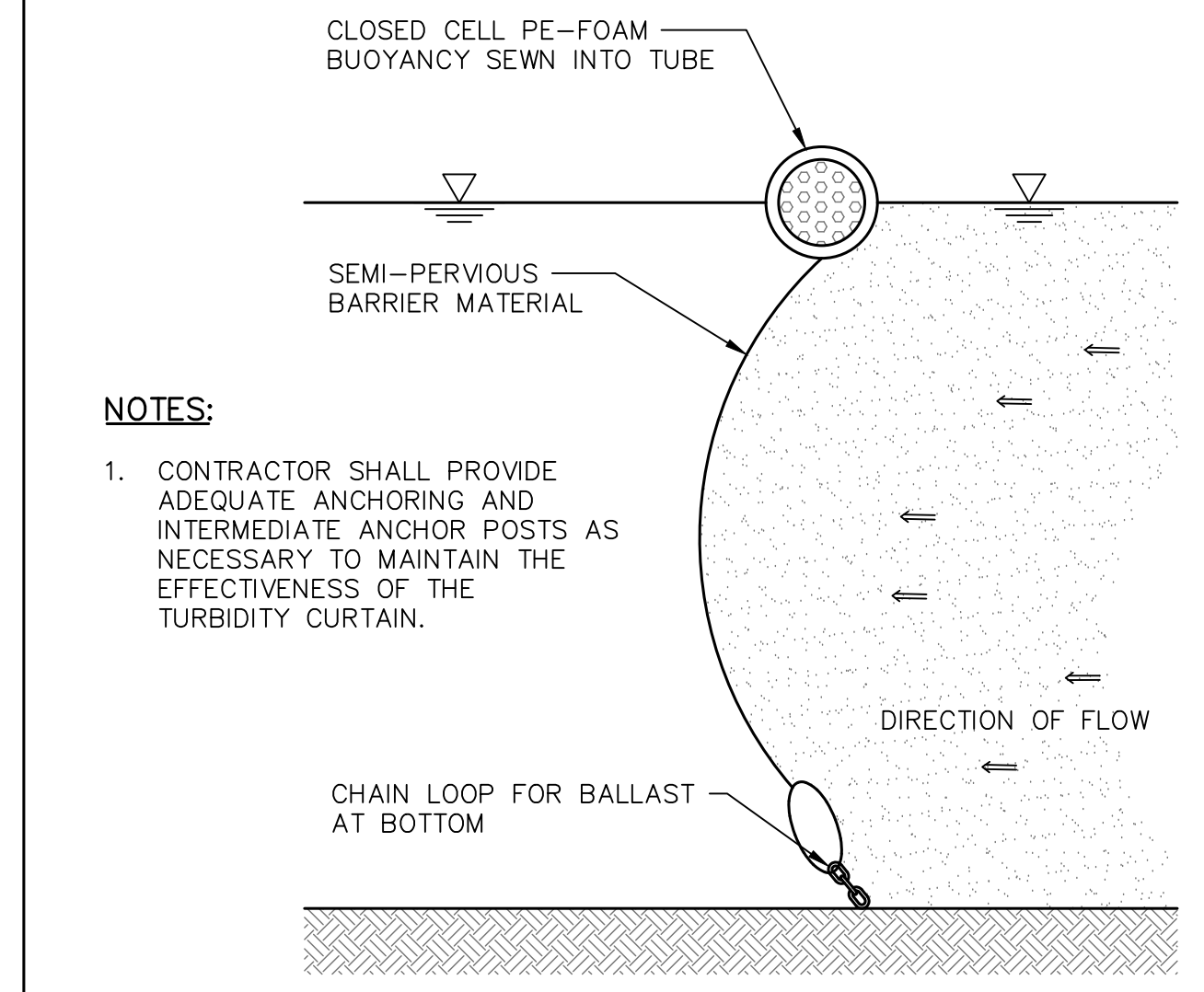


**NOTES:**

1. CONTRACTOR SHALL NOT DIRECT DEWATERING TO EXISTING CATCH BASINS. ALL DEWATERING LOCATIONS SHALL BE LOCATED ON RELATIVELY FLAT GROUND AT LEAST 75' FROM STREAMS AND 25' FROM WETLANDS. THE CONTRACTOR SHALL UTILIZE DIRT BAGS, EROSION CONTROL MIX BERMS OR SIMILAR METHODS FOR FILTRATION OF DEWATERING AND SHALL CONFORM TO THE MAIN EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES.

**FILTER BAG DETAIL**

NOT TO SCALE



**TURBIDITY CURTAIN**

NOT TO SCALE

| ISSUE FOR      | By | Date |
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| BIDDING        |    |      |
| CONSTRUCTION   |    |      |
| RECORD DRAWING |    |      |
| APPROVED       |    |      |
| REVISIONS      |    |      |
| NO.            |    |      |

|             |                |
|-------------|----------------|
| Drawn/Chk.  | RMG            |
| Designed    | PDM            |
| Checked     |                |
| Approved    |                |
| Date        | APRIL 2024     |
| Book No.    |                |
| Project No. | 2552           |
| Dwg. ID     | 2552_details_M |
| Scale       |                |

**UNDERWOOD**  
 engineers  
 25 Vaughan Mall, Portsmouth, N.H. 03801  
 Tel. 603-436-6192 Fax. 603-431-4733

**EROSION & SEDIMENT CONTROL DETAILS**  
 MAPLEWOOD AVE DRAINAGE IMPROVEMENTS  
 CITY OF PORTSMOUTH  
 PORTSMOUTH, NEW HAMPSHIRE

|        |          |
|--------|----------|
| DWG NO | SHEET    |
| D8     | 17 OF 17 |

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