Findings of Fact | Site Plan Review
City of Portsmouth Planning Board

Date: 6 February 2024
Property Address: 686 Maplewood Avenue
Application #: **LU-23-57**
Decision: □ Approve □ Deny □ Approve with Conditions

Findings of Fact:

Per RSA 676:3, I: The local land use board shall issue a final written decision which either approves or disapproves an application for a local permit and make a copy of the decision available to the applicant. **The decision shall include specific written findings of fact that support the decision. Failure of the board to make specific written findings of fact supporting a disapproval shall be grounds for automatic reversal and remand by the superior court upon appeal, in accordance with the time periods set forth in RSA 677:5 or RSA 677:15, unless the court determines that there are other factors warranting the disapproval.** If the application is not approved, the board shall provide the applicant with written reasons for the disapproval. If the application is approved with conditions, the board shall include in the written decision a detailed description of all conditions necessary to obtain final approval.

Site Plan Regulations Section 2.9 Evaluation Criteria - in order to grant site plan review approval, the TAC and the Planning Board shall find that the application satisfies evaluation criteria pursuant to NH State Law and listed herein. In making a finding, the TAC and the Planning Board shall consider all standards provided in Articles 3 through 11 of these regulations.

	Site Plan Review Regulations Section 2.9 Evaluation Criteria	**Finding (Meets Standard/Criteria)**	**Supporting Information**
1	Compliance with all City Ordinances and Codes and these regulations. Applicable standards:	**Meets** **Does Not Meet**	Variances Required were obtained, otherwise the Project complies with all Ordinance requirements including parking, setbacks, open space, building coverage, and height.
2	Provision for the safe development, change or expansion of use of the site.	**Meets** **Does Not Meet**	TAC reviewed the site layout, and recommended approval. Plans show all utility connections and drainage infrastructure needed.
3	Adequate erosion control and stormwater management practices and other mitigative measures, if needed, to prevent adverse effects on downstream water quality and flooding of the property or that of another.	**Meets** **Does Not Meet**	R- Tank System to minimize storm water peak discharge (Sheet C3). PRETX Catch Basin provides stormwater treatment. Erosion controls during construction as necessary (D1). Long Term Maintenance Plan provided.
4	Adequate protection for the		No groundwater withdrawal (water supply

	Site Plan Review Regulations Section 2.9 Evaluation Criteria	Finding (Meets Standard/Criteria)	Supporting Information
	quality of groundwater.	**Meets** **Does Not Meet**	is city). No nearby production wells. Catch Basin provides treatment.
5	Adequate and reliable water supply sources.	**Meets** **Does Not Meet**	Water supply is Public -City. Supply confirmed by TAC review. Plumbing fixtures will be low / water conserving.
6	Adequate and reliable sewage disposal facilities, lines, and connections.	**Meets** **Does Not Meet**	Sewer connection is Public - City. New sewer design reviewed by DPW.
7	Absence of undesirable and preventable elements of pollution such as smoke, soot, particulates, odor, wastewater, stormwater, sedimentation or any other discharge into the environment which might prove harmful to persons, structures, or adjacent properties.	**Meets** **Does Not Meet**	Proposed residential use; not a pollution generator.
8	Adequate provision for fire safety, prevention and control.	**Meets** **Does Not Meet**	Full wet sprinkler system construction. Adequate FD access. TAC Approved.
9	Adequate protection of natural features such as, but not limited to, wetlands.	**Meets** **Does Not Meet**	Urban site, no wetlands or buffers.
10	Adequate protection of historical features on the site.	**Meets** **Does Not Meet**	No Historical features present. Site used recently for construction staging.
11	Adequate management of the volume and flow of traffic on the site and adequate traffic controls to protect public safety and prevent traffic congestion.	**Meets** **Does Not Meet**	The residential use is a low volume trip generator. Had approval for a more intense traffic use.
12	Adequate traffic controls and traffic management measures to prevent an unacceptable increase in safety hazards and traffic congestion off-site.	**Meets** **Does Not Meet**	Access to a recently re-constructed city street.
13	Adequate insulation from external noise sources.	**Meets** **Does Not Meet**	Noise study submitted – CUP required. Design conforms.

	Site Plan Review Regulations Section 2.9 Evaluation Criteria	Finding (Meets Standard/Criteria)	Supporting Information
14	Existing municipal solid waste disposal, police, emergency medical, and other municipal services and facilities adequate to handle any new demands on infrastructure or services created by the project.	**Meets** **Does Not Meet**	Trash collection will be private pick-up. TAC Review included Fire and Police Departments. All concerns addressed in design.
15	Provision of usable and functional open spaces of adequate proportions, including needed recreational facilities that can reasonably be provided on the site	**Meets** **Does Not Meet**	Light and air remains as the site conforms to setbacks and open space requirements. Recreational open space provided.
16	Adequate layout and coordination of on-site accessways and sidewalks in relationship to off-site existing or planned streets, accessways, bicycle paths, and sidewalks.	**Meets** **Does Not Meet**	Proposed sidewalk connects site to surrounding environs.
17	Demonstration that the land indicated on plans submitted with the application shall be of such character that it can be used for building purposes without danger to health.	**Meets** **Does Not Meet**	Land is suitable for the intended purpose, Existing Lot. Formerly used as an urban construction staging site. Plans follow guidelines; see TAC approval.
18	Adequate quantities, type or arrangement of landscaping and open space for the provision of visual, noise and air pollution buffers.	**Meets** **Does Not Meet**	Professionally prepared landscape design provided. Open space provided in noise reduced areas.
19	Compliance with applicable City approved design standards.	**Meets** **Does Not Meet**	Approved by the Technical Advisory Committee.
	Other Board Findings:		

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

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

24 January 2024

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

RE: Site Plan Review at 686 Maplewood Avenue, Tax Map 220, Lot 90

Dear Mr. Chellman and Planning Board Members:

On behalf of Chinburg Development, we are pleased to submit the attached plan set for **Site Plan Approval** for the above-mentioned project and request that we be placed on the agenda for your **February 15, 2024,** Planning Board Meeting. The project is the proposed new construction of a six (6) unit residential condominium with the associated and required site improvements.

The project was reviewed and approved at the January 2, 2024, Technical Advisory Committee Meeting where the application was recommended for approval subject to the following conditions, repeated below with a response in **bold text**:

1. Review the definition of a structure with Planning Staff and apply appropriate setbacks for the retaining wall. **The development team met with the Planning Department and the Code Enforcement Officer and determined that the setback to the retaining wall shall be equal to the height of the wall. The revised plans reflect a three-foot (maximum) wall height which is set back three feet from the property line.**
2. All utility, stormwater and drainage changes shall be reviewed and approved by DPW. **We have been working with the Department of Public Works and the submitted plans have been revised in accordance with reviews by the DPW.**

The following plans are included in our submission:

- Cover Sheet – This shows the Development Team, Legend, Site Location, and Abutters.
- Boundary Plan – This plan shows the site property boundary, topography, and site easements.
- Existing Conditions Plan –C1 – This plan shows the existing site conditions in detail.
- Site Plan C2 – This plan shows the site development with the proposed placement of the buildings, driveway, and parking.
- Landscape Plan - This plan shows the proposed site landscaping.
- Floor Plans and Elevations A1 – This plan shows the Architectural design for the buildings.
- Grading and Erosion Control Plan C3 – This plan shows the drainage design, including the location of the PRETX Basin for stormwater treatment and the R-Tank system to provide drainage peak flow mitigation.

- Utility Plan C4 – This plan shows site utilities. The project will connect utilities to some infrastructure left in place when Maplewood Avenue was re-constructed.
- Eden Drive Plan & Profile – This plan shows the proposed driveway and associated utilities.
- Average Grade Plane G1 and G2 (Existing and Proposed) - This plan shows the elevations to support the calculation of the grade planes to determine building height compliance with the regulations.
- Erosion Control Notes and Details D1 and Details D2 to D9 – These plans shows site details.

The following additional information is included in this submission:

- Application Checklist
- Green Building Statement
- Condominium Documents
- Site Photographs
- Site Overhead Context
- Trip Generation Memo
- Drainage Analysis

We look forward to an in-person presentation of this submission to the Planning Board and hereby request approval. If there are any questions or concerns, please feel free to contact me.

Sincerely,

John R. Chagnon, PE
Ambit Engineering – Haley Ward

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City of Portsmouth, New Hampshire

Site Plan Application Checklist

This site plan application checklist is a tool designed to assist the applicant in the planning process and for preparing the application for Planning Board review. The checklist is required to be completed and uploaded to the Site Plan application in the City's online permitting system. A pre-application conference with a member of the planning department is strongly encouraged as additional project information may be required depending on the size and scope. The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all site plan review requirements. Please refer to the Site Plan review regulations for full details.

Applicant Responsibilities (Section 2.5.2): Applicable fees are due upon application submittal along with required attachments. The application shall be complete as submitted and provide adequate information for evaluation of the proposed site development. Waiver requests must be submitted in writing with appropriate justification.

Name of Applicant: Chinburg Development, LLC Date Submitted: 10-20-2023

Application # (in City's online permitting): TBD

Site Address: 686 Maplewood Avenue Map: 220 Lot: 90

Application Requirements			
☑	**Required Items for Submittal**	**Item Location (e.g. Page or Plan Sheet/Note #)**	**Waiver Requested**
☐	Complete application form submitted via the City's web-based permitting program (2.5.2.1**(2.5.2.3A)**	Online	N/A
☐	All application documents, plans, supporting documentation and other materials uploaded to the application form in viewpoint in digital Portable Document Format (PDF). One hard copy of all plans and materials shall be submitted to the Planning Department by the published deadline. **(2.5.2.8)**	Online	N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Statement that lists and describes "green" building components and systems. **(2.5.3.1B)**	Supplemental	
☐	Existing and proposed gross floor area and dimensions of all buildings and statement of uses and floor area for each floor. **(2.5.3.1C)**	Sheet A1	N/A
☐	Tax map and lot number, and current zoning of all parcels under Site Plan Review. **(2.5.3.1D)**	Cover sheet & sheet C1	N/A

Site Plan Review Application Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Owner's name, address, telephone number, and signature. Name, address, and telephone number of applicant if different from owner. **(2.5.3.1E)**	Cover sheet	N/A
☐	Names and addresses (including Tax Map and Lot number and zoning districts) of all direct abutting property owners (including properties located across abutting streets) and holders of existing conservation, preservation or agricultural preservation restrictions affecting the subject property. **(2.5.3.1F)**	Cover sheet & sheet C1	N/A
☐	Names, addresses and telephone numbers of all professionals involved in the site plan design. **(2.5.3.1G)**	Cover sheet	N/A
☐	List of reference plans. **(2.5.3.1H)**	Sheet C1	N/A
☐	List of names and contact information of all public or private utilities servicing the site. **(2.5.3.1I)**	Cover sheet	N/A

Site Plan Specifications			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Full size plans shall not be larger than 22 inches by 34 inches with match lines as required, unless approved by the Planning Director.. **(2.5.4.1A)**	Required on all plan sheets	N/A
☐	Scale: Not less than 1 inch = 60 feet and a graphic bar scale shall be included on all plans. **(2.5.4.1B)**	Required on all plan sheets	N/A
☐	GIS data should be referenced to the coordinate system New Hampshire State Plane, NAD83 (1996), with units in feet. **(2.5.4.1C)**	C1	N/A
☐	Plans shall be drawn to scale and stamped by a NH licensed civil engineer. **(2.5.4.1D)**	Required on all plan sheets	N/A
☐	Wetlands shall be delineated by a NH certified wetlands scientist and so stamped. **(2.5.4.1E)**	N/A	N/A
☐	Title (name of development project), north point, scale, legend. **(2.5.4.2A)**	Cover sheet	N/A
☐	Date plans first submitted, date and explanation of revisions. **(2.5.4.2B)**	Each sheet	N/A
☐	Individual plan sheet title that clearly describes the information that is displayed. **(2.5.4.2C)**	Required on all plan sheets	N/A
☐	Source and date of data displayed on the plan. **(2.5.4.2D)**	Sheet C1	N/A

Site Plan Specifications – Required Exhibits and Data			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	**1. Existing Conditions: (2.5.4.3A)** • Surveyed plan of site showing existing natural and built features; • Existing building footprints and gross floor area; • Existing parking areas and number of parking spaces provided; • Zoning district boundaries; • Existing, required, and proposed dimensional zoning requirements including building and open space coverage, yards and/or setbacks, and dwelling units per acre; • Existing impervious and disturbed areas; • Limits and type of existing vegetation; • Wetland delineation, wetland function and value assessment (including vernal pools); • SFHA, 100-year flood elevation line and BFE data, as required.	Sheet C1	
☐	**2. Buildings and Structures: (2.5.4.3B)** • Plan view: Use, size, dimensions, footings, overhangs, 1st fl. elevation; • Elevations: Height, massing, placement, materials, lighting, façade treatments; • Total Floor Area; • Number of Usable Floors; • Gross floor area by floor and use.	Sheet C2 & sheet A1	
☐	**3. Access and Circulation: (2.5.4.3C)** • Location/width of access ways within site; • Location of curbing, right of ways, edge of pavement and sidewalks; • Location, type, size and design of traffic signing (pavement markings); • Names/layout of existing abutting streets; • Driveway curb cuts for abutting prop. and public roads; • If subdivision; Names of all roads, right of way lines and easements noted; • AASHTO truck turning templates, description of minimum vehicle allowed being a WB-50 (unless otherwise approved by TAC).	Sheet C2	
☐	**4. Parking and Loading: (2.5.4.3D)** • Location of off street parking/loading areas, landscaped areas/buffers; • Parking Calculations (# required and the # provided).	Sheet C2	
☐	**5. Water Infrastructure: (2.5.4.3E)** • Size, type and location of water mains, shut-offs, hydrants & Engineering data; • Location of wells and monitoring wells (include protective radii).	Sheet C4	
☐	**6. Sewer Infrastructure: (2.5.4.3F)** • Size, type and location of sanitary sewage facilities & Engineering data, including any onsite temporary facilities during construction period.	Sheet C4	

☐	**7. Utilities: (2.5.4.3G)** • The size, type and location of all above & below ground utilities; • Size type and location of generator pads, transformers and other fixtures.	Sheet C4	
☐	**8. Solid Waste Facilities: (2.5.4.3H)**		
	• The size, type and location of solid waste facilities.	Note 11-C2	
☐	**9. Storm water Management: (2.5.4.3I)** • The location, elevation and layout of all storm-water drainage. • The location of onsite snow storage areas and/or proposed off-site snow removal provisions. • Location and containment measures for any salt storage facilities • Location of proposed temporary and permanent material storage locations and distance from wetlands, water bodies, and stormwater structures.	Sheet C3	
☐	**10. Outdoor Lighting: (2.5.4.3J)** • Type and placement of all lighting (exterior of building, parking lot and any other areas of the site) and photometric plan.	None proposed	
☐	**11.** Indicate where dark sky friendly lighting measures have been implemented. **(10.1)**	N/A	
☐	**12. Landscaping: (2.5.4.3K)** • Identify all undisturbed area, existing vegetation and that which is to be retained; • Location of any irrigation system and water source.	Sheet L1	
☐	**13. Contours and Elevation: (2.5.4.3L)** • Existing/Proposed contours (2 foot minimum) and finished grade elevations.	Sheet C3	
☐	**14. Open Space: (2.5.4.3M)** • Type, extent and location of all existing/proposed open space.	Sheet C2	
☐	**15. All easements, deed restrictions and non-public rights of ways. (2.5.4.3N)**	None proposed	
☐	**16. Character/Civic District (All following information shall be included): (2.5.4.3P)** • Applicable Building Height (10.5A21.20 & 10.5A43.30); • Applicable Special Requirements (10.5A21.30); • Proposed building form/type (10.5A43); • Proposed community space (10.5A46).	N/A	
☐	**17. Special Flood Hazard Areas (2.5.4.3Q)** • The proposed development is consistent with the need to minimize flood damage; • All public utilities and facilities are located and construction to minimize or eliminate flood damage; • Adequate drainage is provided so as to reduce exposure to flood hazards.	Not in zone	

Other Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	Traffic Impact Study or Trip Generation Report, as required. **(3.2.1-2)**	Supplemental	
☐	Indicate where Low Impact Development Design practices have been incorporated. **(7.1)**	Plan set	
☐	Indicate whether the proposed development is located in a wellhead protection or aquifer protection area. Such determination shall be approved by the Director of the Dept. of Public Works. **(7.3.1)**	Not in area	
☐	Stormwater Management and Erosion Control Plan. **(7.4)**	Sheet C3 & sheet D1	
☐	Inspection and Maintenance Plan **(7.6.5)**	Drainage analysis	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	All local approvals, permits, easements and licenses required, including but not limited to: • Waivers; • Driveway permits; • Special exceptions; • Variances granted; • Easements; • Licenses. **(2.5.3.2A)**	Cover sheet	
☐	Exhibits, data, reports or studies that may have been required as part of the approval process, including but not limited to: • Calculations relating to stormwater runoff; • Information on composition and quantity of water demand and wastewater generated; • Information on air, water or land pollutants to be discharged, including standards, quantity, treatment and/or controls; • Estimates of traffic generation and counts pre- and post-construction; • Estimates of noise generation; • A Stormwater Management and Erosion Control Plan; • Endangered species and archaeological / historical studies; • Wetland and water body (coastal and inland) delineations; • Environmental impact studies. **(2.5.3.2B)**	Online	
☐	A document from each of the required private utility service providers indicating approval of the proposed site plan and indicating an ability to provide all required private utilities to the site. **(2.5.3.2D)**	TBD	

Final Site Plan Approval Required Information			
☑	**Required Items for Submittal**	**Item Location (e.g. Page/line or Plan Sheet/Note #)**	**Waiver Requested**
☐	A list of any required state and federal permit applications required for the project and the status of same. **(2.5.3.2E)**	Cover sheet	
☐	A note shall be provided on the Site Plan stating: "All conditions on this Plan shall remain in effect in perpetuity pursuant to the requirements of the Site Plan Review Regulations." **(2.5.4.2E)**	Sheet C2	N/A
☐	For site plans that involve land designated as "Special Flood Hazard Areas" (SFHA) by the National Flood Insurance Program (NFIP) confirmation that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334. **(2.5.4.2F)**	N/A	
☐	Plan sheets submitted for recording shall include the following notes: a. "This Site Plan shall be recorded in the Rockingham County Registry of Deeds." b. "All improvements shown on this Site Plan shall be constructed and maintained in accordance with the Plan by the property owner and all future property owners. No changes shall be made to this Site Plan without the express approval of the Portsmouth Planning Director." **(2.13.3)**	Sheet C2	N/A

Applicant's Signature: __  **_____ Date: __10-23-23_____**

PROPOSED GREEN BUILDING COMPONENTS

LOCATION AND TRANSPORTATION

1. Public Transportation – The site is directly served by local bus service with stops along Maplewood Avenue.

2. Walkable Amenities – The site is a short walking distance to the Portsmouth downtown and numerous businesses.

3. Increased Density - The project will provide increased residential density in a previously undeveloped location.

SITE

4. Stormwater Design - The stormwater system has been designed using Low Impact Design techniques, such as R-tank stormwater detention.

5. Parking - Parking calculations have been performed using the City's parking requirements and have been exceeded.

WATER

6. Plumbing Fixtures - Dual flush or low-flow toilets and other low-flow fixtures will be provided where possible.

7. Domestic Hot Water - Will be designed to exceed code requirements.

ENERGY

8. Building Envelope - The building envelope will be designed as a high-performance assembly to exceed minimum Energy Code requirements to minimize heating and cooling expenses, while achieving a high standard of occupant comfort. Energy efficient windows will be used to meet or exceed energy code.

9. HVAC Units - High-efficiency Air Source Heat Pumps controlled by the building occupant.

10. High-Efficiency Lighting - Efficient LED lighting will be used for interior and exterior fixtures.

11. Energy Star Appliances - Appliances provided by Owner will be Energy Star rated where possible.

MATERIALS AND RESOURCES

12. Minimize Waste - Material waste will be minimized as much as possible during construction.

INDOOR ENVIRONMENTAL QUALITY

13. Low-VOC Materials - Building materials with low volatile organic compound levels will be specified where possible.

14. Indoor Air Quality - Residences will have operable windows for access to fresh air.

15. Daylight – Primary habitable spaces will have access to windows for daylight.

16. Thermal Comfort - Each residence will have dedicated HVAC controlled by the occupant.

17. Acoustic Comfort - Acoustic and vibration isolating assemblies will be provided at exterior walls due to the proximity to Interstate 95. Requirements of the Highway Noise Overlay District will be met or exceeded.

Note: Green building components reflect proposed project features and are subject to feasibility of construction.

DECLARATION
OF
EDEN POINT, A CONDOMINIUM

Chinburg Development, LLC, a limited liability company organized and existing under the laws of the State of New Hampshire, with a principal place of business at 3 Penstock Way, New Hampshire 03857 (hereinafter referred to as **"Declarant"**), is the owner of certain premises situate in the City of Portsmouth, County of Rockingham and State of New Hampshire, more fully described in **Appendix A** hereto, and intends to submit said premises and the improvements now or hereafter located thereon to the condominium form of ownership and use in the manner provided by the New Hampshire Revised Statutes Annotated, Chapter 356-B, (hereinafter referred to as the **"Condominium Act"**), and to impose upon said premises and the improvements now or hereafter located thereon mutually beneficial restrictions under a general plan of improvement.

NOW, THEREFORE, the Declarant hereby publishes and declares that all of the above described property is held and shall be held, conveyed, hypothecated, encumbered, leased, entered, used, occupied and improved subject to the following covenants, conditions, restrictions, uses, limitations and obligations, all of which are declared and agreed to be in furtherance of a plan for the development of the premises submitted, and shall be deemed to run with the land and shall be a benefit and burden to the Declarant, successors and assigns, and any person or persons acquiring or owning an interest in said premises, or a portion thereof, and the improvements now or hereafter located thereon, their grantees, successors, heirs, executors, administrators, devisees and assigns.

1. DEFINITIONS.

Certain terms as used in this Declaration and in the Bylaws, which are included herein, shall have the meaning stated in the Condominium Act, and as follows, unless the context clearly indicates a different meaning therefor.

A. **Association** shall mean the **Eden Point, A Condominium Owners' Association,** a voluntary corporation, and its successors.

B. **Board of Directors** shall mean the governing body of the Association elected pursuant to the Bylaws.

C. **Common Area** shall mean all portions of the Condominium other than the Units.

D. **Common Expenses** shall mean all expenditures lawfully made or incurred by or on behalf of the Association, together with all funds lawfully assessed for the creation and/or maintenance of reserve pursuant to the provisions of the Condominium Instruments.

E. **Condominium** shall mean real property, and any interests, lawfully submitted to the Condominium Act by the recordation of condominium instruments pursuant to said Condominium Act herein named the Eden Point, A Condominium.

F. **Condominium Instruments** is a collective term referring to the Declaration, Bylaws and site and floor plans recorded pursuant to the provisions of the Condominium Act. Any exhibit, schedule or certification accompanying a Condominium Instrument and recorded simultaneously therewith shall be deemed an integral part of that Condominium Instrument. Any amendment or certification of any Condominium Instrument shall, from the time of the recordation of such amendment or certification, be deemed an integral part of the affected Condominium Instrument, so long as such amendment or certification was made in accordance with the provisions of the Condominium Act or this Declaration.

G. **Condominium Unit** shall mean a Unit together with the undivided interest in the Common Area appertaining to that Unit.

H. **Declarant** shall mean **Chinburg Development, LLC,** a limited liability company organized and existing under the laws of the State of New Hampshire and registered with the State of New Hampshire, which has made and executed this Declaration.

I. **Declaration** shall mean this instrument and appendices thereto.

J. **Eligible Mortgage** shall mean any mortgage to (i) the seller of a Unit; or (ii) a bank, trust company, bank and trust company, savings bank, savings and loan association, mortgage service company, insurance company, credit union, pension fund, real estate investment trust or like institutional investor or lender.

K. **Eligible Mortgagee** shall mean the holder of an Eligible Mortgage.

L. **Identifying Numbers** shall mean one or more numbers that identify only one Unit in the Condominium.

M. **Person** shall mean a natural person, corporation, partnership, association, trust or other entity capable of holding title to real property, or any combination thereof.

N. **Purchaser** shall mean any person or persons who acquire by means of a voluntary transfer a legal or equitable interest in a Condominium Unit, except as security for a debt.

O. **Singular or Plural Gender,** whenever the context so permits, the use of the plural shall include the singular, the use of the singular the plural, and the use of any gender shall be deemed to include all genders.

P. **Unit** shall mean a portion of the Condominium designed and intended for individual ownership and use.

Q. **Unit Owner or Owner** means one or more persons who own a Condominium Unit.

2. INFORMATION REQUIRED BY THE CONDOMINIUM ACT.

A. Name and Address: The name of the Condominium shall be Eden Point, A Condominium and its address is 686 Maplewood Avenue Portsmouth, New Hampshire 03801.

B. The Land: The land owned by the Declarant which is hereby submitted to the condominium form of ownership is located at 686 Maplewood Avenue, in the City of Portsmouth, County of Rockingham and State of New Hampshire, and is more particularly described in **Appendix A** hereto.

C. General Description of Land and Buildings: The land is located 686 Maplewood Avenue in the City of Portsmouth, County of Rockingham and State of New Hampshire, and contains approximately 1.4411 acres. The Condominium consists of a total of six (6) Units located on the land as depicted on a Site Plan to be recorded at D-_____. The orientation of the Units on the land and the relation of each Unit to the others is more particularly described and depicted on certain site and floor plans to be recorded. The Condominium is located in the Highway Noise Overlay District of the City of Portsmouth Zoning Ordinance and has high levels of traffic noise from traffic on I-95.

D. Description of Units: The boundaries of each Unit shall be all the improvements above and below the land on which the Unit is situated, which are a part of and contiguous with the building which is the Unit, excepting the - utility conduits and piping (underground or aboveground) and including, without limitation, the foundation, footing, framing, roofing, siding, windows, doors, electrical, plumbing, pumps, e-pumps, fire suppression systems, heating, walls, floors, ceilings, doors, sinks, appliances, and cabinetry, and the driveways, walkways, patios and or decks as shown on the Site and Floor Plans. It is the intent that the Unit shall include the entire structure above the land on which the Unit is constructed and any patios, decks, yard areas which appertain to a Unit, all which shall be the responsibility of the Unit Owner to maintain and repair at its sole cost and expense.

E. Exclusive Easement: A Unit may have an easement over a portion of the Common Area, if any, for exclusive use as a yard area as shown on the Plan.

F. Description of Common Area: The Common Area shall include all parts of the Condominium that are not included within the boundaries of the Unit as provided in this Declaration. The Common Area includes, but not by way of limitation:

(i) The land upon which Units are located, including the Eden Lane, the sidewalk, shrubbery, gardens, parking areas, passive recreation area and other land included in the description of the Condominium in **Appendix A** hereto;

(ii) Pipes, ducts, flues, common well or wells, chutes, conduits, wires and other utility installations, and any such facilities located within a Unit, which serve parts of the Condominium other than the Unit within which they are located; and

(iii) Stormwater management system and associated drainage easements and appurtenant equipment and facilities.

(iv) All other parts of the Condominium and any and all personal property acquired by the Association, necessary or convenient to its existence, maintenance and safety, normally in common use.

G. Condominium Unit Values and Related Percentages: There shall appertain to each Condominium Unit in the Condominium an equal undivided interest in the Common Area appertaining to each Unit and its owner for all purposes, including voting, as required by New Hampshire R.S.A. 356-B:17. There shall appertain to each Condominium Unit in the Condominium for voting purposes in connection with meetings of the Association, a number of votes which is equal to the percentage of undivided interest. Where a particular Condominium Unit is owned by more than one person, the owners thereof may attend any meetings of the Association, but it shall be necessary for those present to act unanimously in order to cast a vote to which they are entitled. The Declarant shall be entitled to vote with respect to any Condominium Unit owned by it.

H. Statement of Purposes and Restrictions: The Units and Common Area shall be held and used subject to the following restrictions:

(i) No Unit Owner shall occupy or use his Condominium Unit or permit the same, or any part thereof, to be occupied or used for any purpose other than as a private residence for the Owner and the Owner's family, or the Owner's lessee or guests. This section shall not be construed to prevent an Owner from renting or leasing his Unit for residential purposes. No residential use of any attic storage area shall occur.

(ii) Special permission may be given by the Board of Directors for limited professional office use of a particular Unit upon application of the Owner of such Unit, where the Board of Directors shall find that such limited professional use is not incompatible with the basic residential nature of the Condominium as a whole and is not in conflict with the underlying applicable town ordinances. The Board of Directors may grant such permits and for such periods of time and upon such further terms, conditions and restrictions as it shall deem to be in the best interests of the Condominium as a whole.

(iii) No waste shall be committed in the Common Area and specifically no trees, shrubbery, or brush shall be planted or cut, without the prior consent of the Association.

(iv) No structures of any type or nature, however temporary, shall be erected, placed or permitted on the Common Area.

(v) No snow machines, all-terrain vehicles, or other motorized recreational vehicles shall be operated within five hundred (500) feet of any Building in the Condominium, except that licensed, inspected and operating passenger vehicles may be parked in those places provided for such use and so designated by the Board

of Directors or manager. Motorized recreational vehicles, snow machines, or all-terrain vehicles may be parked in those places provided for such use and so designated by the Board of Directors or manager. Subject to such rules as may be adopted by the Board of Directors, recreational vehicles, snow machines, or all-terrain vehicles may travel over and across the Common Area for access to designated parking areas.

(vi) No fires are permitted on the Common Area, except in places which may from time to time designated by the Board of Directors.

(vii) No habitation of any type or duration is permitted in or on the Common Area.

(viii) No person shall make any use of any portion of the Condominium which constitutes a nuisance or annoyance to any Unit Owner, which constitutes a fire hazard, which may result in the cancellation of any insurance on any part of the Condominium**,** or which is in violation of any law, ordinance or governmental regulation. The construction of additional buildings and Units to facilitate the conversion of the Common Area shall not be considered a nuisance or annoyance. No use shall be made of any part of the Condominium which may increase the premiums on insurance covering any portion of the Condominium without the approval of the Board of Directors in writing.

(ix) Other than signs erected by the Declarant, no signs of any kind shall be displayed for public view or from any Unit without the consent of the Board of Directors, who shall be empowered to adopt rules regarding the placement, size, and type of sign which may be used. No clothes lines, television or radio antennas, garbage, trash, clothing, snow machines, or other personal property of similar nature shall be maintained, kept, stored, placed or left where it may be seen or observed by the general public or another Unit Owner.

(x) No livestock shall be kept or permitted in any Unit or in the Common Area. Birds, fish and animals of the type usually considered pets may be kept in a Unit. However, permission may be withdrawn at the discretion of the Board of Directors in the event the pet is considered a nuisance to other owners. The Board of Directors shall give the owner of the pet an opportunity to address the claims of nuisance at a meeting prior to withdrawing permission.

(xi) Nothing shall be altered or constructed in or removed from the Common Area,, except upon the written consent of the Board of Directors.

(xii) The Board of Directors are authorized to adopt such rules regarding the use of the Units, Common Area, as may be necessary, and there shall be no violation of the rules by any person.

(xiii) The Declarant and persons that it may select shall have the right of ingress and egress over, upon and across the Common Area, and the right to store materials thereon and to make such other use thereof as may be reasonably necessary and incident to construction, and complete development and sale of the Condominium**,**

including, without limitation, placing construction vehicles, equipment and trailers on the Common Area. The Declarant and the persons to whom it has granted this permission shall not unduly interfere with the Unit Owners or persons occupying Condominium Units and their rights to use the Common Area and facilities. The Declarant's rights to complete construction, common development and sales of the Condominium**,** as expressed herein, shall not be deemed to limit the right conferred upon the Declarant pursuant to the Condominium Act.

(xiv) Subject to the provisions of the within Declaration, the Bylaws and the Condominium Act, each Unit Owner shall have an easement in common with the owners of all other units for ingress and egress through and the use and enjoyment of, the Common Area.

I. Voting Requirements in the Event of Damage or Destruction:

In the event of damage or destruction to the Condominium, the following voting requirements shall pertain:

(i) In case of fire, casualty, or other disaster, the insurance proceeds shall be applied to repair or reconstruction and the Board of Directors shall arrange for such repair or reconstruction of the damaged or destroyed portion of the Condominium as hereinafter set forth unless the Condominium is damaged or destroyed to the extent of seventy-five percent (75%) or more of the total replacement value of all of the buildings in the Condominium**,** and the Association by vote of eighty percent (80%) of the Unit Owners' total voting power, within sixty (60) days of the date of such damage or destruction, votes not to repair or reconstruct the damaged or destroyed property, but to terminate the Condominium**.** If the said property is damaged or destroyed to the extent of seventy-five percent (75%) or more of the total replacement value of all the buildings in the Condominium and the Association votes by a vote of eighty percent (80%) of the Unit Owners' total voting power within sixty (60) days not to rebuild or reconstruct, but rather to terminate the Condominium, then the agreement of the required majority of Unit Owners to terminate shall be evidenced by their execution of a termination agreement, or the president or treasurer of the Association shall execute such agreement accompanied by certificate of vote of the secretary, which termination agreement shall be recorded in the Grafton County Registry of Deeds, pursuant to the Condominium Act. Upon recordation of an instrument terminating the Condominium in its damaged condition, shall be deemed to be terminated and to be owned by the Unit Owners as tenants-in-common in proportion to their respective undivided interests in the Common Areas. As long as such tenancy-in-common lasts, each Unit Owner, or the heirs, successors or assigns thereof shall have an exclusive right of occupancy of that portion of the property which formerly constituted his Unit. Upon recordation of an instrument terminating the Condominium as hereinbefore provided, the rights that the Unit Owners may have to the assets of the Association shall be in proportion to their respective undivided interests in the Common Areas.

(ii) If the cost of such repairs and restoration is less than the amount of said

insurance proceeds, then the excess of said insurance proceeds over said cost shall be added to the Condominium reserve for contingencies and replacements, or in the discretion of the Board of Directors, distributed by the Board of Directors to the Unit Owners as their interests may appear, in accordance with the respective percentages hereto aforesaid. If the proceeds of insurance, paid to the Board of Directors pursuant to Subparagraph 1(1) of Paragraph 2 hereof, are not sufficient to defray the costs of reconstruction and repair, or upon completion of reconstruction and repair, the funds for the payment of the cost thereof are insufficient, assessments of additional amounts to provide payment of such costs shall be made against the Unit Owners in proportion to their respective votes in the Association. If all or any portion of such assessments are not available to the Board of Directors prior to the time that the amounts thereof are needed to provide payment of such costs, the Board of Directors may borrow such amounts, on behalf of the Association, and may secure such borrowing by assignment of the liens relative thereto arising pursuant to this Declaration.

Immediately after a fire or other casualty causing damage to a building, the Board of Directors shall obtain reliable and detailed estimates of the cost of repairing and restoring the damage to a condition as good as that existing before such casualty. Such costs may also include professional fees and premiums for such bonds as the Board of Directors determines to be necessary. The Board of Directors shall contract for such repair and restoration and in doing so shall exercise its sole discretion in selecting from among said estimates. Any such reconstruction or repair shall be substantially in accordance with the original plans and specifications under which the damaged building was originally constructed.

Encroachments upon or in favor of Units which may be created as a result of such reconstruction or repair shall not constitute a claim or basis for any proceeding or action by the Owner upon whose property such encroachment exists, provided that such reconstruction is substantially in accordance with original plans and specifications under which the damaged building was originally constructed. Such encroachments shall be allowed to continue in existence for so long as the building (as reconstructed) shall stand.

(iii) The net proceeds of insurance collected on account of a casualty and any additional amounts collected by the Board of Directors from assessments against Unit Owners on account of such casualty (or borrowed by the Board of Directors as provided above) shall constitute a construction fund which shall be disbursed in payment of the cost of reconstruction and repair by the Board of Directors.

The construction fund shall be paid by the Board of Directors in appropriate progress payments, to such contractors, suppliers and personnel engaged in performing the work or supplying materials or services for the repair and reconstruction of the building as designated by the Board of Directors.

It shall be presumed that the first monies disbursed in payment of the cost of reconstruction and repair shall be from insurance proceeds; and if there is a balance

in the construction fund after the payment of all of the cost of the reconstruction and repair for which the fund is established, such balance shall first be applied to any borrowing pursuant to Section l(II) above, and the remainder, if any, shall be added to the Condominium reserve for contingencies and replacements, or in the discretion of the Board of Directors, distributed by the Board of Directors to the Unit Owners as their interest may appear, in accordance with the percentages hereto, as set forth above.

When the damage is to both Common Areas and Units, the insurance proceeds shall, to the extent practical, be applied first to the cost of repairing the Common Area and the balance to the cost of repairing the Units.

3. EXCLUSIVE OWNERSHIP AND POSSESSION BY OWNER.

Each Unit Owner shall be entitled to exclusive ownership and possession of his Unit, and each such Unit Owner shall be entitled to an undivided interest in the Common Area in the amount expressed above. The amount of undivided interest of each Unit Owner in the Common Area shall have a permanent character. No such interest shall be separated or severed from the Unit to which it appertains, being deemed to be conveyed or encumbered with the Condominium Unit even though it is not expressly mentioned or described in the instrument of conveyance or encumbrance. Subject to the provisions of this Declaration, all Unit Owners may use the Common Area,, in accordance with the purposes for which it is intended, so long as they do not hinder or encroach upon the lawful rights of other Unit Owners or otherwise violate the provisions of this Declaration or of any condominium rules adopted pursuant to this Declaration.

A Unit Owner shall not be deemed to own the undecorated and/or unfinished surfaces of the perimeter walls, floors, ceilings, windows and doors bounding his Unit, nor shall the Unit Owner be deemed to own the utilities running within the boundaries of his Unit, except as tenant-in-common with the other Unit Owners. A Unit Owner, however, shall be deemed to own and shall have the exclusive right, at his own expense, to paint, re-paint, tile, wax, paper or otherwise refinish and decorate the finished surfaces of the floors, ceiling, beams, perimeter walls and door frames bounding his Unit.

4. UNIT OWNER'S OBLIGATION TO REPAIR.

Each Unit Owner shall, at his own expense, keep his Unit and its equipment and appurtenances in good order, condition and repair. In addition to keeping the interior of the Unit in good repair, each Unit Owner shall be responsible for providing reasonably sufficient heat to avoid the freezing of such pipes as may be located appurtenant to his Unit, and each Unit Owner shall further be responsible for the maintenance, repair or replacement of any bathroom and kitchen fixtures, plumbing fixtures, water heater, appliances, heating equipment, lighting fixtures, range hoods and fans, vacuum cleaners, carpeting, drapes, ventilating fans, fireplaces and flues, and other property which is not Common Area and which is located in his Unit. Each Unit Owner shall immediately notify the Board of Directors or its agents of any damage to or malfunction of any facilities for the furnishing of utility services or waste removal which is Common Area within his Unit. In the event a Unit Owner fails to make such repairs after thirty (30) days written notice of the need for same is given to him by the Board of Directors, the Board of Directors may enter and

make such repairs, the expense of which shall be borne by said Unit Owner. No Unit Owner shall permit any repair or other work in his Unit, by anyone unless such person or entity has furnished written evidence that it has obtained reasonable, adequate public liability and workmen's compensation insurance in form and amount which are satisfactory to the Board of Directors, and unless such repair or other work is performed in compliance with all governmental laws, ordinances, rules and regulations.

5. PROHIBITION AGAINST STRUCTURAL CHANGES BY UNIT OWNER.

No Unit Owner shall, without first obtaining written consent of the Board of Directors, make or permit to be made any structural alteration, improvement or addition in or to his Unit or in or to the exterior of the buildings or other Common Area. No Unit Owner shall do any act or work that will impair the structural soundness or integrity of the buildings or safety of the property or impair any easement or hereditament without the written consent of all Unit Owners. No Unit Owner shall paint or decorate any portion of any porch, patio, storage area or balcony without first obtaining written consent of the Board of Directors. All town permits shall be obtained by the Unit Owner prior to the commencement of any work.

6. MAINTENANCE AND REPAIR OF COMMON AREAS.

Maintenance and repair of Common Areas shall be accomplished by and at the expense of the Association, except in instances where expenses are assessed by the Association against a Unit Owner or Unit Owners to repair, without limitation, windows, exterior doors, and any other portion of the Common Area damaged or destroyed through the willful or negligent act or omission of said Unit Owner or Owners or their servants, agents or invitees, and except as may be otherwise provided in this Declaration. Without limiting the generality of the foregoing, the Association shall maintain, repair, inspect and replace all stormwater treatment devices, infiltration systems, and erosion control measures shown on the Site Plan, to the extent located within the Common Area, all in accordance with the Stormwater Management Operations and Maintenance Manual prepared by Ambit Engineering, Inc. on file with the City of Portsmouth.

7. ENTRY FOR REPAIRS.

It shall be the duty of each Unit Owner to provide the Association with a key to his Unit to provide access at all reasonable times to the Association or its duly authorized agent for the purposes of maintaining and for repairing Common Areas, and the Association shall have the irrevocable right, to be reasonably exercised, through its Board of Directors or agents, to enter any Unit to inspect the same, to remove the violations therefrom and to perform any repair, maintenance or construction for which the Association is responsible, and shall have the irrevocable right, to be reasonably exercised, through its Board of Directors or agents, to enter any Unit, for the purpose of making emergency repairs necessary to prevent damage to other parts of the Condominium. Such entry shall be made with as little inconvenience to the Unit Owner as practicable. Any damage to any Unit occasioned by the Unit Owner's failure to provide the Association with a key as heretofore provided or failure to provide access as heretofore provided shall be repaired at the sole expense of the Unit Owner of said Unit Owner, and the Association shall be held harmless from any liability.

8. BYLAWS.

The Bylaws shall be as set forth in **Appendix B** hereof. These Bylaws may be amended by two-thirds of the total votes of all members of the Association provided a copy of the proposed Bylaws has been included in the written notice of the meeting.

9. INSURANCE.

The Board of Directors shall obtain and maintain to the extent obtainable, the following insurance:

A. Fire, Vandalism and Malicious Mischief: Fire insurance with extended coverage, vandalism and malicious mischief endorsements insuring all the buildings in the Condominium**,** including, without limitation, all such portions of the interior of such buildings as are for insurance purposes normally deemed to constitute part of the building and customarily covered by such insurance, such as heating and air conditioning and hot water tanks and other service machinery, interior walls, all finished wall surfaces, bathroom and kitchen cabinets, appliance and fixtures, heating and lighting fixtures, carpeting, floor covering, and such insurance to be in an amount at least equal to the replacement value of the buildings and to be payable to the Board of Directors for the Unit Owners and their mortgagees as their respective interests may appear.

B. Public Liability: Public liability insurance in such amounts as the Board of Directors may from time to time determine, but in no event shall the limits of liability be less than One Million Dollars ($1,000,000.00) for bodily injury and property damage per occurrence, insuring each member of the Board of Directors, the managing agent, the Association, agents or employees of the foregoing, and the Unit Owners and other persons entitled to occupy any Unit or other portion of the Condominium with cross-liability coverage with respect to liability claims or anyone insured there under against any other insured thereunder. This insurance, however, shall not insure against the individual liability of a Unit Owner for negligence occurring within his own Unit of which he has exclusive use.

C. Workmen's Compensation: Workmen's compensation insurance as required by law.

D. Officers' and Directors' Liability: Officers' and directors' liability insurance.

E. Other: Such other insurance as the Board of Directors may determine.

10. GENERAL INSURANCE PROVISIONS.

The Board of Directors shall deal with the insurer or insurance agent in connection with the adjusting of all claims covered by insurance policies provided for under Paragraph 9 above and shall review with the insurer or insurance agent, at least annually, the coverage under said policies, and review to include an appraisal of improvements within the Condominium**,** and shall make any necessary changes in the policy provided for under Paragraph 9 above in order to meet the coverage requirements of such Paragraph. The Board of Directors shall be required to make every effort to

see that all policies of physical damage insurance provided for under Paragraph 9 above:

A. Waivers of Subrogation: Shall contain waivers of subrogation by the insurer as the claims against the Association, its employees, members of the Board of Directors, Unit Owners and members of the family of any Unit Owner who reside with said Unit Owner, except in cases of arson and fraud.

B. Waivers of Defense: Shall contain a waiver of the defense of invalidity on account of the conduct of any of the Unit Owners over which the Association has "no control".

C. Non-cancellation: Shall provide that such policies may not be canceled or substantially modified without at least thirty (30) days written notice to all of the insured thereunder and all mortgagees of the Condominium.

D. Separation: Shall provide that in no event shall the insurance under said policies be brought into contribution with insurance purchased individually by Unit Owners or their mortgagees.

E. Exclusion: Shall exclude policies obtained by individual Unit Owners from consideration under any "no other insurance" clause. Each Unit Owner may obtain additional insurance for his own benefit and at his own expense. No such policy shall be written so as to decrease the coverage under any of the policies obtained by the Board of Directors pursuant to Paragraph 9 above, and each Unit Owner hereby assigns to the Board of Directors the proceeds of any such policy to the extent that any such policy does in fact result in a decrease in such coverage, said proceeds to be applied pursuant to the terms hereof as if produced by such coverage. Copies of all such policies (except policies covering only personal property, owned or supplied by individual Unit Owners) shall be filed with the Association.

Each Unit Owner should obtain insurance for his own benefit and at his own expense insuring all personal property presently or hereafter located in his Unit, and all improvements to his Unit.

11. ASSESSMENTS.

Each Unit Owner shall pay all Common Expenses assessed against him, and all other assessments made against him by the Board of Directors in accordance with the terms of the Declaration and Bylaws, and all expenses so incurred and some so assessed but unpaid shall be secured by a lien as provided in Section 46 of the Condominium Act. Assessments and Common Expenses paid on or before ten (10) days after the due date when due shall not bear interest, but all sums not paid on or before ten (10) days after the date when due, shall bear interest at the rate of one and one-half percent (1-1/2%) per month (eighteen percent (18%) per annum) from the date when due until paid. All payments on account shall first be applied to interest and then to the assessment. Any Unit Owner or purchaser of a Condominium Unit, having executed a contract for the disposition of same, shall be entitled upon request to a recordable statement setting forth the amount of unpaid assessments currently levied against that Condominium Unit. Such request shall be in writing and directed to the president of the Association. The Board of Directors shall, through one of its members or duly authorized agents, supply a certificate stating the amount of any unpaid Common Expenses or other expenses or assessments against any particular Condominium Unit in

accordance with the Condominium Act, Declaration and Bylaws, and the amount so stated shall be conclusively established as of such date, in favor of all persons who rely thereon in good faith as against the Association. Failure to furnish or make available such a statement within ten (10) business days from the receipt of such request, shall extinguish the lien created as to the Condominium Unit involved. Payment of a reasonable fee not to exceed Ten Dollars ($10.00) will be required as a prerequisite to the issuance of such a statement.

A purchaser of a Condominium Unit shall be liable for the payment of any such expenses or assessments against said Condominium Unit prior to acquisition by him which are unpaid as of the time of said acquisition, whether or not such expenses or assessments are then due, except that an institutional first mortgagee or other purchaser at a foreclosure sale, or an institutional mortgagee accepting a deed in lieu of foreclosure, shall not be liable for the payment of expenses or assessments unpaid and due as of the time of his acquisition, but shall be liable for unpaid expenses and assessments becoming due thereafter.

Any lien for unpaid Common Expenses or assessments or other expenses perfected as provided in Section 46 of the Condominium Act shall be prior to all other liens and encumbrances except:

A. Real Estate Taxes: Real estate taxes on the Condominium Unit.

B. Prior Liens or Encumbrances: Liens or encumbrances recorded prior to the recordation of the Declaration.

C. First Mortgage or First Deed: Any sums paid on any first mortgage or first deed of trust encumbering the Condominium Unit and securing institutional lenders.

Materialman's and mechanic's liens shall not be affected. A lien for unpaid assessments as provided in the Condominium Act shall also secure reasonable attorney's fees incurred by the Association instituting the collection of such assessments and the enforcement of such lien.

12. ASSOCIATION MEMBERSHIP REQUIRED.

The operation of the Association shall be in the form of a voluntary corporation which shall be organized and shall fulfill its functions pursuant to this Declaration and the Association shall have all of the powers and duties as set forth in the Condominium Act, except as limited by this Declaration and Bylaws, and all the powers and duties reasonably necessary to operate the Condominium as set forth in this Declaration and Bylaws and as they may be amended from time to time.

The members of the Association shall consist of all the record Unit Owners in the Condominium. Change of membership in the Association shall be established by recording in the Grafton County Registry of Deeds a deed establishing record title to a Condominium Unit in the Condominium. The purchaser shall deliver to the Board of Directors of the Association a photostatic copy of the deed showing the book, page and time of the recording of the deed in said Registry. The Board of Directors shall keep such copy on file as evidence of the purchaser's membership in the Association for all purposes, rights and obligations as set forth in this Declaration and Bylaws. The purchaser designated by such instrument shall thereby become a

member of the Association, and membership of the prior Unit Owner shall thereby terminate. The share of a member in the funds or assets of the Association cannot be assigned or transferred in any manner except as an appurtenance to his Unit. The Bylaws shall be in form attached hereto as **Appendix B.**

13. SUBDIVISION AND PARTITION.

No Condominium Unit in the Condominium shall be further subdivided. This shall not be construed as preventing two or more persons from owning a Condominium Unit either as tenants-in-common or as joint tenants, nor as preventing such Unit Owners from entering into arrangements for sharing the use of said Condominium Unit on a time or other basis. This Section shall be construed, however, as preventing one or more of said Unit Owners from seeking to physically partition his, her or its interest in the Unit or from the Declarant seeking adjustments to the boundaries of Units when necessary. There shall be no judicial partition of the Condominium**,** or any portion thereof, until the happening of the conditions expressly set forth in this Declaration in the case of damage or destruction, or unless the Condominium has been removed from the provisions of the Condominium Act as provided in said Condominium Act.

14. ENFORCEMENT.

Each Unit Owner shall comply strictly with the provisions of this Declaration, the Bylaws and the administrative rules and regulations drafted pursuant thereto as the same may be lawfully amended from time to time, and with decisions adopted pursuant to said Declaration, Bylaws, administrative rules and regulations, and failure to comply shall be grounds for an action to recover sums due for damages or injunctive relief, or both, maintainable by the Board of Directors or manager on behalf of the Unit Owners, or in proper course, by an aggrieved Unit Owner.

15. UTILITY EASEMENTS RESERVED.

The Declarant reserves to itself, its heirs, its successors, and assigns (including possible assignees, the appropriate utility companies, and/or the Association) the right and easement to construct, maintain, repair and service lines, wires, pipes and all other necessary and appurtenant equipment for the installation and maintenance of sewer, water, electric, telephone, television or other utility service on, through or above the Common Area, together with right to enter said Common Area to construct, lay, repair and maintain said lines, pipes and equipment. The exact location of said easements to be permanent upon the installation of said lines, pipes and equipment.

16. WARRANTY AGAINST STRUCTURAL DEFECTS.

Each of the Condominium Units of said Condominium is hereby guaranteed against structural defects for one (1) year from the date each is conveyed, and all of the Common Areas are so warranted for one (1) year. The one (1) year referred to in the preceding sentence shall begin as to each of the Common Areas whenever the same has been completed or if later:

A. Additional Land: As to any Common Area within any additional land or portion thereof, at the time the first Unit therein is conveyed.

B. Portion of the Condominium: As to any Common Area within any other portion of the Condominium at the time the first Unit therein is conveyed.

For purposes of this Paragraph, no Condominium Unit shall be deemed conveyed unless it is conveyed to a bona fide purchaser. For the purposes of this Paragraph, structural defects shall be those defects in components constituting any Unit or Common Area which reduces the stability or safety of the structure below accepted standards or restricts the normal intended use of all or part of the structure and which require repair, renovation, restoration, or replacement. Nothing in this Paragraph shall be construed to make the Declarant responsible for any items of maintenance relative to the Units or Common Areas.

17. WAIVER.

No provision of this Declaration or of any rule or regulation of the Association shall be deemed to have been waived unless it is in writing and signed by the Declarant or the Board of Directors as the case requires. No such waiver in a particular instance shall be deemed a waiver in any other instance.

Failure of the Declarant or the Board of Directors to perform any duty exercise any right or do any act required, permitted or authorized by this Declaration in any instance, shall not be deemed a waiver thereof in any other instance.

Acceptance of a fee or assessment shall not be deemed a waiver of any violation by the Unit Owner making such payment, even if the existence of said violation is known to the Declarant or the Association.

18. AMENDMENT.

This Declaration may be amended only in accordance with the procedures specified in the Condominium Act and the express provisions of this Declaration and Bylaws. Subject to those exceptions expressly set forth in Sections 19, 33 and 34 of the Condominium Act, any such amendment shall require the consent of Unit Owners entitled to cast two-thirds (2/3) of the total votes of all Unit Owners. All amendments to the Declaration and Bylaws made by the Association shall be prepared, executed, certified, and recorded on behalf of the Association by one or more officers of the Board of Directors. Any such amendment shall be effective upon its recordation in the Grafton County Registry of Deeds.

19. SEVERABILITY.

The provisions hereof shall be deemed independent and severable, and the invalidity or partial invalidity or unenforceability of any one provision or portion hereof shall not affect the validity or enforceability of any other provision hereof.

20. RESALE BY PURCHASER.

Pursuant to the Condominium Act, in the event of any resale of a Condominium Unit or any interest therein by any purchaser other than the Declarant, the prospective Unit Owner shall have the right to obtain from the Association, prior to the contract date of the disposition, the following:

A. Unpaid Assessments: Recordable statements setting forth the amount of unpaid assessment currently levied against that Unit, and otherwise pursuant to RSA 356-B:46,

VIII and RSA 356-B:47.

B. Capital or Major Maintenance Expenditure: A statement of any capital expenditure or major maintenance expenditures anticipated by the Association within the current or succeeding two (2) fiscal years.

C. Reserve: A statement of the status and amount of any reserve for the major maintenance or replacement fund and any portion of such fund earmarked for any specified project by the Board of Directors.

D. Income Statement and Balance Sheet: A copy of the income statement and balance sheet of the Association for the last fiscal year for which such statement is available.

E. Pending Suits or Judgments: A statement of the status of any pending suits or judgments in which the Association is a party defendant.

F. Insurance Coverage: A statement setting forth what insurance coverage is provided for all Unit Owners by the Association and what additional insurance coverage would normally be secured by each individual Unit Owner.

G. Prior Improvements or Alterations: A statement that any improvements or alterations made to the Unit \ by the prior Unit Owner are not known to be in violation of the Condominium Instruments.

H. Condominium Instruments: A copy of the Declaration, the Bylaws, and any rules or regulations of the Association.

I. Fees and Special Assessments: A statement of the amount of monthly and annual fees, and any special assessments made within the last three (3) years.

The president of the Association shall furnish statements prescribed above upon written request of any prospective Unit Owner within ten (10) days of the receipt of such request.

21. CONSENT OF FIRST MORTGAGEE.

Notwithstanding any other provision of this Declaration, the Bylaws or any administrative rules and regulations, so long as a first mortgagee is the holder of a construction mortgage lien conveyed to it by Declarant covering one or more of the Condominium Units, and unless the first mortgagee shall have given its approval, the Unit Owners Association and Board of Directors shall not be entitled to:

A. by act or omission, seek to abandon or terminate the Condominium;

B. partition or subdivide any Unit;

C. by act or omission, seek to abandon, partition, subdivide, encumber, sell or transfer the Common Area;

D. use hazard insurance proceeds for losses to the property {whether to Units or to Common Area) for other than the repair, replacement or reconstruction of such

losses, except as provided by statute in case of substantial loss to the Units and/or Common Area; or

E. amend, modify or otherwise change any rights or obligations under this Declaration, the Bylaws or any administrative rules and regulations.

22. MORTGAGING OF UNITS.

A. There shall be no restrictions on the mortgaging of any Unit; however, only the holders of Eligible Mortgages shall be entitled to approve certain actions of the Association and receive certain notices as provided below. All mortgages and the obligations secured thereby shall be deemed to provide, generally, that the mortgage and the rights and obligations of the parties thereto shall be subject to the terms and conditions of the Act, this Declaration, the Bylaws and any rules and regulations of the Association.

B. When an Eligible Mortgage is delivered to the Eligible Mortgagee, the Unit Owner shall simultaneously provide the Board of Directors with the name and address of the Eligible Mortgagee and the amount of the mortgage. The Secretary shall maintain a register of Eligible Mortgages, showing the name and address of the Eligible Mortgagee and the amount secured thereby and, upon receipt of the required information, instruct the Association's insurer to add the name of the holder of any Eligible Mortgage to the mortgagee provision of the Association's policy of property insurance and to deliver a certificate thereof to such Eligible Mortgagee.

C. **Provisions Pertaining to Eligible Mortgagees**.

(i) Unless Eligible Mortgagees of Units having, in the aggregate, at least seventy-five percent (75%) of the total Percentage Interest(s) appurtenant to Units encumbered by Eligible Mortgages have given their prior written approval, neither the Declarant nor the Association shall be entitled to:

(a) by act or omission, abandon or terminate the Condominium;

(b) by act or omission, abandon, partition, subdivide, encumber, sell or transfer the Common Area (except that the granting of easements for public utilities or for other public purposes consistent with the intended use of the Common Area by the Unit Owners shall not be deemed a transfer within the meaning of this clause;

(c) change the Percentage Interests or obligations of any Unit for purposes of levying assessments or charges or allocating distributions of hazard insurance proceeds or condemnation awards or determining the pro rata share of ownership of each Unit in the Common Area;

(d) use hazard insurance proceeds for losses to the Condominium (whether to Units or to Common Area) for other than the repair, replacement or reconstruction of such property; or

(e) amend, modify or otherwise change any rights or obligations of Unit Owners or Eligible Mortgagees under this Declaration or the Bylaws.

(ii) Upon the specific written request of an Eligible Mortgagee or its agent to the Board of Directors, such Eligible Mortgagee shall be entitled to receive some or all of the following as designated in the request:

(a) Copies of budget, notices of assessment, or any other notices or statements provided under this Declaration by the Association to the Owner of the Unit covered by the Eligible Mortgage;

(b) Any audited or unaudited financial statements of the Association which are distributed to the Unit Owners;

(c) Copies of notices of meetings of the Association and the right to be represented at any such meetings by a designated representative;

(d) Notice of the decision of the Unit Owners to make any material amendment to this Declaration;

(e) Notice of substantial damage to or destruction of the Unit subject to such Eligible Mortgage (in excess of $20,000) or any part of the Common Area (in excess of $50,000);

(f) Notice of the commencement of any condemnation or eminent domain proceedings with respect to any part of the Condominium;

(g) Notice of any default by the Owner of the Unit which is subject to such Eligible Mortgage, where such default is not cured by the Unit Owner within sixty (60) days after the giving of notice by the Association to the Unit Owner of the existence of the default;

(h) The right to examine the books and records of the Association at any reasonable time;

(i) Notice of any lapse, cancellation or material modification of any insurance policy or fidelity bond maintained by the Association; or

(j) Notice of any action for which the consent of the Eligible Mortgagee is required pursuant to this Declaration.

The request of an Eligible Mortgagee or its agent shall specify which of the above items it desires to receive and shall indicate the address to which any notice or documents shall be sent by the Board of Directors to inquire into the validity of any request made by an Eligible Mortgagee hereunder.

Failure to comply with the requirements set forth above shall in no way invalidate the otherwise proper actions of the Association and the Board of Directors.

(iii) This Section may not be amended without the prior written approval of Eligible Mortgagees of Units having, in the aggregate, at least seventy-five percent (75%) of the total Percentage Interests appurtenant to Units encumbered by Eligible Mortgages.

(iv) Any Eligible Mortgagee which does not deliver or mail to the Board a negative response within sixty (60) days of a written request by the Board for approval of any addition or amendment pursuant to this Section shall be deemed to have consented to the addition or change set forth in such request. An affidavit by the Board making reference to this subsection, when recorded at the Grafton County Registry of Deeds, shall be conclusive as to the facts therein set forth as to all parties.

(v) This Declaration and the Bylaws contain provisions concerning various rights, priorities, remedies and interests of Eligible Mortgagees of Units. Such provisions are to be construed as covenants for the protection of such Mortgagees on which they may rely in making loans secured by mortgages on the Units.

D. **Liability for Dues and Charges.** Any mortgagee who obtains title to a Unit pursuant to the remedies provided in a mortgage on a Unit or by foreclosure of such mortgage will not be liable for such Unit's unpaid dues and/or charges which accrue prior to the acquisition of title to such Unit by the holder of a mortgage on such Unit, except to the extent otherwise provided for in the Act and except to the extent that such mortgagee is liable as a Unit Owner for the payment of such unpaid assessment and/or charge that is assessed against such mortgagee as a result of all Unit Owners being reassessed for the aggregate amount of such deficiency.

E. **Insurance and Condemnation Rights**. No provision of this Declaration, the Bylaws or any administrative rules and regulations shall be construed to give a Unit Owner, or any other party, priority over any rights of a mortgagee of a Unit pursuant to its mortgage in the case of a distribution to such Unit Owner of insurance proceeds or condemnation awards for losses to or taking of such Unit and/or the Common Area or any portions thereof. The distribution of insurance proceeds to the Association, as trustee for the Owners and their mortgagees, pursuant to the Bylaws shall not be deemed to constitute a "distribution to Owners" within the meaning of this Section.

23. EASEMENT TO FACILITATE SALES AND EXPANSION.

The Declarant, for itself, and its duly authorized agents, representatives, and employees, hereby reserves the right to maintain sales offices and model units on the submitted land. The number, size, and location of such sales offices and model units shall be determined by the Declarant in its sole discretion and it shall be subject to change by the Declarant to suit its convenience in facilitating sales. The Declarant, further, reserves transferable easements over and

on the Common Area for its employees, other agents and independent contractors for the purposes of doing all things reasonably necessary and proper to expand the Condominium as provided in the within Declaration.

24. EFFECTIVE DATE.

This Declaration shall take effect upon recording.

IN WITNESS WHEREOF, this Declaration is made as of the ____ day of _____, 2023.

CHINBURG DEVELOPMENT, LLC

_____ By: _____

Witness Eric J. Chinburg, Manager
Duly Authorized

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM, ss. _____ __, 2023

BEFORE ME, the undersigned officer, personally appeared Eric J. Chinburg, as the Manager of Chinburg Development, LLC, a limited liability company, and acknowledged that he executed the foregoing instrument as such Manager, being authorized so to do, for the purposes therein.

_____
Justice of the Peace/Notary Public
Name:
My Commission Expires:

APPENDICES TO

DECLARATION OF EDEN POINT, A CONDOMINIUM

Appendix A Legal Description of Submitted Land

Appendix B Bylaws

APPENDIX A

LEGAL DESCRIPTION OF SUBMITTED LAND

Certain tract of land identified as situate in Portsmouth, County of Rockingham, State of New Hampshire, being shown as Tax Map 220 Lot 90 on a plan entitled, "Residential Development Chinburg Development 686 Maplewood Ave, Portsmouth, N.H.," dated _____ __, 2023 and revised through ____ ___, 2023, prepared by Ambit Engineering, Inc, recorded at the Rockingham County Registry of Deeds as Plan D-_____, and being more particularly bounded and described as follows:

[Beginning on the southerly side of Maplewood Avenue at the intersection of the Interstate Highway right-of-way, and thence running easterly by Maplewood Avenue, 50.6 feet to land now or formerly of Lillian M. Lincoln; thence turning and running by said Lincoln land southerly, 86.5 to a point, and easterly 86.5 feet to land now or formerly of Fieldgreen Realty, Inc.; thence turning and running by said Fieldgreen Realty, Inc. land, southerly 53 feet, more or less, to a point; southwesterly 108 feet, more or less, to a point; southerly 155 feet, more or less, to land now or formerly of Patsy and Catherine Moretti; thence turning and running westerly by said Moretti land, 310 feet, more or less, to said Interstate Highway right-of-way; thence turning and running in a generally northerly direction by said Interstate Highway right-of-way to Maplewood Avenue at the point of beginning.]

Meaning and intending to the premises conveyed to Chinburg Development, LLC by deed dated _____ ___, 2023 and recorded in the Rockingham County Registry of Deeds at Book _____, Page _____.

The above-described premises is submitted to the Condominium subject to and together with all easements, rights, restrictions, covenants, conditions and other matters of record, to the extent in force and applicable, including but not limited to, the following:

1. Easement to New Hampshire Gas and Electric Company, dated October 31, 1949, recorded in Rockingham County Registry of Deeds at Book 1146, Page 297.

2. Easement to Tyler B. Jackson and Meredith Jackson, dated September 30, 2016, recorded in Rockingham County Registry of Deeds at Book 5759, Page 1160.

3. All matters, notes and easement shown on Plans D-41654, D-38016, D-31278 and D-_____ recorded with Rockingham County Registry of Deeds.

4. Terms and provisions of the Declaration of the Eden Point, A Condominium.

APPENDIX B

BYLAWS
OF
EDEN POINT, A CONDOMINIUM

ARTICLE I

Miscellaneous

1. Application. The management and administration of Eden Point, A Condominium shall be regulated and governed by these Bylaws. All present and future Unit Owners of any interest in Eden Point A Condominium, and all visitors, tenants, occupants or persons who in any way use any of the facilities of Condominium shall hold such interest, visit, lease, occupy or use said facilities subject to these Bylaws.

The acceptance of a deed, execution of a lease or an act of occupancy or use which relates to any land, buildings or facilities in Eden Point, A Condominium shall constitute acceptance by the actor that these Bylaws, and the Declaration of which they are a part are effective and binding upon him, his heirs, successors and assigns.

2. Definitions. Capitalized terms not otherwise defined herein or in the Declaration shall have the meanings specified in Section 3 of the Condominium Act.

3. Membership. The membership of the Association shall consist of, and be limited to, Unit Owners of the Condominium. In the event a Unit is owned by more than one person, then the membership relating thereto shall be held in the same names and in the same manner as the Unit.

4. Severability. The invalidity of any portion or portions of these Bylaws shall not cause any other portions thereof, or of the Declaration of which it is a part, to be invalid or unenforceable.

5. Construction. These Bylaws shall be interpreted liberally so as to give effect to and to assist and to aid in the implementation of the overall plan for the management and government of Eden Point, A Condominium.

6. Amendment. These Bylaws may only be amended in accordance with Sections 18, 21 and 22 of the Declaration. All amendments to the Declaration and Bylaws made by the Association shall be prepared, executed, certified, and recorded on behalf of the Association by one or more officers of the Board of Directors.

7. Eminent Domain. In the event of proceedings of Eminent Domain or condemnation against any portion of the Common Area, the Association shall act on behalf of each Owner in such proceedings.

ARTICLE II
Board of Directors

1. Composition. Subject to Section 2 of this Article, the powers and duties of the Association shall vest in a Board of three (3) Directors, all of whom shall be members of the Association, spouses of members or, in the event of a corporate member, a director or officer of a member.

2. Declarant to Perform Functions. Until the Declarant has conveyed Units to which three-fourths (3/4) of the undivided interest in the Common Area appertains or until the second anniversary from the recording of the within Bylaws in the Rockingham County Registry of Deeds, whichever shall first occur, the rights, duties and functions of the Board of Directors and the Association shall, at Declarant's option, be exercised by the Declarant. The Declarant shall have the option at any prior time to relinquish to the Association responsibility of electing all members of the Board of Directors.

Provided however that, (a) not later than sixty (60) days after the first Unit has been conveyed by the Declarant, at least one (1) member of the Board shall be elected by such Unit Owner; and (b) not later than sixty (60) days after the second Unit has been conveyed by the Declarant, at least two (2) members of the Board shall be elected by such Owners of the first two (2) Units sold.

3. Election. At each annual meeting, subject to the provisions of Section 2 of this Article, the members shall elect a Board of Directors for the forthcoming year; provided, however, that the first Board of Directors elected hereunder may be elected at a special meeting duly called, said Board of Directors to serve until the first annual meeting held thereafter. At least thirty (30) days prior to any annual meeting, the Board of Directors shall elect a Nominating Committee of not fewer than three (3) members, and such Nominating Committee shall recommend to the annual meeting one (1) nominee for each position on the Board of Directors to be filled at that particular annual meeting. Nominations for the Board of Directors may also be made from the floor at the annual meeting.

4. Term. Members of the Board of Directors shall hold office for a term of three (3) years, except that at the first annual meeting at which the Board of Directors shall be elected, one shall be elected for a term of one (1) year, one shall be elected for a term of two (2) years, and one for a term of three (3) years. The members of the Board of Directors shall serve until their death, resignation, removal, or until their successors are elected; provided that if any member ceases to qualify for membership in the Association, his membership on the Board of Directors shall therefore terminate.

5. Resignation and Removal. Any member of the Board of Directors may resign at any time by giving written notice to the President and any member may be removed from membership on the Board of Directors by a two-thirds (2/3) vote of the members' total voting power at any annual or special meeting of the Association, notice of the time and subject of which has been mailed to all members as prescribed by law prior to the date thereof. Whenever there shall occur a vacancy on the Board of Directors due to death, resignation, removal or any other cause, the remaining Directors shall elect a successor Director to serve until the next annual meeting of the Association, at which time the said vacancy shall be filled for the unexpired term.

6. Voting.

(a) Each Director shall have one vote, and the Board of Directors shall transact its business by majority vote, provided a quorum is present. A quorum shall consist of a majority of the Directors.

(b) The Board of Directors may act in the absence of a quorum, if all the members not present assent in writing to the action taken by signing a copy of the minutes of the meeting which is then filed with the Secretary.

(c) The Board of Directors may act without a meeting if all the members thereof sign a record of the action taken, which is then filed with the Secretary.

(d) Each Director attending a meeting shall be required to sign the minutes of that meeting.

7. Meetings.

(a) Regular Meetings. Regular meetings of the Board may be held at such time and place (or by telephonic, video, or other conferencing process, subject to the requirements of Section 37-c of the Act), as shall be determined from time to time, by a majority of the Directors, but at least one (1) such meeting shall be held during each three-month period after the annual meeting of the Association. Notice of regular meetings of the Board shall be given to each Director and, unless a schedule of all such meetings is provided, to each Unit Owner, personally or by mail, telephone, or telegraph, at least ten (10) business days prior to the day named for such meeting, except that no notice shall be required for a regular meeting held immediately after, and at the same place as, the annual meeting of the Association. Such notice shall state the time, date, place, and agenda of the meeting.

(b) Special Meeting. Special meetings of the Board may be called by the President on ten (10) business days' notice to each Director and, unless such meeting is called to deal with an emergency, to each Unit Owner. Such notice shall be given personally or by mail, telephone, or telegraph, and such notice shall state the time, place, and purpose of the meeting. Special meetings of the Board shall be called by the President or Secretary in like manner and on like notice on the written request of at least two (2) Directors. Notwithstanding any provision herein to the contrary, special meetings of the Board may be held by telephonic, video, or other conferencing process, subject to the requirements of Section 37-c of the Act.

(c) Waiver of Notice. Before or within ten (10) days after any meeting of the Board, any Director may, in writing, waive notice of such meeting and such waiver shall be deemed equivalent to the giving of such notice. Attendance by a Director at any meeting of the Board shall be a waiver of notice by him of the time and place thereof. If all the Directors are present at any meeting of the Board, no notice shall be required and any business may be transacted at such meeting.

8. Powers. The Board of Directors shall have the powers and duties specifically conferred upon it by the Condominium Act, the Declaration and these Bylaws, and all other powers and duties necessary for the administration of the affairs of the Condominium and the Association

(except as otherwise provided by law, the Declaration or these Bylaws), including, without limiting the generality of the foregoing, the power and duty to obtain the following items for the benefit of the Condominium the cost of all of which items shall be Common Expenses:

(a) The services of a manager or managing agent, to the extent deemed advisable by the Board of Directors, to whom the Board of Directors may delegate any of its duties not requiring a vote of the Board of Directors, as well as the services of any other professional or other personnel as the Board of Directors may determine to be necessary or proper to the operation of the Condominium and the Association whether such personnel are employed directly by the Board of Directors or are furnished by the manager or managing agent.

(b) The payment of a prorata share of the maintenance and repair of the Condominium, which is shared by and among those parties and entities using same for access.

(c) The maintenance and repair of utility lines, pipes conduits, drainage pipes and stormwater facilities, and utilities located within the Common Area or providing service to the Condominium, together with the costs of maintaining or utilizing any easements serving the Condominium.

(d) The maintenance of the Common Area and facilities, including snow removal, landscaping, conservation practices, trash removal, and any other services to benefit the Common Area deemed necessary or desirable by the Board of Directors.

(e) Maintenance of the outside surfaces of all structures necessary to keep each one in good appearance and repair and to insure that the outside of no structure will be maintained or repaired in a fashion that will impair or destroy the integrity or unity of the structure.

(f) Legal and accounting services necessary or proper for the operation of the Condominium and the Association or the enforcement of the provisions of the Declaration and Bylaws, the Condominium Act, and the rules and regulations promulgated as herein provided.

(g) Such equipment, tools, appliances, and other personal property for the Common Area as the Board of Directors shall determine are necessary and proper.

(h) Fire and liability insurance as required by the Declaration and Condominium Act, and such other insurance as required by law or as the Board of Directors may determine.

(i) Any other materials, supplies, labor, services, maintenance, repairs, structural alterations, insurance, taxes or assessments which the Board of Directors is required to secure or pay for pursuant to the terms of the Declaration or the Bylaws, or which in its opinion shall be necessary or proper for the operation of the Common Area or for the enforcement of the Declaration, provided that if any such materials, supplies, labor, services, maintenance, repairs, structural alterations, insurance, taxes or assessments are provided for a particular Unit the cost thereof shall be specially assessed to the Unit Owner of such Unit.

(j) Any emergency repairs to any Unit to prevent damage to other parts of the Condominium subject to Paragraph 7 of the Declaration.

(k) Maintenance and repair of any Unit, if such maintenance or repair is reasonably necessary in the discretion of the Board of Directors to protect the Common Area or preserve the appearance and value of the Condominium and the Owner of said Unit has failed or refused to perform said maintenance or repair within thirty (30) days after written notice of the necessity of said maintenance or repair is delivered by the Board of Directors to said Unit Owner, provided that the Board of Directors shall levy a special assessment against the Unit Owner for the costs of said maintenance or repair.

(I) A fidelity bond, naming any representative of the Condominium who handles or is responsible for the funds of the Condominium or the Association and such other persons as may be designated by the Board of Directors, as principals, and the Unit Owners as obligees.

The Board of Directors shall have no power to expend in excess of Two Thousand Dollars ($2,000.00), for the acquisition of personal property, or for capital improvements without a majority vote of the voting power of the members present and voting at a duly held meeting of the members of the Association, unless such expenditures are for repairs of an emergency nature, in which case a quorum of the Board of Directors, so voting, shall have such authority.

The Board of Directors shall have the exclusive right to contract for all such goods, services and insurance referred to in this Section, which right may be delegated by it.

The Board of Directors may make, amend and repeal rules and regulations governing the use of the Units and Common Area, as may be necessary, and there shall be no violation of the rules by any person.

9. Indemnification. The officers of the Association and the members of the Board of Directors shall not be liable to any Unit Owner for any act unless such act constitutes willful misconduct, gross negligence or is in willful contravention of the Declaration. The members shall indemnify and hold harmless each officer of the Association and each member of the Board of Directors against liability for any contracts made on behalf of the Association unless fraudulent, made in bad faith or contrary to the provisions of the Declaration.

No officer or Director shall be exempt from or entitled to indemnification against liability for his own tortious conduct against the person or property of another.

10. Records. The Board of Directors shall keep detailed, accurate records in chronological order, of the receipts and expenditures by the Association specifying and itemizing the maintenance and repair expenses and any other expenses incurred. Said records shall be available for examination by the members, or their agents, at convenient times.

11. Audit. Any member may at any reasonable time at his own expense cause an audit or inspection to be made of the books and records of the manager or Board of Directors. The Board of Directors at its discretion and as a Common Expense may obtain an audit of all books and records pertaining to the Association and furnish copies thereof to the members.

ARTICLE III
Officers

1. Election - Term. The officers shall consist of a President, Vice-President/ Treasurer and Secretary. They shall be members of the Association and shall be annually elected by, and may be removed and replaced by, the Board of Directors. The Board of Directors may in its discretion require that officers be subject to fidelity bond coverage in favor of the Association. During the period that the Declarant holds all of the positions of members of the Board of Directors, Declarant, in its discretion, may hold any office of the Association.

2. President. The President shall act as chief executive officer of the Association and shall preside at all meetings of the Association. He shall be a member of the Board of Directors.

3. Vice-President/Treasurer. The Vice-President/Treasurer shall assist the President in the discharge of his duties and shall preside at all meetings in the absence of the President and shall have charge of all funds of the Association and perform such other duties as directed by the Board of Directors. He shall be a member of the Board of Directors. He shall keep and maintain books and records relating to the financial affairs of the Association and shall submit to the Board of Directors a proposed budget for the operation of the Association during the forthcoming year in time for the Board of Directors to review same prior to the annual meeting. He shall, upon appropriate notice, make his books and records available for inspection by any member of the Association. The Board of Directors may delegate such of the Vice-President/Treasurer's powers and duties to the manager or managing agent as it deems advisable.

4. Secretary. The Secretary shall keep a record of all meetings of and actions by the Board of Directors and the Association. He shall keep all records, documents and other papers of the Board of Directors and the Association, and he shall be charged with the responsibility of notifying members of meetings as prescribed by law. He shall be a member of the Board of Directors.

5. Posting of Names of Officers. Commencing immediately following the first annual meeting, the Board of Directors shall be responsible for the posting of the names of the current members of the Board of Directors and of the other officers of the Association, from time to time, at a prominent location in the Common Area.

ARTICLE IV
Meetings

1. Annual Meeting. Subject to the provisions of the Declaration, the Condominium Act and these Bylaws, the annual meeting of the Association shall take place in June or at such other time (which shall not be more than thirty (30) days before or after said date) as the Board of Directors shall direct. In addition to the election of a member or members of the Board of Directors any other business to be transacted at the annual meeting, the Board of Directors shall present a statement of Common Expenses and assessments for the preceding fiscal year, itemizing receipts and disbursements, and a proposed budget of the estimated Common Expenses and assessments for the then current fiscal year.

2. Special Meetings. Special meetings of the Association may be called at any time by the President, a majority of the Board of Directors, or those members who have one-third (1/3) of the total voting power of the membership.

3. Notice. Written notice of all meetings as prescribed by the Condominium Act stating the date, time, and place of such meeting as well as the matters to be considered thereat, shall be sent at least twenty-one (21) days in advance of any annual or regularly scheduled meeting, and at least seven (7) days in advance of any other meeting, to each Unit Owner of record. Such notice shall be sent by first class United States mail to all Unit Owners of record at the address of their respective Units and to such other address as any of them may have designated to such officer. The secretary or other duly authorized officer of the Association, who shall also be a member of the Board of Directors of the Association shall prepare an affidavit which shall be accompanied by a list of the addresses of all Unit Owners currently on file with the Association and shall attest that notice of the Association meeting was mailed to all Unit Owners on that list by first class mail. A copy of the affidavit and mailing list shall be available at the noticed meeting for inspection by all Owners then in attendance and shall be retained with the minutes of that meeting. The affidavit required in this section shall be available for inspection by the Unit Owners for at least three (3) years after the date of the subject meeting.

4. Quorum. A quorum shall be deemed present throughout any meeting of the Association until adjourned if persons entitled to cast fifty (50%) of the votes are present at the beginning of the meeting. The Association shall conduct its business by majority vote. In the absence of a quorum, a majority of the persons present may vote to adjourn the meeting to a time not more than thirty (30) and not less than ten (10) days after the date of the original meeting. The President shall cause notices of said adjourned meeting and the reason therefor to be mailed to all members at least seven (7) days before the date thereof. Notices are waived by those who are present in person or by proxy and by anyone who expressly waives notice.

5. Voting.

(a) Each member of the Association shall be entitled to cast a number of votes equal to the ownership percentage attributable to that Unit as set forth in the Declaration.

(b) Votes may not be split in the event a membership is owned by more than one person, but such persons shall agree as to how their vote(s) is to be cast. Ownership shall be determined on the basis of the record title as shown in the Grafton County Registry of Deeds.

(c) The Declarant shall be entitled to vote with respect to each Unit owned by it.

(d) A member may assign his vote(s) to a first mortgagee of record.

(e) An Owner may vote by filing a written proxy, signed by the Owner, with the Board of Directors.

6. Conduct of Meeting. The President, or its designate, shall preside over all meetings of the Association and the Secretary shall keep the minutes of the meeting and record in a record book all resolutions adopted by the meeting as well as a record of all transactions occurring thereat. Such minutes shall be available to the Unit Owners within sixty (60) days of the meeting, or fifteen (15) days after the date such minutes are approved by the Board, whichever occurs first. Roberts Rules of Order shall govern the conduct of all meetings of the Association when not in conflict with the Declaration, these Bylaws, or the Condominium Act. At any meeting, the Unit Owners shall be given a reasonable opportunity to comment regarding any matter affecting the Association.

7. Place of Meetings. Meetings of the Association shall be held at the principal office of the Condominium or at such other suitable place as may be designated by the Board and stated in the notice of the meeting. Notwithstanding the foregoing, meetings of the Association may be held by telephonic, video or other conferencing process subject to the requirements of Section 37-c of the Act.

ARTICLE V
Expenses

1. Accounting Period. The fiscal year of the Association shall be the twelve (12) month period ending December 31.

2. Liability for Expenses. All expenses of the Association shall be shared by the members in the proportion that each member's number of votes bears to the total votes of all members.

3. Assessments & Budget. Each year the Board of Directors shall adopt a budget for the Condominium containing an estimate of the total amount which it considers necessary to pay the cost of maintenance, management, operation, repair, and replacement of the Common Area and any parts of the Units as to which it is the responsibility of the Board to maintain, repair, and replace, and the cost of wages, materials, insurance premiums, services, supplies, and other expenses that may be declared to be Common Expenses by the Condominium Act, the Declaration, these Bylaws, or a resolution of the Association, and which will be required during the ensuing fiscal year for the administration, operation, maintenance, and repair of the Condominium and the rendering to the Owners of all related services. Such budget shall also include such reasonable reserves as the Board considers necessary to provide a general operating reserve, and reserves for contingencies and replacements. Not later than thirty (30) days after adoption of a proposed budget, the Board of Directors shall provide to all the Owners a summary of the budget, including any reserves, and a statement of the basis on which any reserves are calculated and funded. Simultaneously, the Board of Directors shall set a date not less than ten (10) days or more than sixty (60) days after providing the summary for a meeting of the Owners to consider ratification of the budget. Unless at that meeting greater than two-thirds (2/3rds) of all Owners reject the budget, the budget is ratified, whether or not a quorum is present. If a proposed budget is rejected, the budget last ratified by the Owners continues until the Owners ratify a subsequent budget. The budget shall constitute the basis for determining each Owner's contribution for the Common Expenses of the Condominium.

The total amount of the estimated funds required for the operation of the Condominium set forth in the budget for the fiscal year adopted by the Board shall be assessed against each Owner in proportion to the number of votes in the Association appertaining to his Unit, and shall be a lien against each Owner's Unit in accordance with the Condominium Act. Declarant will be liable for the amount of any assessments against completed Units owned by Declarant. If said sum estimated proved inadequate for any reason, including non-payment of any Owner's Assessment, the Board of Directors may at any time levy a further assessment which shall be assessed to the Owners according to the aforementioned percentages, unless otherwise provided herein. Each Owner shall be obligated to pay the assessments made against him to the Board of Directors, and such payments shall be due in equal quarterly installments on or before the first day of each quarter during the twelve (12) month period commencing with the beginning of the fiscal year or in such other reasonable manner as the Board of Directors shall designate. In the event a Condominium Unit is rendered uninhabitable by fire or other casualty, the Board of Directors, in its discretion, may abate all or a portion of the Common Expenses assessed against the Owner of said Condominium Unit while it remains uninhabitable.

During the period of Declarant's control, the Common Expense budget shall be determined by the Declarant.

Failure of the Board of Directors to determine assessments for a twelve (12) month period in the manner prescribed above shall not be interpreted as a waiver or amendment of these provisions, nor a release of a member of his obligation to pay assessments, but the assessments for the preceding twelve (12) months shall continue, and installments shall be due thereon, until a new assessment is fixed. No member may exempt himself from the liability for assessment by waiving or abandoning his use or enjoyment of the Common Area or facilities or of his Unit.

This Section shall not be amended except upon a vote of seventy-five percent (75%) of the total voting power of the members.

4. Special Assessments. The Board of Directors may at any time propose a special assessment pursuant to Section 3 of this Article, or to cover the cost of maintenance and repairs to Units or Common Areas pursuant to the Declaration and these Bylaws, or for any lawful purpose. Except as provided below in the case of an emergency, the Board of Directors shall follow the procedure for ratification of the annual budget to obtain ratification of the proposed assessment. If the Board of Directors determines by a 2/3 vote that a special assessment is necessary to respond to an emergency, then (a) the special assessment becomes effective immediately in accordance with the terms of the vote; (b) notice of the special assessment shall be provided promptly to all unit owners; and (c) the Board of Directors may spend the funds paid on account of the special assessment only for the purposes described in the vote. For the purposes of this section, an "emergency" means a situation that requires immediate action by the Board of Directors where a danger to the structural integrity of the Common Area is discovered or to the life and safety of Owners or as required by a court order or to respond to any legal or administrative proceeding brought against the Association that could not have been reasonably foreseen by the Board in preparing and distributing the annual operating budget. This Section shall not be amended except upon a vote of seventy-five percent (75%) of the total votes of the members.

5. Effect of Non-Payment. Each Owner shall pay all Common Expenses assessed against him, and all other expenses for which he is liable under the terms of the Declaration, Bylaws and the Condominium Act, and all expenses so incurred and sums so assessed, but unpaid, shall be secured by a lien as provided in Section 46 of the Condominium Act, and the Declaration.

6. Surplus. Any surplus of Common Expense payments by Owners over the actual expenses (including the reserve for contingencies and replacements) during a fiscal year of the Association, shall be paid into the Common Expense fund for the following fiscal year as part of the reserve for replacements and contingencies for said following fiscal year.

ARTICLE VI
Compliance and Default

Each Owner shall be governed by, and shall comply with, all of the terms of the Declaration, these Bylaws and any rules and regulations adopted by the Board of Directors, and any amendments of the same. A default by an Owner shall entitle the Association acting through the Board of Directors or the Manager, to the following relief:

(a) Legal Proceedings: Failure to comply with any of the terms of the Declaration, these Bylaws, and any rules and regulations adopted by the Board of Directors, shall be grounds for relief which may include, without limiting the same, an action to recover the sums due for money damages, injunctive relief, foreclosure of the lien for payment of all assessments, any other relief provided for in these Bylaws, or any combination thereof, and any other relief afforded by a court of competent jurisdiction, all of which relief may be sought by the Association, the Board of Directors, the manager, or, if appropriate, by an aggrieved Owner.

(b) Additional Liability: Each Owner shall be liable for the expenses of all maintenance, repair or replacement rendered necessary by his acts, neglect or carelessness, or the act, neglect or carelessness of any member of his family or his tenants, guests, employees, agents or invitees, but only to the extent that such expense is not covered by the proceeds of insurance carried by the Board of Directors. Such liability shall include any increase in fire insurance rates occasioned by use, misuse, occupancy or abandonment of any Unit or its appurtenances. Nothing contained herein, however, shall be construed as modifying any waiver by an insurance company of its rights of subrogation.

(c) Costs and Attorneys' Fees: In any proceeding arising out of any alleged default by an Owner, the prevailing party shall be entitled to recover the costs of the proceeding, and such reasonable attorneys' fees as may be determined by the court.

(d) No Waiver of Rights: The failure of the Association, the Board of Directors, or of an Owner to enforce any right, provision, covenant or condition which may be granted by the Declaration, these Bylaws, or any rules and regulations adopted by the Board of Directors shall not constitute a waiver of the right of the Association, the Board of Directors or any Owner to enforce such right, provision, covenant or condition in the future. All rights, remedies, and privileges granted to the Association, Board of Directors or any

Owner pursuant to any term, provision, covenant or condition of the Declaration, these Bylaws and any rules and regulations adopted by the Board of Directors shall be deemed to be cumulative and the exercise of any one or more thereof shall not be deemed to constitute an election of remedies, nor shall it preclude the party exercising the same from exercising such privileges as may be granted to such party by the Declaration, these Bylaws or any Rules or Regulation adopted by the Board of Directors, at law or in equity.

(e) Interest: In the event of a default by any Owner against him which continues for a period in excess of thirty (30) days, such Owner shall be obligated to pay interest at eighteen percent (18%) per annum, from the due date thereof. In addition, the Board of Directors shall have the authority to impose a late payment charge on such defaulting Owner in an amount not to exceed Fifteen Dollars ($15.00) or Six Cents ($.06) per dollar on any amount so overdue, whichever is greater.

(f) Abatement and Enjoinment of Violations by Owners: The violation of any rule or regulation adopted by the Board of Directors, or the breach of any Bylaw contained herein, or the breach of any provision of the Declaration shall give the Board of Directors or the Manager the right in addition to any other rights set forth in these Bylaws:

(i) To enter the Unit in which, or as to which, such violation or breach exists and summarily to abate and remove, at the expense of the defaulting Owner, any structure, thing or condition that may exist therein contrary to the intent and meaning of the provisions hereof, and the Board of Directors or Manager shall not thereby be deemed guilty in any manner of trespass;

(ii) To enjoin, abate or remedy by appropriate legal proceedings, either at law or in equity, the continuance of any such breach; or

(iii) To suspend or limit the right of the Owner committing the violation to use any part of the Common Area during the continuance of such violation.

ARTICLE VII
Resale by Purchaser

Pursuant to the Condominium Act, in the event of any resale of a Unit or any interest therein by any purchaser other than the Declarant, the prospective Unit Owner shall have the right to obtain from the Association the information set forth in Section 20 of the Declaration.

IN WITNESS WHEREOF, these Bylaws is made as of the ____ day of _____ 2023.

CHINBURG DEVELOPMENT, LLC

_____ By: _____

Witness Eric J. Chinburg, Manager
Duly Authorized

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM, ss. _____ __, 2023

BEFORE ME, the undersigned officer, personally appeared Eric J. Chinburg, as the Manager of Chinburg Development, LLC, a limited liability company, and acknowledged that he executed the foregoing instrument as such Manager, being authorized so to do, for the purposes therein.

_____
Justice of the Peace/Notary Public
Name:
My Commission Expires:

Portsmouth Site Plan Application
686 Maplewood Avenue Proposed
Site Development

SITE PHOTOGRAPHS

Site Photograph #1 February 2023

Site Photograph #2 February 2023

Site Photograph #3 February 2023

Site Photograph #4 February 2023

Site Photograph #5 February 2023

Site Photograph #6 February 2023

Site Photograph #7 February 2023

Site Photograph #8 February 2023

NORTH NAD83(2011)

GRID NHSPC

GRAPHIC SCALE

60 40 20 0 50 100 150 200 250 FEET

20 10 0 10 20 30 40 50 60 70 METERS

AMBIT ENGINEERING, INC.
Civil Engineers & Land Surveyors
200 Griffin Road – Unit 3
Portsmouth, N.H. 03801-7114
Tel (603) 430-9282
Fax (603) 436-2315

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 220 AS LOT 90.

2) OWNERS OF RECORD:
ISLAMIC SOCIETY OF THE SEACOAST AREA
42N DOVER POINT ROAD
DOVER, NH 03820
5806/2816

APPLICANT:
CHINBURG DEVELOPMENT, LLC
3 PENSTOCK WAY
NEWMARKET, NH 03857

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR APPROVAL	10/23/23

REVISIONS

SCALE: 1"=60' OCTOBER 2023

PHOTO EXHIBIT

FB 394 PG 1

2360.01

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

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

2 October, 2023

Trip Generation
Proposed Residential Development
686 Maplewood Avenue
Portsmouth, NH

On behalf of Chinburg Development, LLC, we hereby submit this Trip Generation in support of the applicant's filing with the Portsmouth Technical Advisory Committee for Site Plan approval. The Applicant / Developer seeks to construct 6 residential dwelling units at the site, which is currently vacant, but was used as a staging area for recent construction on Maplewood Avenue. The site has been vacant for some time but previously approvals were granted to construct a Mosque, which had a proposed peak trip generation of 76 trips in the PM peak hour.

The base trip generation for the proposed 6-unit development is based on a review of the Institute of Transportation Engineers (ITE), *Trip Generation* Manual, 11th Edition. The land use code (LUC) that best resembles the proposed use is LUC 270 – Planned Unit Development. Using that description, the proposed use the site generates the following peak hour trips:

Weekday Morning Peak Hour: 4 Trips (23% entering; 77% exiting)
Weekday Evening Peak Hour: 5 Trips (64% entering; 36% exiting)

The applicant believes that the added trip generation from the site is not excessive, will not impact the adjacent street networks, and represents a significant decrease from the previous approval.

Please feel free to call if you have any questions or comments about this application.

Sincerely,

John R. Chagnon, PE
Ambit Engineering, Inc. – Haley Ward

Land Use: 270
Residential Planned Unit Development

Description

A residential planned unit development (PUD), for the purposes of trip generation, is defined as containing any combination of residential land uses. These developments might also contain supporting services such as limited retail and recreational facilities.

Additional Data

Caution—The description of a PUD is general in nature because these developments vary by density and type of dwelling. It is therefore recommended that when information on the number and type of dwellings is known, trip generation should be calculated on the basis of the known type of dwellings rather than on the basis of Land Use 270. Data for this land use are provided as general information and would be applicable only when the number of dwellings is known.

The sites were surveyed in the 1980s, and the 1990s, and the 2000s in Minnesota, South Dakota, and Virginia.

Source Numbers

111, 119, 165, 169, 357

Residential Planned Unit Development
(270)

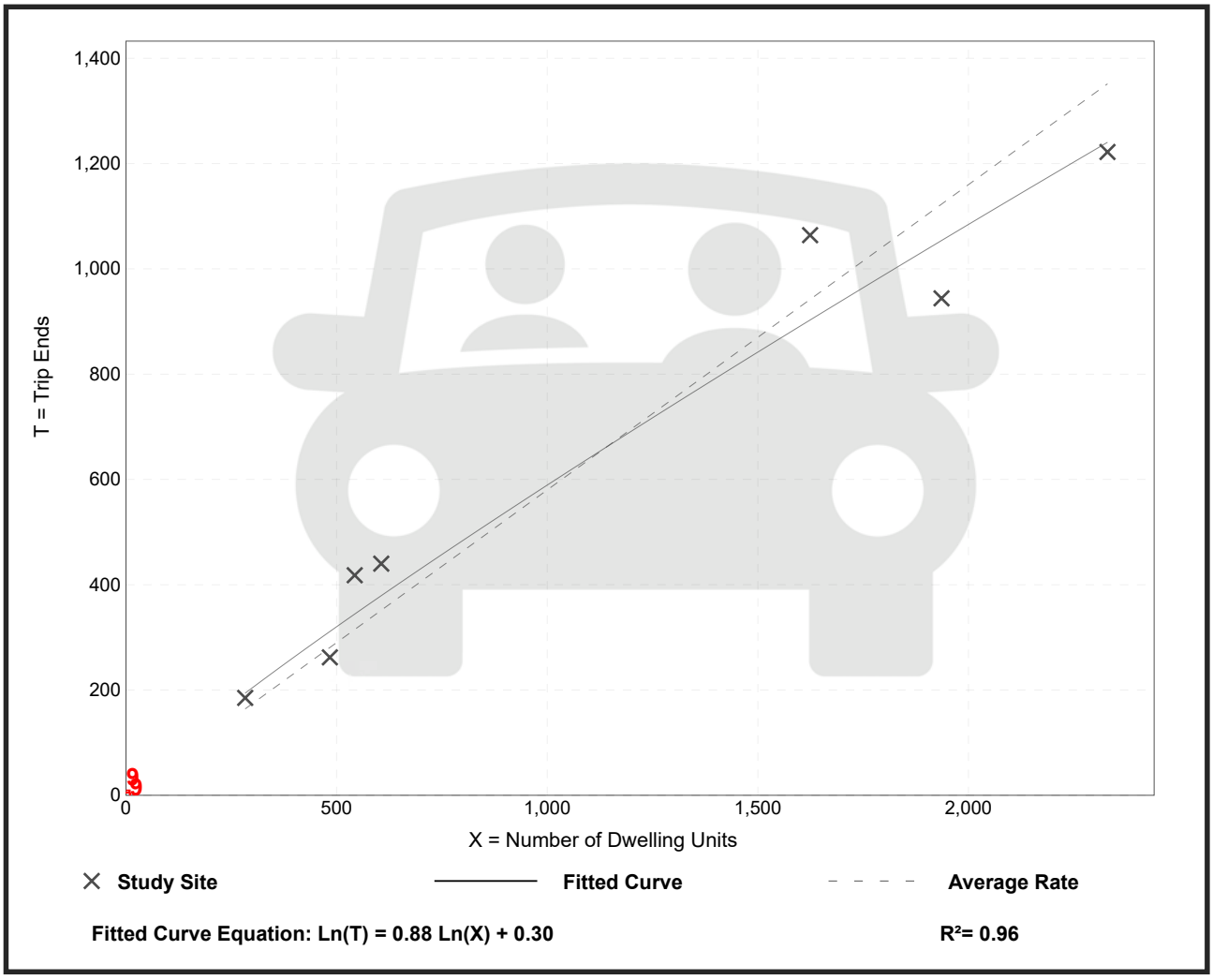
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
AM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 7
Avg. Num. of Dwelling Units: 1115
Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.58	0.49 - 0.77	0.10

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

Residential Planned Unit Development
(270)

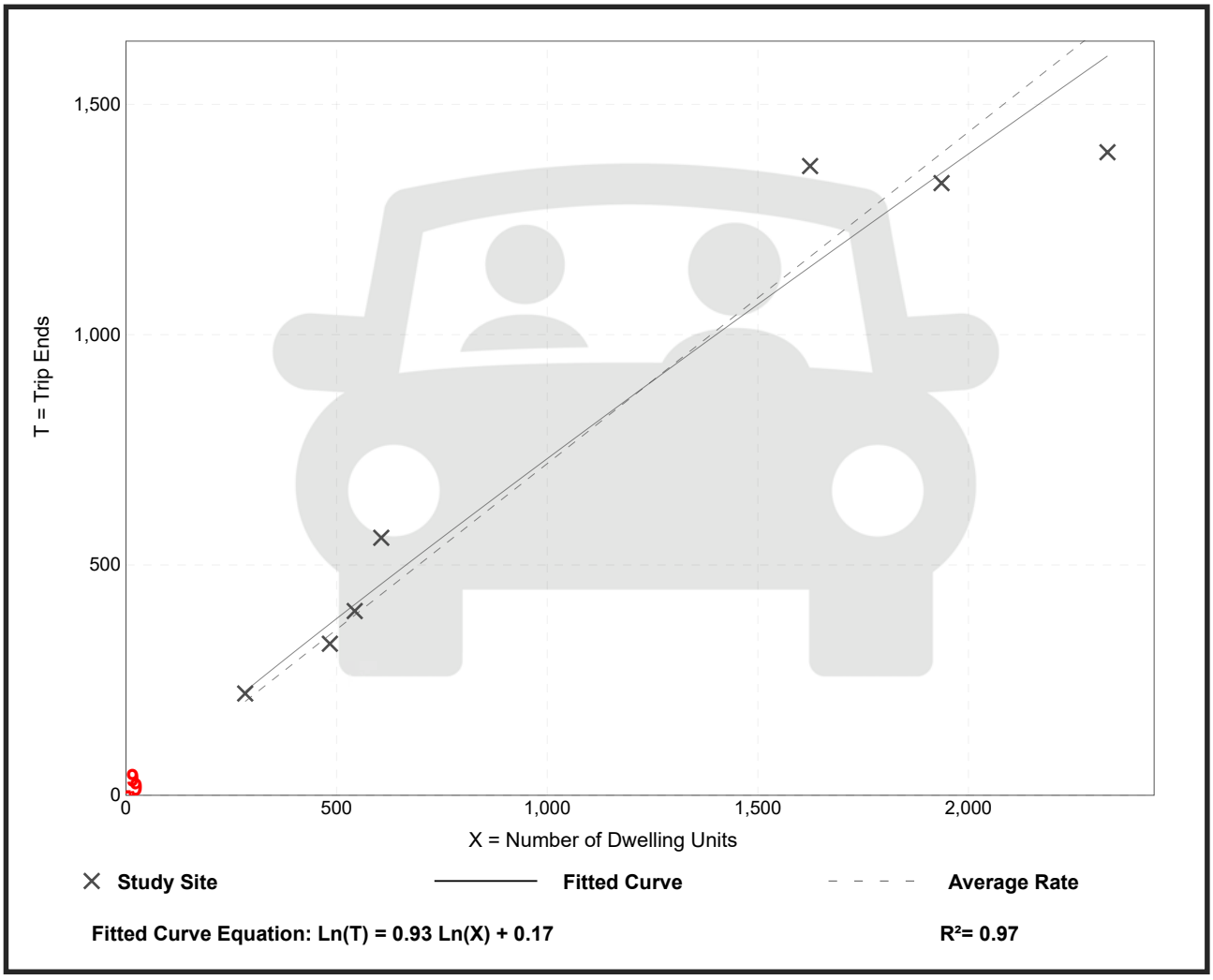
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
PM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 7
Avg. Num. of Dwelling Units: 1115
Directional Distribution: 64% entering, 36% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.72	0.60 - 0.92	0.11

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

DRAINAGE ANALYSIS

RESIDENTIAL DEVELOPMENT

686 MAPLEWOOD AVENUE
PORTSMOUTH, NH

PREPARED FOR
CHINBURG DEVELOPMENT, LLC

20 DECEMBER 2023
REVISED SUBMISSION

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3
Portsmouth, NH 03801
Phone: 603.430.9282; Fax: 603.436.2315
E-mail: jchagnon@haleyward.com
(Ambit Job Number 5010220.2360.01)

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EXECUTIVE SUMMARY

This drainage analysis examines the pre-development (existing) and post-development (proposed) stormwater drainage patterns for the proposed residences and associated utilities and parking at 686 Maplewood Avenue in Portsmouth, NH. The site is shown on the City of Portsmouth Assessor's Tax Map 220 as Lot 90. The project proposes to develop six single-family residences. The total size of the lot is 62,776 square-feet (1.441 acres). The size of the total drainage area is 103,447 square-feet (2.375 acres).

The subdivision will provide for the construction of six single-family residences, with associated landscaping, utilities, and driveways. The new buildings will be serviced by public water and sewer. The development has the potential to increase stormwater runoff to adjacent properties, and therefore must be designed in a manner to prevent that occurrence. This will be done primarily by capturing stormwater runoff and routing it through appropriate stormwater facilities, designed to ensure that there will be no increase in peak runoff from the site as a result of this project.

The hydrologic modeling utilized for this analysis uses the "Extreme Precipitation" values for rainfall from The Northeast Regional Climate Center (Cornell University), with a 15% increase to comply with local ordinance.

INTRODUCTION / PROJECT DESCRIPTION

This drainage report is designed to assist the owner, planning board, contractor, regulatory reviewer, and others in understanding the impact of the proposed development project on local surface water runoff and quality. The project site is shown on the City of Portsmouth, NH Assessor's Tax Map 220 as Lot 90. Bounding the site to north is a residence and Maplewood Avenue. Bounding the site to east is a business. Bounding the site to south is businesses and a residence. Bounding the site to the west is Interstate 95. The property is situated in the Single Residence B (SRB) District. A vicinity map is included in the Appendix to this report.

This report includes information about the existing site necessary to analyze stormwater runoff and to design any required mitigation. The report includes maps of pre-development and post-development watersheds, subcatchment areas and calculations of runoff. The report will provide a narrative of the stormwater runoff and describe numerically and graphically the surface water runoff patterns for this site. Proposed stormwater management and treatment structures and methods will also be described, as well as erosion and sediment control practices. To fully understand the proposed site development the reader should also review a complete site plan set in addition to this report.

METHODOLOGY

"Extreme Precipitation" values from The Northeast Regional Climate Center (Cornell University) have been used for modeling purposes. These values have been used in this analysis, with a 15% addition to comply with local ordinances.

This report uses the US Soil Conservation Service (SCS) Method for estimating stormwater runoff. The SCS method is published in The National Engineering Handbook (NEH), Section 4 "Hydrology" and includes the Technical Release No. 20, (TR-20) "Computer Program for Project Formulation Hydrology", and Technical Release No. 55 (TR-55) "Urban Hydrology for Small Watersheds" methods. This report uses the HydroCAD version 10.20 program, written by HydroCAD Software Solutions LLC, Chocorua, N.H., to apply these methods for

the calculation of runoff and for pond modeling. Rainfall data and runoff curve numbers are taken from "The Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire."

Time of Concentration (Tc) is calculated by entering measured flow path data such as flow path type, length, slope and surface characteristics into the HydroCAD program. For the purposes of this report, a minimum time of concentration of 5 minutes is used.

The storm events used for the calculations in this report are the 2-year, 10-year, 25-year, and 50-year (24-hour) storms. Watershed basin boundaries have been delineated using topographic maps prepared by Haley Ward and field observations to confirm.

SITE SPECIFIC INFORMATION

Based on the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), Soil Survey of Rockingham County, New Hampshire the site is made up of one soil type:

Soil Symbol	Soil Name and Slopes
799	Urban land – Canton complex, 3 to 15 percent slopes

Urban land-Canton complex is well drained with a stated depth to restrictive feature and water table of greater than inches. While the soil report provides a Hydrologic Soil Group (HSG) of A, due to test pit information from the site and the prominent presence of ledge, the site was assumed as HSG D.

The physical characteristics of the site consist of flat to moderate (3-15%) grades that generally slope downward from the south to the north of the lot. Elevations on the site range from 35 to 61 feet above sea level. The existing site is undeveloped but was used as a construction staging facility. Vegetation around the developed portion of the lot consists of established grasses, shrubs, and trees. There is an existing gravel driveway/parking area.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) number 33015C0259F (effective date January 29, 2021), the project site is

located in Zone X and is determined to be outside of the 0.2% annual chance floodplain. A copy of the FIRM map is included in the Appendix.

PRE-DEVELOPMENT DRAINAGE

In the pre-development condition, the site has been analyzed as three watershed basins (ES1, ES2 and ES3) based on localized topography and discharge location. Subcatchment ES1 contains the west half of the lot and drains north to the City drainage network on Maplewood Avenue (Drainage Point 1 or DP1). Subcatchment ES2 contains the east half of the lot and drains to the northeast to DP1. Subcatchment ES3 contains the southern edge of the lot and drains to the southeast to Drainage Point 2 (DP2).

Table 1: Pre-Development Watershed Basin Summary

Watershed Basin ID	Basin Area (SF)	Tc (MIN)	CN	10-Year Runoff (CFS)	50-Year Runoff (CFS)	To Design Point
ES1	65,154	5.0	82	9.48	16.10	DP1
ES2	28,750	5.0	86	4.56	7.46	DP1
ES3	9,546	5.0	80	1.32	2.29	DP2

POST-DEVELOPMENT DRAINAGE

The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. In the post-development condition, the site has been analyzed as four subcatchment basins, (PS1, PS2, PS2a, and PS3). Subcatchments PS1, PS2, and PS3 approximate the locations of ES1, ES2, and ES3 respectively and drain to the same discharge points. Subcatchment PS2a is located in the center of the property and is detained and treated through an infiltrative R-Tank system before being discharged to DP1.

Table 2: Post-Development Watershed Basin Summary

Watershed Basin ID	Basin Area (SF)	Tc (MIN)	CN	10-Year Runoff (CFS)	50-Year Runoff (CFS)	Design Point
PS1	57,906	5.0	83	8.62	14.50	DP1
PS2	13,835	5.0	86	2.19	3.59	DP1
PS2a	22,677	5.0	93	4.02	6.25	DP1
PS3	9,029	5.0	80	1.25	2.17	DP2

The overall impervious coverage of the subcatchment areas analyzed in this report **increases** from 24,061 s.f. (23.3%) in the pre-development condition to 34,270 s.f. (33.1%) in the post-development condition. The project proposes the construction of an R-Tank detention system with infiltrative capacity on site, providing treatment and reducing the peak flow discharge from the site. Additionally, rooftops from the proposed development will be fitted with drip aprons to provide additional treatment and flow reduction.
Table 3 shows a summary of the comparison between pre-developed flows and post-developed flows for each design point. The comparison shows the reduced flows as a result of the R-Tank system.

Table 3: Pre-Development to Post-Development Comparison

	Q2 (CFS)		Q10 (CFS)		Q50 (CFS)		
Design Point	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Description**
DP1	7.82	7.73	14.04	13.64	23.56	23.48	Maplewood Ave.
DP2	0.70	0.66	1.32	1.25	2.29	2.17	South of Lot

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

OFFSITE INFRASTRUCTURE CAPACITY

Drainage Point 1 is the City drainage network on Maplewood Avenue. A subsurface R-Tank structure with infiltrative capacity will be implemented to mitigate any increases in peak flow from the site, therefore no impact to city infrastructure is anticipated.

EROSION AND SEDIMENT CONTROL PRACTICES

The erosion potential for this site as it exists is moderate due to the presence of soils that are highly erodible. During construction, the major potential for erosion is wind and stormwater runoff. The contractor will be required to inspect and maintain all necessary erosion control measures, as well as installing any additional measures as required. All erosion control practices shall conform to "The Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire." Some examples of erosion and sediment control measures to be utilized for this project during construction may include:

- Silt Soxx (or approved alternative) located at the toe of disturbed slopes
- Stabilized construction entrance at access point to the site
- Temporary mulching and seeding for disturbed areas
- Spraying water over disturbed areas to minimize wind erosion

After construction, permanent stabilization will be accomplished by permanent seeding, landscaping, and surfacing the access drives and parking areas with asphalt paving and other areas with impervious walkways.

CONCLUSION

The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. With the design of the R-Tank units, the post-development runoff rates are reduced to below the pre-development runoff rates. Erosion and sediment control practices will be implemented for both the temporary condition during construction and for final stabilization after construction. Therefore, there are no negative impacts to downstream receptors or adjacent properties anticipated as a result of this project.

REFERENCES

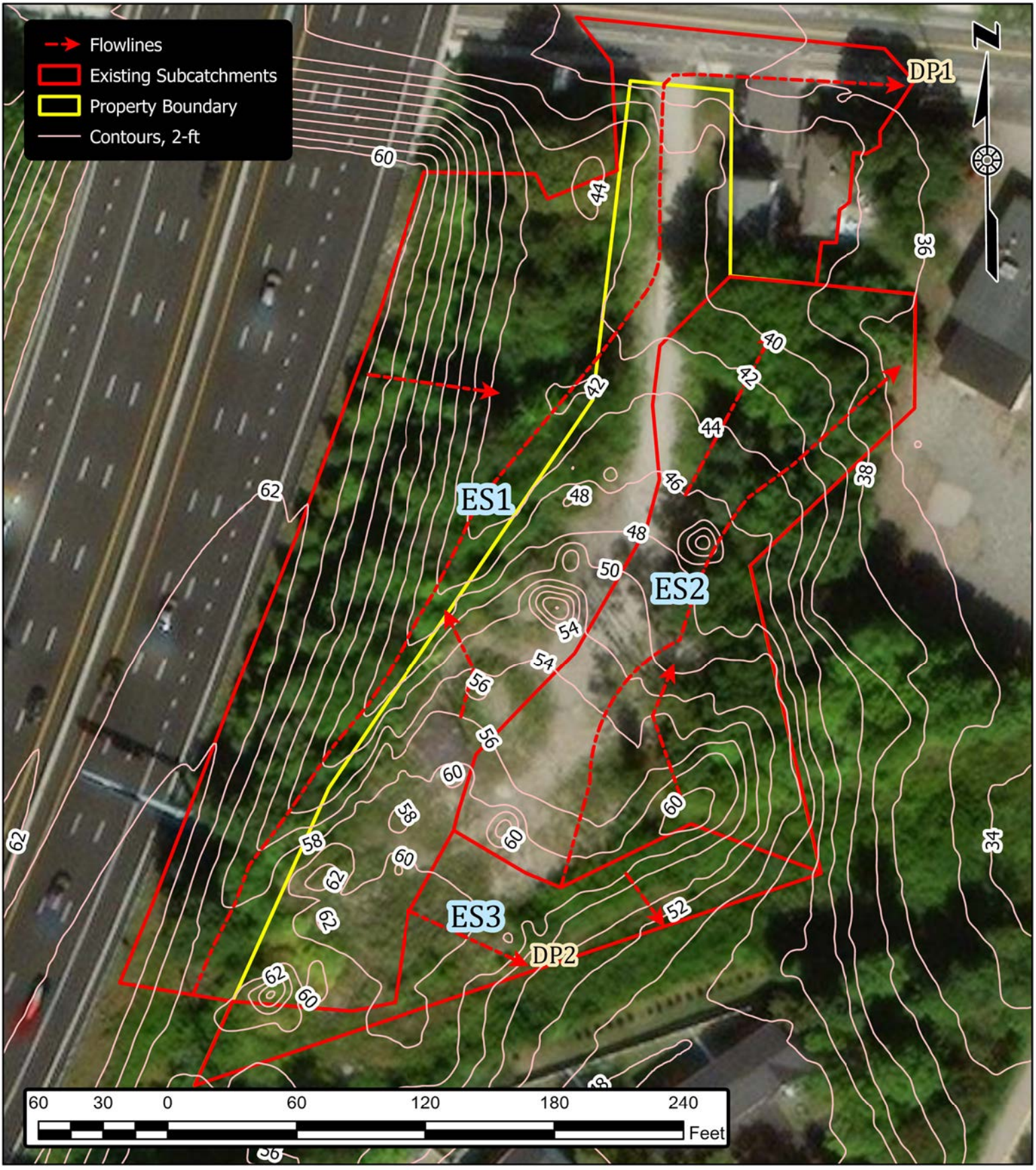
1. Comprehensive Environmental Inc. and New Hampshire Department of Environmental Services. *New Hampshire Stormwater Manual (Volumes 1, 2 and 3)*, December 2008 (Revision 1.0).
2. Minnick, E.L. and H.T. Marshall. *Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire*, prepared by Rockingham County Conservation District, prepared for New Hampshire Department of Environmental Services, in cooperation with USDA Soil Conservation Service, August 1992.
3. HydroCAD Software Solution, LLC. *HydroCAD Stormwater Modeling System Version 10.20* copyright 2013.

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

Existing Subcatchments

SITE REDEVELOPMENT
686 MAPLEWOOD AVENUE
PORTSMOUTH, NH

JOB NUMBER: 2360
SCALE: 1" = 60'
SUBMITTED: 10-17-2023

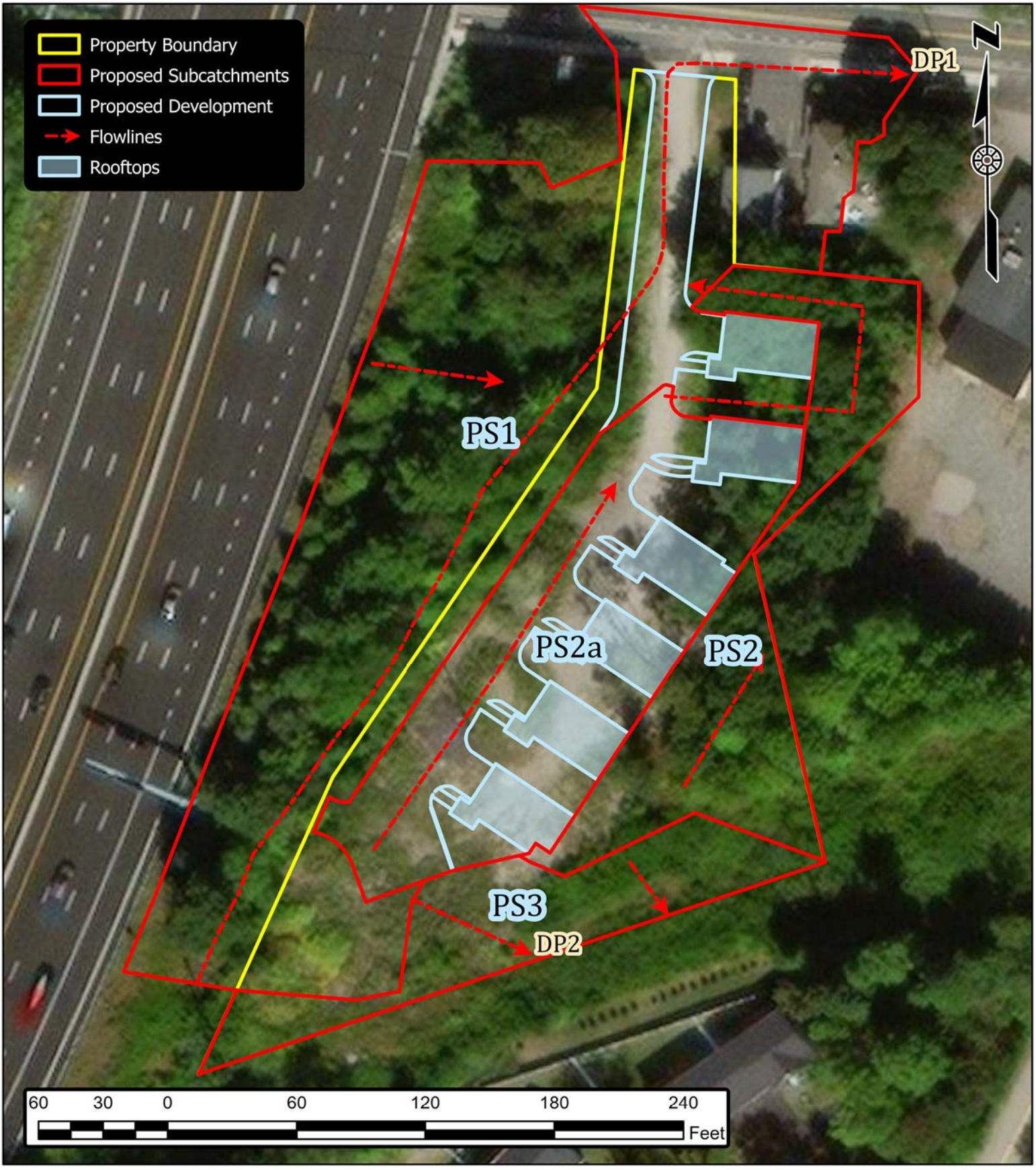


AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

Proposed Subcatchments

SITE REDEVELOPMENT
686 MAPLEWOOD AVENUE
PORTSMOUTH, NH

JOB NUMBER: 5010220.2360
SCALE: 1" = 60'
SUBMITTED: 12-20-2023



APPENDIX A

VICINITY (TAX) MAP,

AERIAL ORTHOGRAPHY,

USGS MAP

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

Tax Map

SITE REDEVELOPMENT
686 MAPLEWOOD AVENUE
PORTSMOUTH, NH

JOB NUMBER: 2360
SCALE: 1" = 100'
SUBMITTED: 02-14-2023

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

Aerial Orthography

SITE REDEVELOPMENT
686 MAPLEWOOD AVENUE
PORTSMOUTH, NH

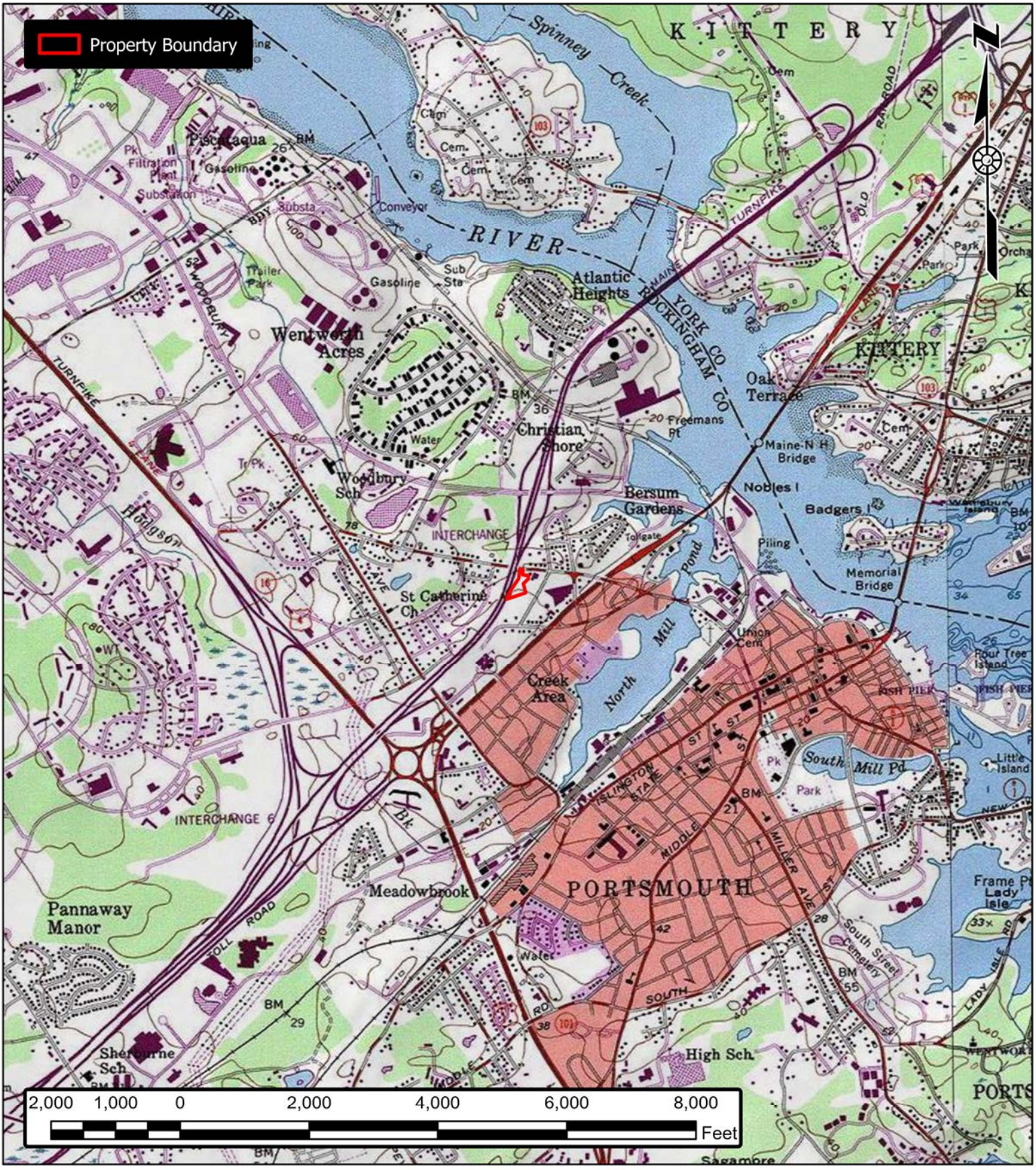
JOB NUMBER: 2360
SCALE: 1" = 60'
SUBMITTED: 02-14-2023

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

USGS Map

SITE REDEVELOPMENT
686 MAPLEWOOD AVENUE
PORTSMOUTH, NH

JOB NUMBER: 2360
SCALE: 1" = 2,000'
SUBMITTED: 02-21-2023



APPENDIX B

TABLES, CHARTS, ETC.

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point	
Smoothing	Yes
State	New Hampshire
Location	New Hampshire, United States
Latitude	43.080 degrees North
Longitude	70.774 degrees West
Elevation	10 feet
Date/Time	Thu Feb 16 2023 11:52:25 GMT-0500 (Eastern Standard Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.04	**1yr**	0.70	0.98	1.21	1.56	2.03	2.66	2.92	**1yr**	2.35	2.80	3.21	3.94	4.54	**1yr**
2yr	0.32	0.50	0.62	0.81	1.02	1.30	**2yr**	0.88	1.18	1.52	1.94	2.49	3.20	3.56	**2yr**	2.84	3.43	3.93	4.67	5.32	**2yr**
5yr	0.37	0.58	0.73	0.97	1.25	1.60	**5yr**	1.08	1.46	1.88	2.43	3.13	4.06	4.57	**5yr**	3.59	4.39	5.03	5.92	6.69	**5yr**
10yr	0.41	0.65	0.82	1.11	1.45	1.89	**10yr**	1.25	1.72	2.23	2.89	3.74	4.86	5.52	**10yr**	4.30	5.31	6.07	7.09	7.96	**10yr**
25yr	0.48	0.76	0.96	1.33	1.77	2.33	**25yr**	1.53	2.14	2.77	3.62	4.73	6.16	7.09	**25yr**	5.45	6.81	7.78	9.00	10.03	**25yr**
50yr	0.53	0.86	1.10	1.53	2.06	2.75	**50yr**	1.78	2.52	3.28	4.31	5.65	7.38	8.57	**50yr**	6.53	8.24	9.40	10.79	11.95	**50yr**
100yr	0.59	0.96	1.24	1.76	2.41	3.24	**100yr**	2.08	2.97	3.89	5.14	6.75	8.83	10.36	**100yr**	7.82	9.96	11.35	12.93	14.25	**100yr**
200yr	0.67	1.09	1.42	2.03	2.81	3.82	**200yr**	2.43	3.50	4.60	6.11	8.06	10.59	12.52	**200yr**	9.37	12.04	13.71	15.50	16.99	**200yr**
500yr	0.79	1.31	1.70	2.47	3.46	4.74	**500yr**	2.98	4.36	5.74	7.68	10.19	13.45	16.11	**500yr**	11.90	15.49	17.60	19.72	21.45	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.73	0.88	**1yr**	0.63	0.86	0.92	1.32	1.68	2.22	2.49	**1yr**	1.97	2.39	2.86	3.17	3.87	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.37	1.82	2.34	3.05	3.45	**2yr**	2.70	3.32	3.82	4.54	5.07	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.40	**5yr**	1.01	1.37	1.61	2.12	2.73	3.78	4.18	**5yr**	3.35	4.02	4.71	5.52	6.23	**5yr**
10yr	0.38	0.59	0.73	1.02	1.32	1.60	**10yr**	1.14	1.56	1.81	2.39	3.06	4.36	4.85	**10yr**	3.86	4.67	5.43	6.40	7.18	**10yr**
25yr	0.44	0.67	0.83	1.18	1.56	1.90	**25yr**	1.35	1.86	2.10	2.76	3.54	4.69	5.88	**25yr**	4.15	5.65	6.63	7.77	8.66	**25yr**
50yr	0.48	0.73	0.91	1.31	1.76	2.17	**50yr**	1.52	2.12	2.35	3.08	3.94	5.30	6.79	**50yr**	4.69	6.53	7.70	9.02	9.99	**50yr**
100yr	0.53	0.81	1.01	1.46	2.01	2.47	**100yr**	1.73	2.41	2.63	3.42	4.36	5.94	7.83	**100yr**	5.26	7.53	8.94	10.47	11.53	**100yr**
200yr	0.59	0.89	1.13	1.63	2.27	2.81	**200yr**	1.96	2.75	2.93	3.80	4.81	6.65	9.04	**200yr**	5.89	8.69	10.38	12.18	13.33	**200yr**
500yr	0.68	1.02	1.31	1.90	2.71	3.36	**500yr**	2.33	3.29	3.41	4.34	5.48	7.73	10.91	**500yr**	6.84	10.50	12.64	14.89	16.13	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	**1yr**	0.77	1.06	1.26	1.74	2.21	2.98	3.15	**1yr**	2.64	3.03	3.58	4.37	5.04	**1yr**
2yr	0.34	0.52	0.64	0.86	1.07	1.27	**2yr**	0.92	1.24	1.48	1.96	2.51	3.42	3.70	**2yr**	3.03	3.55	4.08	4.83	5.63	**2yr**
5yr	0.40	0.62	0.76	1.05	1.33	1.62	**5yr**	1.15	1.58	1.88	2.53	3.25	4.33	4.95	**5yr**	3.83	4.76	5.37	6.36	7.14	**5yr**
10yr	0.47	0.72	0.89	1.24	1.61	1.97	**10yr**	1.39	1.93	2.28	3.10	3.95	5.33	6.19	**10yr**	4.72	5.95	6.80	7.82	8.73	**10yr**
25yr	0.57	0.87	1.09	1.55	2.04	2.56	**25yr**	1.76	2.50	2.95	4.06	5.14	7.79	8.32	**25yr**	6.90	8.00	9.12	10.32	11.39	**25yr**
50yr	0.67	1.02	1.27	1.82	2.45	3.12	**50yr**	2.11	3.05	3.59	4.99	6.30	9.76	10.43	**50yr**	8.64	10.03	11.41	12.70	13.94	**50yr**
100yr	0.79	1.19	1.49	2.15	2.95	3.79	**100yr**	2.54	3.71	4.36	6.14	7.73	12.22	13.08	**100yr**	10.81	12.57	14.26	15.66	17.06	**100yr**
200yr	0.92	1.38	1.75	2.53	3.53	4.63	**200yr**	3.05	4.52	5.32	7.56	9.49	15.34	16.41	**200yr**	13.57	15.78	17.86	19.30	20.88	**200yr**
500yr	1.14	1.69	2.18	3.17	4.50	6.00	**500yr**	3.89	5.87	6.91	9.99	12.48	20.74	22.15	**500yr**	18.35	21.30	24.04	25.45	27.30	**500yr**

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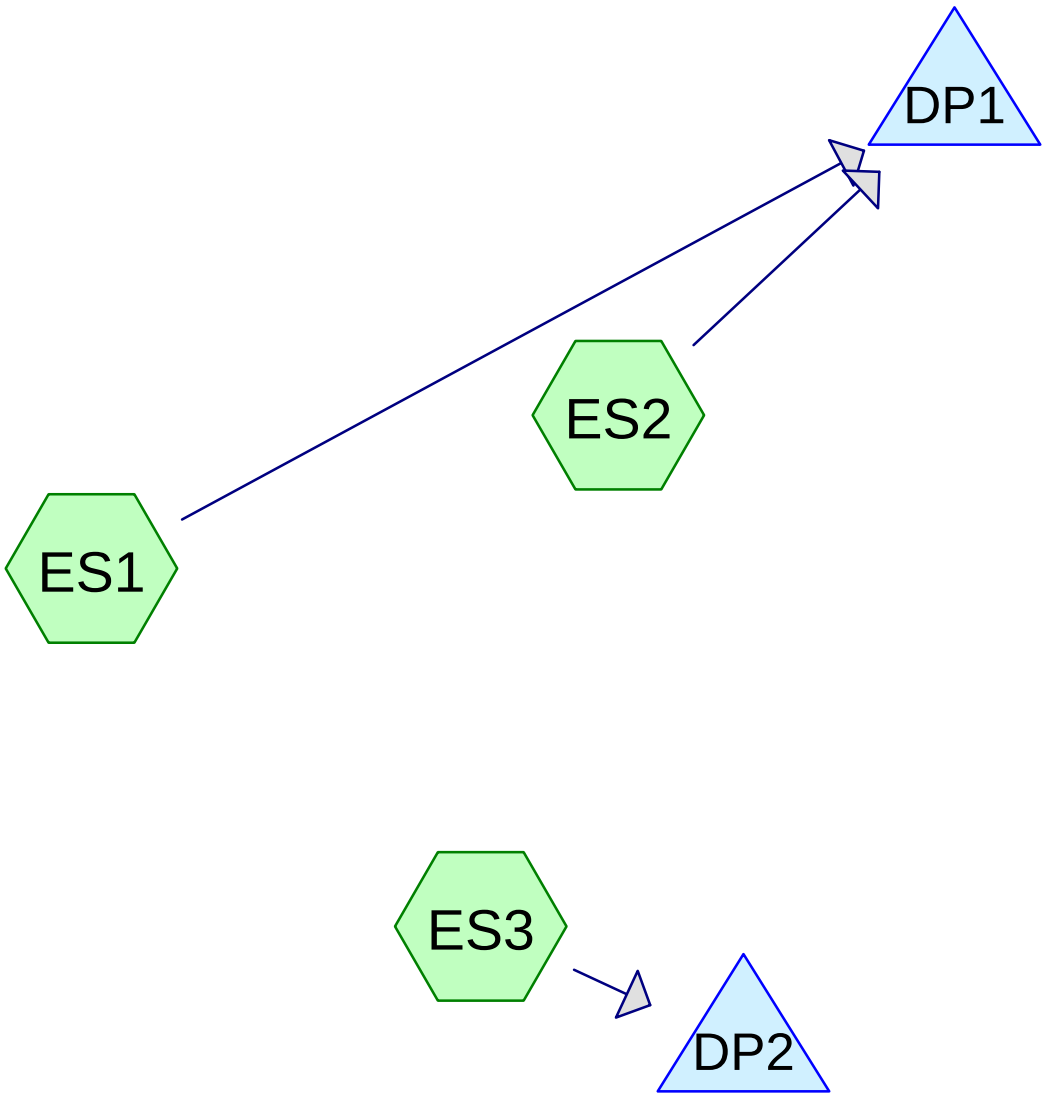
APPENDIX C

HYDROCAD DRAINAGE

ANALYSIS CALCULATIONS



Subcat Reach Pond Link

Routing Diagram for Existing Subcatchments Type D David T 2023-10-23

Prepared by Haley Ward, Printed 12/20/2023

Project Notes

Defined 5 rainfall events from extreme_precip IDF
Defined 5 rainfall events from extreme_precip_tables_output IDF

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type II 24-hr		Default	24.00	1	3.68	2
2	10-yr	Type II 24-hr		Default	24.00	1	5.59	2
3	25-yr	Type II 24-hr		Default	24.00	1	7.08	2
4	50-yr	Type II 24-hr		Default	24.00	1	8.49	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
50,413	80	>75% Grass cover, Good, HSG D (ES1, ES2, ES3)
12,980	96	Gravel surface, HSG D (ES1, ES2, ES3)
9,314	98	Paved parking, HSG D (ES1, ES2, ES3)
1,767	98	Roofs, HSG D (ES1)
28,976	77	Woods, Good, HSG D (ES1, ES2)
103,450	**83**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
103,450	HSG D	ES1, ES2, ES3
0	Other	
103,450		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
0	0	0	50,413	0	50,413	>75% Grass cover, Good	
0	0	0	12,980	0	12,980	Gravel surface	
0	0	0	9,314	0	9,314	Paved parking	
0	0	0	1,767	0	1,767	Roofs	
0	0	0	28,976	0	28,976	Woods, Good	
0	**0**	**0**	**103,450**	**0**	**103,450**	**TOTAL AREA**	

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

Subcatchment ES1: Runoff Area=65,154 sf 11.95% Impervious Runoff Depth>1.78"
Flow Length=486' Slope=0.1604 '/' Tc=5.0 min CN=82 Runoff=5.18 cfs 9,682 cf

Subcatchment ES2: Runoff Area=28,750 sf 11.44% Impervious Runoff Depth>2.10"
Flow Length=283' Slope=0.1041 '/' Tc=5.0 min CN=86 Runoff=2.64 cfs 5,029 cf

Subcatchment ES3: Runoff Area=9,546 sf 0.04% Impervious Runoff Depth>1.64"
Flow Length=28' Slope=0.1868 '/' Tc=5.0 min CN=80 Runoff=0.70 cfs 1,302 cf

Pond DP1: Inflow=7.82 cfs 14,712 cf
Primary=7.82 cfs 14,712 cf

Pond DP2: Inflow=0.70 cfs 1,302 cf
Primary=0.70 cfs 1,302 cf

Total Runoff Area = 103,450 sf Runoff Volume = 16,014 cf Average Runoff Depth = 1.86"
89.29% Pervious = 92,369 sf 10.71% Impervious = 11,081 sf

Summary for Subcatchment ES1:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 5.18 cfs @ 11.96 hrs, Volume= 9,682 cf, Depth> 1.78"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.68"

Area (sf)	CN	Description
1,767	98	Roofs, HSG D
32,907	80	>75% Grass cover, Good, HSG D
19,850	77	Woods, Good, HSG D
6,020	98	Paved parking, HSG D
4,610	96	Gravel surface, HSG D
65,154	82	Weighted Average
57,367		88.05% Pervious Area
7,787		11.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	486	0.1604	1.94		**Lag/CN Method,**
4.2	486	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment ES2:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.64 cfs @ 11.96 hrs, Volume= 5,029 cf, Depth> 2.10"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.68"

Area (sf)	CN	Description
3,290	98	Paved parking, HSG D
8,147	80	>75% Grass cover, Good, HSG D
9,126	77	Woods, Good, HSG D
8,187	96	Gravel surface, HSG D
28,750	86	Weighted Average
25,460		88.56% Pervious Area
3,290		11.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	283	0.1041	1.61		**Lag/CN Method,**
2.9	283	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment ES3:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.70 cfs @ 11.96 hrs, Volume= 1,302 cf, Depth> 1.64"
Routed to Pond DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.68"

Area (sf)	CN	Description
4	98	Paved parking, HSG D
9,359	80	>75% Grass cover, Good, HSG D
183	96	Gravel surface, HSG D
9,546	80	Weighted Average
9,542		99.96% Pervious Area
4		0.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	28	0.1868	1.11		**Lag/CN Method,**
0.4	28	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond DP1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 93,904 sf, 11.80% Impervious, Inflow Depth > 1.88" for 2-yr event
Inflow = 7.82 cfs @ 11.96 hrs, Volume= 14,712 cf
Primary = 7.82 cfs @ 11.96 hrs, Volume= 14,712 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond DP2:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9,546 sf, 0.04% Impervious, Inflow Depth > 1.64" for 2-yr event
Inflow = 0.70 cfs @ 11.96 hrs, Volume= 1,302 cf
Primary = 0.70 cfs @ 11.96 hrs, Volume= 1,302 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

Subcatchment ES1: Runoff Area=65,154 sf 11.95% Impervious Runoff Depth>3.36"
Flow Length=486' Slope=0.1604 '/' Tc=5.0 min CN=82 Runoff=9.48 cfs 18,270 cf

Subcatchment ES2: Runoff Area=28,750 sf 11.44% Impervious Runoff Depth>3.76"
Flow Length=283' Slope=0.1041 '/' Tc=5.0 min CN=86 Runoff=4.56 cfs 9,019 cf

Subcatchment ES3: Runoff Area=9,546 sf 0.04% Impervious Runoff Depth>3.17"
Flow Length=28' Slope=0.1868 '/' Tc=5.0 min CN=80 Runoff=1.32 cfs 2,523 cf

Pond DP1: Inflow=14.04 cfs 27,289 cf
Primary=14.04 cfs 27,289 cf

Pond DP2: Inflow=1.32 cfs 2,523 cf
Primary=1.32 cfs 2,523 cf

Total Runoff Area = 103,450 sf Runoff Volume = 29,812 cf Average Runoff Depth = 3.46"
89.29% Pervious = 92,369 sf 10.71% Impervious = 11,081 sf

Summary for Subcatchment ES1:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 9.48 cfs @ 11.95 hrs, Volume= 18,270 cf, Depth> 3.36"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.59"

Area (sf)	CN	Description
1,767	98	Roofs, HSG D
32,907	80	>75% Grass cover, Good, HSG D
19,850	77	Woods, Good, HSG D
6,020	98	Paved parking, HSG D
4,610	96	Gravel surface, HSG D
65,154	82	Weighted Average
57,367		88.05% Pervious Area
7,787		11.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	486	0.1604	1.94		**Lag/CN Method,**
4.2	486	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment ES2:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 4.56 cfs @ 11.95 hrs, Volume= 9,019 cf, Depth> 3.76"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.59"

Area (sf)	CN	Description
3,290	98	Paved parking, HSG D
8,147	80	>75% Grass cover, Good, HSG D
9,126	77	Woods, Good, HSG D
8,187	96	Gravel surface, HSG D
28,750	86	Weighted Average
25,460		88.56% Pervious Area
3,290		11.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	283	0.1041	1.61		**Lag/CN Method,**
2.9	283	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment ES3:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.32 cfs @ 11.96 hrs, Volume= 2,523 cf, Depth> 3.17"
Routed to Pond DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.59"

Area (sf)	CN	Description
4	98	Paved parking, HSG D
9,359	80	>75% Grass cover, Good, HSG D
183	96	Gravel surface, HSG D
9,546	80	Weighted Average
9,542		99.96% Pervious Area
4		0.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	28	0.1868	1.11		**Lag/CN Method,**
0.4	28	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond DP1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 93,904 sf, 11.80% Impervious, Inflow Depth > 3.49" for 10-yr event
Inflow = 14.04 cfs @ 11.95 hrs, Volume= 27,289 cf
Primary = 14.04 cfs @ 11.95 hrs, Volume= 27,289 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond DP2:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9,546 sf, 0.04% Impervious, Inflow Depth > 3.17" for 10-yr event
Inflow = 1.32 cfs @ 11.96 hrs, Volume= 2,523 cf
Primary = 1.32 cfs @ 11.96 hrs, Volume= 2,523 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

Subcatchment ES1: Runoff Area=65,154 sf 11.95% Impervious Runoff Depth>4.67"
Flow Length=486' Slope=0.1604 '/' Tc=5.0 min CN=82 Runoff=12.88 cfs 25,348 cf

Subcatchment ES2: Runoff Area=28,750 sf 11.44% Impervious Runoff Depth>5.10"
Flow Length=283' Slope=0.1041 '/' Tc=5.0 min CN=86 Runoff=6.06 cfs 12,230 cf

Subcatchment ES3: Runoff Area=9,546 sf 0.04% Impervious Runoff Depth>4.45"
Flow Length=28' Slope=0.1868 '/' Tc=5.0 min CN=80 Runoff=1.82 cfs 3,541 cf

Pond DP1: Inflow=18.94 cfs 37,578 cf
Primary=18.94 cfs 37,578 cf

Pond DP2: Inflow=1.82 cfs 3,541 cf
Primary=1.82 cfs 3,541 cf

Total Runoff Area = 103,450 sf Runoff Volume = 41,119 cf Average Runoff Depth = 4.77"
89.29% Pervious = 92,369 sf 10.71% Impervious = 11,081 sf

Summary for Subcatchment ES1:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 12.88 cfs @ 11.95 hrs, Volume= 25,348 cf, Depth> 4.67"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.08"

Area (sf)	CN	Description
1,767	98	Roofs, HSG D
32,907	80	>75% Grass cover, Good, HSG D
19,850	77	Woods, Good, HSG D
6,020	98	Paved parking, HSG D
4,610	96	Gravel surface, HSG D
65,154	82	Weighted Average
57,367		88.05% Pervious Area
7,787		11.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	486	0.1604	1.94		**Lag/CN Method,**
4.2	486	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment ES2:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 6.06 cfs @ 11.95 hrs, Volume= 12,230 cf, Depth> 5.10"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.08"

Area (sf)	CN	Description
3,290	98	Paved parking, HSG D
8,147	80	>75% Grass cover, Good, HSG D
9,126	77	Woods, Good, HSG D
8,187	96	Gravel surface, HSG D
28,750	86	Weighted Average
25,460		88.56% Pervious Area
3,290		11.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	283	0.1041	1.61		**Lag/CN Method,**
2.9	283	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment ES3:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.82 cfs @ 11.95 hrs, Volume= 3,541 cf, Depth> 4.45"
Routed to Pond DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.08"

Area (sf)	CN	Description
4	98	Paved parking, HSG D
9,359	80	>75% Grass cover, Good, HSG D
183	96	Gravel surface, HSG D
9,546	80	Weighted Average
9,542		99.96% Pervious Area
4		0.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	28	0.1868	1.11		**Lag/CN Method,**
0.4	28	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond DP1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 93,904 sf, 11.80% Impervious, Inflow Depth > 4.80" for 25-yr event
Inflow = 18.94 cfs @ 11.95 hrs, Volume= 37,578 cf
Primary = 18.94 cfs @ 11.95 hrs, Volume= 37,578 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond DP2:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9,546 sf, 0.04% Impervious, Inflow Depth > 4.45" for 25-yr event
Inflow = 1.82 cfs @ 11.95 hrs, Volume= 3,541 cf
Primary = 1.82 cfs @ 11.95 hrs, Volume= 3,541 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

Subcatchment ES1: Runoff Area=65,154 sf 11.95% Impervious Runoff Depth>5.93"
Flow Length=486' Slope=0.1604 '/' Tc=5.0 min CN=82 Runoff=16.10 cfs 32,195 cf

Subcatchment ES2: Runoff Area=28,750 sf 11.44% Impervious Runoff Depth>6.38"
Flow Length=283' Slope=0.1041 '/' Tc=5.0 min CN=86 Runoff=7.46 cfs 15,297 cf

Subcatchment ES3: Runoff Area=9,546 sf 0.04% Impervious Runoff Depth>5.70"
Flow Length=28' Slope=0.1868 '/' Tc=5.0 min CN=80 Runoff=2.29 cfs 4,532 cf

Pond DP1: Inflow=23.56 cfs 47,492 cf
Primary=23.56 cfs 47,492 cf

Pond DP2: Inflow=2.29 cfs 4,532 cf
Primary=2.29 cfs 4,532 cf

Total Runoff Area = 103,450 sf Runoff Volume = 52,023 cf Average Runoff Depth = 6.03"
89.29% Pervious = 92,369 sf 10.71% Impervious = 11,081 sf

Summary for Subcatchment ES1:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 16.10 cfs @ 11.95 hrs, Volume= 32,195 cf, Depth> 5.93"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.49"

Area (sf)	CN	Description
1,767	98	Roofs, HSG D
32,907	80	>75% Grass cover, Good, HSG D
19,850	77	Woods, Good, HSG D
6,020	98	Paved parking, HSG D
4,610	96	Gravel surface, HSG D
65,154	82	Weighted Average
57,367		88.05% Pervious Area
7,787		11.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	486	0.1604	1.94		**Lag/CN Method,**
4.2	486	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment ES2:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 7.46 cfs @ 11.95 hrs, Volume= 15,297 cf, Depth> 6.38"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.49"

Area (sf)	CN	Description
3,290	98	Paved parking, HSG D
8,147	80	>75% Grass cover, Good, HSG D
9,126	77	Woods, Good, HSG D
8,187	96	Gravel surface, HSG D
28,750	86	Weighted Average
25,460		88.56% Pervious Area
3,290		11.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	283	0.1041	1.61		**Lag/CN Method,**
2.9	283	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment ES3:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.29 cfs @ 11.95 hrs, Volume= 4,532 cf, Depth> 5.70"
Routed to Pond DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.49"

Area (sf)	CN	Description
4	98	Paved parking, HSG D
9,359	80	>75% Grass cover, Good, HSG D
183	96	Gravel surface, HSG D
9,546	80	Weighted Average
9,542		99.96% Pervious Area
4		0.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	28	0.1868	1.11		**Lag/CN Method,**
0.4	28	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond DP1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 93,904 sf, 11.80% Impervious, Inflow Depth > 6.07" for 50-yr event
Inflow = 23.56 cfs @ 11.95 hrs, Volume= 47,492 cf
Primary = 23.56 cfs @ 11.95 hrs, Volume= 47,492 cf, Atten= 0%, Lag= 0.0 min

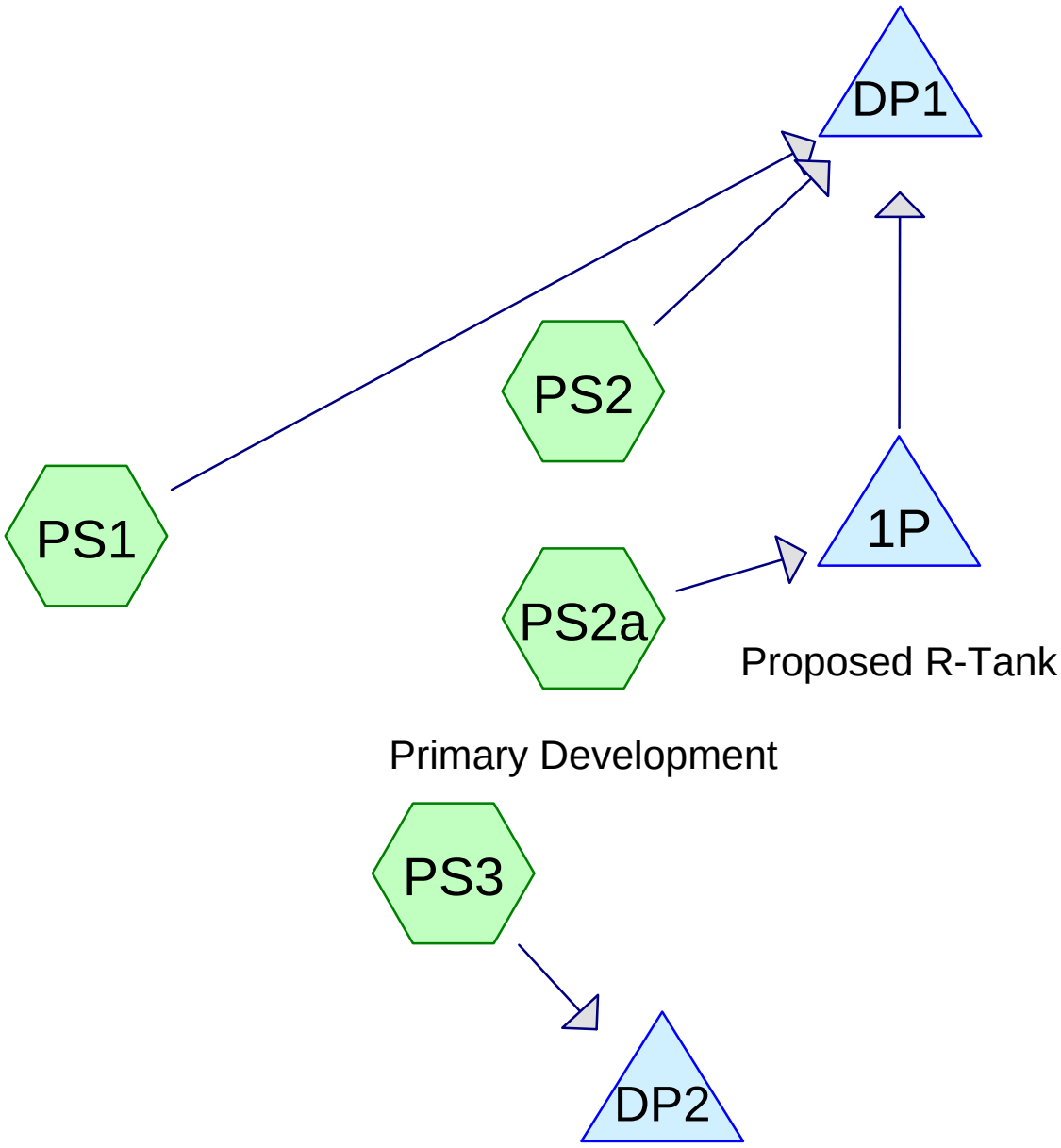
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond DP2:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9,546 sf, 0.04% Impervious, Inflow Depth > 5.70" for 50-yr event
Inflow = 2.29 cfs @ 11.95 hrs, Volume= 4,532 cf
Primary = 2.29 cfs @ 11.95 hrs, Volume= 4,532 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Subcat Reach Pond Link

Routing Diagram for Proposed Subcatchments Type D David T 2023-03-17

Prepared by Haley Ward, Printed 12/20/2023

Project Notes

Defined 5 rainfall events from extreme_precip IDF
Defined 5 rainfall events from extreme_precip_tables_output IDF

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type II 24-hr		Default	24.00	1	3.68	2
2	10-yr	Type II 24-hr		Default	24.00	1	5.59	2
3	25-yr	Type II 24-hr		Default	24.00	1	7.08	2
4	50-yr	Type II 24-hr		Default	24.00	1	8.49	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
49,464	80	>75% Grass cover, Good, HSG D (PS1, PS2, PS2a, PS3)
24,007	98	Paved parking, HSG D (PS1, PS2, PS2a)
9,078	98	Roofs, HSG D (PS1, PS2a)
1,185	98	Unconnected pavement, HSG D (PS2, PS3)
19,713	77	Woods, Good, HSG D (PS1)
103,447	**85**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
103,447	HSG D	PS1, PS2, PS2a, PS3
0	Other	
103,447		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
0	0	0	49,464	0	49,464	>75% Grass cover, Good	
0	0	0	24,007	0	24,007	Paved parking	
0	0	0	9,078	0	9,078	Roofs	
0	0	0	1,185	0	1,185	Unconnected pavement	
0	0	0	19,713	0	19,713	Woods, Good	
0	**0**	**0**	**103,447**	**0**	**103,447**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	1P	37.45	37.28	68.4	0.0025	0.013	0.0	15.0	0.0	

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

Subcatchment PS1: Runoff Area=57,906 sf 23.43% Impervious Runoff Depth>1.86"
Flow Length=486' Slope=0.1604 '/' Tc=5.0 min CN=83 Runoff=4.78 cfs 8,972 cf

Subcatchment PS2: Runoff Area=13,835 sf 32.32% Impervious Runoff Depth>2.10"
Flow Length=283' Slope=0.1041 '/' Tc=5.0 min CN=86 Runoff=1.27 cfs 2,420 cf

Subcatchment PS2a: Primary Development Runoff Area=22,677 sf 71.57% Impervious Runoff Depth>2.73"
Tc=5.0 min CN=93 Runoff=2.53 cfs 5,157 cf

Subcatchment PS3: Runoff Area=9,029 sf 0.04% Impervious Runoff Depth>1.64"
Flow Length=28' Slope=0.1868 '/' Tc=5.0 min CN=80 Runoff=0.66 cfs 1,232 cf

Pond 1P: Proposed R-Tank Peak Elev=38.98' Storage=0.017 af Inflow=2.53 cfs 5,157 cf
Discarded=0.00 cfs 73 cf Primary=1.84 cfs 4,979 cf Outflow=1.84 cfs 5,052 cf

Pond DP1: Inflow=7.73 cfs 16,371 cf
Primary=7.73 cfs 16,371 cf

Pond DP2: Inflow=0.66 cfs 1,232 cf
Primary=0.66 cfs 1,232 cf

Total Runoff Area = 103,447 sf Runoff Volume = 17,781 cf Average Runoff Depth = 2.06"
66.87% Pervious = 69,177 sf 33.13% Impervious = 34,270 sf

Summary for Subcatchment PS1:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 4.78 cfs @ 11.96 hrs, Volume= 8,972 cf, Depth> 1.86"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.68"

Area (sf)	CN	Description
24,628	80	>75% Grass cover, Good, HSG D
10,570	98	Paved parking, HSG D
2,995	98	Roofs, HSG D
19,713	77	Woods, Good, HSG D
57,906	83	Weighted Average
44,341		76.57% Pervious Area
13,565		23.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	486	0.1604	2.00		**Lag/CN Method,**
4.0	486	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PS2:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.27 cfs @ 11.96 hrs, Volume= 2,420 cf, Depth> 2.10"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.68"

Area (sf)	CN	Description
9,363	80	>75% Grass cover, Good, HSG D
3,291	98	Paved parking, HSG D
1,181	98	Unconnected pavement, HSG D
13,835	86	Weighted Average
9,363		67.68% Pervious Area
4,472		32.32% Impervious Area
1,181		26.41% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	283	0.1041	1.61		**Lag/CN Method,**
2.9	283	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PS2a: Primary Development

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.53 cfs @ 11.95 hrs, Volume= 5,157 cf, Depth> 2.73"
Routed to Pond 1P : Proposed R-Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.68"

Area (sf)	CN	Description
6,448	80	>75% Grass cover, Good, HSG D
10,146	98	Paved parking, HSG D
6,083	98	Roofs, HSG D
22,677	93	Weighted Average
6,448		28.43% Pervious Area
16,229		71.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment PS3:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.66 cfs @ 11.96 hrs, Volume= 1,232 cf, Depth> 1.64"
Routed to Pond DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.68"

Area (sf)	CN	Description
9,025	80	>75% Grass cover, Good, HSG D
4	98	Unconnected pavement, HSG D
9,029	80	Weighted Average
9,025		99.96% Pervious Area
4		0.04% Impervious Area
4		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	28	0.1868	1.11		**Lag/CN Method,**
0.4	28	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond 1P: Proposed R-Tank

[82] Warning: Early inflow requires earlier time span

Inflow Area = 22,677 sf, 71.57% Impervious, Inflow Depth > 2.73" for 2-yr event
Inflow = 2.53 cfs @ 11.95 hrs, Volume= 5,157 cf
Outflow = 1.84 cfs @ 12.01 hrs, Volume= 5,052 cf, Atten= 27%, Lag= 3.8 min
Discarded = 0.00 cfs @ 5.45 hrs, Volume= 73 cf
Primary = 1.84 cfs @ 12.01 hrs, Volume= 4,979 cf
Routed to Pond DP1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 38.98' @ 12.01 hrs Surf.Area= 0.014 ac Storage= 0.017 af

Plug-Flow detention time= 21.1 min calculated for 5,035 cf (98% of inflow)
Center-of-Mass det. time= 12.6 min (763.6 - 751.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	37.20'	0.012 af	**17.12'W x 34.50'L x 4.07'H Field A** 0.055 af Overall - 0.026 af Embedded = 0.029 af x 40.0% Voids
#2A	37.45'	0.025 af	**Ferguson R-Tank HD 2** x 130 Inside #1 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 130 Chambers in 10 Rows
		0.036 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	37.20'	**0.100 in/hr Exfiltration over Surface area**
#2	Primary	37.45'	**15.0" Round Culvert** L= 68.4' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.45' / 37.28' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#3	Device 2	39.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Elev. (feet) 39.00 41.00 41.00 41.27 Width (feet) 0.30 0.30 4.00 4.00
#4	Device 2	37.45'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 5.45 hrs HW=37.24' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=1.81 cfs @ 12.01 hrs HW=38.95' (Free Discharge)
└**2=Culvert** (Passes 1.81 cfs of 4.14 cfs potential flow)
  ├**3=Custom Weir/Orifice** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Orifice Controls 1.81 cfs @ 5.19 fps)

Summary for Pond DP1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 94,418 sf, 36.29% Impervious, Inflow Depth > 2.08" for 2-yr event
Inflow = 7.73 cfs @ 11.96 hrs, Volume= 16,371 cf
Primary = 7.73 cfs @ 11.96 hrs, Volume= 16,371 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond DP2:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9,029 sf, 0.04% Impervious, Inflow Depth > 1.64" for 2-yr event
Inflow = 0.66 cfs @ 11.96 hrs, Volume= 1,232 cf
Primary = 0.66 cfs @ 11.96 hrs, Volume= 1,232 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

Subcatchment PS1: Runoff Area=57,906 sf 23.43% Impervious Runoff Depth>3.46"
Flow Length=486' Slope=0.1604 '/' Tc=5.0 min CN=83 Runoff=8.62 cfs 16,711 cf

Subcatchment PS2: Runoff Area=13,835 sf 32.32% Impervious Runoff Depth>3.76"
Flow Length=283' Slope=0.1041 '/' Tc=5.0 min CN=86 Runoff=2.19 cfs 4,340 cf

Subcatchment PS2a: Primary Development Runoff Area=22,677 sf 71.57% Impervious Runoff Depth>4.47"
Tc=5.0 min CN=93 Runoff=4.02 cfs 8,449 cf

Subcatchment PS3: Runoff Area=9,029 sf 0.04% Impervious Runoff Depth>3.17"
Flow Length=28' Slope=0.1868 '/' Tc=5.0 min CN=80 Runoff=1.25 cfs 2,387 cf

Pond 1P: Proposed R-Tank Peak Elev=39.88' Storage=0.027 af Inflow=4.02 cfs 8,449 cf
Discarded=0.00 cfs 74 cf Primary=3.25 cfs 8,260 cf Outflow=3.25 cfs 8,334 cf

Pond DP1: Inflow=13.64 cfs 29,311 cf
Primary=13.64 cfs 29,311 cf

Pond DP2: Inflow=1.25 cfs 2,387 cf
Primary=1.25 cfs 2,387 cf

Total Runoff Area = 103,447 sf Runoff Volume = 31,887 cf Average Runoff Depth = 3.70"
66.87% Pervious = 69,177 sf 33.13% Impervious = 34,270 sf

Summary for Subcatchment PS1:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 8.62 cfs @ 11.95 hrs, Volume= 16,711 cf, Depth> 3.46"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.59"

Area (sf)	CN	Description
24,628	80	>75% Grass cover, Good, HSG D
10,570	98	Paved parking, HSG D
2,995	98	Roofs, HSG D
19,713	77	Woods, Good, HSG D
57,906	83	Weighted Average
44,341		76.57% Pervious Area
13,565		23.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	486	0.1604	2.00		**Lag/CN Method,**
4.0	486	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PS2:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.19 cfs @ 11.95 hrs, Volume= 4,340 cf, Depth> 3.76"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.59"

Area (sf)	CN	Description
9,363	80	>75% Grass cover, Good, HSG D
3,291	98	Paved parking, HSG D
1,181	98	Unconnected pavement, HSG D
13,835	86	Weighted Average
9,363		67.68% Pervious Area
4,472		32.32% Impervious Area
1,181		26.41% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	283	0.1041	1.61		**Lag/CN Method,**
2.9	283	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PS2a: Primary Development

[49] Hint: Tc<2dt may require smaller dt

Runoff = 4.02 cfs @ 11.95 hrs, Volume= 8,449 cf, Depth> 4.47"
Routed to Pond 1P : Proposed R-Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.59"

Area (sf)	CN	Description
6,448	80	>75% Grass cover, Good, HSG D
10,146	98	Paved parking, HSG D
6,083	98	Roofs, HSG D
22,677	93	Weighted Average
6,448		28.43% Pervious Area
16,229		71.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment PS3:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.25 cfs @ 11.96 hrs, Volume= 2,387 cf, Depth> 3.17"
Routed to Pond DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.59"

Area (sf)	CN	Description
9,025	80	>75% Grass cover, Good, HSG D
4	98	Unconnected pavement, HSG D
9,029	80	Weighted Average
9,025		99.96% Pervious Area
4		0.04% Impervious Area
4		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	28	0.1868	1.11		**Lag/CN Method,**
0.4	28	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond 1P: Proposed R-Tank

[82] Warning: Early inflow requires earlier time span

Inflow Area = 22,677 sf, 71.57% Impervious, Inflow Depth > 4.47" for 10-yr event
Inflow = 4.02 cfs @ 11.95 hrs, Volume= 8,449 cf
Outflow = 3.25 cfs @ 12.00 hrs, Volume= 8,334 cf, Atten= 19%, Lag= 3.2 min
Discarded = 0.00 cfs @ 5.15 hrs, Volume= 74 cf
Primary = 3.25 cfs @ 12.00 hrs, Volume= 8,260 cf
Routed to Pond DP1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 39.88' @ 12.00 hrs Surf.Area= 0.014 ac Storage= 0.027 af

Plug-Flow detention time= 16.4 min calculated for 8,332 cf (99% of inflow)
Center-of-Mass det. time= 10.3 min (752.5 - 742.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	37.20'	0.012 af	**17.12'W x 34.50'L x 4.07'H Field A** 0.055 af Overall - 0.026 af Embedded = 0.029 af x 40.0% Voids
#2A	37.45'	0.025 af	**Ferguson R-Tank HD 2** x 130 Inside #1 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 130 Chambers in 10 Rows
		0.036 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	37.20'	**0.100 in/hr Exfiltration over Surface area**
#2	Primary	37.45'	**15.0" Round Culvert** L= 68.4' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.45' / 37.28' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#3	Device 2	39.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Elev. (feet) 39.00 41.00 41.00 41.27 Width (feet) 0.30 0.30 4.00 4.00
#4	Device 2	37.45'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 5.15 hrs HW=37.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=3.21 cfs @ 12.00 hrs HW=39.86' (Free Discharge)
└**2=Culvert** (Passes 3.21 cfs of 6.46 cfs potential flow)
  ├**3=Custom Weir/Orifice** (Weir Controls 0.79 cfs @ 3.04 fps)
  └**4=Orifice/Grate** (Orifice Controls 2.42 cfs @ 6.94 fps)

Summary for Pond DP1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 94,418 sf, 36.29% Impervious, Inflow Depth > 3.73" for 10-yr event
Inflow = 13.64 cfs @ 11.96 hrs, Volume= 29,311 cf
Primary = 13.64 cfs @ 11.96 hrs, Volume= 29,311 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond DP2:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9,029 sf, 0.04% Impervious, Inflow Depth > 3.17" for 10-yr event
Inflow = 1.25 cfs @ 11.96 hrs, Volume= 2,387 cf
Primary = 1.25 cfs @ 11.96 hrs, Volume= 2,387 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

Subcatchment PS1: Runoff Area=57,906 sf 23.43% Impervious Runoff Depth>4.78"
Flow Length=486' Slope=0.1604 '/' Tc=5.0 min CN=83 Runoff=11.65 cfs 23,057 cf

Subcatchment PS2: Runoff Area=13,835 sf 32.32% Impervious Runoff Depth>5.10"
Flow Length=283' Slope=0.1041 '/' Tc=5.0 min CN=86 Runoff=2.91 cfs 5,885 cf

Subcatchment PS2a: Primary Development Runoff Area=22,677 sf 71.57% Impervious Runoff Depth>5.83"
Tc=5.0 min CN=93 Runoff=5.17 cfs 11,020 cf

Subcatchment PS3: Runoff Area=9,029 sf 0.04% Impervious Runoff Depth>4.45"
Flow Length=28' Slope=0.1868 '/' Tc=5.0 min CN=80 Runoff=1.72 cfs 3,349 cf

Pond 1P: Proposed R-Tank Peak Elev=40.49' Storage=0.032 af Inflow=5.17 cfs 11,020 cf
Discarded=0.00 cfs 74 cf Primary=4.55 cfs 10,824 cf Outflow=4.55 cfs 10,898 cf

Pond DP1: Inflow=18.52 cfs 39,766 cf
Primary=18.52 cfs 39,766 cf

Pond DP2: Inflow=1.72 cfs 3,349 cf
Primary=1.72 cfs 3,349 cf

Total Runoff Area = 103,447 sf Runoff Volume = 43,311 cf Average Runoff Depth = 5.02"
66.87% Pervious = 69,177 sf 33.13% Impervious = 34,270 sf

Summary for Subcatchment PS1:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 11.65 cfs @ 11.95 hrs, Volume= 23,057 cf, Depth> 4.78"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.08"

Area (sf)	CN	Description
24,628	80	>75% Grass cover, Good, HSG D
10,570	98	Paved parking, HSG D
2,995	98	Roofs, HSG D
19,713	77	Woods, Good, HSG D
57,906	83	Weighted Average
44,341		76.57% Pervious Area
13,565		23.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	486	0.1604	2.00		**Lag/CN Method,**
4.0	486	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PS2:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.91 cfs @ 11.95 hrs, Volume= 5,885 cf, Depth> 5.10"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.08"

Area (sf)	CN	Description
9,363	80	>75% Grass cover, Good, HSG D
3,291	98	Paved parking, HSG D
1,181	98	Unconnected pavement, HSG D
13,835	86	Weighted Average
9,363		67.68% Pervious Area
4,472		32.32% Impervious Area
1,181		26.41% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	283	0.1041	1.61		**Lag/CN Method,**
2.9	283	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PS2a: Primary Development

[49] Hint: Tc<2dt may require smaller dt

Runoff = 5.17 cfs @ 11.95 hrs, Volume= 11,020 cf, Depth> 5.83"
Routed to Pond 1P : Proposed R-Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.08"

Area (sf)	CN	Description
6,448	80	>75% Grass cover, Good, HSG D
10,146	98	Paved parking, HSG D
6,083	98	Roofs, HSG D
22,677	93	Weighted Average
6,448		28.43% Pervious Area
16,229		71.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment PS3:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.72 cfs @ 11.95 hrs, Volume= 3,349 cf, Depth> 4.45"
Routed to Pond DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=7.08"

Area (sf)	CN	Description
9,025	80	>75% Grass cover, Good, HSG D
4	98	Unconnected pavement, HSG D
9,029	80	Weighted Average
9,025		99.96% Pervious Area
4		0.04% Impervious Area
4		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	28	0.1868	1.11		**Lag/CN Method,**
0.4	28	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond 1P: Proposed R-Tank

[82] Warning: Early inflow requires earlier time span

Inflow Area = 22,677 sf, 71.57% Impervious, Inflow Depth > 5.83" for 25-yr event
Inflow = 5.17 cfs @ 11.95 hrs, Volume= 11,020 cf
Outflow = 4.55 cfs @ 12.00 hrs, Volume= 10,898 cf, Atten= 12%, Lag= 2.8 min
Discarded = 0.00 cfs @ 5.10 hrs, Volume= 74 cf
Primary = 4.55 cfs @ 12.00 hrs, Volume= 10,824 cf
Routed to Pond DP1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 40.49' @ 12.00 hrs Surf.Area= 0.014 ac Storage= 0.032 af

Plug-Flow detention time= 14.1 min calculated for 10,859 cf (99% of inflow)
Center-of-Mass det. time= 9.1 min (747.5 - 738.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	37.20'	0.012 af	**17.12'W x 34.50'L x 4.07'H Field A** 0.055 af Overall - 0.026 af Embedded = 0.029 af x 40.0% Voids
#2A	37.45'	0.025 af	**Ferguson R-Tank HD 2** x 130 Inside #1 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 130 Chambers in 10 Rows
		0.036 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	37.20'	**0.100 in/hr Exfiltration over Surface area**
#2	Primary	37.45'	**15.0" Round Culvert** L= 68.4' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.45' / 37.28' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#3	Device 2	39.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Elev. (feet) 39.00 41.00 41.00 41.27 Width (feet) 0.30 0.30 4.00 4.00
#4	Device 2	37.45'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 5.10 hrs HW=37.25' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=4.51 cfs @ 12.00 hrs HW=40.47' (Free Discharge)
└**2=Culvert** (Passes 4.51 cfs of 7.80 cfs potential flow)
  ├**3=Custom Weir/Orifice** (Weir Controls 1.75 cfs @ 3.97 fps)
  └**4=Orifice/Grate** (Orifice Controls 2.76 cfs @ 7.89 fps)

Summary for Pond DP1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 94,418 sf, 36.29% Impervious, Inflow Depth > 5.05" for 25-yr event
Inflow = 18.52 cfs @ 11.96 hrs, Volume= 39,766 cf
Primary = 18.52 cfs @ 11.96 hrs, Volume= 39,766 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond DP2:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9,029 sf, 0.04% Impervious, Inflow Depth > 4.45" for 25-yr event
Inflow = 1.72 cfs @ 11.95 hrs, Volume= 3,349 cf
Primary = 1.72 cfs @ 11.95 hrs, Volume= 3,349 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

Subcatchment PS1: Runoff Area=57,906 sf 23.43% Impervious Runoff Depth>6.04"
Flow Length=486' Slope=0.1604 '/' Tc=5.0 min CN=83 Runoff=14.50 cfs 29,170 cf

Subcatchment PS2: Runoff Area=13,835 sf 32.32% Impervious Runoff Depth>6.38"
Flow Length=283' Slope=0.1041 '/' Tc=5.0 min CN=86 Runoff=3.59 cfs 7,361 cf

Subcatchment PS2a: Primary Development Runoff Area=22,677 sf 71.57% Impervious Runoff Depth>7.12"
Tc=5.0 min CN=93 Runoff=6.25 cfs 13,448 cf

Subcatchment PS3: Runoff Area=9,029 sf 0.04% Impervious Runoff Depth>5.70"
Flow Length=28' Slope=0.1868 '/' Tc=5.0 min CN=80 Runoff=2.17 cfs 4,286 cf

Pond 1P: Proposed R-Tank Peak Elev=41.01' Storage=0.035 af Inflow=6.25 cfs 13,448 cf
Discarded=0.00 cfs 74 cf Primary=5.81 cfs 13,246 cf Outflow=5.81 cfs 13,320 cf

Pond DP1: Inflow=23.48 cfs 49,776 cf
Primary=23.48 cfs 49,776 cf

Pond DP2: Inflow=2.17 cfs 4,286 cf
Primary=2.17 cfs 4,286 cf

Total Runoff Area = 103,447 sf Runoff Volume = 54,265 cf Average Runoff Depth = 6.29"
66.87% Pervious = 69,177 sf 33.13% Impervious = 34,270 sf

Summary for Subcatchment PS1:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 14.50 cfs @ 11.95 hrs, Volume= 29,170 cf, Depth> 6.04"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.49"

Area (sf)	CN	Description
24,628	80	>75% Grass cover, Good, HSG D
10,570	98	Paved parking, HSG D
2,995	98	Roofs, HSG D
19,713	77	Woods, Good, HSG D
57,906	83	Weighted Average
44,341		76.57% Pervious Area
13,565		23.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	486	0.1604	2.00		**Lag/CN Method,**
4.0	486	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PS2:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 3.59 cfs @ 11.95 hrs, Volume= 7,361 cf, Depth> 6.38"
Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.49"

Area (sf)	CN	Description
9,363	80	>75% Grass cover, Good, HSG D
3,291	98	Paved parking, HSG D
1,181	98	Unconnected pavement, HSG D
13,835	86	Weighted Average
9,363		67.68% Pervious Area
4,472		32.32% Impervious Area
1,181		26.41% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	283	0.1041	1.61		**Lag/CN Method,**
2.9	283	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PS2a: Primary Development

[49] Hint: Tc<2dt may require smaller dt

Runoff = 6.25 cfs @ 11.95 hrs, Volume= 13,448 cf, Depth> 7.12"
Routed to Pond 1P : Proposed R-Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.49"

Area (sf)	CN	Description
6,448	80	>75% Grass cover, Good, HSG D
10,146	98	Paved parking, HSG D
6,083	98	Roofs, HSG D
22,677	93	Weighted Average
6,448		28.43% Pervious Area
16,229		71.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment PS3:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.17 cfs @ 11.95 hrs, Volume= 4,286 cf, Depth> 5.70"
Routed to Pond DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-yr Rainfall=8.49"

Area (sf)	CN	Description
9,025	80	>75% Grass cover, Good, HSG D
4	98	Unconnected pavement, HSG D
9,029	80	Weighted Average
9,025		99.96% Pervious Area
4		0.04% Impervious Area
4		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	28	0.1868	1.11		**Lag/CN Method,**
0.4	28	Total, Increased to minimum Tc = 5.0 min			

Summary for Pond 1P: Proposed R-Tank

[82] Warning: Early inflow requires earlier time span

Inflow Area = 22,677 sf, 71.57% Impervious, Inflow Depth > 7.12" for 50-yr event
Inflow = 6.25 cfs @ 11.95 hrs, Volume= 13,448 cf
Outflow = 5.81 cfs @ 11.99 hrs, Volume= 13,320 cf, Atten= 7%, Lag= 2.1 min
Discarded = 0.00 cfs @ 5.05 hrs, Volume= 74 cf
Primary = 5.81 cfs @ 11.99 hrs, Volume= 13,246 cf
Routed to Pond DP1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 41.01' @ 11.99 hrs Surf.Area= 0.014 ac Storage= 0.035 af

Plug-Flow detention time= 12.6 min calculated for 13,272 cf (99% of inflow)
Center-of-Mass det. time= 8.2 min (744.1 - 736.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	37.20'	0.012 af	**17.12'W x 34.50'L x 4.07'H Field A** 0.055 af Overall - 0.026 af Embedded = 0.029 af x 40.0% Voids
#2A	37.45'	0.025 af	**Ferguson R-Tank HD 2** x 130 Inside #1 Inside= 15.7"W x 33.9"H => 3.52 sf x 2.35'L = 8.3 cf Outside= 15.7"W x 33.9"H => 3.70 sf x 2.35'L = 8.7 cf 130 Chambers in 10 Rows
		0.036 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	37.20'	**0.100 in/hr Exfiltration over Surface area**
#2	Primary	37.45'	**15.0" Round Culvert** L= 68.4' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.45' / 37.28' S= 0.0025 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#3	Device 2	39.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Elev. (feet) 39.00 41.00 41.00 41.27 Width (feet) 0.30 0.30 4.00 4.00
#4	Device 2	37.45'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 5.05 hrs HW=37.24' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=5.59 cfs @ 11.99 hrs HW=40.92' (Free Discharge)
└**2=Culvert** (Passes 5.59 cfs of 8.66 cfs potential flow)
  ├**3=Custom Weir/Orifice** (Weir Controls 2.62 cfs @ 4.54 fps)
  └**4=Orifice/Grate** (Orifice Controls 2.98 cfs @ 8.53 fps)

Summary for Pond DP1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 94,418 sf, 36.29% Impervious, Inflow Depth > 6.33" for 50-yr event
Inflow = 23.48 cfs @ 11.96 hrs, Volume= 49,776 cf
Primary = 23.48 cfs @ 11.96 hrs, Volume= 49,776 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond DP2:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9,029 sf, 0.04% Impervious, Inflow Depth > 5.70" for 50-yr event
Inflow = 2.17 cfs @ 11.95 hrs, Volume= 4,286 cf
Primary = 2.17 cfs @ 11.95 hrs, Volume= 4,286 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

APPENDIX D

SOIL SURVEY INFORMATION

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Rockingham County, New Hampshire

February 16, 2023

Custom Soil Resource Report
Soil Map

Map Scale: 1:829 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 40 80 160 240

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 25, Sep 12, 2022

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

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
799	Urban land-Canton complex, 3 to 15 percent slopes	1.4	100.0%
Totals for Area of Interest		**1.4**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Rockingham County, New Hampshire

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

Map Unit Setting

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

Map Unit Composition

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

Description of Canton

Setting

Parent material: Till

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Udorthents

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

Scituate and newfields

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

Chatfield

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

Boxford and eldridge

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

Walpole

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

Squamscott and scitico

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

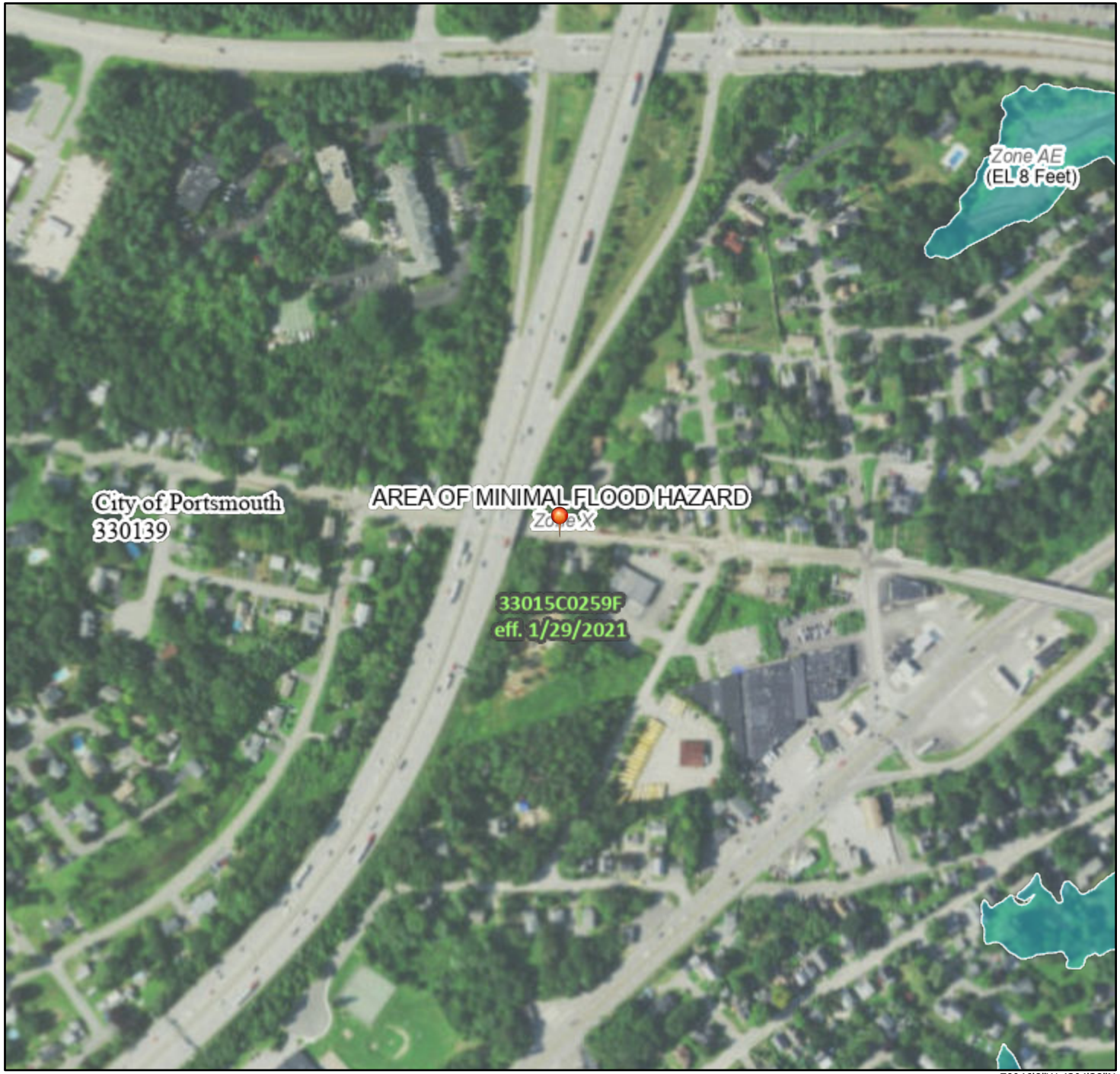
APPENDIX E

FEMA FIRM MAP

National Flood Hazard Layer FIRMette

FEMA

70°46'46"W 43°5'5"N



70°46'8"W 43°4'38"N

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

1:6,000

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

Legend

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

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

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

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

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

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

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

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/16/2023 at 11:49 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

APPENDIX F

INSPECTION & LONG TERM MAINTENANCE PLAN

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

INSPECTION & LONG-TERM MAINTENANCE PLAN
FOR
RESIDENTIAL DEVELOPMENT

686 MAPLEWOOD AVENUE
PORTSMOUTH, NH

Introduction

The intent of this plan is to provide Chinburg Developers (herein referred to as "owner") with a list of procedures that document the inspection and maintenance requirements of the stormwater management system for this development. Specifically, the R-Tank Storage System and associated structures on the project site (collectively referred to as the "Stormwater Management System"). The contact information for the owner shall be kept current, and when the condominium ownership of the property is created, this plan must be transferred to the new owners.

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

Annual Report

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

Inspection & Maintenance Checklist/Log

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

Stormwater Management System Components

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

Non-Structural BMPs

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

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

Structural BMPs

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

- Ferguson R-Tank® and PRETX® system
- Outlet Control Structures and Storm Drains
- Drip Aprons

Inspection and Maintenance Requirements

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

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

of the year, provide weekly watering or irrigation during the establishment period of the first year. Make the necessary adjustments to ensure long-term health of the vegetated covers, i.e. provide more permanent mulch or compost or other means of protection.

3. **Ferguson R-Tank® and PRETX® system:** Reference the attached operations and maintenance manual for proper maintenance of the system.
4. **Outlet Control Structures and Storm Drains:** Monitor accumulation of debris in outlet control structures monthly or after significant rain events. Remove sediments when they accumulate within the yard drains and outlet pipe. During construction, maintain inlet protection until the site has been stabilized. Prior to the end of construction, inspect the drains and basins for accumulations and remove and clean by jet-vacuuming.
5. **Drip Apron:** Ensure that sediments do not enter and plug drip apron surface. If system does not drain within 72 hours of a rainfall event, consult a qualified professional about restoration of function of the drip apron.

Pollution Prevention

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

Spill Procedures

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

Sanitary Facilities

Sanitary facilities shall be provided during all phases of construction.

Material Storage

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

Material Disposal

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

Invasive Species

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

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

Figure 2: Phragmites australis. Photo by Le Loup Gris

CLOSED DRAINAGE STRUCTURE LONG-TERM MAINTENANCE SHEET

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

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

DRIP APRON LONG-TERM MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	**FREQUENCY**	**MAINTENANCE REQUIREMENTS**
-Inspect drip apron for the occurrence of silt or vegetation *-Check to see if trench drains within 72 hours of rainfall.*	Bi-Yearly and following major storm events	*-Ensure that sediments do not enter and plug drip apron surface.* *-if system does not drain within 72 hours of a rainfall event, consult a qualified professional about restoration of function of the drip apron.*

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

STABILIZED CONSTRUCTION ENTRANCE CONSTRUCTION MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	**FREQUENCY**	**MAINTENANCE REQUIREMENTS**
ENTRANCE SURFACE *-Check for sediment accumulation/clogging of stone* *-Check Vegetative filter strips*	After heavy rains, as necessary	*-Top dress pad with new stone.* *-Replace stone completely if completely clogged.* *-Maintain vigorous stand of vegetation.*
WASHING FACILITIES (if applicable) *-Monitor Sediment Accumulation*	As often as necessary	*-Remove Sediments from traps.*

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

CONVERGENT
WATER TECHNOLOGIES

PRETX OPERATION AND MAINTENANCE GUIDE

February 2020

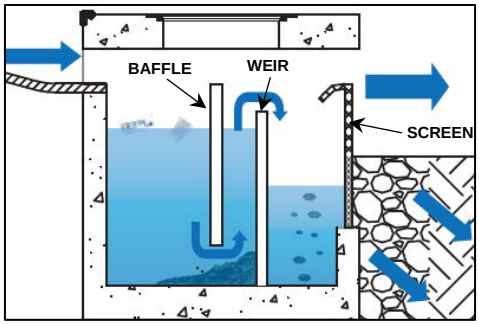
PRETX™ BIOFILTER PRETREATMENT
OPERATION AND MAINTENANCE GUIDANCE

PRETX systems provide pretreatment of sediment and debris prior to filtration and infiltration. Maintenance of PRETX pretreatment catch basins is simple and typically uses a standard vactor truck for cleaning. Simply remove the manhole cover and vactor out debris from within the sump and clean internal components by pressure washing. PRETX units are comprised of an outer precast concrete shell and consist of HDPE and stainless-steel internals that are resistant to rust and rot from corrosive winter runoff. Ideal tools include camera, shovel, hoe/rake, manhole pick, and tape measure. Appropriate Personal Protective Equipment (PPE) should be used in accordance with local authority or company procedures.

Routine annual inspections and periodic maintenance is required for the effective operation of PRETX systems. The Responsible Parties should maintain PRETX systems in accordance with the minimum design standards. This page provides guidance on maintenance activities that are typically required for PRETX systems, along with a suggested frequency for each activity. Individual systems may have more, or less, frequent maintenance needs, depending upon a variety of factors including land use intensity, seasonality, the occurrence of large storm events, overly wet or dry (i.e., drought) regional hydrologic conditions, and any changes or redevelopment in the upstream land use.

Activity	Frequency
NOTE: A properly functioning PRETX system will trap floatables such as bottles, cups, and leaves within the first sump area behind the baffle. Settleables such as sand, saturated leaves and trash will fall to the bottom of the sump area behind the weir wall. Lastly, removal of smaller debris such as cigarettes, grass clippings, etc. will be removed by the screened outlet.	Annual Inspection
Cleaning of PRETX systems is best conducted by a vactor truck with pressure washing for removal of accumulated sediment, trash, and debris.	
Remove maintenance cover and inspect for accumulation of trash and debris.	
Inspect for floatables behind baffle wall and remove as needed by vactor.	
Inspect for settleable behind weir wall and remove as needed by vactor.	
Inspect outlet screen for accumulated debris and clean as needed by pressure wash.	
Check the inlet area (curb throat or drop inlet grate) and surrounding pavement area immediately upstream for sediment deposition, weed growth, etc. Remove as needed with a broom and shovel or by vactor.	
Check to insure the PRETX system drains to the outvert level completely after storm events.	
This process is to be repeated until proper drainage and function has been restored.	As Needed
Repair or replace any damaged structural parts, inlets, outlets, grates.	

TOP VIEW WITH COVER REMOVED



SIDE VIEW OF TRASH AND DEBRIS ACCUMULATION

REAR VIEW OF OUTLET SCREEN

February 2020

CHECKLIST FOR OPERATION & MAINTENANCE
PRETX™ BIOFILTER PRETREATMENT

Location:

Inspector:

Date: Time: Site Conditions:

Date Since Last Rain Event:

NOTE: A properly functioning PRETX system will trap floatables such as bottles, cups, and leaves within the first sump area behind the baffle. Settleables such as sand, saturated leaves and trash will fall to the bottom of the sump area behind the weir wall. Lastly, removal of smaller debris such as cigarettes, grass clippings, etc. will be removed by the screened outlet.

Inspection Items	Satisfactory (S) or Unsatisfactory (U)		Comments/Corrective Action
1. Remove maintenance cover to allow for visual inspection	**S**	**U**	
2. Complete drainage of PRETX system to outvert elevation after storm flow ceases	**S**	**U**	
3. Proper grading and drainage to PRETX inlet and outlet, no evidence of short-circuit or bypass of flow around or under structure	**S**	**U**	
4. Accumulation of settleable trash and debris within PRETX sump is 6” or less	**S**	**U**	
5. Sump area is empty of floatable trash and debris. Excessive accumulation of floatables will bypass baffle wall.	**S**	**U**	
6. Outlet screen is clear of debris	**S**	**U**	
7. Clogging and function of inlet/outlet components	**S**	**U**	
8. Cracking, spalling, or deterioration of concrete	**S**	**U**	
9. Nuisance vegetation, animal burrows, or settling of structure	**S**	**U**	
10. Undesirable odors	**S**	**U**	
11. Complaints from residents	**S**	**U**	
12. Public hazards noted	**S**	**U**	
13.	**S**	**U**	
14.	**S**	**U**	
15.	**S**	**U**	

Corrective Action Needed	Due Date
1.	
2.	
3.	
4.	
5.	

R-TANK® OPERATION, INSPECTION AND MAINTENANCE

Operation

Your R-Tank System has been designed to function in conjunction with the engineered drainage system on your site, the existing municipal infrastructure, and/or the existing soils and geography of the receiving watershed. Unless your site included certain unique and rare features, the operation of your R-Tank System will be driven by naturally occurring systems and will function autonomously. However, upholding a proper schedule of Inspection & Maintenance is critical to ensuring continued functionality and optimum performance of the system.

Inspection

Both the R-Tank and all stormwater pre-treatment features incorporated into your site must be inspected regularly. Inspections should be done every six months for the first year of operation, and at least yearly thereafter. Inspections may be required more frequently for pre-treatment systems. You should refer to the manufacturer requirements for the proper inspection schedule.

With the right equipment most inspections and measurements can be accomplished from the surface without physically entering any confined spaces. If your inspection does require confined space entry, you must follow all local, regional, and OSHA requirements.

All maintenance features of your system can be accessed through a covering at the surface. With the lid removed, you can visually inspect each component to identify sediment, trash, and other contaminants within the structure. Check you construction plans to identify the maintenance features engineered into your R-Tank system, which may include:

Upstream Pipes, Inlets, and Manholes

- Working from the structures adjacent the R-Tank toward those farther away, check for debris and sediment in both the structures and the pipes. Be sure to Include all structures that contain pre- treatment systems. Some structures may include a sump.

Maintenance Ports

- Located near the inlet and outlet connections and throughout the system, check sediment depth at each port.

Inspection Ports

- Less common, inspection ports are primarily located within the Treatment Row of an R-Tank System. These should be used to check for sediment deposits but are typically too small to access for backflushing.

Treatment Row

- On installations in 2018 or later, inlet pipes may connect to a row of modules with 12” diameter access holes running horizontally through the module that can be jet vacuumed. Check these rows for accumulation of sediment and debris.

All observations and measurements should be recorded on an Inspection Log kept on file. We’ve included a form you can use at the end of this guide.

Maintenance

For modules taller than 40” the R-Tank System should be back-flushed once sediment accumulation has reached 6”. For modules less than 40” tall, perform maintenance when sediment depths are greater than 15% of the total system height.

If your system includes a Treatment Row with linear access through the modules from the inlet pipe, backflush this area when sediment depths reach 6”.

BEFORE ANY MAINTENANCE IS PERFORMED ON YOUR SYSTEM -
PLUG THE OUTLET PIPE TO PREVENT CONTAMINATION OF THE DOWNSTREAM SYSTEMS.

Begin by cleaning all upstream structures, pipes, and pre-treatment systems containing sediment and/or debris. If your system includes a Treatment Row, this portion of the system should be cleaned with traditional jet-vac equipment. Add a centralizer to the jet for easiest access through the modules.

To back-flush the R-Tank, water is pumped into the system through the Maintenance Ports as rapidly as possible. The turbulent action of the water moving through the R-Tank will suspend sediments which may then be pumped out. If your system includes an Outlet Structure, this will be the ideal location to pump contaminated water out of the system. However, removal of back-flush water may be accomplished through the Maintenance Ports, as well.

For systems with large footprints that would require extensive volumes of water to properly flush the system, you should consider performing your maintenance within 24 hours of a rain event. Stormwater entering the system will aid in the suspension of sediments and reduce the volume of water required to properly flush the system.

STEP BY STEP INSTRUCTIONS FOR INSPECTION AND MAINTENANCE CAN BE FOUND ON THE NEXT PAGE, WITH A MAINTENANCE LOG ON THE LAST PAGE.

INSPECTION

1. Upstream Structures
    a. Remove cover
    b. Use flashlight to detect sediment deposits If present, measure sediment depth
    c. Inspect pipes connecting to R-Tank
        i. If inlet pipes connect to Treatment Row, check sediment depth within these modules
        ii. If access for measurement inside the Treatment Row is difficult, sediment depth can be estimated based on the coverage of the round, 12” opening of the module
    d. Inspect pre-treatment systems (if present)
    e. Record results on Maintenance Log
    f. Replace cover
    g. Repeat for ALL Manholes upstream of R-Tank until no sedimentation is observed and all pre- treatment systems have been checked
2. Maintenance Ports
    a. Remove cap
    b. Use flashlight to detect sediment deposits
    c. If present, measure sediment depth with stadia rod
    d. Record results on maintenance log
    e. Replace cap
    f. Repeat for ALL Maintenance Ports
3. Inspection Port
    a. Remove cap
    b. Use flashlight to detect sediment deposits
    c. If present, measure sediment depth with stadia rod
    d. Record results on Maintenance Log
    e. Replace cap

MAINTENANCE

1. Plug system outlet to prevent discharge of back-flush water
2. Vacuum all upstream structures, inlet pipes, and stormwater pre-treatment systems
3. If a Treatment Row is present, vacuum this row of modules
4. Determine best location to pump out back-flush water. Typically, the outlet structure will work best, but sometimes the Maintenance Ports must be used.
5. Remove cap from Maintenance Port and pump water as rapidly as possible into system through port to suspend sediments, pumping dirty water out of the system from the outlet or nearby Maintenance Port
6. Repeat at all Maintenance Ports until sediment levels are reduced to a satisfactory level
7. Sediment-laden water shall be disposed of per local regulations
8. Replace any remaining caps or covers and remove outlet plug
9. Record the back-flushing event in your Maintenance Log with any relevant specifics

R-Tank® Maintenance Log

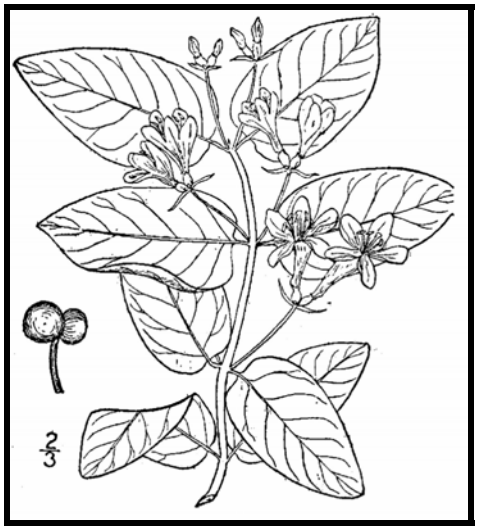
Site Name:		Company:	
Location:		Contact:	
City and State:		Phone:	
System Owner:		Email:	

Date	Location	Sediment Depth	Observations / Notes	Initials

University of New Hampshire Cooperative Extension

Methods for Disposing Non-Native Invasive Plants

Prepared by the Invasives Species Outreach Group, volunteers interested in helping people control invasive plants. Assistance provided by the Piscataquog Land Conservancy and the NH Invasives Species Committee. Edited by Karen Bennett, Extension Forestry Professor and Specialist.



Tatarian honeysuckle
Lonicera tatarica
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 3: 282.

Non-native invasive plants crowd out natives in natural and managed landscapes. They cost taxpayers billions of dollars each year from lost agricultural and forest crops, decreased biodiversity, impacts to natural resources and the environment, and the cost to control and eradicate them.

Invasive plants grow well even in less than desirable conditions such as sandy soils along roadsides, shaded wooded areas, and in wetlands. In ideal conditions, they grow and spread even faster. There are many ways to remove these non-native invasives, but once removed, care is needed to dispose the removed plant material so the plants don't grow where disposed.

Knowing how a particular plant reproduces indicates its method of spread and helps determine the appropriate disposal method. Most are spread by seed and are dispersed by wind, water, animals, or people. Some reproduce by vegetative means from pieces of stems or roots forming new plants. Others spread through both seed and vegetative means.

Because movement and disposal of viable plant parts is restricted (see NH Regulations), viable invasive parts can't be brought to most transfer stations in the state. Check with your transfer station to see if there is an approved, designated area for invasives disposal. This fact sheet gives recommendations for rendering plant parts non-viable.

Control of invasives is beyond the scope of this fact sheet. For information about control visit www.nhinvasives.org or contact your UNH Cooperative Extension office.

New Hampshire Regulations

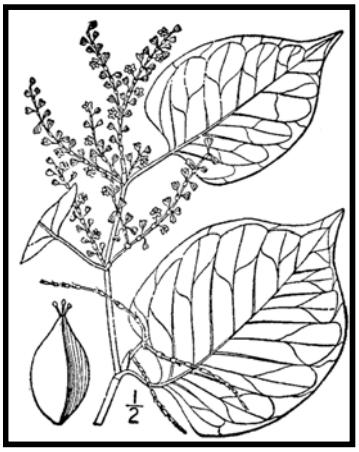
Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

No person shall collect, transport, import, export, move, buy, sell, distribute, propagate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1 of the New Hampshire prohibited invasive species list. (Agr 3802.01)

How and When to Dispose of Invasives?

To prevent seed from spreading remove invasive plants before seeds are set (produced). Some plants continue to grow, flower and set seed even after pulling or cutting. Seeds can remain viable in the ground for many years. If the plant has flowers or seeds, place the flowers and seeds in a heavy plastic bag "head first" at the weeding site and transport to the disposal site. The following are general descriptions of disposal methods. See the chart for recommendations by species.

Burning: Large woody branches and trunks can be used as firewood or burned in piles. For outside burning, a written fire permit from the local forest fire warden is required unless the ground is covered in snow. Brush larger than 5 inches in diameter can't be burned. Invasive plants with easily airborne seeds like black swallow-wort with mature seed pods (indicated by their brown color) shouldn't be burned as the seeds may disperse by the hot air created by the fire.



Japanese knotweed
Polygonum cuspidatum
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 1: 676.

Bagging (solarization): Use this technique with softer-tissue plants. Use heavy black or clear plastic bags (contractor grade), making sure that no parts of the plants poke through. Allow the bags to sit in the sun for several weeks and on dark pavement for the best effect.

Tarping and Drying: Pile material on a sheet of plastic and cover with a tarp, fastening the tarp to the ground and monitoring it for escapes. Let the material dry for several weeks, or until it is clearly nonviable.

Chipping: Use this method for woody plants that don't reproduce vegetatively.

Burying: This is risky, but can be done with watchful diligence. Lay thick plastic in a deep pit before placing the cut up plant material in the hole. Place the material away from the edge of the plastic before covering it with more heavy plastic. Eliminate as much air as possible and toss in soil to weight down the material in the pit. Note that the top of the buried material should be at least three feet underground. Japanese knotweed should be at least 5 feet underground!

Drowning: Fill a large barrel with water and place soft-tissue plants in the water. Check after a few weeks and look for rotted plant material (roots, stems, leaves, flowers). Well-rotted plant material may be composted. A word of caution- seeds may still be viable after using this method. Do this before seeds are set. This method isn't used often. Be prepared for an awful stink!

Composting: Invasive plants can take root in compost. Don't compost any invasives unless you know there is no viable (living) plant material left. Use one of the above techniques (bagging, tarping, drying, chipping, or drowning) to render the plants nonviable before composting. Closely examine the plant before composting and avoid composting seeds.

Be diligent looking for seedlings for *years* in areas where removal and disposal took place.

Suggested Disposal Methods for Non-Native Invasive Plants

This table provides information concerning the disposal of removed invasive plant material. If the infestation is treated with herbicide and left in place, these guidelines don't apply. Don't bring invasives to a local transfer station, unless there is a designated area for their disposal, or they have been rendered non-viable. This listing includes wetland and upland plants from the New Hampshire Prohibited Invasive Species List. The disposal of aquatic plants isn't addressed.

<table>
<tr><th>Woody Plants</th><th>Method of Reproducing</th><th>Methods of Disposal</th></tr>
<tr><td rowspan="2">Norway maple
(Acer platanoides)
European barberry
(Berberis vulgaris)
Japanese barberry
(Berberis thunbergii)
autumn olive
(Elaeagnus umbellata)
burning bush
(Euonymus alatus)
Morrow's honeysuckle
(Lonicera morrowii)
Tatarian honeysuckle
(Lonicera tatarica)
showy bush honeysuckle
(Lonicera x bella)
common buckthorn
(Rhamnus cathartica)
glossy buckthorn
(Frangula alnus)</td><td rowspan="2">Fruit and Seeds
  </td><td>Prior to fruit/seed ripening
Seedlings and small plants
▪ Pull or cut and leave on site with roots exposed. No special care needed.
Larger plants
▪ Use as firewood.
▪ Make a brush pile.
▪ Chip.
▪ Burn.</td></tr>
<tr><td>After fruit/seed is ripe
Don't remove from site.
▪ Burn.
▪ Make a covered brush pile.
▪ Chip once all fruit has dropped from branches.
▪ Leave resulting chips on site and monitor.</td></tr>
<tr><td rowspan="2">oriental bittersweet
(Celastrus orbiculatus)
multiflora rose
(Rosa multiflora)</td><td rowspan="2">Fruits, Seeds, Plant Fragments
  </td><td>Prior to fruit/seed ripening
Seedlings and small plants
▪ Pull or cut and leave on site with roots exposed. No special care needed.
Larger plants
▪ Make a brush pile.
▪ Burn.</td></tr>
<tr><td>After fruit/seed is ripe
Don't remove from site.
▪ Burn.
▪ Make a covered brush pile.
▪ Chip – only after material has fully dried (1 year) and all fruit has dropped from branches. Leave resulting chips on site and monitor.</td></tr>
</table>

<table>
<tr><th>Non-Woody Plants</th><th>Method of Reproducing</th><th>Methods of Disposal</th></tr>
<tr><td rowspan="2">garlic mustard
(Alliaria petiolata)
spotted knapweed
(Centaurea maculosa)
▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling.
black swallow-wort
(Cynanchum nigrum)
▪ May cause skin rash. Wear gloves and long sleeves when handling.
pale swallow-wort
(Cynanchum rossicum)
giant hogweed
(Heracleum mantegazzianum)
▪ Can cause major skin rash. Wear gloves and long sleeves when handling.
dame’s rocket
(Hesperis matronalis)
perennial pepperweed
(Lepidium latifolium)
purple loosestrife
(Lythrum salicaria)
Japanese stilt grass
(Microstegium vimineum)
mile-a-minute weed
(Polygonum perfoliatum)</td><td rowspan="2">Fruits and Seeds
  </td><td>Prior to flowering
Depends on scale of infestation
Small infestation
▪ Pull or cut plant and leave on site with roots exposed.

Large infestation
▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting).
▪ Monitor. Remove any re-sprouting material.</td></tr>
<tr><td>During and following flowering
Do nothing until the following year or remove flowering heads and bag and let rot.

Small infestation
▪ Pull or cut plant and leave on site with roots exposed.

Large infestation
▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting).
▪ Monitor. Remove any re-sprouting material.</td></tr>
<tr><td>common reed
(Phragmites australis)
Japanese knotweed
(Polygonum cuspidatum)
Bohemian knotweed
(Polygonum x bohemicum)</td><td>Fruits, Seeds, Plant Fragments
Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn’t materially influence disposal activities.</td><td>Small infestation
▪ Bag all plant material and let rot.
▪ Never pile and use resulting material as compost.
▪ Burn.

Large infestation
▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile.
▪ Monitor and remove any sprouting material.
▪ Pile, let dry, and burn.</td></tr>
</table>

January 2010

PROPOSED SITE PLAN
RESIDENTIAL DEVELOPMENT
686 MAPLEWOOD AVENUE
PORTSMOUTH, NEW HAMPSHIRE
PERMIT PLANS

APPLICANT:

CHINBURG DEVELOPMENT, LLC
3 PENSTOCK WAY
NEWMARKET, NH 03857
Tel. (603) 868–5995

OWNER:

ISLAMIC SOCIETY OF THE SEACOAST AREA
42N DOVER POINT ROAD
DOVER, NH 03820

CIVIL ENGINEER & LAND SURVEYOR:

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 GRIFFIN ROAD, UNIT 3
PORTSMOUTH, N.H. 03801
Tel. (603) 430–9282
Fax (603) 436–2315

ARCHITECT:

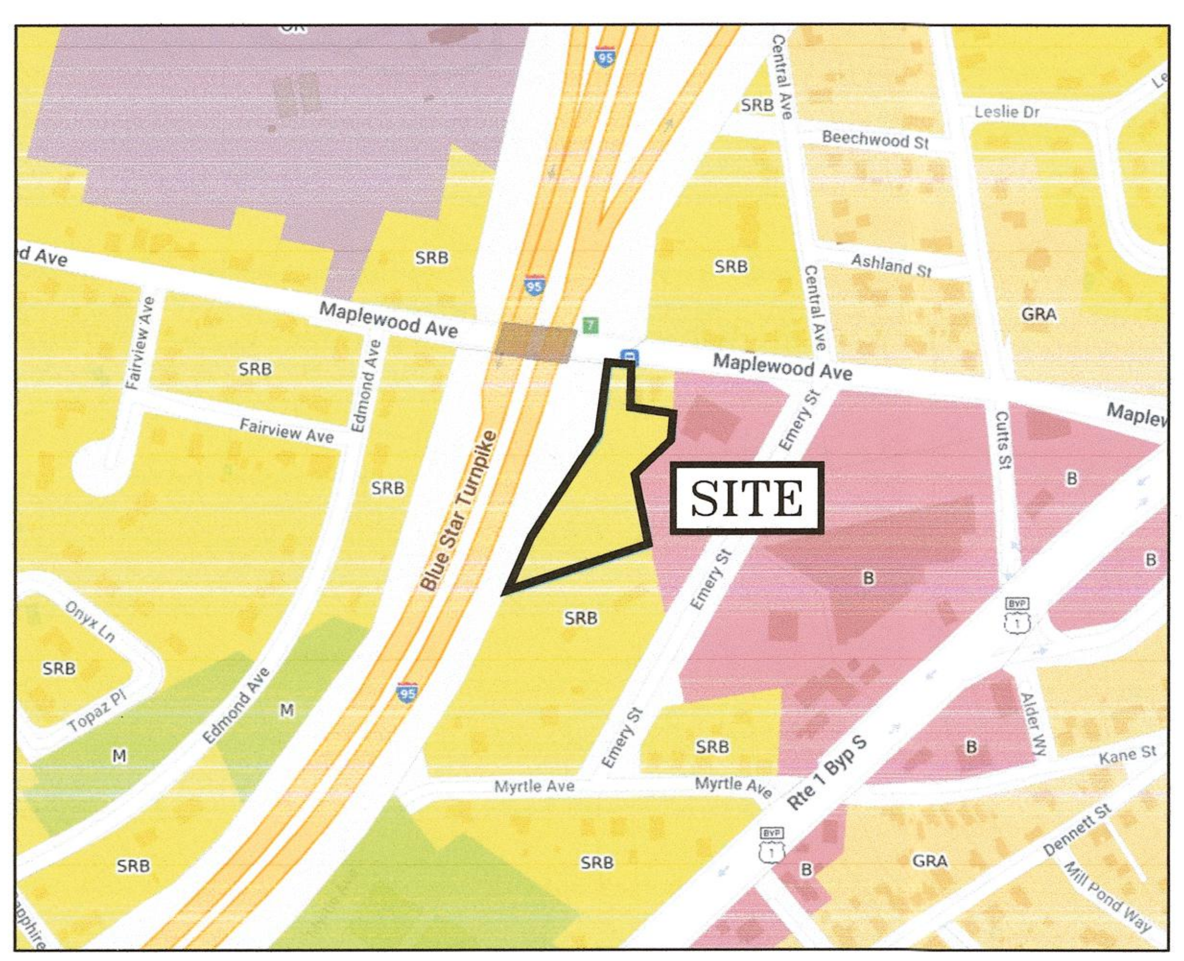
CJ ARCHITECTS
233 VAUGHAN STREET, SUITE 101
PORTSMOUTH, NH, 03801
Tel. (603) 431–2808

LEGAL REPRESENTATION:

DONAHUE, TUCKER & CIANDELLA, PLLC
111 MAPLEWOOD AVE., SUITE D
PORTSMOUTH, NH, 03801
Tel. (603) 766–1686

REQUIRED PERMITS:

PORTSMOUTH BOA: APPROVED
PORTSMOUTH SITE PLAN: PENDING
DES SEWER EXTENSION: TBD
DES WATER MAIN: TBD



Legend

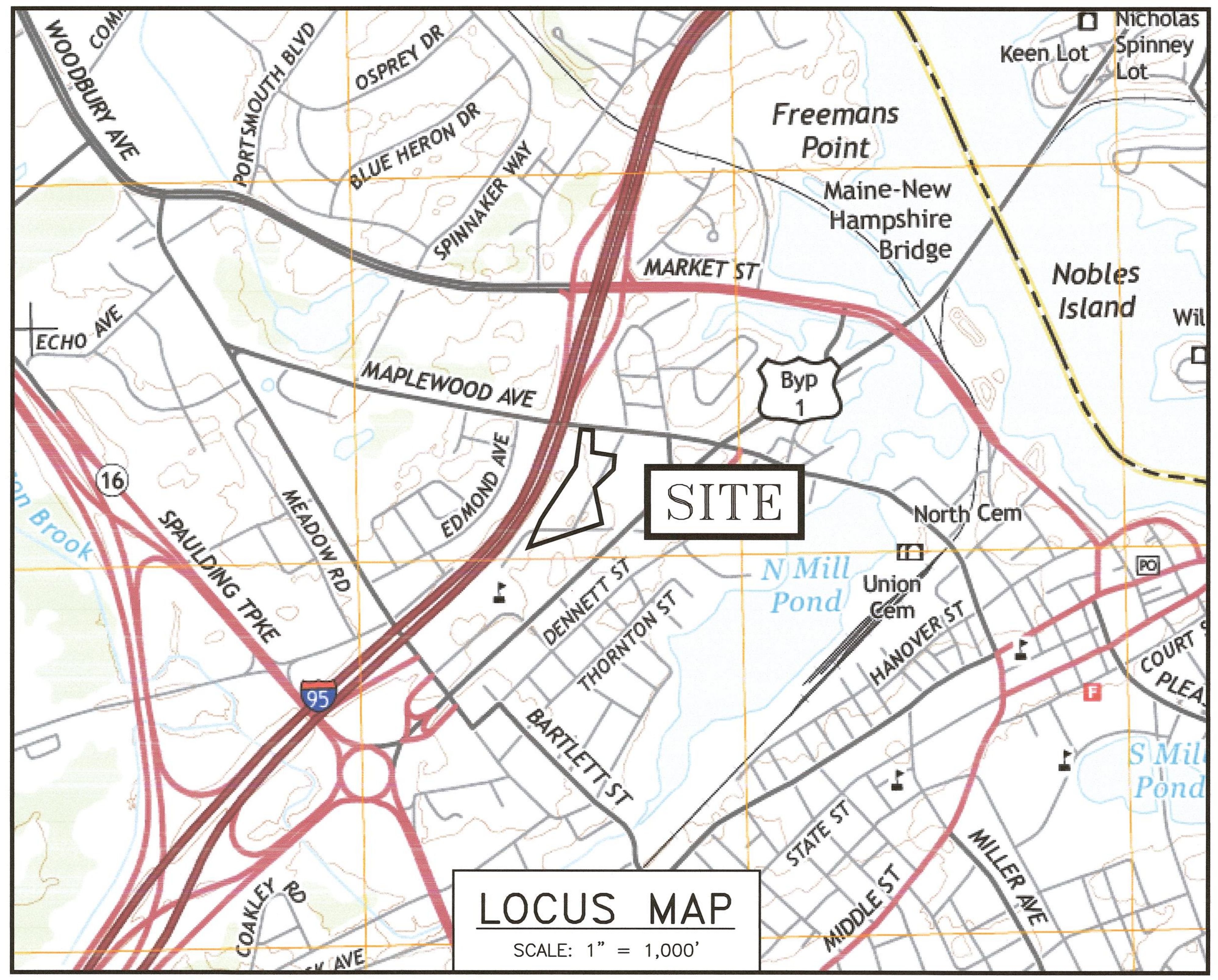
Character Districts
Character-Based Zoning Area
(Refer to Zoning Map Sheet 2 of 2 Character Districts Regulating Plan)

Residential Districts

R	Rural
SRA	Single Residence A
SRB	Single Residence B
GRA	General Residence A
GRB	General Residence B
GRC	General Residence C
GA/MH	Garden Apartment/Mobile Home Park

Mixed Residential Districts

MRO	Mixed Residential Office
MRB	Mixed Residential Business



LOCUS MAP
SCALE: 1" = 1,000'

DIG SAFE
ME – NH – RI – VT
1–888–344–7233
CALL TOLL FREE

LEGEND:

EXISTING	PROPOSED	
		PROPERTY LINE
		SETBACK
S	S	SEWER PIPE
SL	SL	SEWER LATERAL
G	G	GAS LINE
D	D	STORM DRAIN
W	W	WATER LINE
WS	WS	WATER SERVICE
UGE	UGE	UNDERGROUND ELECTRIC
OHW	OHW	OVERHEAD ELECTRIC/WIRES
	UD	FOUNDATION DRAIN
		EDGE OF PAVEMENT (EP)
100	100	CONTOUR
97x3	98x0	SPOT ELEVATION
		UTILITY POLE
		WALL MOUNTED EXTERIOR LIGHTS
		TRANSFORMER ON CONCRETE PAD
		ELECTRIC HANDHOLD
WSO GSO	WSO GSO	SHUT OFFS (WATER/GAS)
	GV	GATE VALVE
	HYD	HYDRANT
	CB	CATCH BASIN
	SMH	SEWER MANHOLE
	DMH	DRAIN MANHOLE
	TMH	TELEPHONE MANHOLE
14	14	PARKING SPACE COUNT
		PARKING METER
LSA		LANDSCAPED AREA
TBD	TBD	TO BE DETERMINED
CI	CI	CAST IRON PIPE
COP	COP	COPPER PIPE
DI	DI	DUCTILE IRON PIPE
PVC	PVC	POLYVINYL CHLORIDE PIPE
RCP	RCP	REINFORCED CONCRETE PIPE
AC	–	ASBESTOS CEMENT PIPE
VC	VC	VITRIFIED CLAY PIPE
EP	EP	EDGE OF PAVEMENT
EL.	EL.	ELEVATION
FF	FF	FINISHED FLOOR
INV	INV	INVERT
S =	S =	SLOPE FT/FT
TBM	TBM	TEMPORARY BENCH MARK
TYP	TYP	TYPICAL

INDEX OF SHEETS

UTILITY CONTACTS

ELECTRIC:
EVERSOURCE
1700 LAFAYETTE ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 436–7708, Ext. 555.5678
ATTN: MICHAEL BUSBY, P.E. (MANAGER)

NATURAL GAS:
UNITIL
325 WEST ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 294–5144
ATTN: DAVE BEAULIEU

CABLE:
COMCAST
155 COMMERCE WAY
PORTSMOUTH, N.H. 03801
Tel. (603) 679–5695 (X1037)
ATTN: MIKE COLLINS

SEWER & WATER:
PORTSMOUTH DEPARTMENT OF PUBLIC WORKS
680 PEVERLY HILL ROAD
PORTSMOUTH, N.H. 03801
Tel. (603) 766–1438 ATTN: JIM TOW

COMMUNICATIONS:
FAIRPOINT COMMUNICATIONS
JOE CONSIDINE
1575 GREENLAND ROAD
GREENLAND, N.H. 03840
Tel. (603) 427–5525

PORTSMOUTH APPROVAL CONDITIONS NOTE:
ALL CONDITIONS ON THIS PLAN SET SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE CITY OF PORTSMOUTH SITE PLAN REVIEW REGULATIONS.

APPROVED BY THE PORTSMOUTH ZONING BOARD

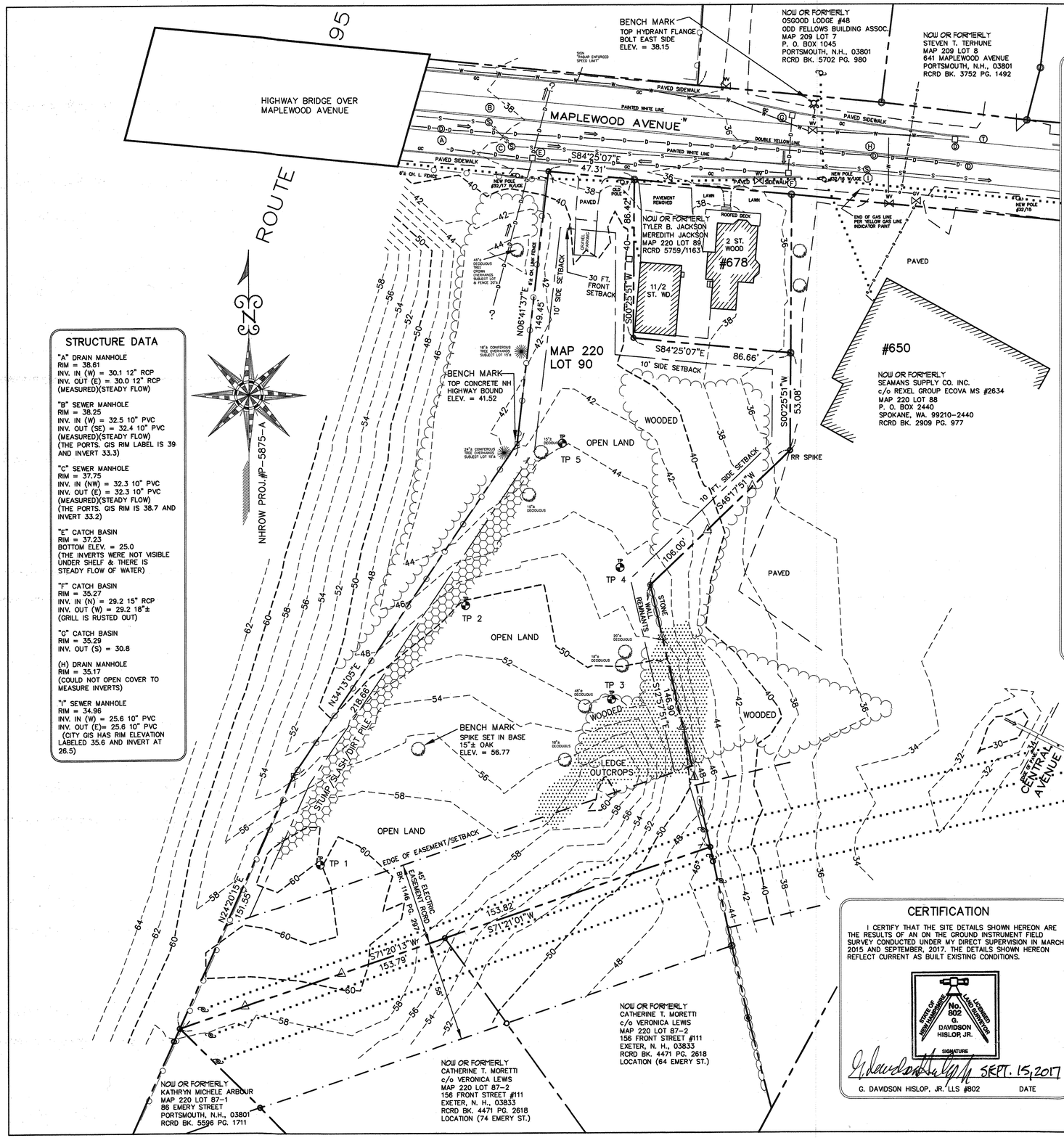
CHAIRMAN ____________________ DATE ____________

PROPOSED SITE PLAN
RESIDENTIAL DEVELOPMENT
686 MAPLEWOOD AVENUE
PORTSMOUTH, N.H.

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

PLAN SET SUBMITTAL DATE: 24 JANUARY 2024

2360.01



STRUCTURE DATA

"A" DRAIN MANHOLE
RIM = 38.61
INV. IN (W) = 30.1 12" RCP
INV. OUT (E) = 30.0 12" RCP
(MEASURED)(STEADY FLOW)

"B" SEWER MANHOLE
RIM = 38.25
INV. IN (W) = 32.5 10" PVC
INV. OUT (SE) = 32.4 10" PVC
(MEASURED)(STEADY FLOW)
(THE PORTS. GIS RIM LABEL IS 39 AND INVERT 33.3)

"C" SEWER MANHOLE
RIM = 37.75
INV. IN (NW) = 32.3 10" PVC
INV. OUT (E) = 32.3 10" PVC
(MEASURED)(STEADY FLOW)
(THE PORTS. GIS RIM IS 38.7 AND INVERT 33.2)

"E" CATCH BASIN
RIM = 37.23
BOTTOM ELEV. = 25.0
(THE INVERTS WERE NOT VISIBLE UNDER SHELF & THERE IS STEADY FLOW OF WATER)

"F" CATCH BASIN
RIM = 35.27
INV. IN (N) = 29.2 15" RCP
INV. OUT (W) = 29.2 18"±
(GRILL IS RUSTED OUT)

"G" CATCH BASIN
RIM = 35.29
INV. OUT (S) = 30.8

(H) DRAIN MANHOLE
RIM = 35.17
(COULD NOT OPEN COVER TO MEASURE INVERTS)

"I" SEWER MANHOLE
RIM = 34.96
INV. IN (W) = 25.6 10" PVC
INV. OUT (E)= 25.6 10" PVC
(CITY GIS HAS RIM ELEVATION LABELED 35.6 AND INVERT AT 26.5)

GENERAL NOTES:

1.) ZONING DISTRICT-"SRB" SINGLE RESIDENCE "B"
MIN. LOT AREA = 15,000 S.F.
MIN. FRONTAGE = 100'
MIN. LOT DEPTH = 100'
BUILDING SETBACKS
FRONT SETBACK = 30'
REAR SETBACK = 30'
SIDE SETBACK = 10'
WETLANDS SETBACK = 100' (10,000 S.F. OR GREATER)
WET LIMITED CUT ZONE = 50' (10,000 S.F. OR GREATER)
WET VEGETATED BUFFER = 25' (10,000 S.F. OR GREATER)
BUILDING RESTRICTIONS
MAX. HEIGHT = 35'
MAX. BUILDING COVERAGE = 20%
MIN OPEN SPACE = 40%

2.) THIS IS AN AS-BUILT PLAN DEPICTING EXISTING CONDITIONS AS OF APRIL 2015 AND UPDATED SEPTEMBER 2017. THE LOT CORNER/LOT LINE MONUMENT LOCATIONS WERE HELD AS SHOWN ON THIS PLAN. THE BEARINGS AND DISTANCES MAY VARY SLIGHTLY FROM THE CALCULATED RECORDED DISTANCE AND BEARINGS PER REFERENCE PLAN #4 (RCRD D-38016). THE BEARING BASE IS NH GRID NORTH PER ABOVE PLAN REF. #1 (NH PROJ. P-5875-A). THIS AUTOCAD DRAWING HAS BEEN SHIFTED ONTO PORTSMOUTH GIS COORDINATES NH NAD83 GRID NORTH AS DIRECTED BY PORTSMOUTH GIS DEPT..

3.) THE ELEVATION DATUM BASE IS NAVD88 ESTABLISHED USING THE HYDRANT FLANGE BOLT BENCH MARK ON MYRTLE AVENUE. THIS IS DEPICTED AS TBM-1 ELEVATION 45.86 ON RECORDED PLAN RCRD PLAN # D-37764. PLAN D-37664 NOTES ELEVATION DATUM ESTABLISHED BY SURVEY GRADE GPS READINGS.

4.) THE ABUTTER HOUSE AND GARAGE/APARTMENT AT 678 MAPLEWOOD IS SERWCED BY CITY SEWER AND WATER. PORTSMOUTH COMPUTERIZED GIS UTILITY INFORMATION WAS OBTAINED FROM PORTSMOUTH DPW. THE DIAGRAM INDICATES SEWER, DRAIN AND WATER IS IN THE STREET. THE GIS DIAGRAM DOES NOT INDICATE HOW SUBJECT LOT HOUSE AND GARAGE APARTMENT ARE HOOKED INTO WATER AND SEWER. THE PORTS. WATER/SEWER DIVISION FOREMAN JOHN ADAMS DOES NOT KNOW OF ANY UTILITY RECORDS AVAILABLE TO SHOW THE LOCATION OF THE UTILITY SERVICE CONNECTIONS. THIS APARTMENT (FORMER GARAGE) HAS BEEN GUTTED AND NEW INTERIOR ROOMS ARE CURRENTLY UNDER CONSTRUCTION. THE CARPENTER INDICATED THAT SEWER AND WATER SERVICE WAS FROM THE BIG HOUSE BETWEEN BUILDINGS.

5.) SUBJECT PROPERTIES DO NOT LIE IN A FLOOD HAZARD ZONE AS SHOWN ON ROCKINGHAM COUNTY FLOOD INSURANCE RATE MAP (FIRM) FOR CITY OF PORTSMOUTH COMMUNITY #330139, PANEL #0259, SUFFIX "E" AND KNOWN AS MAP #33015C0259E WITH AN EFFECTIVE DATE OF MAY 17, 2005.

6.) ABUTTING PROPERTY AT #678 MAPLEWOOD HAS A TWO STORY HOUSE AND A SEPARATE GARAGE (GARAGE NOW BEING REFRAMED WITH ABOVE APARTMENT). A VARIANCE WAS GRANTED APRIL 10, 1979 TO ALLOW CONVERSION OF THE SECOND FLOOR OF AN EXISTING GARAGE INTO AN APARTMENT IN A SINGLE RESIDENCE II DISTRICT. A BUILDING PERMIT WAS GIVEN APRIL 25, 1979.

7.) SUBJECT LOT MAP 220 LOT 90 IS A VACANT LOT PARTLY WOODED. THIS PROPERTY IS REFERED TO AS #686 MAPLEWOOD AVENUE IN A DRIVEWAY PERMIT APPLICATION DATED 7-31-12. THE PAVED SIDEWALK CURBING WAS REMOVED WHERE THE PAVED DRIVEWAY IS NOW LOCATED AS SHOWN HEREON.

8.) THE UNDERGROUND GAS SERVICE SHOWN HEREON IN FRONT OF 650 MAPLEWOOD AVE. WAS PLOTTED FROM YELLOW GAS LINE PAINT MARKINGS LOCATED BY FIELD SURVEY. THE GAS PAINT MARKS INDICATES THE GAS LINE ENDS BEFORE CROSSING IN FRONT OF SUBJECT LOT AS SHOWN.

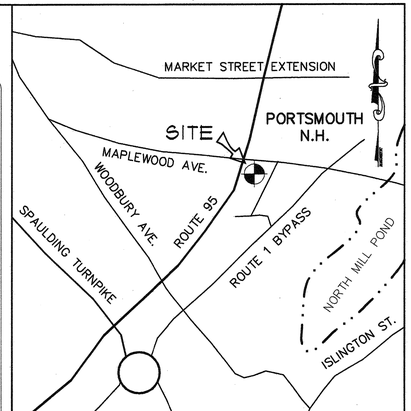
9.) UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE, BEING PLOTTED FROM OBSERVED ABOVE GROUND STRUCTURES AND PAINT MARKS.

10.) SUBJECT LOT 90 SUBJECT TO AN ELECTRIC EASEMENT PER RCRD BK. 1146 PG. 297. THIS EASEMENT IS ON THE REAR 45 FEET OF SUBJECT LOT 90 ADJOINING THE MORETTI PROPERTIES AS SHOWN AND ALLOWS FOR THE ELECTRIC TRANSMISSION LINES OPERATION AND MAINTENANCE. THERE IS CURRENTLY AN OVERHEAD ELECTRIC LINE CROSSING SUBJECT LOT AS SHOWN.

11.) SUBJECT LOT SUBJECT TO AN EASEMENT TO PERMIT THE STAIRWAY AND DECK ON APARTMENT BUILDING THAT ENCROACH SUBJECT LOT 90 PER RCRD BK. 5759 PG. 1160. THIS EASEMENT TO EXTINGUISH UPON REMOVAL OF ENCROACHING DECK AND STAIRS IF NOT REPLACED WITHIN 6 MONTHES OF REMOVAL. THE ENCROACHING STAIRS AND DECK ON THE WEST SIDE OF THE APARTMENT (GARAGE) BUILDING WERE REMOVED AS OF SEPT. 7, 2017.

12.) JOSEPH W. NOEL, N.H. CERTIFIED WETLAND SCIENTIST #086, (207-384-5587) INVESTIGATED THE SUBJECT PROPERTIES LOT 89 & LOT 90 APRIL 4, 2015 AND THERE WERE NO WETLANDS.

13.) PER PORTSMOUTH PLANNING DEPT. SUBJECT PROPERTY MAP 220 LOT 90 AT 686 MAPLEWOOD AVENUE RECEIVED A VARIANCE ON FEB. 21, 2017 TO PERMIT THE CONSTRUCTION OF A 4,000 SQ. FOOT PLACE OF WORSHIP AND A VARIANCE FOR REQUIRED FRONTAGE.



LOCATION MAP NOT TO SCALE

PLAN REFERENCES:

1.) STATE OF N. H. DEPT. OF PUBLIC WORKS AND HIGHWAYS FEDERAL AID RIGHT OF WAY PROJECT #1-95-1(9)14, INTERSTATE ROUTE 95 N. H. PROJECT #P-5875-A RCRD PLAN #D-2229-6.

2.) STATE OF N. H. DEPT. OF PUBLIC WORKS AND HIGHWAYS FEDERAL AID RIGHT OF WAY PROJECT #1-95-1(10)14, INTERSTATE ROUTE 95 N. H. PROJECT #P-5875-B, RCRD PLAN #D-2498-3.

3.) "PROPOSED DIVISION OF LAND OF CATHERINE T. MORETTI, PHASE 2 – MYRTLE AVENUE & CENTRAL AVENUE PORTSMOUTH, ROCKINGHAM COUNTY, NEW HAMPSHIRE" BY CIVIL CONSULTANTS ENGINEERS, REVISED 5-30-2014, RCRD PLAN #D-38286. (SEE ALSO EARLIER PLAN RCRD PLAN #D-37764)

4.) "CORRECTION PLAN, LAND BOUNDARY SURVEY PLAN DEPICTING LAND OWNED BY INDEPENDENT ORDER OF ODD FELLOWS, OSGOOD LODGE #48 KNOWN AS TAX MAP 209 LOT 6/#651 MAPLEWOOD AVE. AND DEPICTING LAND OWNED BY WARREN V. STEARNS & HELEN W. STEARNS KNOWN AS TAX MAP 220 LOT 89/#678 MAPLEWOOD AVE AND DEPICTING LAND OWNED BY WARREN V. STEARNS KNOWN AS TAX MAP 220 LOT 90" BY KNIGHT HILL LAND SURVEYING SERVICES, INC. DATED OCT., 2003, REVISED NOV. 19, 2013, RCRD PLAN #D-38016.

SITE DATA
TAX MAP 220 LOT 90

OWNER OF RECORD:
ISLAMIC SOCIETY OF THE SEACOAST AREA
42N DOVER POINT ROAD
DOVER, N. H., 03820

DEED: RCRD BK. 5806 PG. 2816

AREA: 1.44 ACRE

CERTIFICATION

I CERTIFY THAT THE SITE DETAILS SHOWN HEREON ARE THE RESULTS OF AN ON THE GROUND INSTRUMENT FIELD SURVEY CONDUCTED UNDER MY DIRECT SUPERVISION IN MARCH 2015 AND SEPTEMBER, 2017. THE DETAILS SHOWN HEREON REFLECT CURRENT AS BUILT EXISTING CONDITIONS.

STATE OF NEW HAMPSHIRE — No. 802 — G. DAVIDSON HISLOP, JR. — LICENSED LAND SURVEYOR — SIGNATURE

G. DAVIDSON HISLOP, JR. LLS #802 SEPT. 15, 2017
DATE

LEGEND

PROPERTY LINE
EDGE OF PAVEMENT
IRON PIPE OR PIN
DRILL HOLE IN STONE WALL
N. H. HIGHWAY BOUND
EDGE OF EASEMENT
APROX. EDGE OF WOODS
STONE WALL
CATCH BASIN
WATER SHUT OFF VALVE
BELL MANHOLE
SEWER MANHOLE
UTILITY POLE
OVERHEAD ELECTRIC
APPROX. UNDERGROUND DRAIN
SIGN
SETBACK
ROCKINGHAM COUNTY REGISTRY OF DEEDS RCRD
DECIDUOUS TREE
CONIFEROUS TREE
DRAIN MANHOLE
GAS SHUT OFF VALVE
CHAIN LINK FENCE
STUMP/DIRT/SLASH PILE
APROX. UNDERGROUND SEWER
GRANITE CURB
APPROX. UNDERGROUND WATER
APPROX. UNDERGROUND GAS
LEDGE OUTCROP AREA
2 FOOT CONTOUR
CONTOUR AT EVEN 10 FOOT
TALL STAKE SET ON LOT LINE

EXISTING CONDITIONS & TOPOGRAPHY PLAN

for vacant lot known as

TAX MAP 220 LOT 90

owned by

ISLAMIC SOCIETY OF THE SEACOAST AREA

located at

686 MAPLEWOOD AVENUE
PORTSMOUTH, NEW HAMPSHIRE
ROCKINGHAM COUNTY

DATE: SEPT. 14, 2017 SCALE: 1" = 30' PROJECT # 1938ASBUILT

PREPARED FOR:
ISLAMIC SOCIETY OF THE SEACOAST AREA
42N DOVER POINT RD.
DOVER, N. H., 03820
c/o MOHAMMED EBRAHIM, PH.D., P.E.
attn: DOUG LAROSA
dj@ambitengineering.com
603-430-9282 (312)

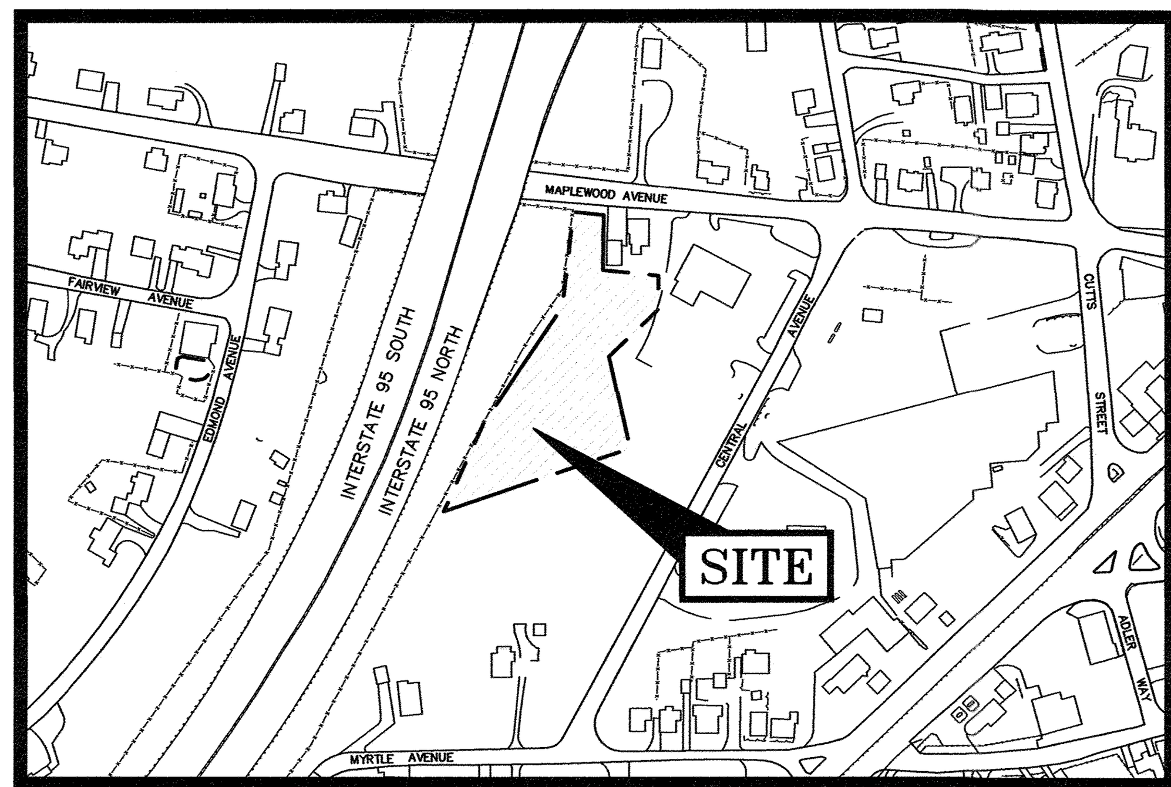
PREPARED BY:
KNIGHT HILL LAND SURVEYING SERVICES, INC.
c/o DAVE HISLOP
34 OLD POST ROAD
NEWINGTON, N. H. 03801
(603) 436-1330
dave@khlandsurveying.com

GRAPHIC SCALE

30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

1938PNTS

Z360



LOCATION MAP SCALE 1"=300'

LEGEND: SEE COVER SHEET

TEST PIT 1, ELEV. 60.1

Date: 8/18/17
Logged by: DOUG LAROSA
ESHWT: NONE
Observed Water: NONE
Restrictive layer: NONE
REFUSAL: LEDGE AT 24"

DEPTH	DESCRIPTION
0" – 6"	10YR 3/3 FINE SANDY LOAM, MASSIVE, FRIABLE
6" – 24"	10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE

TEST PIT 2, ELEV. 50.1

Date: 8/18/17
Logged by: DOUG LAROSA
ESHWT: NONE
Observed Water: NONE
Restrictive layer: NONE
REFUSAL: LEDGE AT 28"

DEPTH	DESCRIPTION
0" – 5"	10YR 3/3 FINE SANDY LOAM, MASSIVE, FRIABLE
5" – 28"	10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE

TEST PIT 3, ELEV. 52.1

Date: 8/18/17
Logged by: DOUG LAROSA
ESHWT: NONE
Observed Water: NONE
Restrictive layer: NONE
REFUSAL: LEDGE AT 27"

DEPTH	DESCRIPTION
0" – 6"	10YR 3/3 FINE SANDY LOAM, MASSIVE, FRIABLE
6" – 27"	10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE

TEST PIT 4, ELEV. 44.5

Date: 8/18/17
Logged by: DOUG LAROSA
ESHWT: NONE
Observed Water: NONE
Restrictive layer: NONE
REFUSAL: LEDGE AT 30"

DEPTH	DESCRIPTION
0" – 8"	10YR 4/3 FINE SANDY LOAM, MASSIVE, FRIABLE
8" – 30"	10YR 4/6 FINE SANDY LOAM, GRANULAR, FRIABLE

TEST PIT 5, ELEV. 43.5

Date: 8/18/17
Logged by: DOUG LAROSA
ESHWT: NONE
Observed Water: NONE
Restrictive layer: NONE
REFUSAL: LEDGE AT 25"

DEPTH	DESCRIPTION
0" – 5"	10YR 4/3 FINE SANDY LOAM, MASSIVE, FRIABLE
5" – 25"	10YR 5/6 FINE SANDY LOAM, GRANULAR, FRIABLE

"I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000."

1.24.24

JOHN R. CHAGNON, LLS DATE

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

ABUTTERS:

209/07
N/F
OSGOOD LODGE NO. 48 ODDFELLOWS BLDG ASSOC.
P.O. BOX 1045
PORTSMOUTH, NH 03802
6354/1704

220/87-1
N/F
JEFFREY MATTSON &
KATHRYN MICHELE ARBOUR
86 EMERY STREET
PORTSMOUTH, NH 03801
6085/200

220/87-2
N/F
HAPPY MOUNTAIN HOLDINGS LLC
901 N MARKET ST SUITE 705
WILMINGTON, DE 19801
5905/2552

220/87-2-1
N/F
CARL & DEBORAH ROCHE
64 EMERY STREET, UNIT #1
PORTSMOUTH, NH 03801
6147/2870

220/87-2-2
N/F
BETTY J. SWANTON
64 EMERY STREET, UNIT #2
PORTSMOUTH, NH 03801
6121/2485

220/87-2-3
N/F
SUSAN ZIMMERMANN
48 NORTH STATE STREET
CONCORD, NH 03301
6184/111

220/87-2-4
N/F
JAIME PRIDHAM
74 EMERY STREET, UNIT #4
PORTSMOUTH, NH 03801
6142/69

220/87-3
N/F
HAPPY MOUNTAIN HOLDINGS LLC
901 N MARKET ST SUITE 705
WILMINGTON, DE 19801
5905/2552

220/88
N/F
650 MAPLEWOOD, LLC
3 CATE STREET
PORTSMOUTH, NH 03801
6367/690

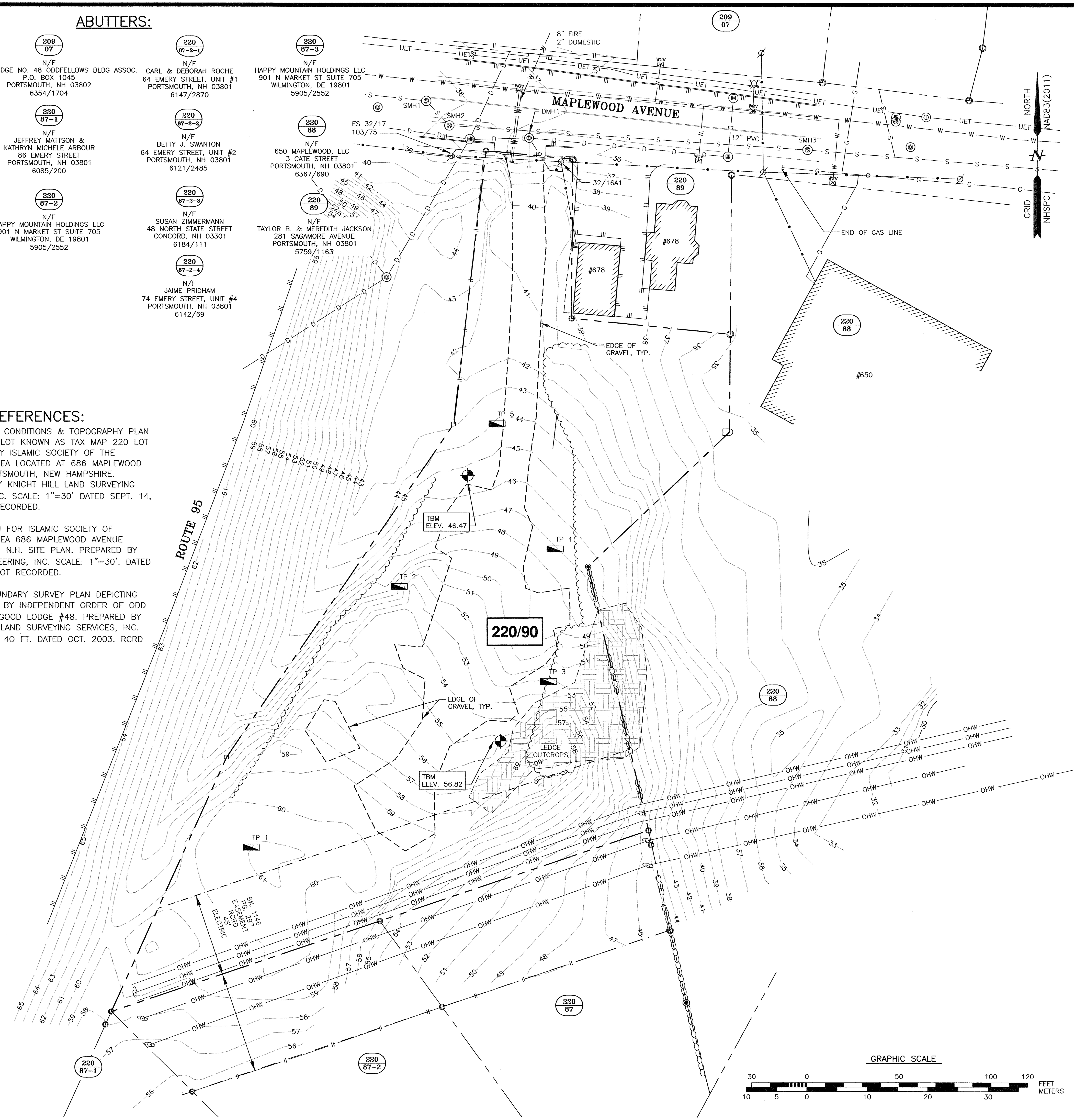
220/89
N/F
TAYLOR B. & MEREDITH JACKSON
281 SAGAMORE AVENUE
PORTSMOUTH, NH 03801
5759/1163

PLAN REFERENCES:

1) EXISTING CONDITIONS & TOPOGRAPHY PLAN FOR VACANT LOT KNOWN AS TAX MAP 220 LOT 90 OWNED BY ISLAMIC SOCIETY OF THE SEACOAST AREA LOCATED AT 686 MAPLEWOOD AVENUE PORTSMOUTH, NEW HAMPSHIRE. PREPARED BY KNIGHT HILL LAND SURVEYING SERVICES, INC. SCALE: 1"=30' DATED SEPT. 14, 2017. NOT RECORDED.

2) SITE PLAN FOR ISLAMIC SOCIETY OF SEACOAST AREA 686 MAPLEWOOD AVENUE PORTSMOUTH, N.H. SITE PLAN. PREPARED BY AMBIT ENGINEERING, INC. SCALE: 1"=30'. DATED MAY 2019. NOT RECORDED.

3) LAND BOUNDARY SURVEY PLAN DEPICTING LAND OWNED BY INDEPENDENT ORDER OF ODD FELLOWS, OSGOOD LODGE #48. PREPARED BY KNIGHT HILL LAND SURVEYING SERVICES, INC. SCALE: 1" = 40 FT. DATED OCT. 2003. RCRD D-31278.



AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) PARCEL IS SHOWN ON THE CITY OF PORTSMOUTH ASSESSOR'S MAP 220 AS LOT 90.

2) OWNERS OF RECORD:
ISLAMIC SOCIETY OF THE SEACOAST AREA
42N DOVER POINT ROAD
DOVER, NH 03820
5806/2816

APPLICANT:
CHINBURG DEVELOPMENT, LLC
3 PENSTOCK WAY
NEWMARKET, NH 03857

3) PARCEL IS NOT IN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON FIRM PANEL 33015C0259F. EFFECTIVE JANUARY 29, 2021.

4) EXISTING LOT AREA:
62,776 S.F.
1.4411 ACRES

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

DIMENSIONAL REQUIREMENTS:

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

7) THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS ON ASSESSOR'S MAP 220 LOT 90 IN THE CITY OF PORTSMOUTH.

8) RCRD 5759/1160 PLACED A BURDEN ON TAX MAP 220 LOT 90. THE EASEMENT DESCRIBED IN RCRD 5759/1160 HAS BEEN EXTINGUISHED DUE TO THE REMOVAL OF THE DECKS AND THE NON-REPLACEMENT WITHIN THE SIX (6) MONTHS ALLOWED BY THE EASEMENT DEED.

9) EVERSOURCE WORK REQUEST NUMBER: 14984794.

RESIDENTIAL DEVELOPMENT CHINBURG DEVELOPMENT 686 MAPLEWOOD AVE. PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
4	RE-PLOT	1/24/24
3	DOMESTIC LINE NOTE	1/2/24
2	WATER LINE MARKINGS	12/20/23
1	ISSUED FOR APPROVAL	4/20/23
0	ISSUED FOR COMMENT	4/13/23

REVISIONS

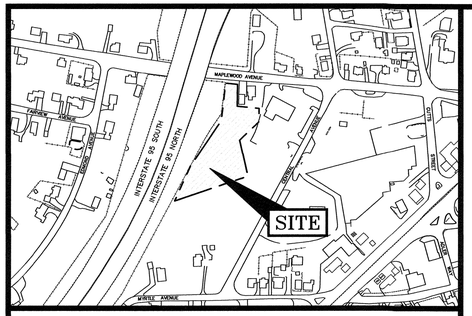
SCALE: 1"=30' FEBRUARY 2023

EXISTING CONDITIONS PLAN

C1

FB 394 PG 1

2360.01



LOCATION MAP SCALE 1"=300'

LEGEND: SEE COVER SHEET

IMPERVIOUS SURFACE AREAS
(TO PROPERTY LINE)

STRUCTURE	PRE-CONSTRUCTION IMPERVIOUS (S.F.)	POST-CONSTRUCTION IMPERVIOUS (S.F.)
MAIN STRUCTURES	0	5,856
DECKS	0	1,248
COVERED PORCHES	0	270
PAVEMENT	0	11,790
SIDEWALKS	0	2,376
GRAVEL	12,999	0
CURBING	0	255
RETAINING WALL	0	1084
TOTAL	12,999	22,879
LOT SIZE	62,776	62,776
% LOT COVERAGE	20.7%	36.4%

PROPOSED BUILDING COVERAGE: 7,374 S.F./62,776 S.F. = 11.7%
PROPOSED OPEN SPACE: 40,504 S.F./62,776 S.F. = 64.5%
BUILDING HEIGHT TO CONFORM TO ORDINANCE.

VARIANCES GRANTED:

1) ARTICLE #5, SECTION 10.520 TO PERMIT FRONTAGE OF 47.31 FEET WHERE 100 FEET IS REQUIRED. GRANTED 6/21/23.

2) ARTICLE #5, SECTION 10.520 TO PERMIT 10,462 S.F. OF LOT AREA PER DWELLING UNIT WHERE 15,000 S.F. OF LOT AREA PER DWELLING UNIT IS REQUIRED. GRANTED 8/22/23.

3) ARTICLE #5, SECTION 10.513 TO PERMIT 6 FREE STANDING BUILDINGS WITH DWELLINGS WHERE NO MORE THAN ONE FREE STANDING DWELLING IS PERMITTED. GRANTED 8/22/23.

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

ABUTTERS:

209/07
N/F
OSGOOD LODGE NO. 48 ODDFELLOWS BLDG ASSOC.
P.O. BOX 1045
PORTSMOUTH, NH 03802
6354/1704

220/87-1
N/F
JEFFREY MATTSON &
KATHRYN MICHELE ARBOUR
86 EMERY STREET
PORTSMOUTH, NH 03801
6085/200

220/87-2
N/F
HAPPY MOUNTAIN HOLDINGS LLC
901 N MARKET ST SUITE 705
WILMINGTON, DE 19801
5905/2552

220/87-2-1
N/F
CARL & DEBORAH ROCHE
64 EMERY STREET, UNIT #1
PORTSMOUTH, NH 03801
6147/2870

220/87-2-2
N/F
BETTY J. SWANTON
64 EMERY STREET, UNIT #2
PORTSMOUTH, NH 03801
6121/2485

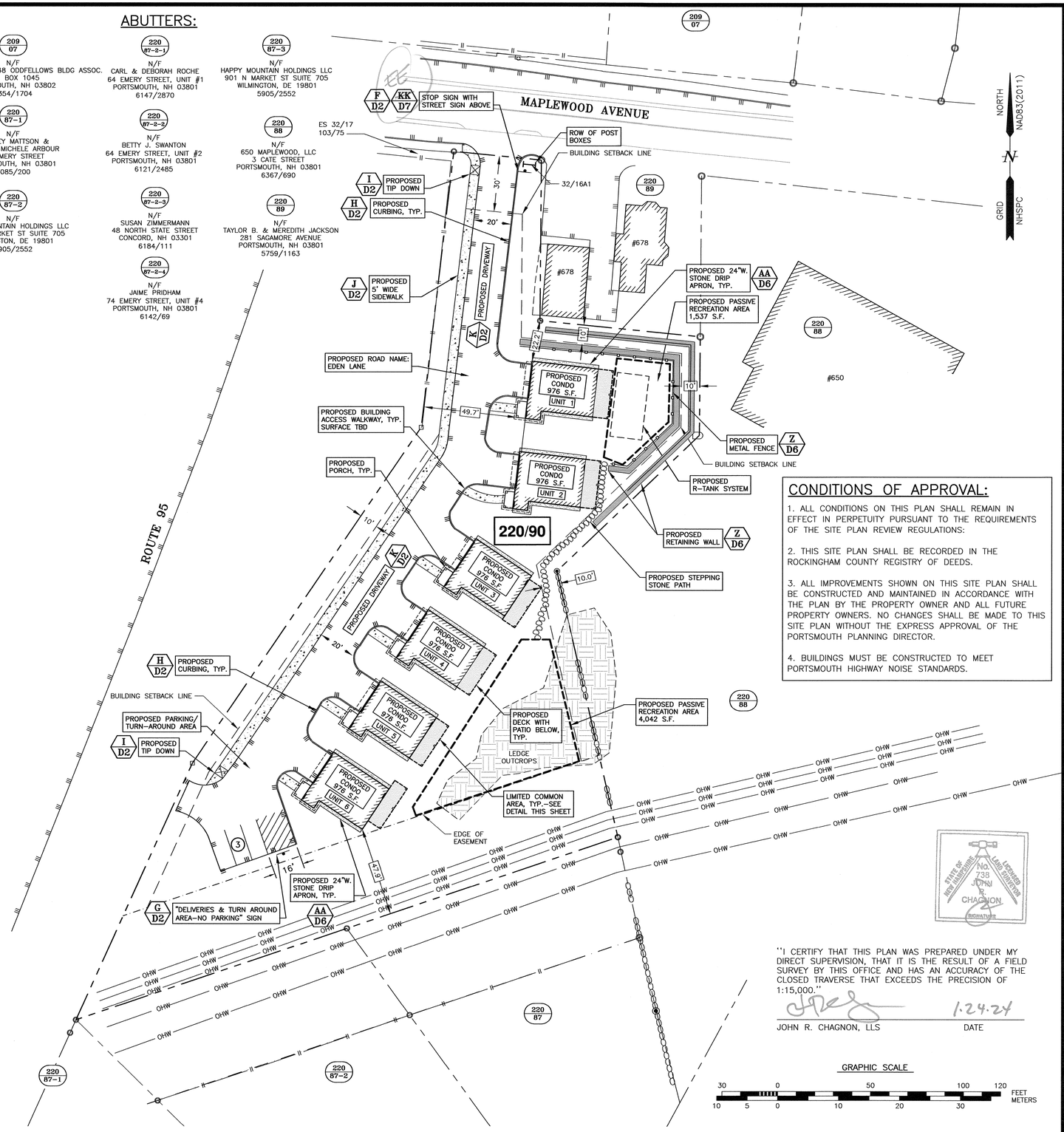
220/87-2-3
N/F
SUSAN ZIMMERMANN
48 NORTH STATE STREET
CONCORD, NH 03301
6184/111

220/87-2-4
N/F
JAIME PRIDHAM
74 EMERY STREET, UNIT #4
PORTSMOUTH, NH 03801
6142/69

220/87-3
N/F
HAPPY MOUNTAIN HOLDINGS LLC
901 N MARKET ST SUITE 705
WILMINGTON, DE 19801
5905/2552

220/88
N/F
650 MAPLEWOOD, LLC
3 CATE STREET
PORTSMOUTH, NH 03801
6367/690

220/89
N/F
TAYLOR B. & MEREDITH JACKSON
281 SAGAMORE AVENUE
PORTSMOUTH, NH 03801
5759/1163



CONDITIONS OF APPROVAL:

1. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS:

2. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

3. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR.

4. BUILDINGS MUST BE CONSTRUCTED TO MEET PORTSMOUTH HIGHWAY NOISE STANDARDS.

"I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN ACCURACY OF THE CLOSED TRAVERSE THAT EXCEEDS THE PRECISION OF 1:15,000."

JOHN R. CHAGNON, LLS 1.24.24 DATE

GRAPHIC SCALE
30 0 50 100 120 FEET
10 5 0 10 20 30 METERS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
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603.430.9282

NOTES:

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APPLICANT:
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MAXIMUM BUILDING COVERAGE:	20%
MINIMUM OPEN SPACE:	40%

6) THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED DEVELOPMENT ON ASSESSOR'S MAP 220 LOT 90 IN THE CITY OF PORTSMOUTH.

7) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GPS OBSERVATIONS.

8) BUILDINGS FROM PLANS BY CJ ARCHITECTS DATED 10-23-23.

9) PARKING CALCULATION:
REQUIRED: 1.3 PER UNIT
6 UNITS X 1.3 = 8 SPACES
GUEST REQUIRED: 1 PER 5 UNITS = 2 SPACES
TOTAL SPACES REQUIRED = 10
PROVIDED PARKING: 15 SPACES

10) UNIT NUMBERING TO BE COORDINATED WITH 911.

11) THE PLAN FOR SOLID WASTE REMOVAL IS TO PROVIDE PRIVATE WEEKLY PICKUP.

12) STORMWATER MANAGEMENT INSTALLATIONS SHALL BE INSPECTED BY DPW DURING CONSTRUCTION AND AN ANNUAL REPORT SHALL BE SUBMITTED TO THE DPW DEPARTMENT REGARDING THE FUNCTION OF THE DESIGN.

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
3	RETAINING WALL	1/24/24
2	COA, NOTE 9, DRIP APRON	12/20/23
1	ISSUED FOR APPROVAL	10/23/23
0	ISSUED FOR COMMENT	10/3/23

REVISIONS

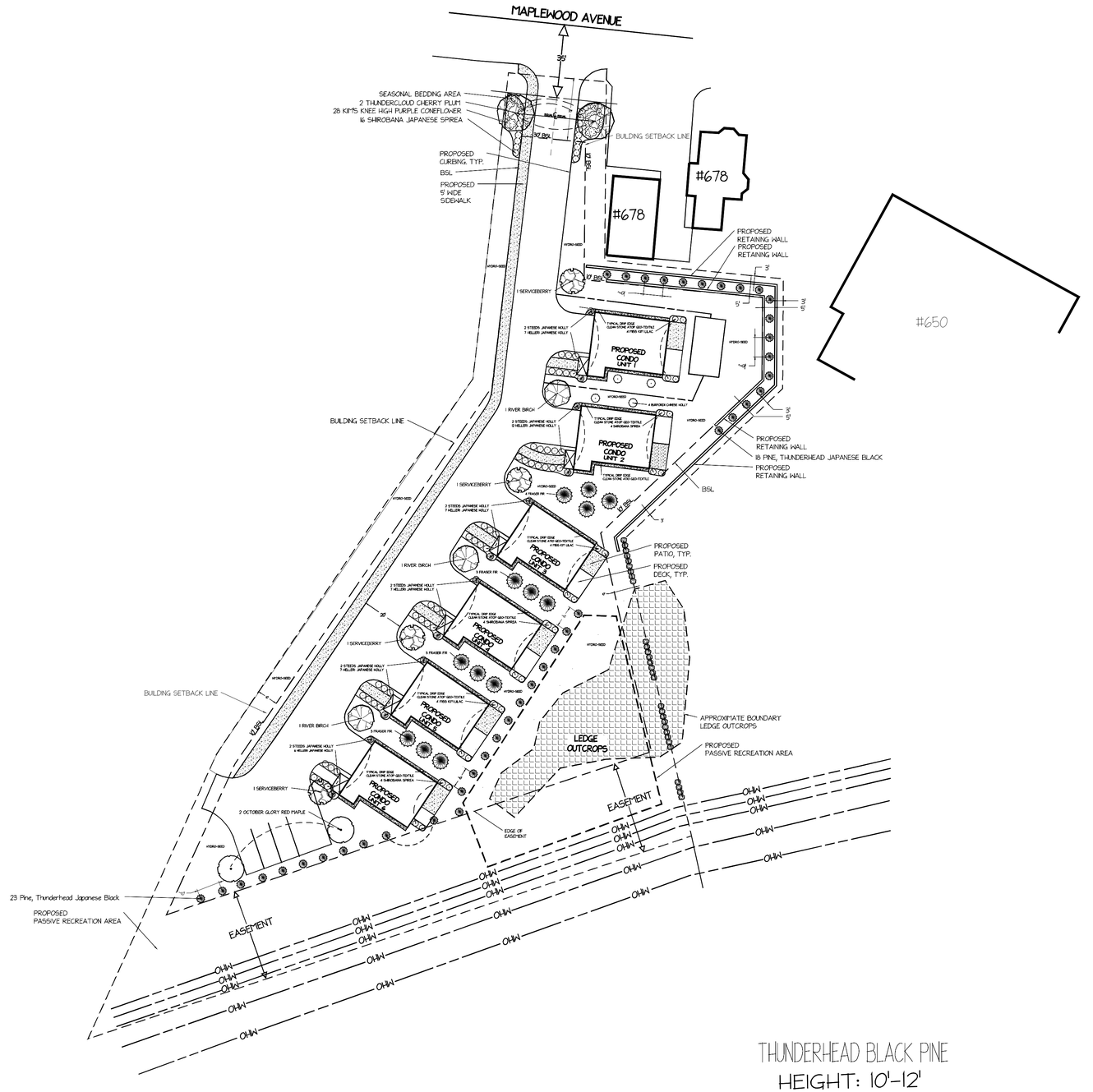
STATE OF NEW HAMPSHIRE · JOHN R. CHAGNON · No. 7851 · LICENSED PROFESSIONAL ENGINEER

SCALE: 1"=30' JULY 2023

SITE PLAN C2

FB 394 PG 1 2360.01

P:\NH\5010\20-Chinburg, Builder\2360.01-686 Maplewood Ave., Portsmouth-INC\2023 Site Plan\Plans & Specs\Site\2360 Site 2023.dwg, 1/18/2024 9:55:29 AM, Portsmouth Plotter Canon TX3000.pc3



CALL BEFORE YOU DIG

811 DigSafe MA-ME-NH-RI-VT

Dig Safe System, Inc.

It's Smart. It's Free. It's the Law.

THUNDERHEAD BLACK PINE

HEIGHT: 10'-12'

WIDTH: 10'-12'

1" = 30'

N

PLANT LEGEND

Qty	Botanical Name	Common Name	Remarks
Trees			
13	Abies fraseri	FRASER FIR	6'-7'
2	Acer rubrum 'October Glory'	OCTOBER GLORY RED MAPLE	2"-2.5" cal.
4	Amelanchier canadensis	SERVICEBERRY	6'-7'
3	Betula nigra	RIVER BIRCH	6'-7'
41	PINUS thunbergiana 'Thunderhead'	Pine, Thunderhead Japanese Black	36" - 42"
2	Prunus cerasifera 'Thundercloud'	THUNDERCLOUD CHERRY PLUM	2" - 2.5" cal.
Shrubs			
4	Ilex cornuta 'Burfordii'	BURFORDII CHINESE HOLLY	#3
46	Ilex crenata 'Helleri'	HELLERI JAPANESE HOLLY	#3
12	Ilex crenata 'Steedsi'	STEEDS JAPANESE HOLLY	#3
28	Spiraea japonica 'Shirobana'	SHIROBANA JAPANESE SPIREA	#3
12	Syringa patula 'Miss Kim'	MISS KIM MANCHURIAN LILAC	#3
Perennials			
28	Echinacea purpurea 'Kim's Knee High'	KIM'S KNEE HIGH PURPLE CONEFLOWER	#1

NOTES

SHEET SIZE
24"x32"

No.	Date	Description
1	07.25.23	COMMENTS
2	10.03.23	COMMENTS
3	11.20.23	UNIT LANDSCAPING
4	12.19.23	RETAINING WALL MOD.
5	12.20.23	COMMENTS
6	01.17.24	COMMENTS

REVISIONS

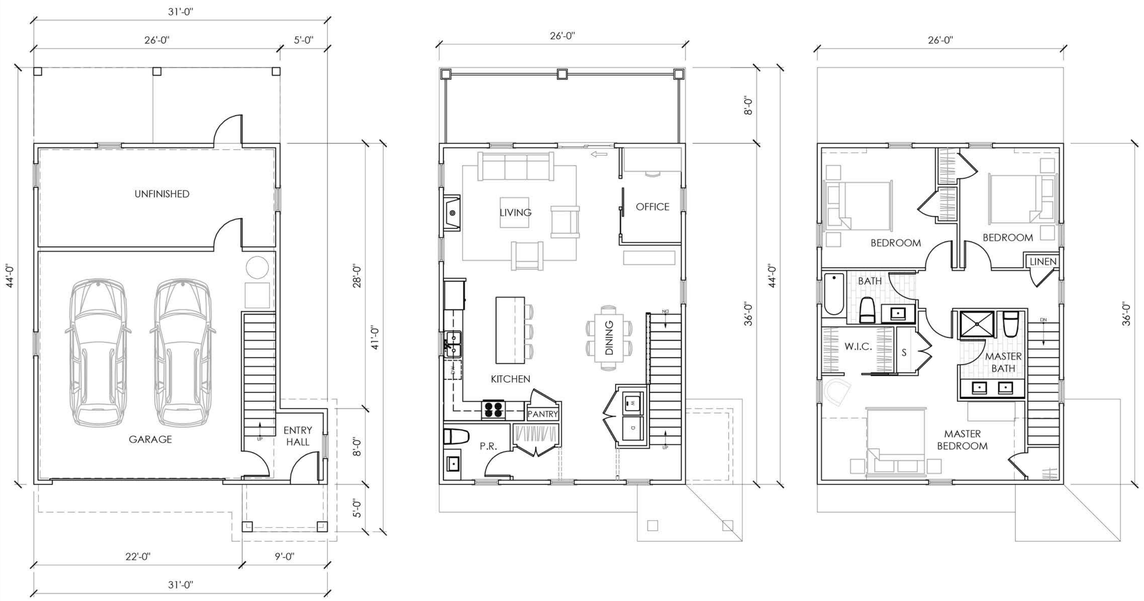
686 MAPLEWOOD CONCEPT PLAN LANDSCAPE

TRIMMERS LANDSCAPING, INC.

SCALE	1" = 30'
DRAWN BY	MIC
CHECKED BY	ES
DATE	01.17.24
DATE OF PRINT	

PROJECT NO.

SHEET NO. L-1



LOWER LEVEL PLAN
1/8" = 1'-0"

FIRST FLOOR PLAN
1/8" = 1'-0"

SECOND FLOOR PLAN
1/8" = 1'-0"

Building 1: Height above AGP = 34'-11"
Dormer wall = 7'-0"H and Garage door = 7'-0"H

Building 2: Height above AGP = 34'-9"
Dormer wall = 8'-0"H and Garage door = 7'-0"H

Building 3: Height above AGP = 34'-11 ½"
Dormer wall = 8'-0"H and Garage door = 8'-0"H

Building 4: Height above AGP = 34'-11"
Dormer wall = 8'-0"H and Garage door = 8'-0"H

Building 5: Height above AGP = 34'-8"
Dormer wall = 8'-0"H and Garage door = 8'-0"H

Building 6: Height above AGP = 33'-8"
Dormer wall = 8'-0"H and Garage door = 8'-0"H

FRONT ELEVATION
1/8" = 1'-0"

RIGHT ELEVATION
1/8" = 1'-0"

BACK ELEVATION
1/8" = 1'-0"

LEFT ELEVATION
1/8" = 1'-0"

NOT FOR CONSTRUCTION

REVISIONS:

CHINBURG PROPERTIES, INC.
686 MAPLEWOOD AVENUE
PORTSMOUTH, NH

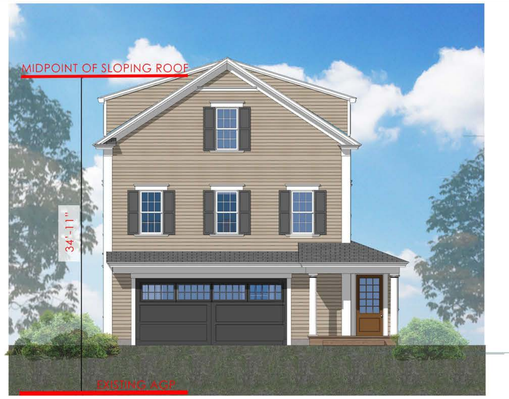
LICENSED ARCHITECT
CARLA J GOODKNIGHT
No. 1988
THE STATE OF NEW HAMPSHIRE

CJ ARCHITECTS
233 VAUGHAN STREET
SUITE 101
PORTSMOUTH, NH 03801
(603) 431-2808
www.cjarchitects.net

FLOOR PLANS & ELEVATIONS

DATE:	12/20/23
DRAWN BY:	RLD
APPROVED BY:	CJG
SCALE:	1/8" = 1'-0"
JOB NUMBER:	22303

A1



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RIGHT ELEVATION
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LEFT ELEVATION
1/8" = 1'-0"

BACK ELEVATION
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LEFT ELEVATION
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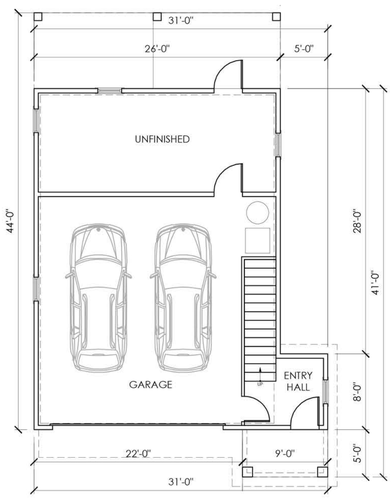
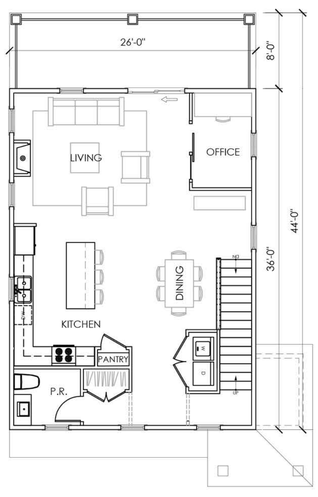
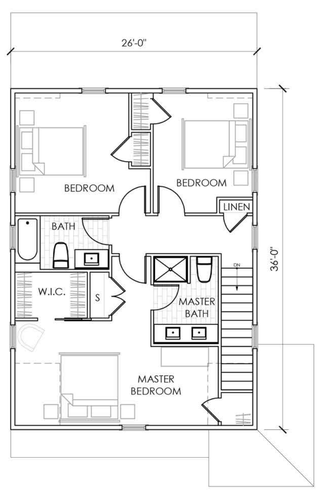
BUILDING 1



LOWER LEVEL PLAN
1/8" = 1'-0"

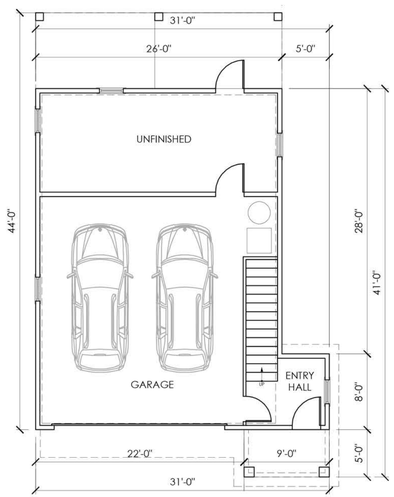


FIRST FLOOR PLAN
1/8" = 1'-0"



SECOND FLOOR PLAN
1/8" = 1'-0"

BUILDING 2



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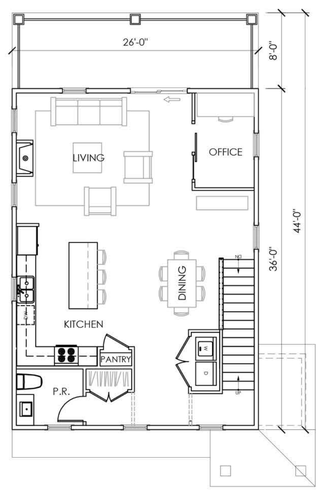

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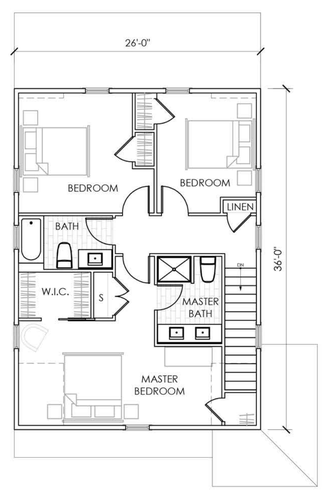

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1/8" = 1'-0"

FLOOR PLANS, SQUARE FOOTAGES, DIMENSIONS, SPECIFICATIONS, MATERIALS, ETC. ARE PRELIMINARY AND SUBJECT TO CHANGE WITHOUT NOTICE OR OBLIGATION. ACTUAL CONSTRUCTION MAY VARY.

NOT FOR CONSTRUCTION

REVISIONS:

CHINBURG PROPERTIES, INC.

686 MAPLEWOOD AVENUE
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PORTSMOUTH, NH 03801
(603) 431-2808
www.cjarchitects.net

FLOOR PLANS & ELEVATIONS

DATE:	01/02/24
DRAWN BY:	RLD
APPROVED BY:	CJG
SCALE:	1/8" = 1'-0"
JOB NUMBER:	22303

A2

FRONT ELEVATION
1/8" = 1'-0"

RIGHT ELEVATION
1/8" = 1'-0"

FRONT ELEVATION
1/8" = 1'-0"

RIGHT ELEVATION
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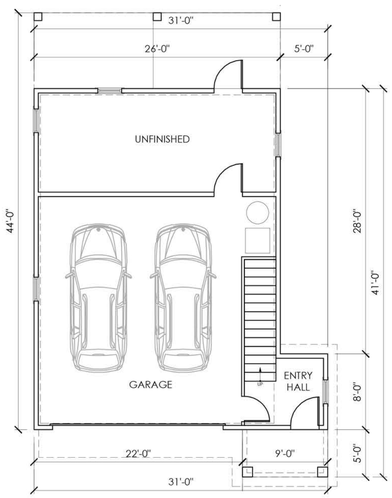
BACK ELEVATION
1/8" = 1'-0"

LEFT ELEVATION
1/8" = 1'-0"

BACK ELEVATION
1/8" = 1'-0"

LEFT ELEVATION
1/8" = 1'-0"

BUILDING 3



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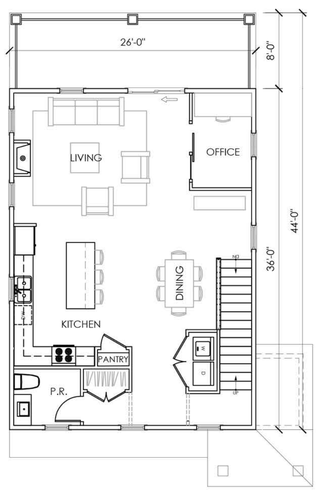

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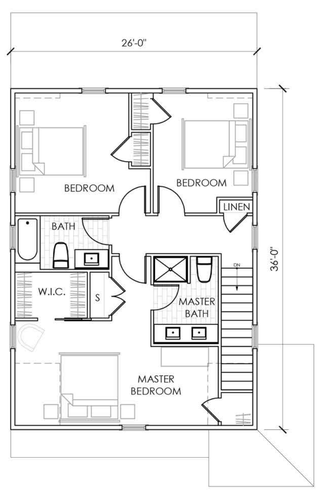
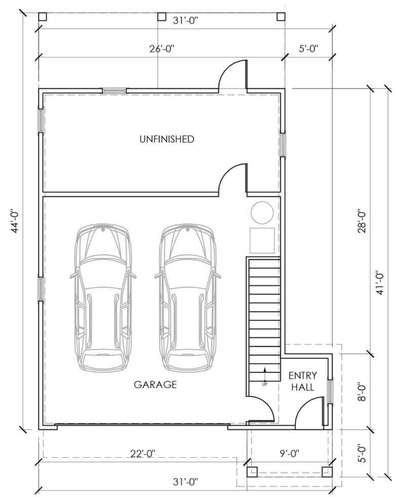


SECOND FLOOR PLAN
1/8" = 1'-0"

BUILDING 4



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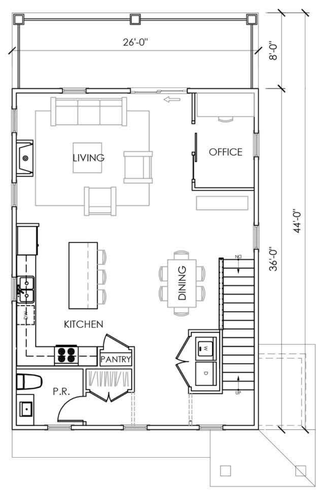

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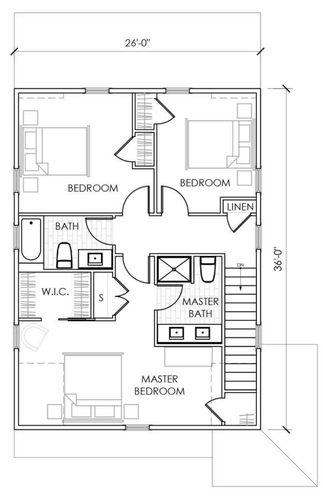

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FLOOR PLANS & ELEVATIONS

DATE:	01/02/24
DRAWN BY:	RLD
APPROVED BY:	CJG
SCALE:	1/8" = 1'-0"
JOB NUMBER:	22303

A3

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RIGHT ELEVATION
1/8" = 1'-0"

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RIGHT ELEVATION
1/8" = 1'-0"

BACK ELEVATION
1/8" = 1'-0"

LEFT ELEVATION
1/8" = 1'-0"

BACK ELEVATION
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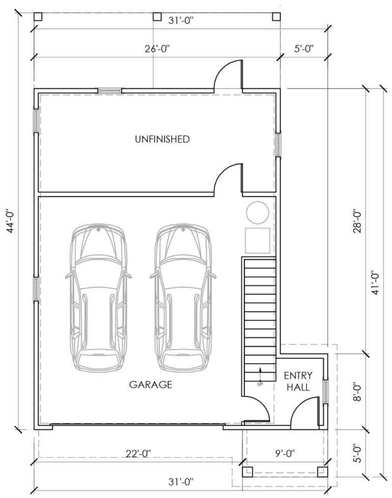
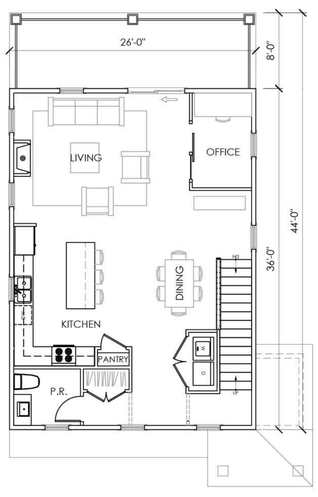
LEFT ELEVATION
1/8" = 1'-0"

BUILDING 5



LOWER LEVEL PLAN
1/8" = 1'-0"



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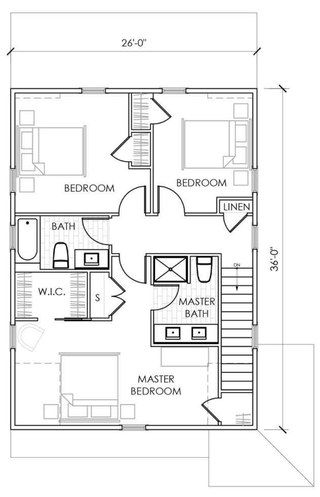
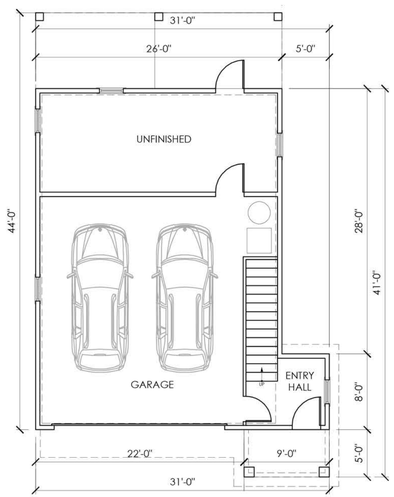
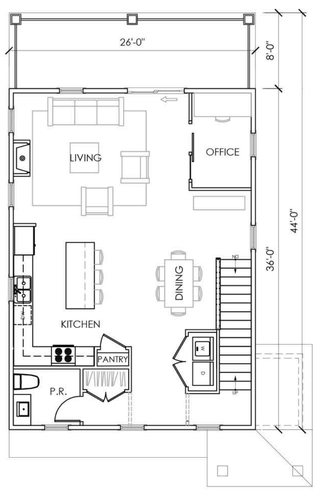


SECOND FLOOR PLAN
1/8" = 1'-0"

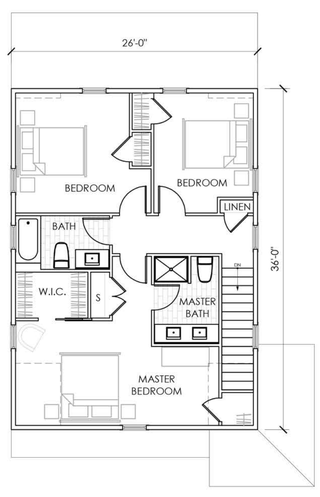
BUILDING 6



LOWER LEVEL PLAN
1/8" = 1'-0"



FIRST FLOOR PLAN
1/8" = 1'-0"



SECOND FLOOR PLAN
1/8" = 1'-0"

FLOOR PLANS, SQUARE FOOTAGES, DIMENSIONS, SPECIFICATIONS, MATERIALS, ETC. ARE PRELIMINARY AND SUBJECT TO CHANGE WITHOUT NOTICE OR OBLIGATION. ACTUAL CONSTRUCTION MAY VARY.

NOT FOR CONSTRUCTION

REVISIONS:

CHINBURG PROPERTIES, INC.

686 MAPLEWOOD AVENUE
PORTSMOUTH, NH

LICENSED ARCHITECT
CARLA J GOODKNIGHT
No. 1988
THE STATE OF NEW HAMPSHIRE

CJ ARCHITECTS
233 VAUGHAN STREET
SUITE 101
PORTSMOUTH, NH 03801
(603) 431-2808
www.cjarchitects.net

FLOOR PLANS & ELEVATIONS

DATE:	01/02/24
DRAWN BY:	RLD
APPROVED BY:	CJG
SCALE:	1/8" = 1'-0"
JOB NUMBER:	22303

A4

DRAINAGE STRUCTURE SCHEDULE

STRUCTURE	PROP/EX	RIM	PIPE SIZE/TYPE	INVERT IN	INVERT OUT	DIRECTION
CB 1	PROP	37.0	12"		33.70	NW
CB 2	PROP	43.3	15"	37.28	37.03	W
CB 3	PROP	46.5	15"	42.00	41.90	E
CB 4	PROP	49.4	15"	46.00	45.75	NE
CB 5	PROP	55.1	12"	52.00	51.90	NE
CB 6	PROP	59.0	12"		55.00	NE
DMH 1	EX	37.1	15"	33.08		S
DMH 1	EX	37.1	12"	33.35		SE
DMH 2	PROP	43.4	15"	37.00	36.90	S
DMH 3	PROP	44.0	15"	37.45	37.45	W
DMH 4	PROP	44.5	15"	41.66	39.02	N

PIPE SCHEDULE

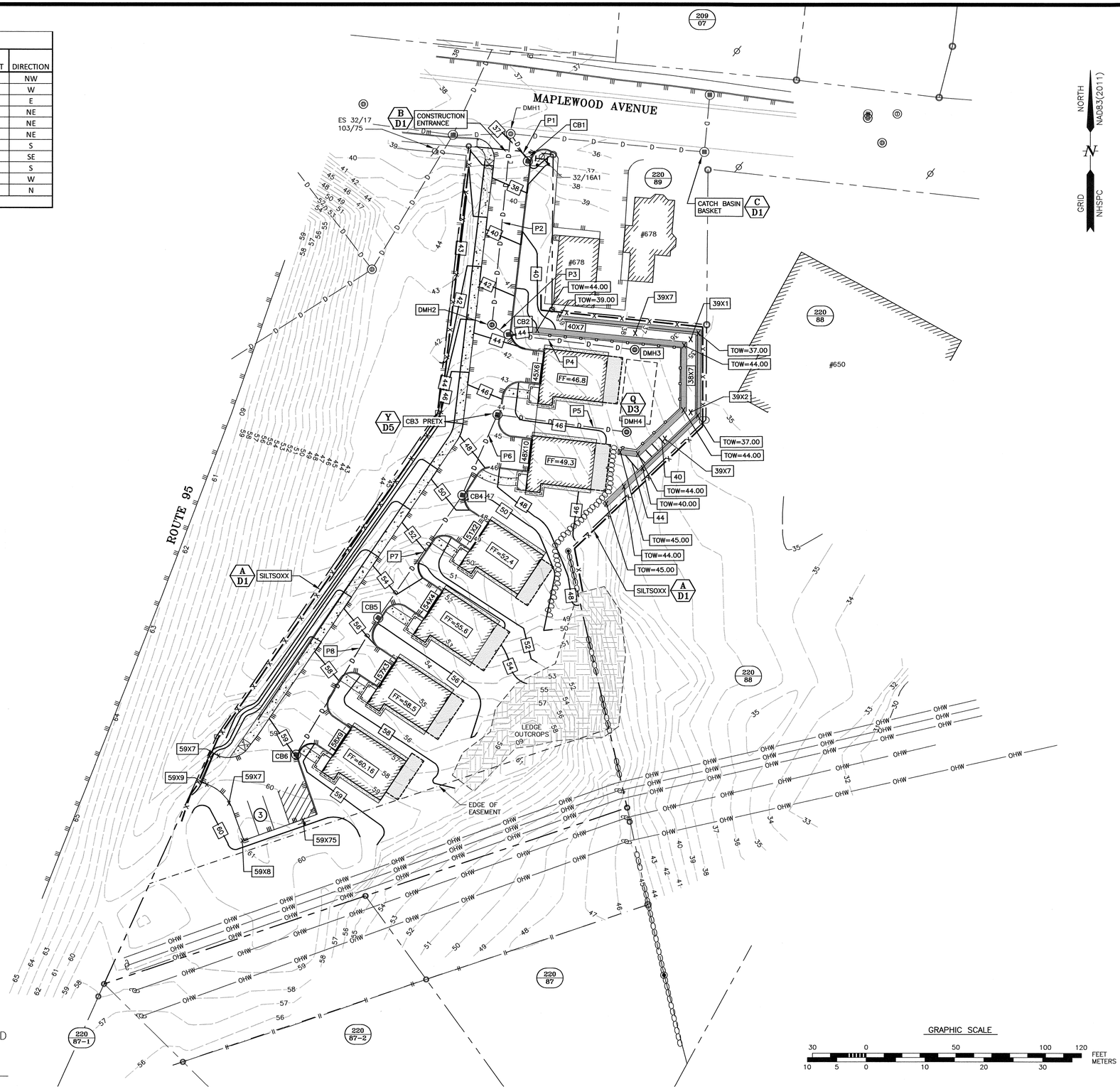
PIPE #	PIPE SIZE	LENGTH	SLOPE
P1	12"	16'	0.022
P2	15"	104'(91')	0.039
P3	15"	6'	0.0050
P4	15"	66'	0.0026
P5	15"	68'	0.0035
P6	15"	44'	0.085
P7	12"	78'	0.076
P8	12"	84'	0.036

*ALL PIPE TO BE HDPE

R-TANK SYSTEM

MODULE TYPE	R-TANK HD
TRAFFIC LOAD	PEDESTRIAN
# OF TANKS	130
TANK STORAGE	1072.7 cf
STONE STORAGE	510.3 cf
TOTAL STORAGE	1583.0 cf
TOP OF COVER STONE	41.27
TOP OF R-TANK	40.27
BOTTOM OF TANK	37.45
STONE BASE INVERT	37.20

SYSTEM IS 17.12' WIDE BY 34.50' LONG



AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282
WWW.HALEYWARD.COM

NOTES:

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

2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

4) INSTALL CATCH BASIN INLET PROTECTION ON ALL EXISTING AND PROPOSED CATCH BASINS UNTIL CONSTRUCTION IS COMPLETED AND THE SITE IS STABILIZED.

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
3	RETAINING WALLS	1/24/24
2	R-TANK, WALLS, GRADES	10/20/23
1	ISSUED FOR APPROVAL	10/23/23
0	ISSUED FOR COMMENT	10/3/23

REVISIONS

STATE OF NEW HAMPSHIRE - JOHN R. CHAGNON NO. 9851 LICENSED PROFESSIONAL ENGINEER -

SCALE: 1"=30' OCTOBER 2023

GRADING & EROSION CONTROL PLAN

C3

FB 394 PG 1

2360.01

P:\NH\2010\20-Chinburg_Builders\2360.01-686 Maplewood Ave., Portsmouth-INC\2023 Site Plan\Plans & Specs\Site\2360 Site 2023.dwg, 1/18/2024 9:49:07 AM, Portsmouth Plotter Canon TX3000.pc3

UTILITY NOTES:

1) SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
2) COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY.
3) SEE GRADING AND DRAINAGE PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
4) ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, POLYWRAPPED, CEMENT LINED DUCTILE IRON PIPE.
5) ALL WATERMAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION AND BEFORE ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE WITH THE CITY OF PORTSMOUTH.
6) ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
7) ALL WORK WITHIN CITY R.O.W. SHALL BE COORDINATED WITH CITY OF PORTSMOUTH
8) CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ABUTTING PROPERTIES THROUGHOUT CONSTRUCTION. THIS MIGHT INVOLVE SEWER PUMPING DURING CONSTRUCTION OF SMH4.
9) ANY CONNECTION TO EXISTING WATER MAIN SHALL BE COORDINATED WITHY THE CITY OF PORTSMOUTH.
10) EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN UNLESS OTHERWISE SPECIFIED BY THE PUBLIC WORKS DEPARTMENT AND MEET THE DEPARTMENT OF PUBLIC WORKS STANDARDS FOR CAPPING OF WATER AND SEWER SERVICES.
11) ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
12) THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH BUILDING DRAWINGS AND UTILITY COMPANIES.
13) ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
14) ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
15) THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATED TO THE OWNER PRIOR TO THE COMPLETION OF PROJECT.
16) THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED IN THESE DRAWING TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
17) CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES.
18) A 10-FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18-INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS WATER ABOVE SEWER.
19) SAWCUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVED AREAS.
20) GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTSMOUTH.
21) COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF PORTSMOUTH.
22) ALL SEWER PIPES WITH LESS THAN 6' COVER SHALL BE INSULATED.
23) CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK INCLUDING BUT NOT LIMITED TO: CONDUIT CONSTRUCTION, MANHOLE CONSTRUCTION, UTILITY POLE CONSTRUCTION, OVERHEAD WIRE RELOCATION, AND TRANSFORMER CONSTRUCTION WITH POWER COMPANY.
24) CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION, PARTICULARLY WATER MAIN AND GAS MAIN CONSTRUCTION AS TO MAINTAIN CONTINUOUS SERVICE TO ABUTTING PROPERTIES. CONTRACTOR SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH UTILITY COMPANY AND AFFECTED ABUTTER.
25) SITE LIGHTING SPECIFICATIONS, CONDUIT LAYOUT AND CIRCUITRY FOR PROPOSED SITE LIGHTING AND SIGN ILLUMINATION SHALL BE PROVIDED BY THE PROJECT ELECTRICAL ENGINEER IN COORDINATION WITH THE SITE CIVIL ENGINEER.
26) CONTRACTOR SHALL CONSTRUCT ALL UTILITIES AND DRAINS TO WITHIN 10' OF THE FOUNDATION WALLS AND CONNECT THESE TO SERVICE STUBS FROM THE BUILDING.
27) THE CONTRACTOR SHALL INSTALL THE SEWER LINE AND MANHOLE IN CONSULTATION AND COORDINATION WITH DEPARTMENT OF PUBLIC WORKS.
28) BRASS WEDGES FOR CONTINUITY OF SIGNAL MUST BE INSTALLED ON WATER MAINS PER THE PORTSMOUTH WATER DEPARTMENT
29) FINAL REVIEW OF ALL UTILITIES SHALL BE MADE DURING THE REQUIRED SEWER CONNECTION PERMIT PROCESS IN COORDINATION WITH DEPARTMENT OF PUBLIC WORKS.
30) ALL WORK PERFORMED IN THE PUBLIC RIGHT-OF-WAY SHALL BE BUILT TO DEPARTMENT OF PUBLIC WATER WORKS STANDARDS.
31) THIRD PARTY UTILITY INSTALLATION INSPECTIONS SHALL BE REQUIRED ON WATER MAIN, SEWER, AND DRAINAGE SYSTEM CONSTRUCTION, AS WELL AS CONSTRUCTION AND REPAIRS TO CITY STREETS.

SEWER STRUCTURE SCHEDULE

STRUCTURE	PROP/EX	RIM	PIPE SIZE/TYPE	INVERT IN	INVERT OUT	DIRECTION
SMH 1	EX	38.25	12" PVC	32.50	32.40	SE
SMH 2	EX	37.75	12" PVC	32.30	32.30	E
SMH 3	EX	34.96	12" PVC	25.60	25.60	E
SMH 4	PROP	36.9	8"/12" PVC	30.93	30.6	E
SMH 5	PROP	44.0	8" PVC	36.12	34.86	N
SMH 6	PROP	47.4	8" PVC	39.83	38.58	N
SMH 7	PROP	59.1	8" PVC		52.1	NE

ALL SEWER PIPE TO BE SDR 35

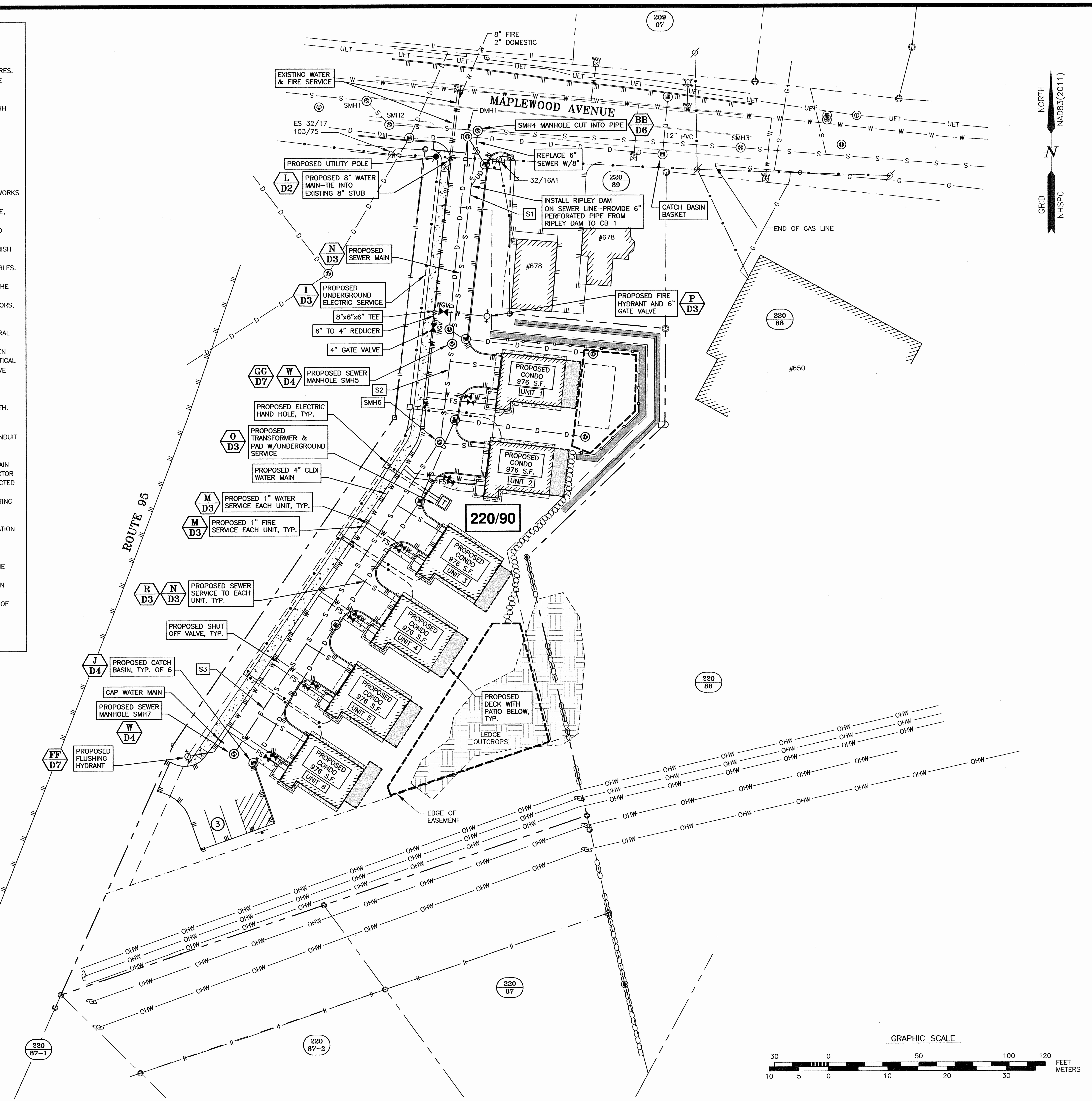
SEWER PIPE SCHEDULE

UNIT #	INV. @ MAIN	INV. @ BLDG.
1	35.13	41.6
2	40.07	44.1
3	42.23	47.2
4	44.75	50.4
5	47.63	53.3
6	50.39	54.9
PIPE	LENGTH	SLOPE
S1	116'	0.02
S2	50'	0.10
S3	202'	0.06

ALL SEWER PIPE TO BE SDR 35-8" MAIN, 6" SERVICES

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN ____________ DATE ____________



AMBIT ENGINEERING, INC.
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WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

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2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

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4) INSTALL CATCH BASIN INLET PROTECTION ON ALL EXISTING AND PROPOSED CATCH BASINS UNTIL CONSTRUCTION IS COMPLETED AND THE SITE IS STABILIZED.

5) ALL WATER MAIN AND SANITARY SEWER WORK SHALL MEET THE STANDARDS OF THE NEW HAMPSHIRE STATE PLUMBING CODE AND CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS.

6) UTILITY AS-BUILTS SHALL BE SUBMITTED TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS UPON COMPLETION OF THE PROJECT.

7) BUILDINGS WILL BE SPRINKLED PER REQUIRED CODES.

8) EVERSOURCE WORK ORDER NUMBER: 14984794.

9) PROVIDE CITY OF PORTSMOUTH STANDARD LEAK, VALVE, AND METER EASEMENT AND FIRE HYDRANT AGREEMENT FOR PRIVATE WATER SYSTEM, TO BE REVIEWED AND APPROVED BY CITY LEGAL DEPARTMENT.

RESIDENTIAL DEVELOPMENT CHINBURG DEVELOPMENT 686 MAPLEWOOD AVE. PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
3	REVISE GATE VALVES & SHUTOFFS, SEWER	1/24/24
2	ELECTRIC LINES, WATER NOTES	1/3/24
1	ISSUED FOR APPROVAL	10/23/23
0	ISSUED FOR COMMENT	10/3/23

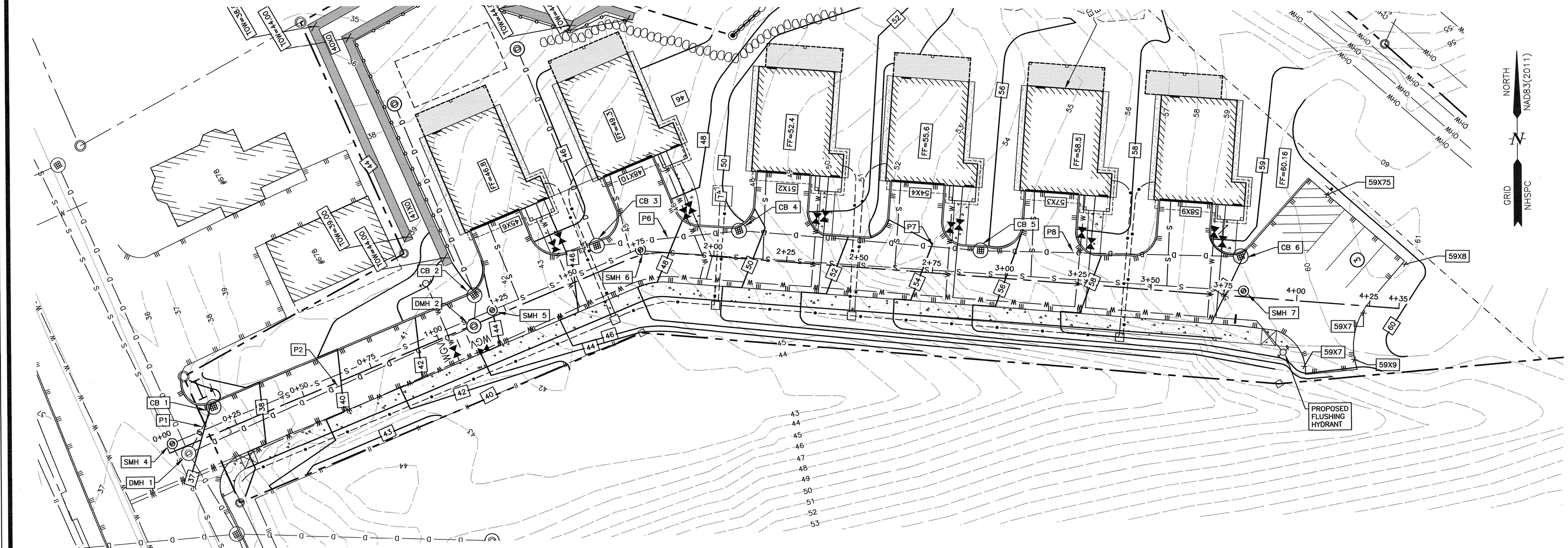
REVISIONS

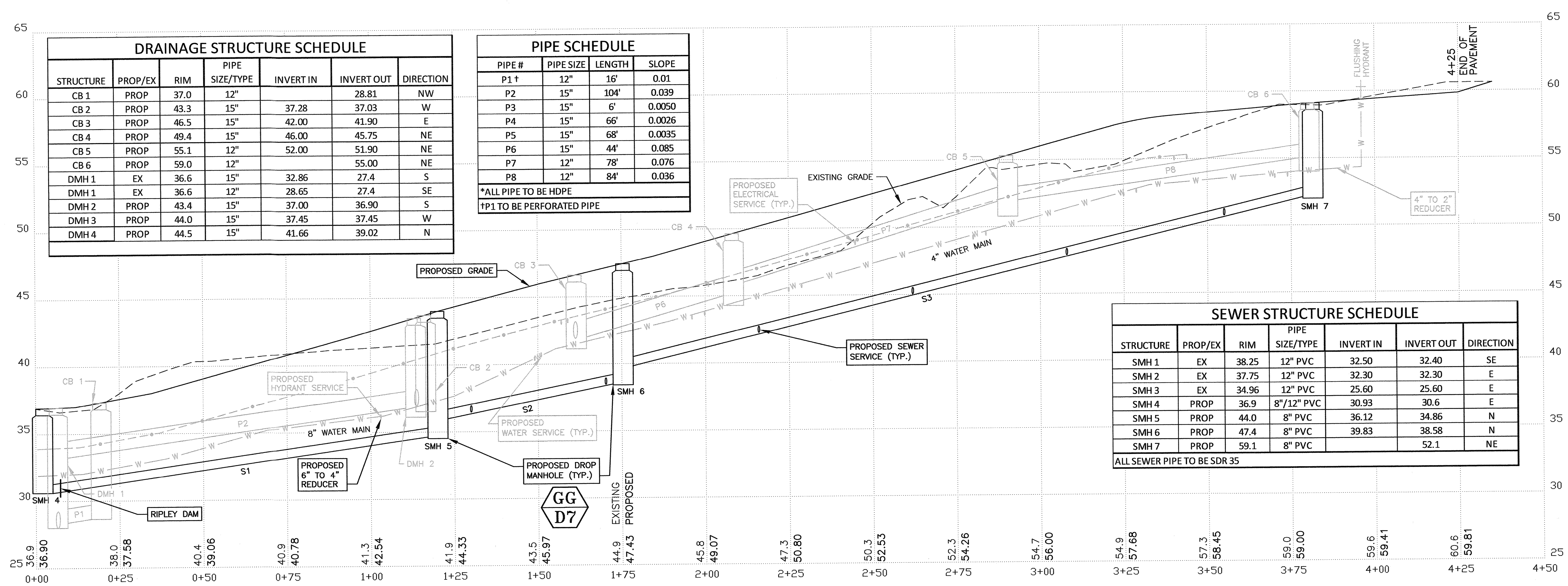
STATE OF NEW HAMPSHIRE JOHN R. CHAGNON No. 7351 LICENSED PROFESSIONAL ENGINEER

SCALE: 1"=30' OCTOBER 2023

UTILITY PLAN C4

FB 394 PG 1 2360.01





DRAINAGE STRUCTURE SCHEDULE

STRUCTURE	PROP/EX	RIM	PIPE SIZE/TYPE	INVERT IN	INVERT OUT	DIRECTION
CB 1	PROP	37.0	12"		28.81	NW
CB 2	PROP	43.3	15"	37.28	37.03	W
CB 3	PROP	46.5	15"	42.00	41.90	E
CB 4	PROP	49.4	15"	46.00	45.75	NE
CB 5	PROP	55.1	12"	52.00	51.90	NE
CB 6	PROP	59.0	12"		55.00	NE
DMH 1	EX	36.6	15"	32.86	27.4	S
DMH 1	EX	36.6	12"	28.65	27.4	SE
DMH 2	PROP	43.4	15"	37.00	36.90	S
DMH 3	PROP	44.0	15"	37.45	37.45	W
DMH 4	PROP	44.5	15"	41.66	39.02	N

PIPE SCHEDULE

PIPE #	PIPE SIZE	LENGTH	SLOPE
P1 †	12"	16'	0.01
P2	15"	104'	0.039
P3	15"	6'	0.0050
P4	15"	66'	0.0026
P5	15"	68'	0.0035
P6	15"	44'	0.085
P7	12"	78'	0.076
P8	12"	84'	0.036

*ALL PIPE TO BE HDPE

†P1 TO BE PERFORATED PIPE

SEWER STRUCTURE SCHEDULE

STRUCTURE	PROP/EX	RIM	PIPE SIZE/TYPE	INVERT IN	INVERT OUT	DIRECTION
SMH 1	EX	38.25	12" PVC	32.50	32.40	SE
SMH 2	EX	37.75	12" PVC	32.30	32.30	E
SMH 3	EX	34.96	12" PVC	25.60	25.60	E
SMH 4	PROP	36.9	8"/12" PVC	30.93	30.6	E
SMH 5	PROP	44.0	8" PVC	36.12	34.86	N
SMH 6	PROP	47.4	8" PVC	39.83	38.58	N
SMH 7	PROP	59.1	8" PVC		52.1	NE

ALL SEWER PIPE TO BE SDR 35

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN ____________ DATE ____________

GRAPHIC SCALE

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

WWW.HALEYWARD.COM

200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

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4) INSTALL CATCH BASIN INLET PROTECTION ON ALL EXISTING AND PROPOSED CATCH BASINS UNTIL CONSTRUCTION IS COMPLETED AND THE SITE IS STABILIZED.

5) WATER SHUT OFF VALVE BOX COVERS FOR EACH UNIT ARE TO BE PAINTED RED FOR FIRE SUPPRESSION VALVES AND BLUE FOR DOMESTIC WATER SUPPLY VALVES IN PERMANENT PAINT.

SEWER PIPE SCHEDULE

UNIT #	INV. @ MAIN	INV. @ BLDG.
1	36.81	41.6
2	38.91	44.1
3	42.23	47.2
4	44.75	50.4
5	47.63	53.3
6	50.39	54.9
PIPE	**LENGTH**	**SLOPE**
S1	116'	0.034
S2	50'	0.0490
S3	202'	0.06

ALL SEWER PIPE TO BE SDR 35-8" MAIN, 6" SERVICES

GRAPHIC SCALE

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
2	DMH 1 INVERTS, DRAIN PIPE, NOTE 5	1/31/24
1	GATE VALVES/SHUTOFFS, HYDRANT SMH	1/24/24
0	ISSUED FOR COMMENT	1/8/24

REVISIONS

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

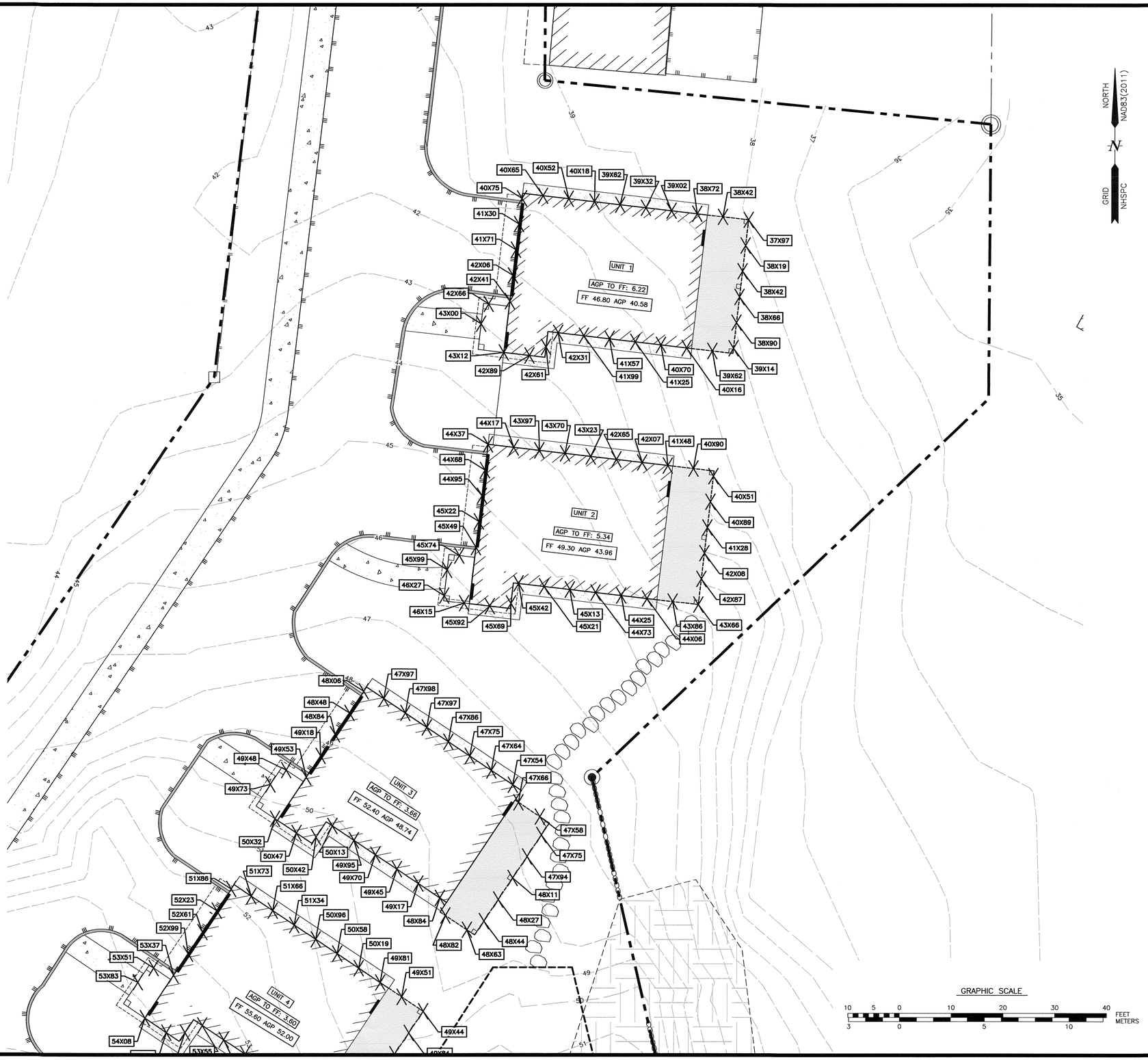
SCALE: H:1"=20' V:1"=5' OCTOBER 2023

EDEN DRIVE
PLAN & PROFILE

P1

FB 394 PG 1

2360.01



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4) CALCULATIONS OF AVERAGE GRADE PLANE BASED ON EXISTING GROUND ELEVATIONS, WHICH ARE LOWER THAN PROPOSED ELEVATIONS.

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	12/1/23

REVISIONS

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

SCALE: 1"=10' DECEMBER 2023

EXISTING AVERAGE GRADE PLANE

G1

FB 394 PG 1

2360.01

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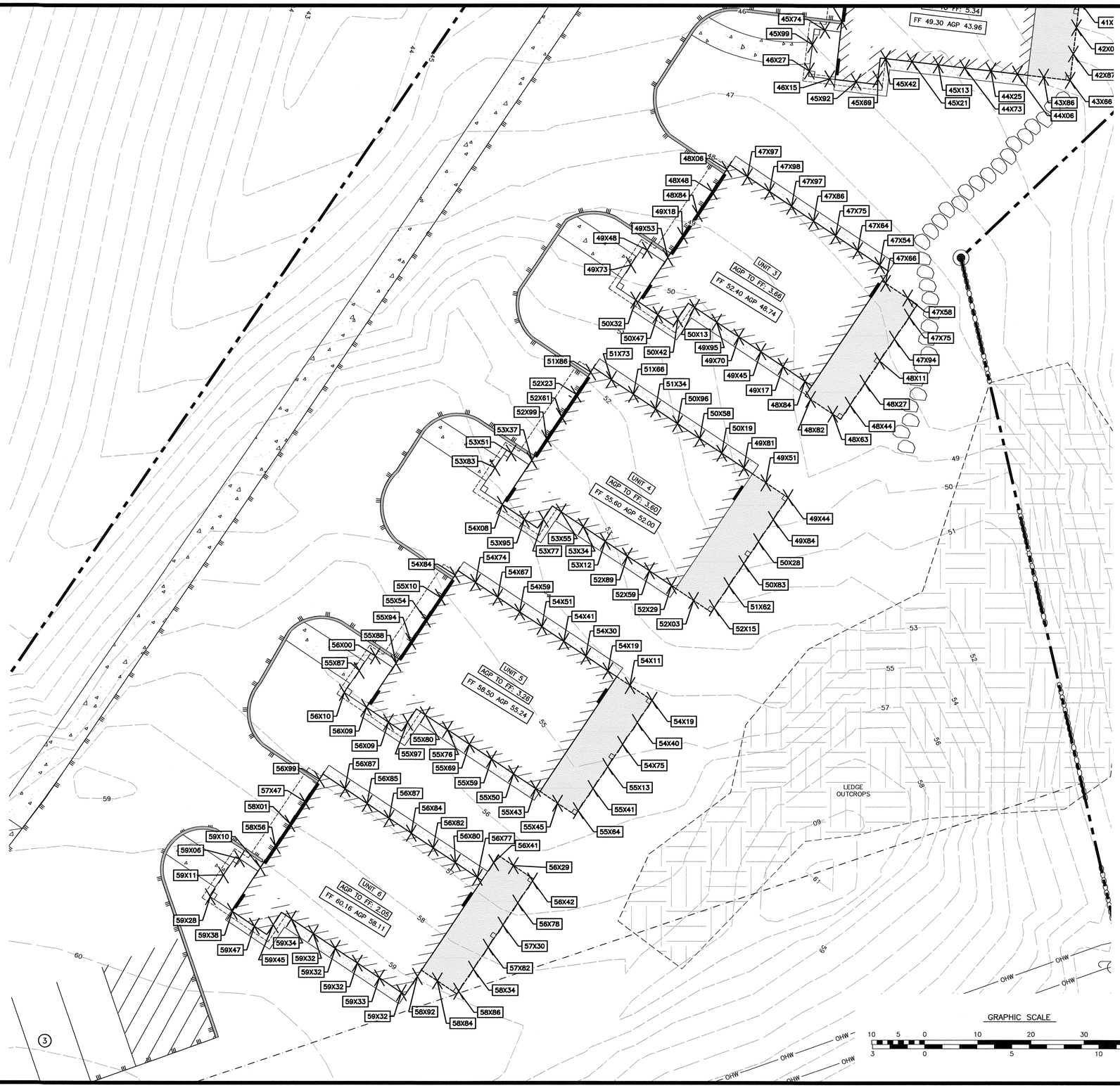

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RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	12/1/23
NO.	DESCRIPTION	DATE

REVISIONS

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

SCALE: 1"=10' DECEMBER 2023

EXISTING AVERAGE GRADE PLANE

G2

FB 394 PG 1

2360.01

EROSION CONTROL NOTES

CONSTRUCTION SEQUENCE

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

IF REQUIRED THE CONTRACTOR SHALL OBTAIN AN **NPDES** PHASE II STORMWATER PERMIT AND SUBMIT A NOTICE OF INTENT (N.O.I) BEFORE BEGINNING CONSTRUCTION AND SHALL HAVE ON SITE A STORMWATER POLLUTION PREVENTION PLAN (**S.W.P.P.P.**) AVAILABLE FOR INSPECTION BY THE PERMITTING AUTHORITY DURING THE CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT THE **S.W.P.P.P.** AND INSPECTING AND MAINTAINING ALL BMP'S CALLED FOR BY THE PLAN. THE CONTRACTOR SHALL SUBMIT A NOTICE OF TERMINATION (**N.O.T.**) FORM TO THE REGIONAL EPA OFFICE WITHIN 30 DAYS OF FINAL STABILIZATION OF THE ENTIRE SITE OR TURNING OVER CONTROL OF THE SITE TO ANOTHER OPERATOR.

THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT:
1. OBSERVATIONS OF THE PROJECT FOR COMPLIANCE WITH THE SWPPP SHALL BE MADE BY THE CONTRACTOR AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF A STORM 0.25 INCHES OR GREATER;
2. AN OBSERVATION REPORT SHALL BE MADE AFTER EACH OBSERVATION AND DISTRIBUTED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR;
3. A REPRESENTATIVE OF THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
4. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.

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

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

CUT AND GRUB ALL TREES, SHRUBS, SAPLINGS, BRUSH, VINES AND REMOVE OTHER DEBRIS AND RUBBISH AS REQUIRED. DEMOLISH BUILDINGS AND FENCES AS NEEDED. REMOVE WALL AND STORE.

CONSTRUCT TEMPORARY FILTRATION BASINS AND OUTLET.

ROUGH GRADE SITE.

CONSTRUCT ROADWAY AND DRAINAGE SYSTEM.

LAYOUT AND INSTALL ALL BURIED UTILITIES AND SERVICES UP TO 10' OF THE PROPOSED BUILDING FOUNDATIONS. CAP AND MARK TERMINATIONS OR LOG SWING TIES.

CONSTRUCT BUILDING FOUNDATIONS – BEGIN CONSTRUCTION.

CONNECT UTILITIES.

PLACE BINDER LAYER OF PAVEMENT FOR SIDEWALKS.

PLANT LANDSCAPING IN AREAS OUT OF WAY OF BUILDING CONSTRUCTION. PREPARE AND STABILIZE FINAL SITE GRADING BY ADDING TOPSOIL, SEED, MULCH AND FERTILIZER.

AFTER BUILDINGS ARE COMPLETED, FINISH ALL REMAINING LANDSCAPED WORK.

CONSTRUCT SIDEWALKS AND ASPHALT WEARING COURSE.

REMOVE TRAPPED SEDIMENTS FROM COLLECTION DEVICES AS APPROPRIATE, AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES UPON COMPLETION OF FINAL STABILIZATION OF THE SITE.

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF SIX SINGLE FAMILY HOUSES WITH ASSOCIATED PARKING AND UTILITES.

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 1.050 ACRES.

BASED ON THE USCS WEB SOIL SURVEY THE SOILS ON SITE CONSIST OF URBAN LAND–CANTON COMPLEX, 3–15% SLOPES WHICH IS WELL DRAINED SOILS WITH A HYDROLOGIC SOIL GROUP RATING OF A.

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

GENERAL CONSTRUCTION NOTES

THE EROSION CONTROL PROCEDURES SHALL CONFORM TO SECTION 645 OF THE "STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION" OF THE NHDOT, AND "STORM WATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE". THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED. THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED FOR MORE THAN 45 DAYS.

ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY, AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION SHALL BE MACHINE HAY MULCHED AND SEEDED WITH RYE GRASS TO PREVENT EROSION.

THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

DUST CONTROL: DUST CONTROL MEASURES SHALL INCLUDE BUT ARE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.
IF TEMPORARY STABILIZATION PRACTICES, SUCH AS TEMPORARY VEGETATION AND MULCHING, DO NOT ADEQUATELY REDUCE DUST GENERATION, APPLICATION OF WATER OR CALCIUM CHLORIDE SHALL BE APPLIED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.

SILTSOXX SHALL BE PERIODICALLY INSPECTED DURING THE LIFE OF THE PROJECT AND AFTER EACH STORM. ALL DAMAGED SILTSOXX SHALL BE REPAIRED. SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED IN A SECURED LOCATION.

ALL FILLS SHALL BE PLACED AND COMPACTED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS.

ALL NON–STRUCTURAL, SITE–FILL SHALL BE PLACED AND COMPACTED TO 90% MODIFIED PROCTOR DENSITY IN LAYERS NOT EXCEEDING 18 INCHES IN THICKNESS UNLESS OTHERWISE NOTED.

FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIAL, TRASH, WOODY DEBRIS, LEAVES, BRUSH OR ANY DELETERIOUS MATTER SHALL NOT BE INCORPORATED INTO FILLS.

FILL MATERIAL SHALL NOT BE PLACED ON FROZEN FOUNDATION SUBGRADE.

DURING CONSTRUCTION AND UNTIL ALL DEVELOPED AREAS ARE FULLY STABILIZED, ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EACH ONE HALF INCH OF RAINFALL.

THE CONTRACTOR SHALL MODIFY OR ADD EROSION CONTROL MEASURES AS NECESSARY TO ACCOMMODATE PROJECT CONSTRUCTION.

ALL ROADWAYS AND PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.

AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
- BASE COURSE GRAVELS HAVE BEEN INSTALLED ON AREAS TO BE PAVED
- A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
- A MINIMUM OF 3 INCHES OF NON–EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED
- EROSION CONTROL BLANKETS HAVE BEEN INSTALLED.
- IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2 HAVE BEEN INSTALLED.

STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY–ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA.

STABILIZATION MEASURES TO BE USED INCLUDE:
- TEMPORARY SEEDING;
- MULCHING.

1. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
2. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN THESE AREAS, SILTSOXX, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
3. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILTSOXX, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY OCTOBER 15.

MAINTENANCE AND PROTECTION

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

SILTSOXX SHALL BE REMOVED ONCE SITE IS STABILIZED, AND DISTURBED AREAS RESULTING FROM SILTSOXX REMOVAL SHALL BE PERMANENTLY SEEDED.

THE CATCH BASIN INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING.
SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.

WINTER NOTES

ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85% VEGETATED GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.

ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;

AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;

STOCKPILES

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

CONCRETE WASHOUT AREA

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

ALLOWABLE NON–STORMWATER DISCHARGES

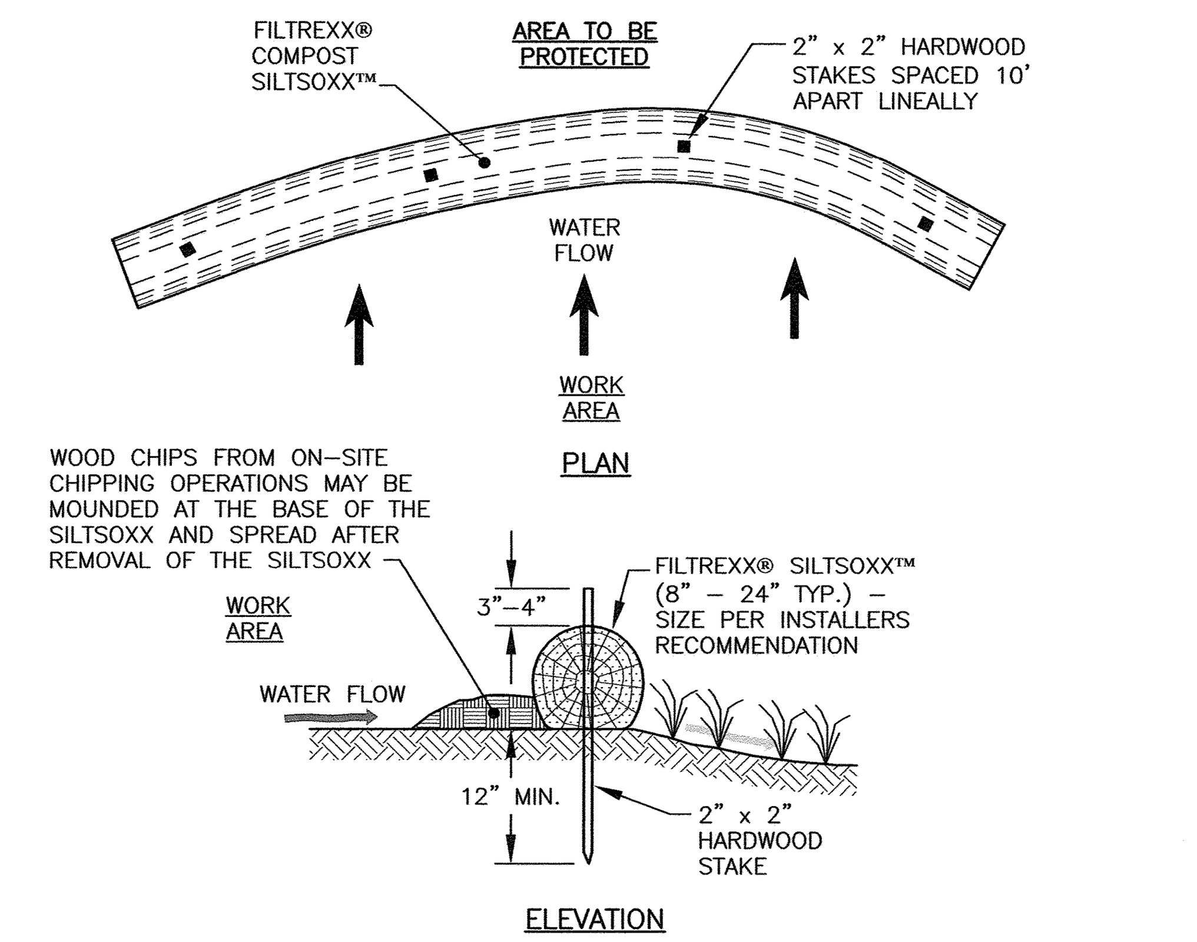
1. FIRE–FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS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

WASTE DISPOSAL

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

BLASTING NOTES

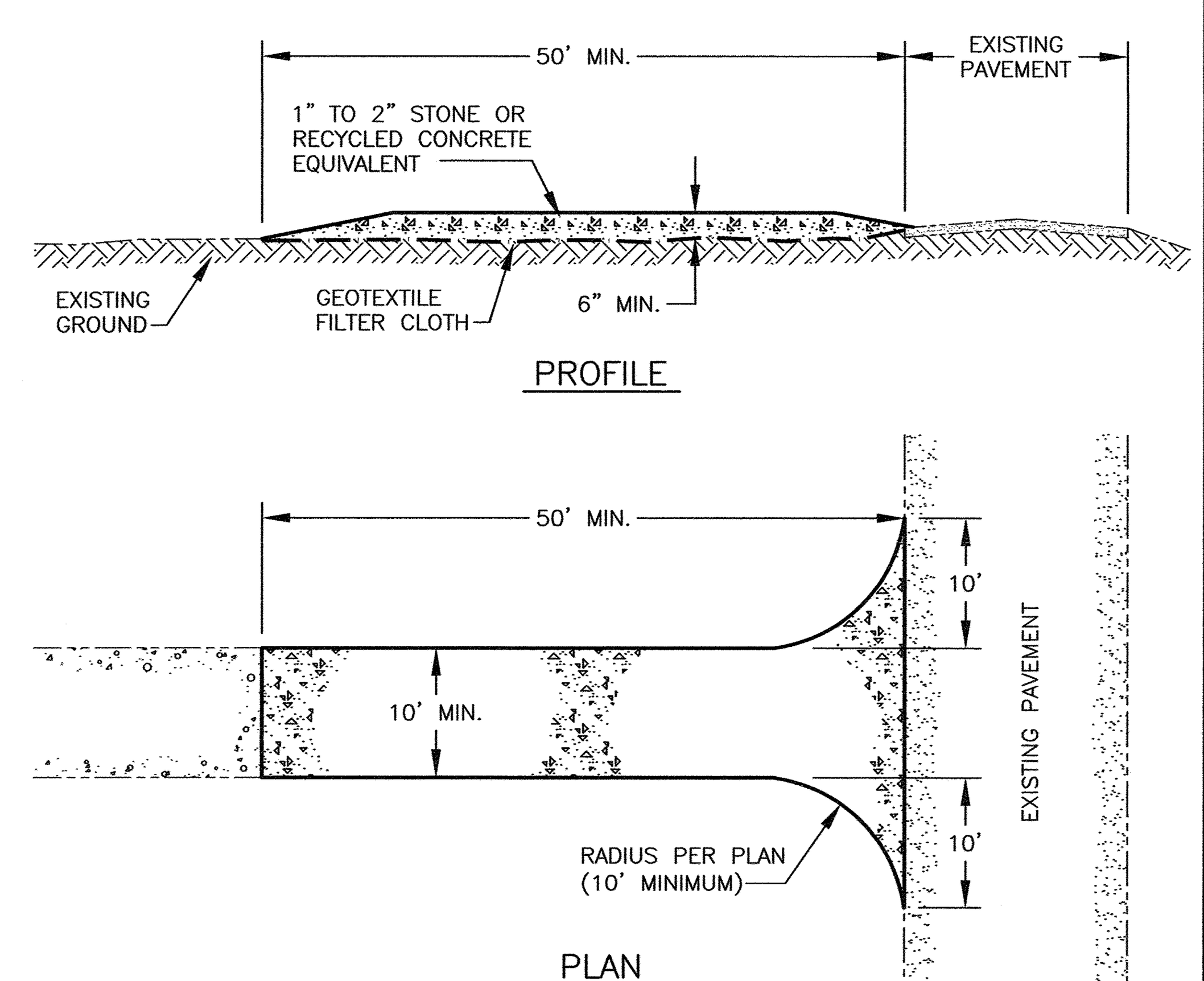
1. CONTRACTOR SHALL CONTACT THE NHDES AND/OR LOCAL JURISDICTION PRIOR TO COMMENCING ANY BLASTING ACTIVITIES.
2. FOR ANY PROJECT FOR WHICH BLASTING OF BEDROCK IS ANTICIPATED, THE APPLICANT SHALL SUBMIT A BLASTING PLAN THAT IDENTIFIES:
   - WHERE THE BLASTING ACTIVITIES ARE ANTICIPATED TO OCCUR;
   - THE ESTIMATED QUANTITY OF BLAST ROCK IN CUBIC YARDS; AND
   - SITE–SPECIFIC BLASTING BEST MANAGEMENT PRACTICES.



NOTES:
1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
2. FILLTREXX SYSTEM SHALL BE INSTALLED BY A CERTIFIED FILTREXX INSTALLER.
3. THE CONTRACTOR SHALL MAINTAIN THE COMPOST FILTRATION SYSTEM IN A FUNCTIONAL CONDITION AT ALL TIMES. IT WILL BE ROUTINELY INSPECTED AND REPAIRED WHEN REQUIRED.
4. SILTSOXX DEPICTED IS FOR MINIMUM SLOPES, GREATER SLOPES MAY REQUIRE ADDITIONAL PLACEMENTS.
5. THE COMPOST FILTER MATERIAL WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE ENGINEER.

A / C3 FILTREXX® SILTSOXX™ FILTRATION SYSTEM

NTS



MAINTENANCE

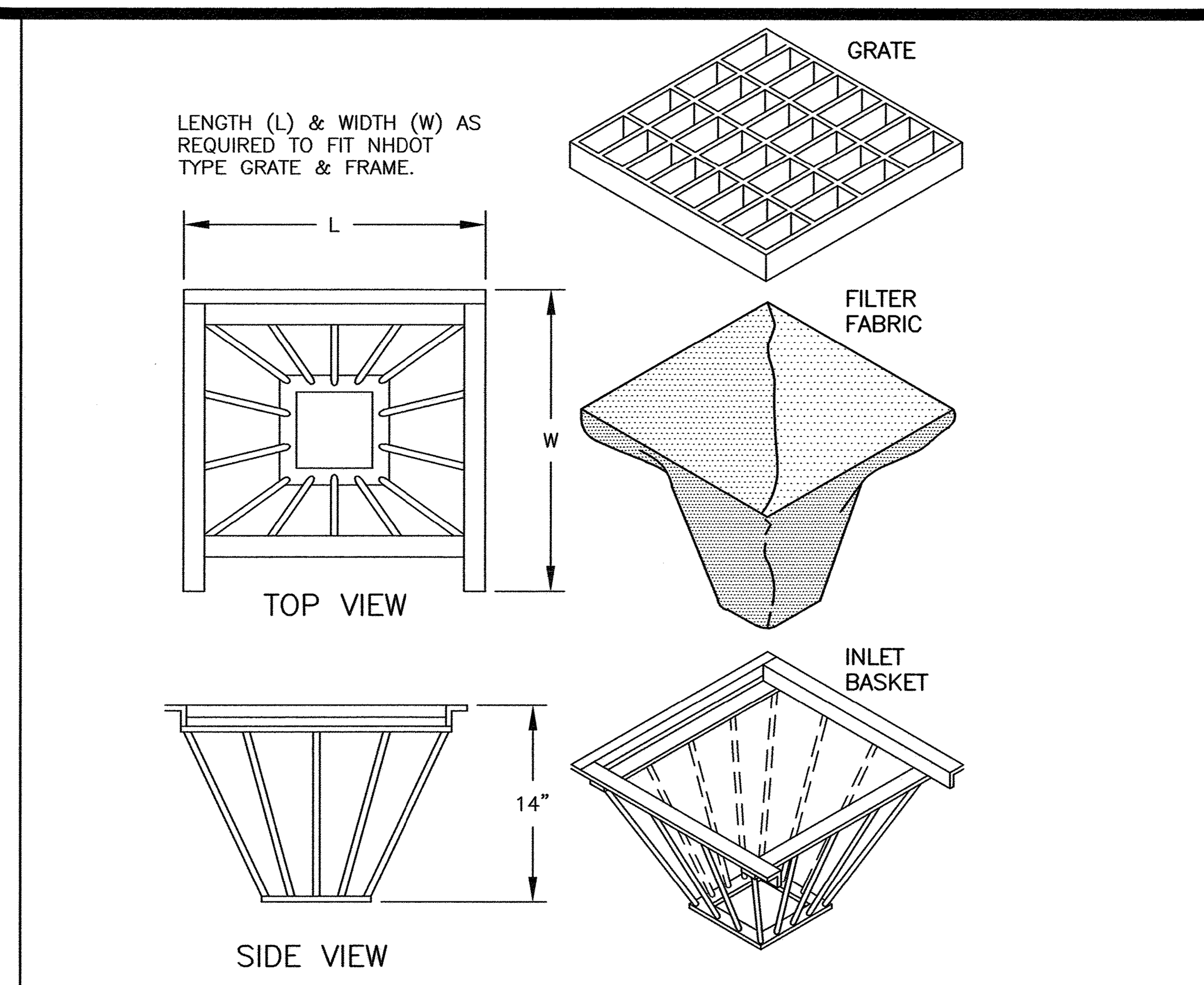
1) MUD AND SOIL PARTICLES WILL EVENTUALLY CLOG THE VOIDS IN THE GRAVEL AND THE EFFECTIVENESS OF THE GRAVEL PAD WILL NOT BE SATISFACTORY. WHEN THIS OCCURS, THE PAD SHOULD BE TOP DRESSED WITH NEW STONE. COMPLETE REPLACEMENT OF THE PAD MAY BE NECESSARY WHEN THE PAD BECOMES COMPLETELY CLOGGED.
2) IF WASHING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

CONSTRUCTION SPECIFICATIONS

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

B / C3 STABILIZED CONSTRUCTION ENTRANCE

NTS



1) INLET BASKETS SHALL BE INSTALLED IMMEDIATELY AFTER CATCH BASIN CONSTRUCTION IS COMPLETE AND SHALL REMAIN IN PLACE AND BE MAINTAINED UNTIL PAVEMENT BINDER COURSE IS COMPLETE.

2) FILTER FABRIC SHALL BE PUSHED DOWN AND FORMED TO THE SHAPE OF THE BASKET. THE SHEET OF FABRIC SHALL BE LARGE ENOUGH TO BE SUPPORTED BY THE BASKET FRAME WHEN HOLDING SEDIMENT AND, SHALL EXTEND AT LEAST 6" PAST THE FRAME. THE INLET GRATE SHALL BE PLACED OVER THE BASKET/FRAME AND WILL SERVE AS THE FABRIC ANCHOR.

3) THE FILTER FABRIC SHALL BE A GEOTEXTILE FABRIC; POLYESTER, POLYPROPYLENE, STABILIZED NYLON, POLYETHYLENE, OR POLYVINYLIDENE CHLORIDE MEETING THE FOLLOWING SPECIFICATIONS:
–RAB STRENGTH: 45 LB. MIN. IN ANY PRINCIPAL DIRECTION (ASTM D1682)
–MULLEN BURST STRENGTH: MIN. 60 psi (ASTM D774)

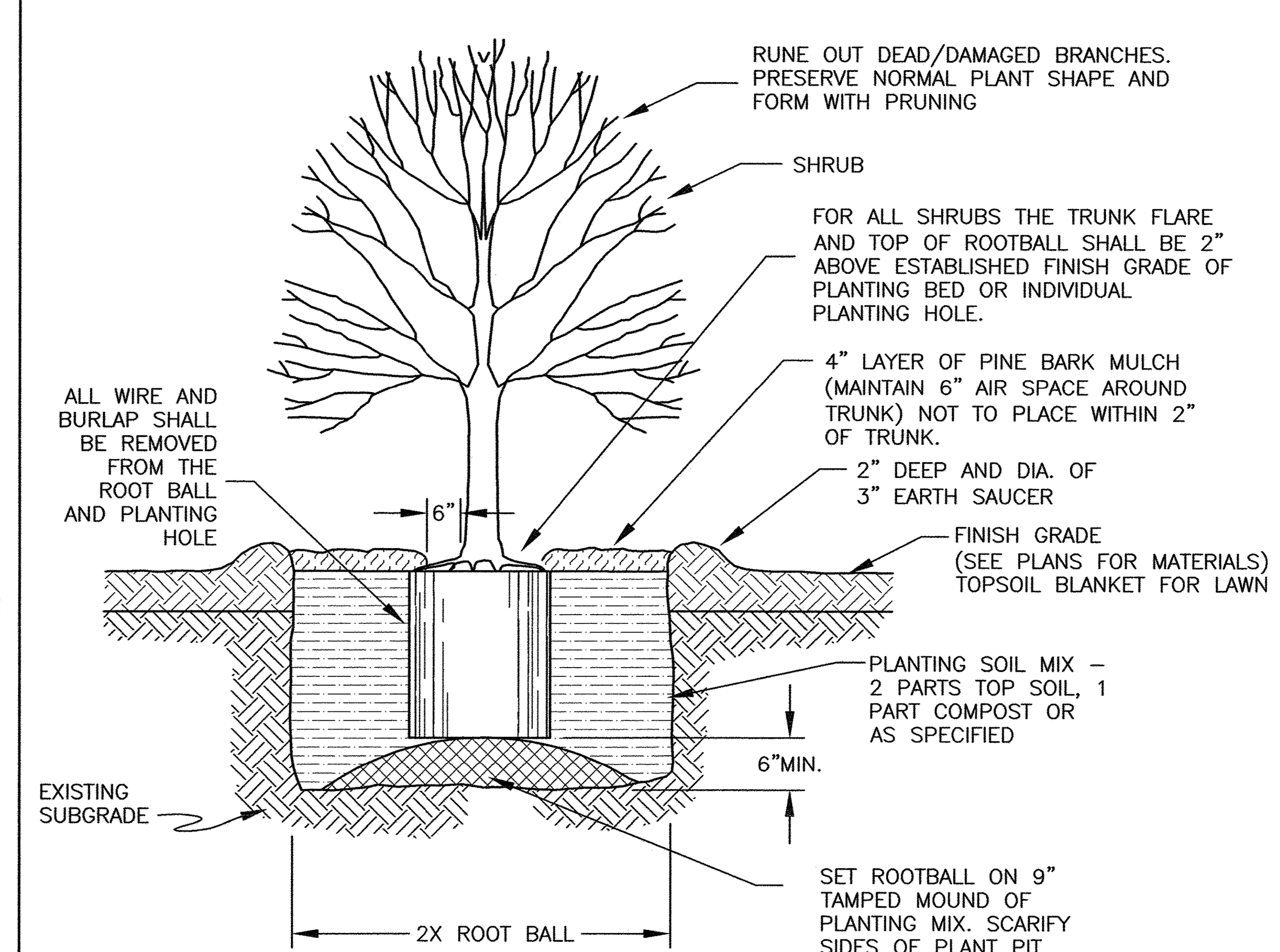
4) THE FABRIC SHALL HAVE AN OPENING NO GREATER THAN A NUMBER 20 U.S. STANDARD SIEVE AND A MINIMUM PERMEABILITY OF 120 gpm/s.f. (MULTIPLY THE PERMITTIVITY IN SEC.–1 FROM ASTM 54491–85 CONSTANT HEAD TEST USING THE CONVERSION FACTOR OF 74.)

5) THE INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING.

6) SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.

C / C3 CATCH BASIN INLET BASKET

NTS



D / L1 SHRUB PLANTING DETAIL

NTS

(SHRUB PLANTING DETAIL APPLIES TO EVERGREEN AND DECIDUOUS SHRUBS)

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

WWW.HALEYWARD.COM

200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

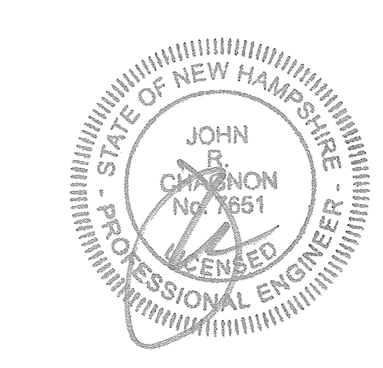
2) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1–888–DIG–SAFE (1–888–344–7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	DETAIL D	12/20/23
0	ISSUED FOR COMMENT	10/3/23

REVISIONS



SCALE AS NOTED

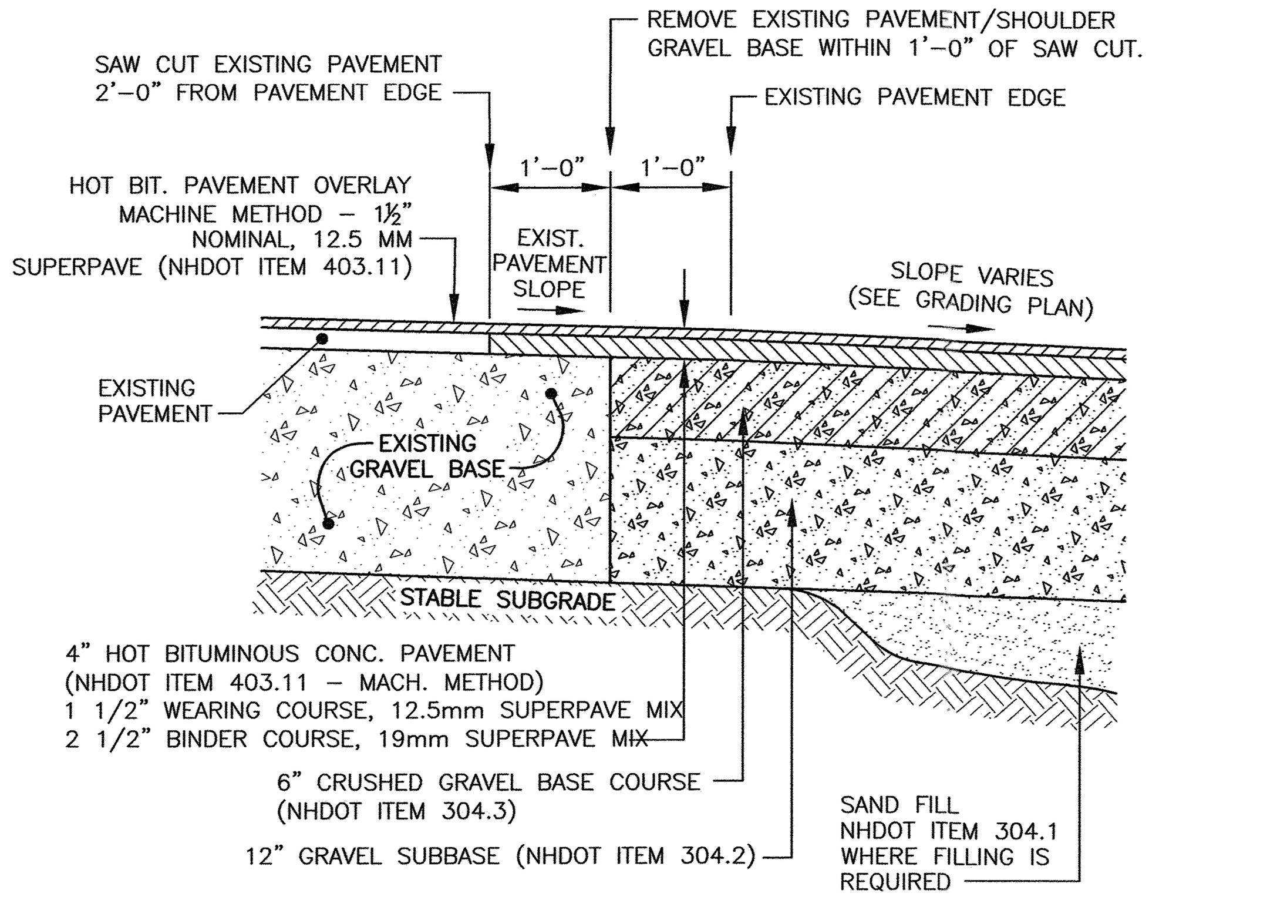
OCTOBER 2023

EROSION CONTROL NOTES & DETAILS

D1

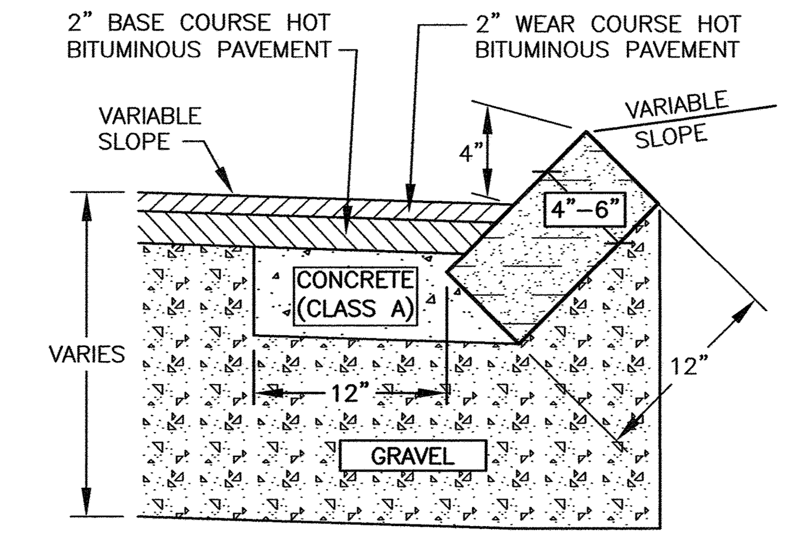
FB 394 PG 1

2360.01



FULL DEPTH PAVEMENT SECTION AND PAVEMENT JOINT DETAIL

E / C2 — NTS

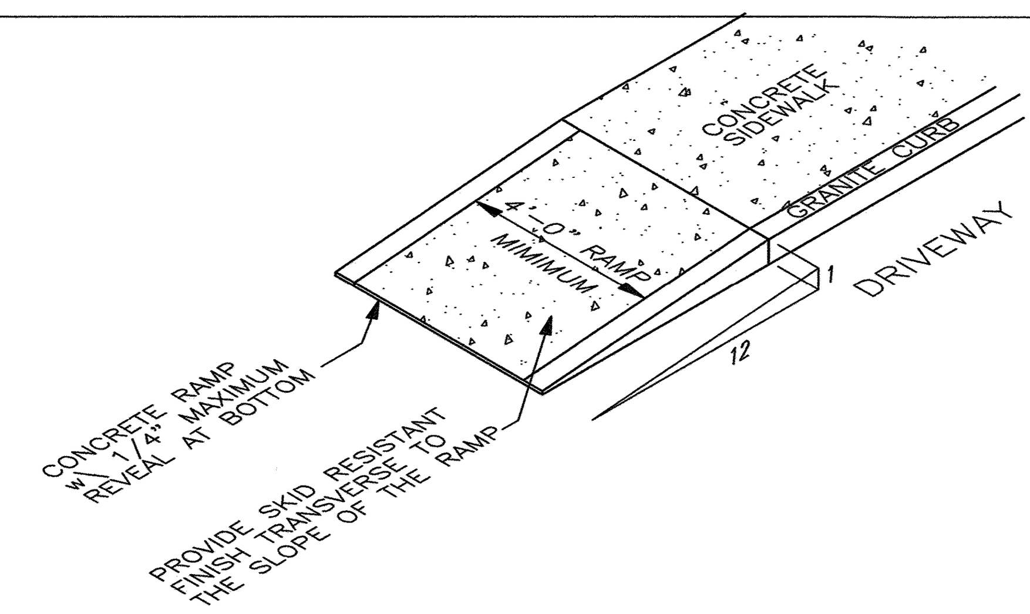


MIN. LENGTH OF STRAIGHT CURB STONES: 18"
MAX. LENGTH OF STRAIGHT CURB STONES: 8FT
MAX. LENGTH OF STRAIGHT STRAIGHT CURB STONES LAID ON CURVE: SEE CHART

Radius for stones with square joints	Maximum length
16' – 28'	6" to 1'
29' – 41'	2'
42' – 55'	3'
56' – 68'	4'
69' – 82'	5'
83' – 96'	6'
97' – 110'	7'
over 110'	8'

SLOPED GRANITE CURBING DETAILS

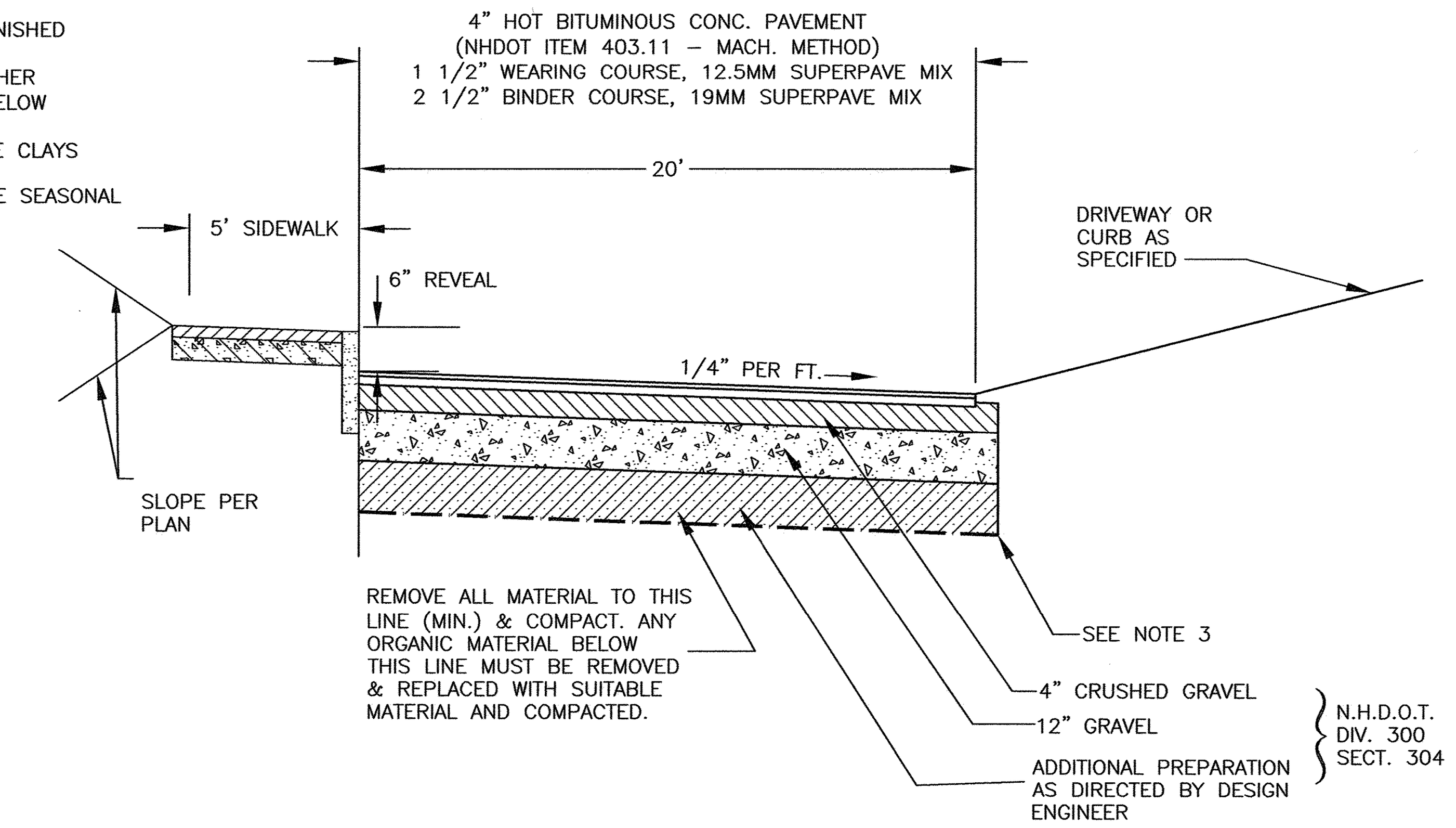
H / C2 — NTS



TYPICAL SIDEWALK TIP DOWN

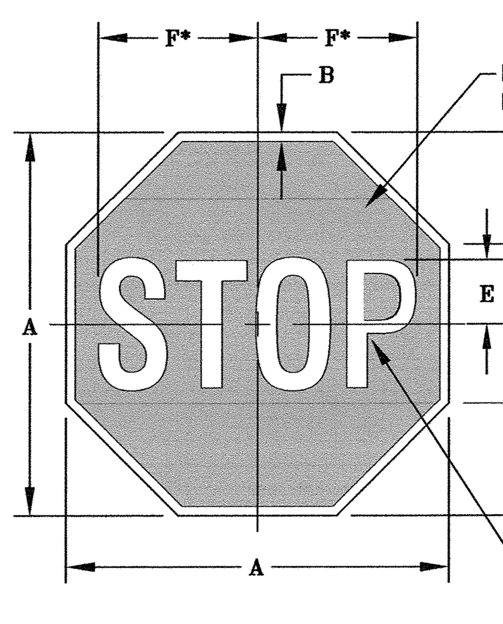
I / C2 — NTS

NOTES:
1) REMOVE LEDGE TO 18" BELOW FINISHED SURFACE.
2) REMOVE CLAY, LOAM AND ANY OTHER UNSUITABLE MATERIALS TO 20" BELOW FINISHED SURFACE.
3) INSTALL GEOTEXTILE FABRIC ABOVE CLAYS AND SILTS OR IN AREAS WHERE EXCAVATION IS BELOW THE SEASONAL HIGH WATER TABLE.



TYPICAL DRIVEWAY SECTION

K / C2 — NTS



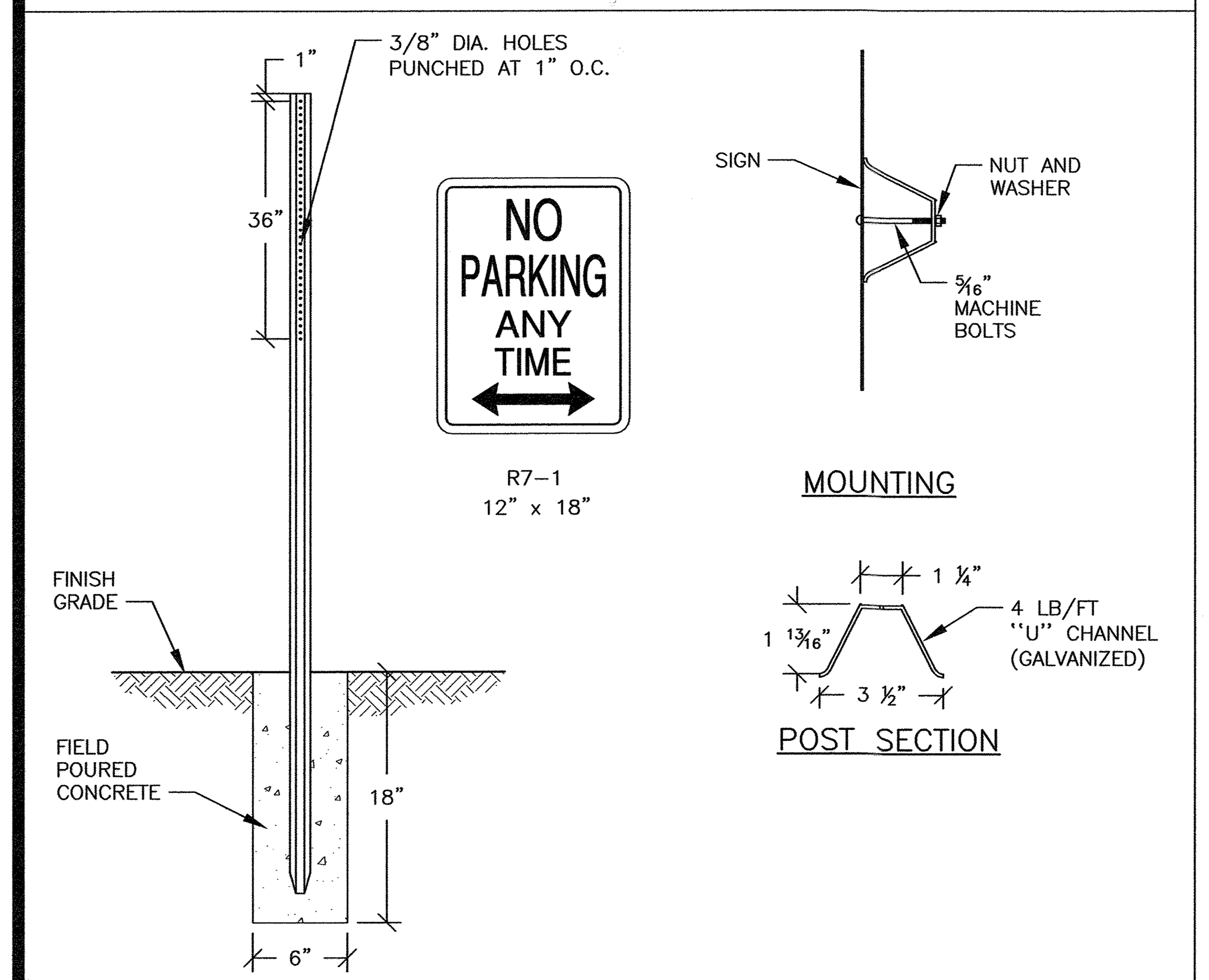
SIGN	A	B	C	D	E
	DIMENSIONS (Inches)				
BICYCLE	18	3/8	6	6C	7 3/4
MINIMUM	24	5/8	8	8C	10
STD.	30	3/4	10	10C	12 1/2
EXPWY.	36	7/8	12	12C	15
SPECIAL	48	1 1/4	16	16C	20

*REDUCE SPACING 40%

R1–1
A" x A"

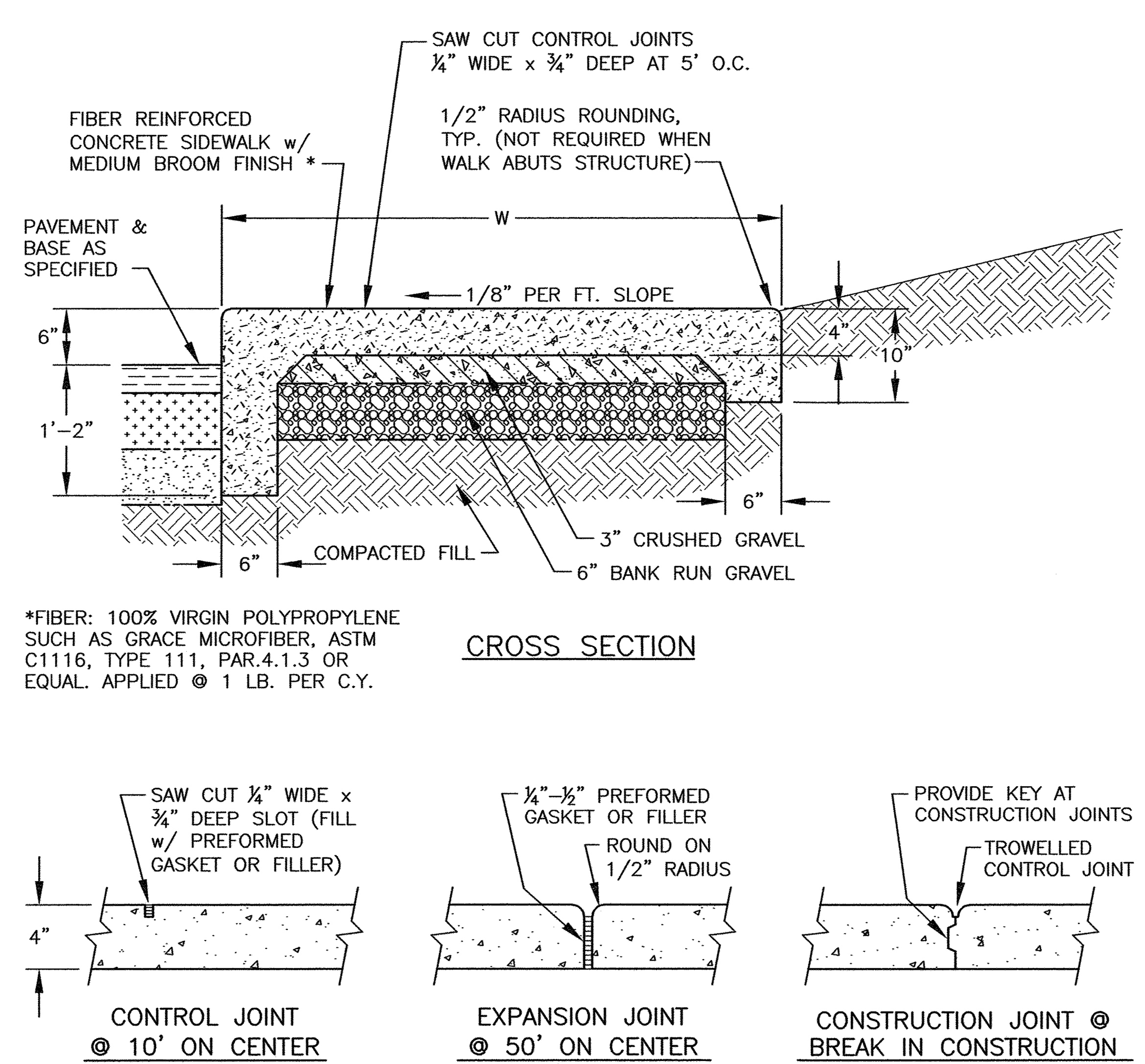
STOP SIGN DETAIL

F / C2 — NTS



SIGN & POST DETAIL

G / C2 — NTS



CONCRETE WALK w/ CONCRETE CURB

J / C2 — NTS

HORIZONTAL ANCHOR DIMENSIONS FOR PIPE INSTALLATION IN ROCK

UP TO 150 P.S.I. WORKING PRESSURE

PIPE SIZE	TEE OR TAP SLEEVE H	TEE OR TAP SLEEVE L	90° BEND H	90° BEND L	45° BEND H	45° BEND L	22 1/2° BEND H	22 1/2° BEND L	11 1/4° BEND H	11 1/4° BEND L
* 4"	0'–9"	1'–0"	0'–9"	1'–0"	0'–9"	1'–0"	0'–9"	1'–0"	0'–9"	1'–0"
6"	0'–9"	1'–0"	0'–9"	1'–0"	0'–9"	1'–0"	0'–9"	1'–0"	0'–9"	1'–0"
8"	1'–2"	1'–2"	1'–2"	1'–2"	1'–0"	1'–0"	0'–9"	1'–0"	0'–9"	1'–0"
10"	1'–4"	1'–4"	1'–4"	1'–4"	1'–0"	1'–0"	0'–9"	1'–0"	0'–9"	1'–0'
12"	1'–8"	1'–8"	1'–8"	1'–8"	1'–3"	1'–3"	1'–0"	1'–0"	0'–9"	1'–0"

* – FOR 3" AND SMALLER PIPES

HORIZONTAL ANCHOR DIMENSIONS FOR AVERAGE SOIL CONDITIONS

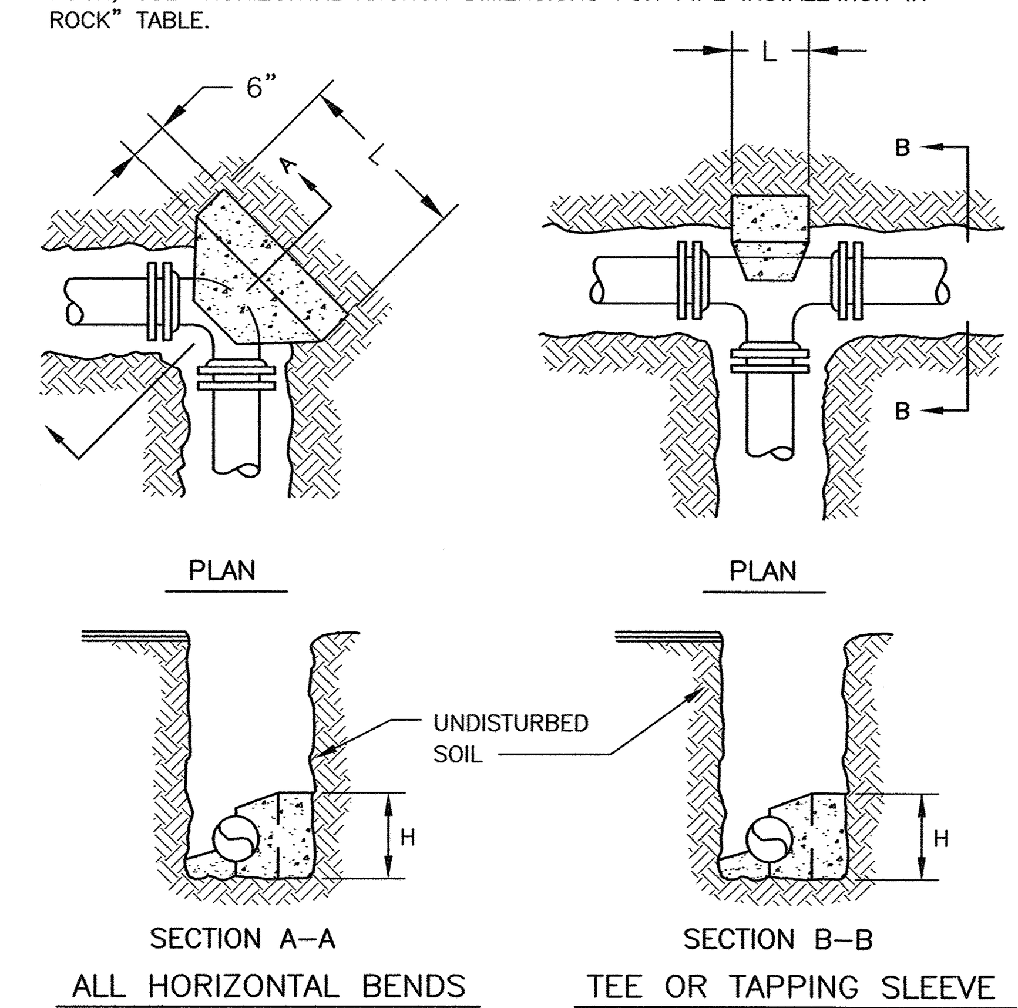
UP TO 150 P.S.I. WORKING PRESSURE

PIPE SIZE	TEE OR TAP SLEEVE H	TEE OR TAP SLEEVE L	90° BEND H	90° BEND L	45° BEND H	45° BEND L	22 1/2° BEND H	22 1/2° BEND L	11 1/4° BEND H	11 1/4° BEND L
* 4"	1'–0"	2'–0"	1'–0"	2'–0"	1'–0"	1'–4"	0'–9"	1'–0"	0'–6"	1'–0"
6"	1'–0"	2'–0"	1'–0"	2'–0"	1'–0"	1'–4"	0'–9"	1'–0"	0'–6"	1'–0"
8"	1'–4"	2'–8"	1'–4"	2'–8"	1'–4"	1'–6"	1'–0"	1'–0"	0'–9"	1'–0"
10"	1'–8"	3'–4"	1'–8"	3'–4"	1'–8"	2'–0"	1'–3"	1'–3"	1'–0"	1'–0'
12"	2'–0"	4'–0"	2'–0"	4'–0"	2'–0"	2'–2"	1'–6"	1'–6"	1'–3"	1'–3"

* – FOR 3" AND SMALLER PIPES

NOTES:
1) TABLES ARE BASED ON AN ALLOWABLE SOIL PRESSURE OF 3000 PSF ON UNDISTURBED EARTH BEHIND THE ANCHOR BLOCK. WHERE SOIL HAS BEEN DISTURBED BY ADJACENT EXCAVATIONS OR WHERE SOIL CANNOT WITHSTAND SUCH A PRESSURE, THE TABLE DOES NOT APPLY.

2) WHERE ENTIRE DEPTH OF PIPE IS BELOW THE TOP SURFACE OF SOUND ROCK, USE "HORIZONTAL ANCHOR DIMENSIONS FOR PIPE INSTALLATION IN ROCK" TABLE.

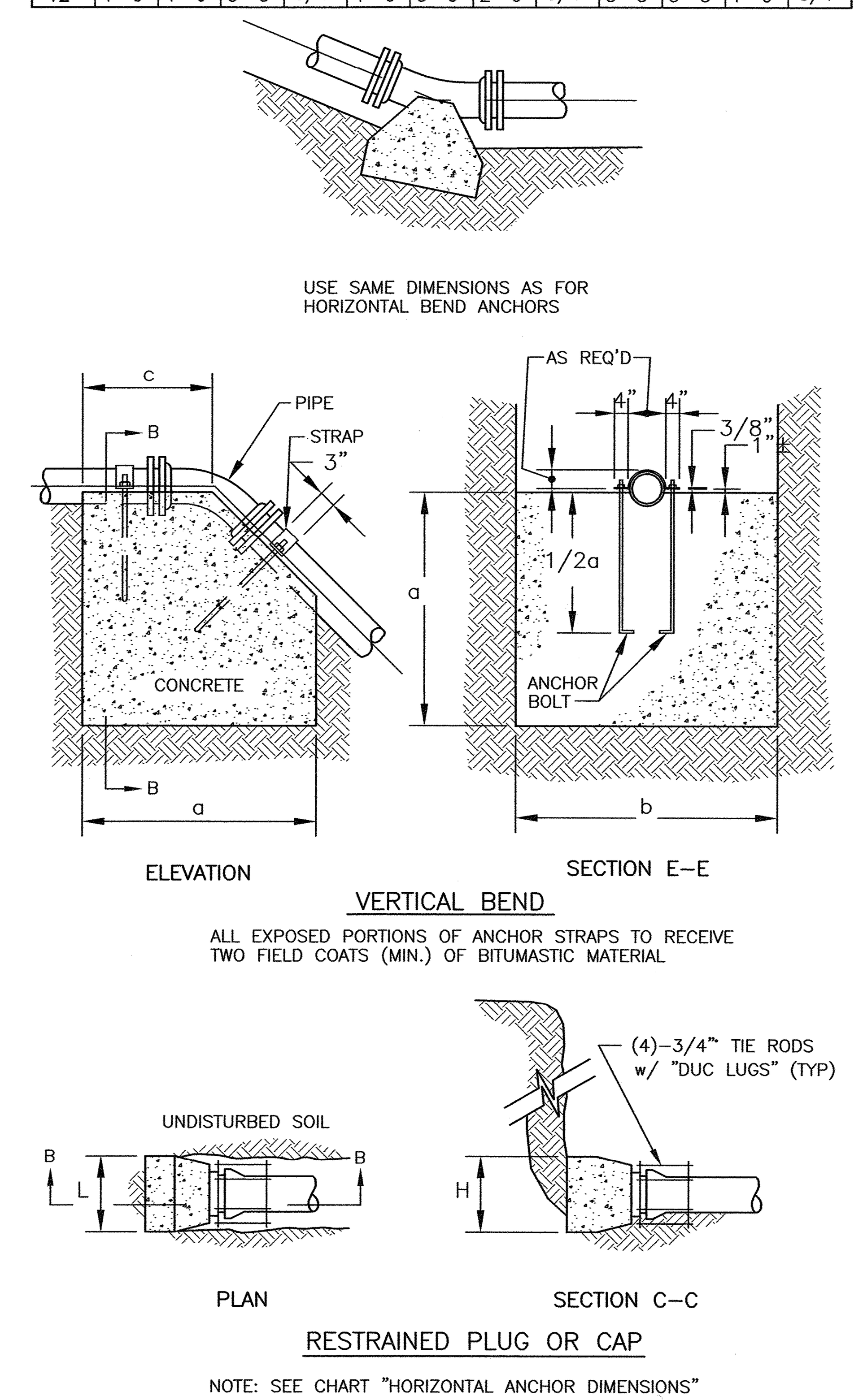


HORIZONTAL ANCHORING

VERTICAL ANCHOR DIMENSIONS

UP TO 150 P.S.I. WORKING PRESSURE

PIPE SIZE	45° BEND DIMENSION a	45° BEND DIMENSION b	45° BEND DIMENSION c	45° BEND ROD DIA.	22 1/2° BEND DIMENSION a	22 1/2° BEND DIMENSION b	22 1/2° BEND DIMENSION c	22 1/2° BEND ROD DIA.	11 1/4° BEND DIMENSION a	11 1/4° BEND DIMENSION b	11 1/4° BEND DIMENSION c	11 1/4° BEND ROD DIA.
4"	3'–0"	3'–0"	2'–0"	3/4"	2'–6"	2'–3"	1'–6"	3/4"	2'–0"	2'–0"	1'–6"	3/4"
6"	3'–0"	3'–0"	2'–0"	3/4"	2'–6"	2'–3"	1'–6"	3/4"	2'–0"	2'–0"	1'–6"	3/4"
8"	3'–6"	3'–6"	2'–6"	3/4"	3'–0"	3'–0"	1'–9"	3/4"	2'–6"	2'–6"	1'–3"	3/4"
10"	4'–3"	4'–0"	3'–0"	3/4"	3'–6"	3'–3"	2'–0"	3/4"	2'–9"	2'–9"	1'–6"	3/4"
12"	4'–9"	4'–6"	3'–3"	3/4"	4'–0"	3'–9"	2'–6"	3/4"	3'–3"	3'–3"	1'–9"	3/4"



VERTICAL ANCHORING

PRESSURE PIPE ANCHORING DETAILS

L / C4 — INSTALL PER PORTSMOUTH REQUIREMENTS — NTS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:
1) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

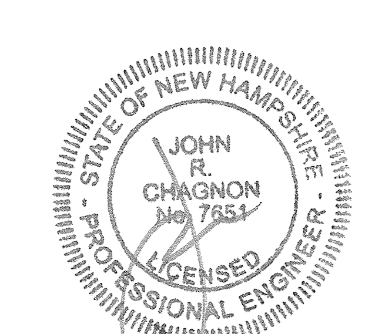
2) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1–888–DIG–SAFE (1–888–344–7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	10/3/23

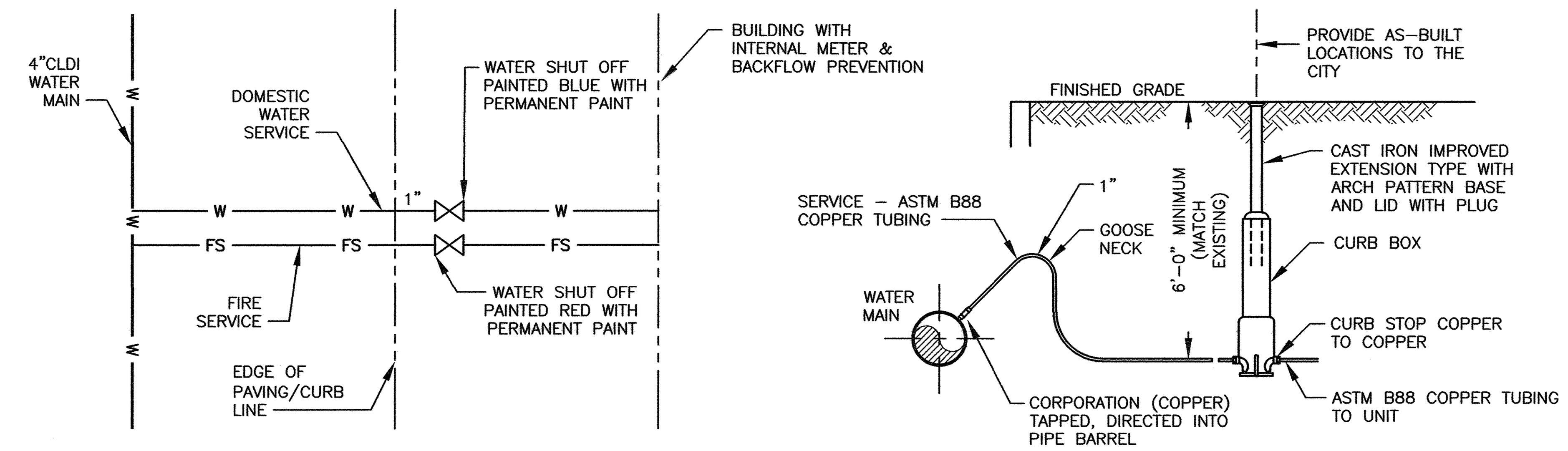
REVISIONS



SCALE AS NOTED — OCTOBER 2023

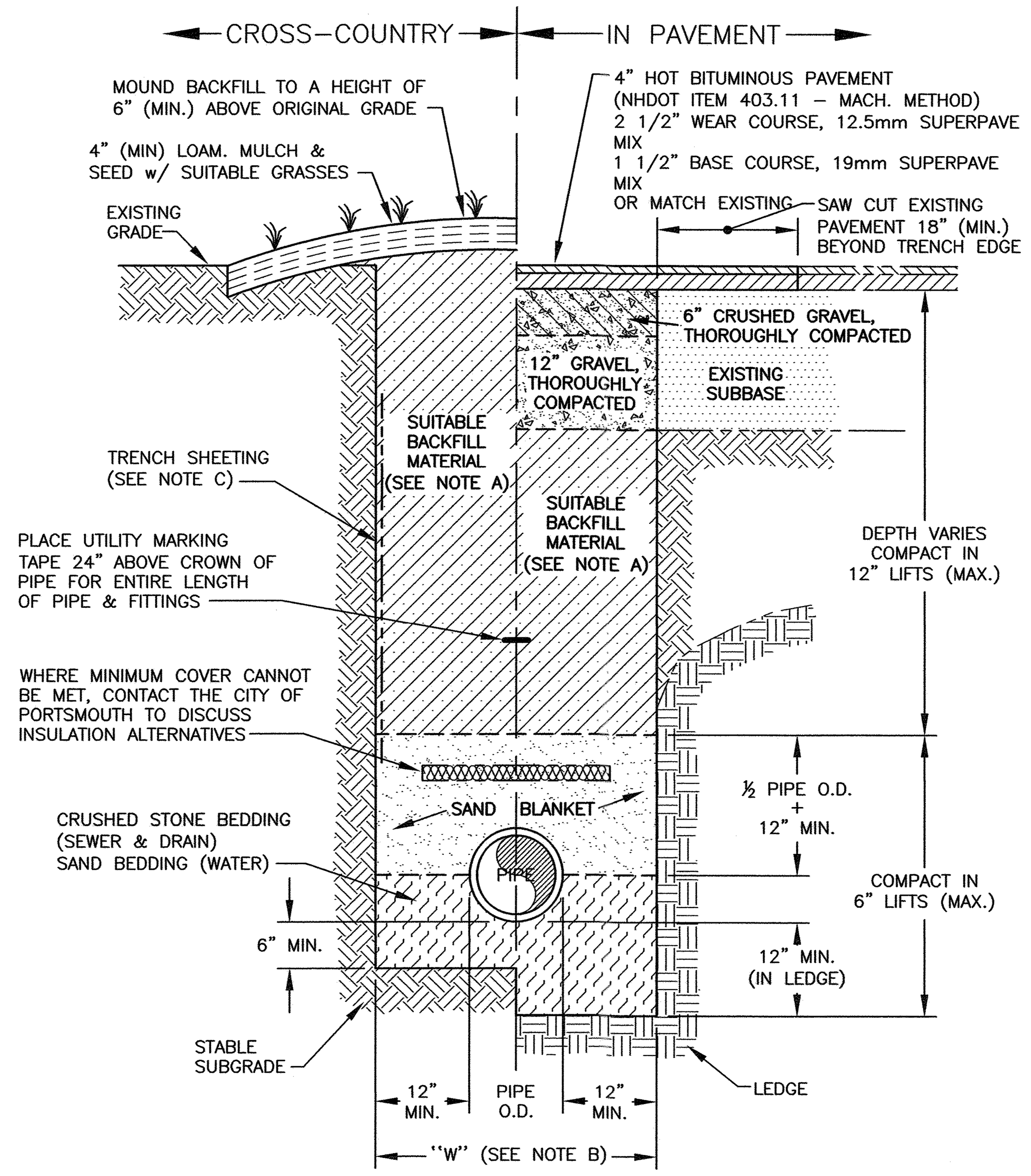
DETAILS — D2

2360



M/C4 TYPICAL WATER SERVICE CONNECTION

NTS



TRENCH NOTES:

A) TRENCH BACKFILL:
- IN PAVED AREAS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION, OR ANY MATERIALS DEEMED TO BE UNACCEPTABLE BY THE ENGINEER.

- IN CROSS-COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK OR PEAT, IF HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE.

B) ''W'' = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D..

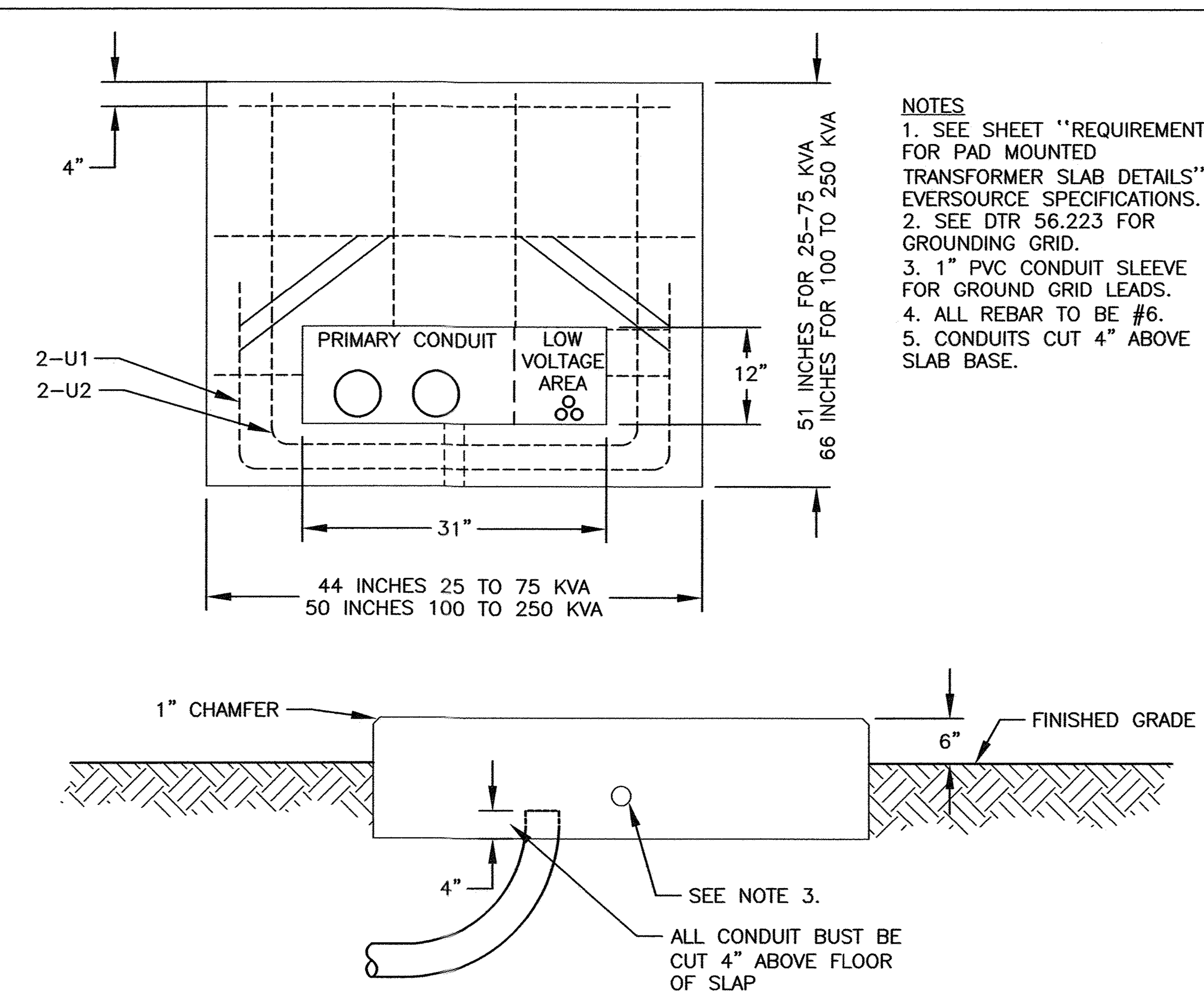
C) TRENCH SHEETING:
IF REQUIRED. WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID-DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.

D) MINIMUM PIPE COVER FOR UTILITY MAINS (UNLESS GOVERNED BY OTHER CODES):
- 6' MINIMUM FOR SEWER (IN PAVEMENT)
- 4' MINIMUM FOR SEWER (CROSS COUNTRY)
- 3' MINIMUM FOR STORMWATER DRAINS
- 5' MINIMUM FOR WATER MAINS

E) ALL PAVEMENT CUTS SHALL BE REPAIRED BY THE INFRARED HEAT METHOD.

N/C4 TYPICAL PIPE TRENCH

NTS

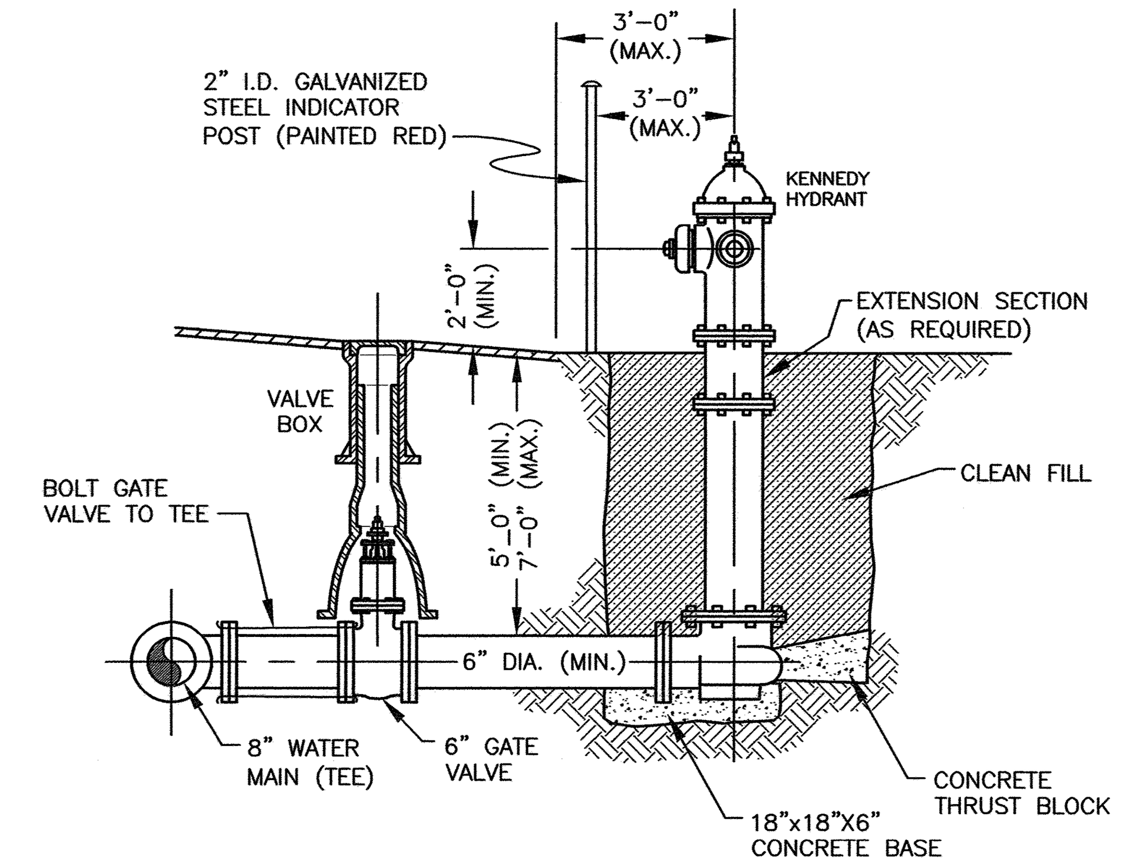


NOTES
1. SEE SHEET ''REQUIREMENTS FOR PAD MOUNTED TRANSFORMER SLAB DETAILS'', EVERSOURCE SPECIFICATIONS.
2. SEE DTR 56.223 FOR GROUNDING GRID.
3. 1" PVC CONDUIT SLEEVE FOR GROUND GRID LEADS.
4. ALL REBAR TO BE #6.
5. CONDUITS CUT 4" ABOVE SLAB BASE.

O/C4 TRANSFORMER FOUNDATION SINGLE PHASE

EVERSOURCE

NTS

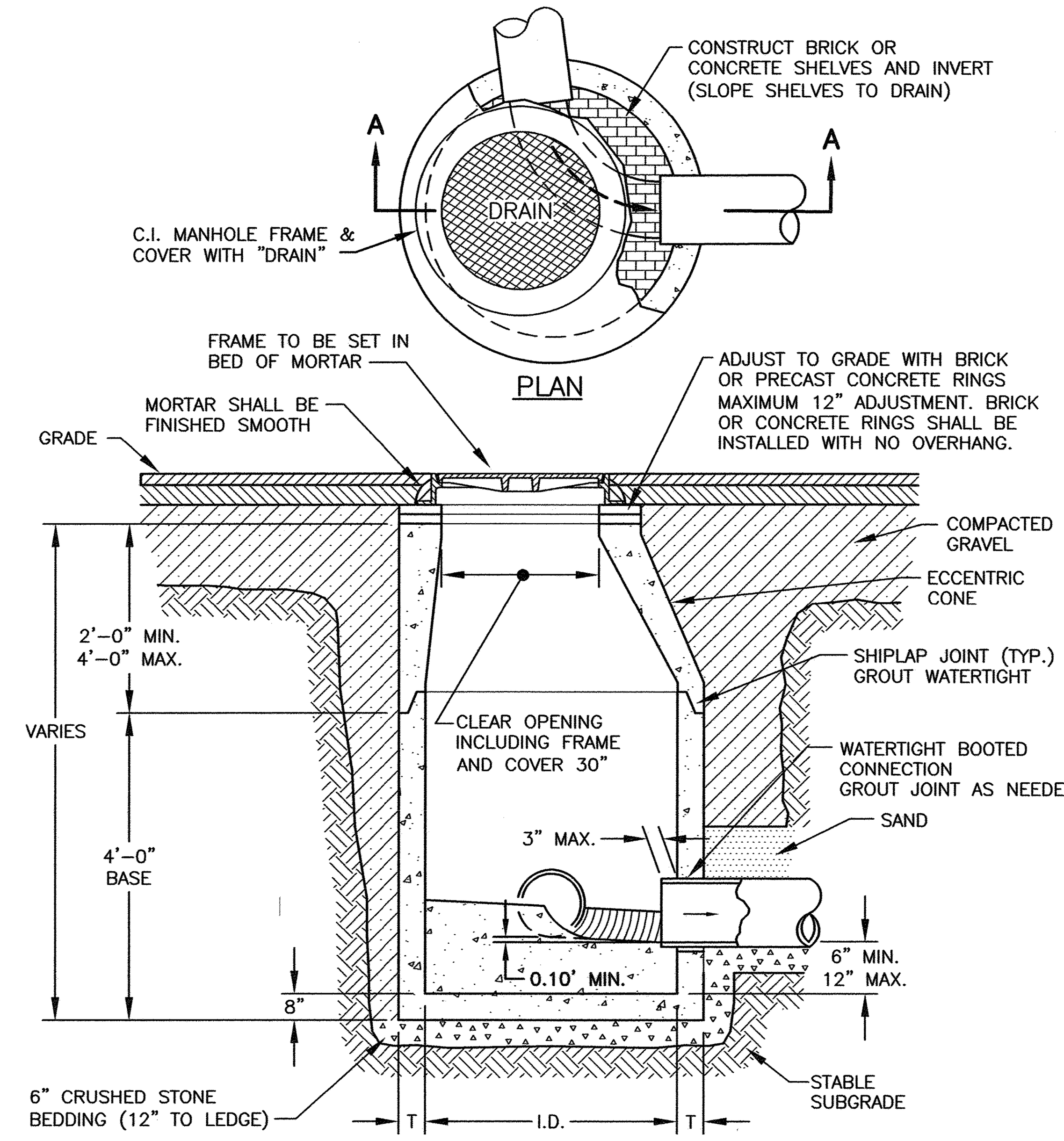


NOTES:
1. HYDRANTS SHALL BE INSTALLED A MAXIMUM DISTANCE OF 3 FEET CURB LINE TO OPERATING NUT.
2. THE PUMPER OUTLET NOZZLE SHALL FACE THE STREET.
3. CENTERLINE OF NOZZLES SHALL BE A MINIMUM OF 2 FEET ABOVE FINISHED GRADE OF STREET.
4. AREA AROUND HYDRANT SHALL BE GRADED TO ALLOW ANY SURFACE WATER TO DRAIN AWAY FROM HYDRANT.
5. HYDRANT SHALL BE FIRMLY SUPPORTED ALL AROUND THE STANDPIPE.
6. EARTH FILL SHALL BE TAMPED TO GIVE FIRM SUPPORT TO THE HYDRANT BARREL.
7. A GATE VALVE SHALL BE INSTALLED BETWEEN THE HYDRANT AND THE MAIN ON THE LATERAL. GATE VALVE TO BE BOLTED TO TEE.
8. HYDRANT LATERALS SHALL BE 6" INSIDE DIAMETER (MINIMUM).
9. HYDRANT LATERALS SHALL BE CONNECTED TO WATER MAINS 8 INCHES IN DIAMETER OR LARGER.
10. ALL JOINTS AT HYDRANT CONNECTION SHALL BE RESTRAINED MECHANICAL JOINTS.
11. INSTALLATION OF HYDRANTS IN AREAS OF HEAVY VEGETATIVE GROWTH SHALL HAVE A 10 FOOT RADIUS CLEAR AREA ALL AROUND THE OPERATING NUT OF THE HYDRANT.
12. THERE SHALL ALSO BE AN INDICATOR POST FABRICATED FROM 2 INCH INSIDE DIAMETER GALVANIZED STEEL PIPE, 7 FEET ABOVE FINISHED GRADE, AND SET 2 FEET BELOW GRADE IN CLASS ''A'' CONCRETE CONCRETE 6 INCHES ALL AROUND POST. THIS POST SHALL BE COATED WITH ZINC CHROMATE PRIMER AND PAINTED WITH HIGH VISIBILITY RED. THE INDICATOR POST SHALL BE NO CLOSER THAN 3 FEET FROM THE OPERATING NUT, AND SET ON THE SIDE OF THE HYDRANT FACING ONCOMING TRAFFIC. TOP OF POST SHALL BE THREADED AND CAPPED.
13. INSTALLATION OF HYDRANTS IN HEAVY GROWTH AREAS SHALL HAVE GATE BOXES RAISED 6 INCHES ABOVE GRADE AND SHALL BE PAINTED ORANGE FOR HIGH VISIBILITY.

P/C4 FIRE HYDRANT INSTALLATION DETAIL

CITY OF PORTSMOUTH STANDARDS AS SPECIFIED BY DPW

NTS



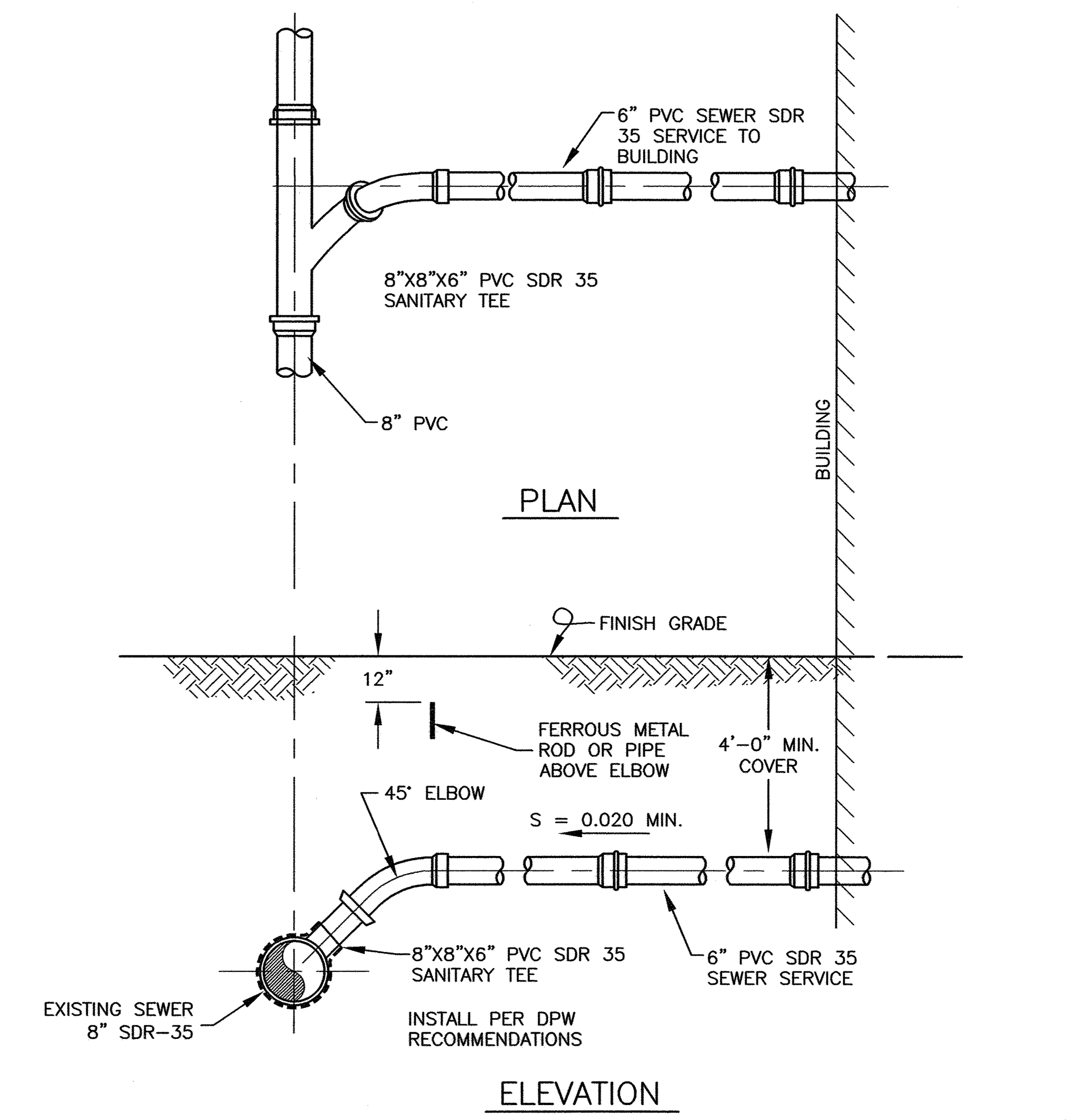
SECTION A - A

T=5" FOR 48" I.D. MANHOLE
T=6" FOR 60" I.D. MANHOLE
T=7" FOR 72" I.D. MANHOLE

NOTES:
1. CONCRETE SHALL BE 4,000 P.S.I. AFTER 28 DAYS.
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ. IN. PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FOOT.
4. EACH CASTING TO HAVE LIFTING HOLES CAST IN.
5. ALL MANHOLES SHALL BE 48" I.D. UNLESS SPECIFIED OTHERWISE ON THE PLANS.
6. MANHOLE SHALL BE DESIGNED AND CONSTRUCTED TO WITHSTAND H-20 LOADING.

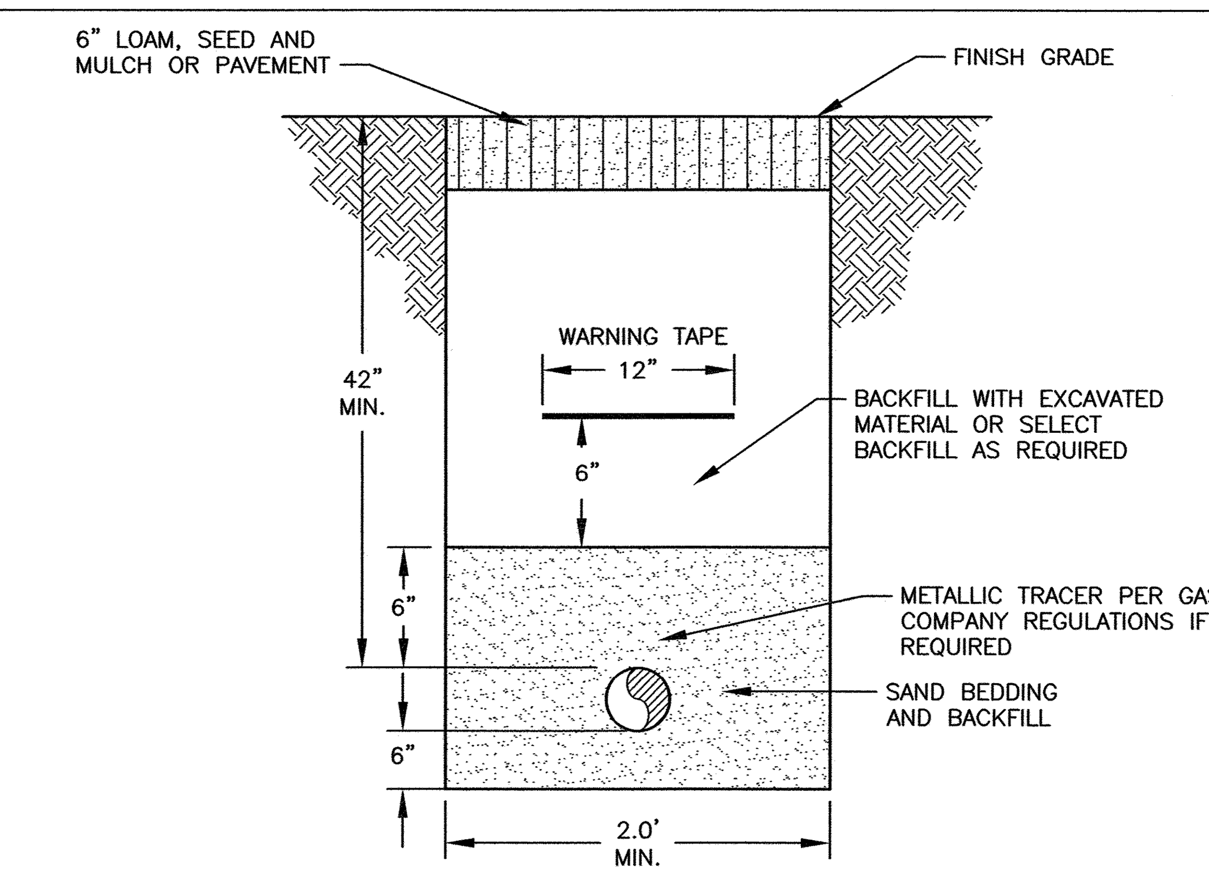
Q/C4 DRAIN MANHOLE DETAIL

NTS



R/C4 TYPE "A" SEWER SERVICE CONNECTION

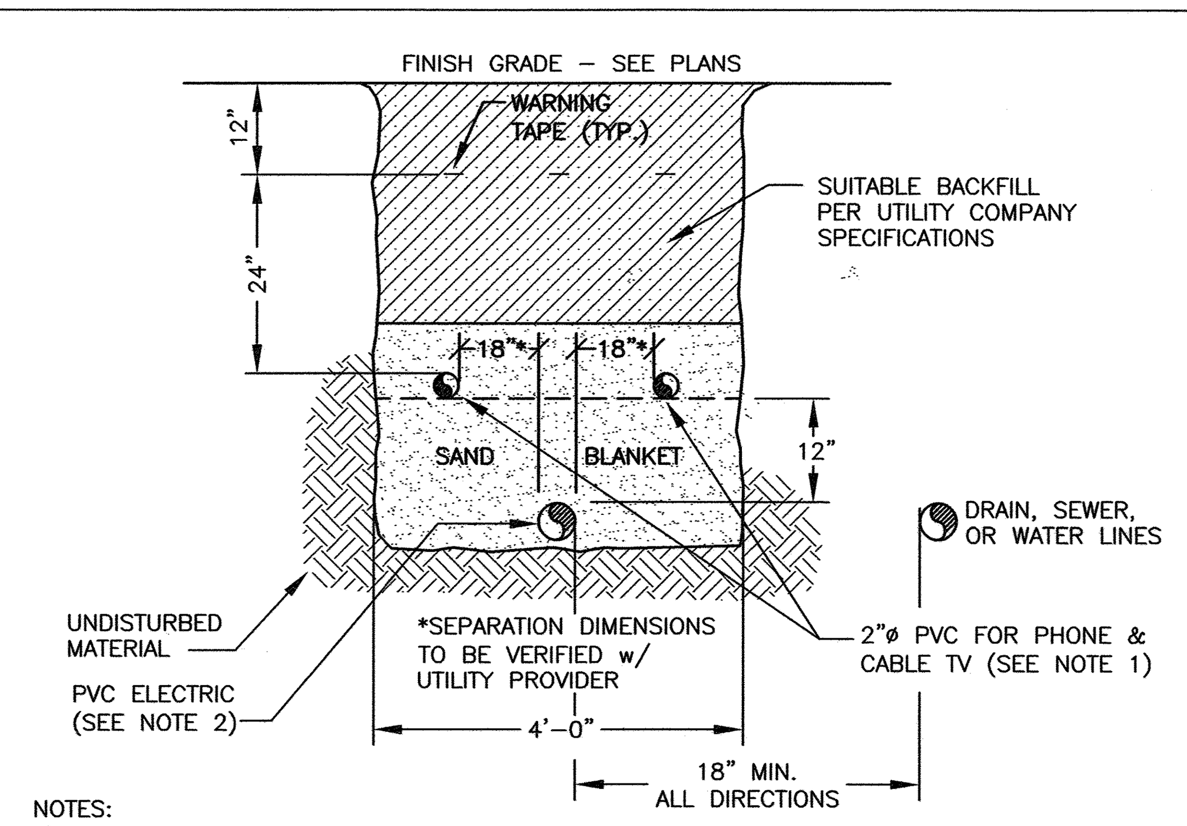
NTS



S/C4 GAS SERVICE TRENCH

POTENTIAL SERVICE TBD

NTS



NOTES:
1) ALL CONDUIT TO BE U.L. LISTED, SCH. 80 UNDER ALL TRAVEL WAYS, & SCH. 40 FOR THE REMAINDER.
2) NORMAL CONDUIT SIZES FOR PSNH ARE 3 INCH FOR SINGLE PHASE PRIMARY AND SECONDARY VOLTAGE CABLES, 4 INCH FOR THREE PHASE SECONDARY, AND 5 INCH FOR THREE PHASE PRIMARY.
3) ALL WORK TO CONFORM TO THE NATIONAL ELECTRICAL CODE (LATEST REVISION)
4) INSTALL A 200# PULL ROPE FOR EACH CONDUIT
5) VERIFY ALL CONDUIT SPECIFICATIONS WITH UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION.

T/C4 UTILITY TRENCH

ELECTRIC/PHONE/CABLE

NTS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

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4) ALL WATER LINE INSTALLATION WORK SHALL BE TO CITY OF PORTSMOUTH WATER DEPARTMENT STANDARDS. DETAILS MAY OR MAY NOT BE UP-TO-DATE.

RESIDENTIAL DEVELOPMENT CHINBURG DEVELOPMENT 686 MAPLEWOOD AVE. PORTSMOUTH, N.H.

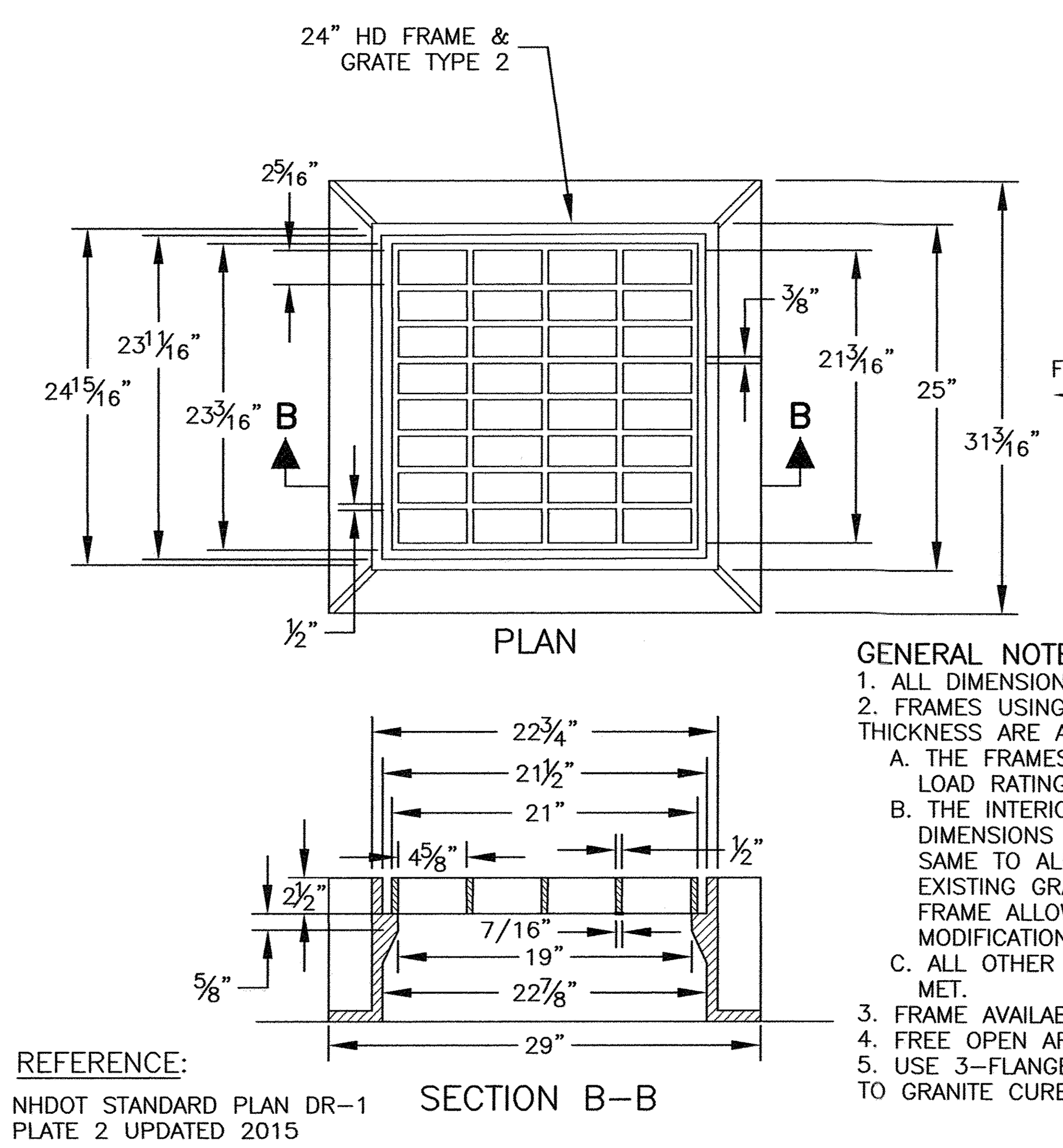
NO.	DESCRIPTION	DATE
2	DETAIL M, P	1/2/24
1	DETAIL Q	12/20/23
0	ISSUED FOR COMMENT	10/3/23

REVISIONS

SCALE AS NOTED | OCTOBER 2023

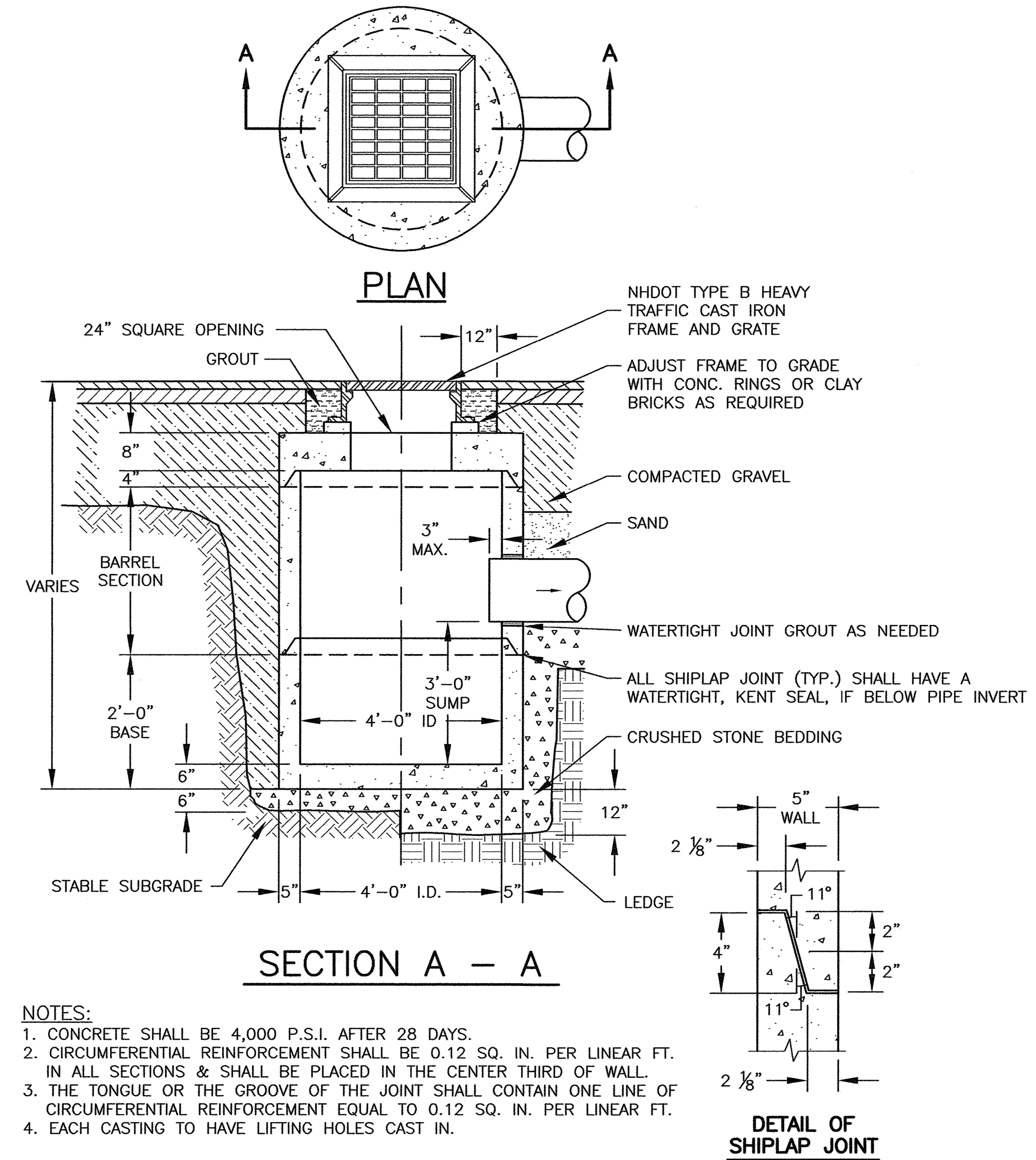
DETAILS D3

2360



REFERENCE:
NHDOT STANDARD PLAN DR–1
PLATE 2 UPDATED 2015

GENERAL NOTES
1. ALL DIMENSIONS ARE NOMINAL.
2. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
A. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAME ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
C. ALL OTHER PERTINENT REQUIREMENTS ARE MET.
3. FRAME AVAILABLE IN 4" OR 8" HEIGHTS.
4. FREE OPEN AREA =2.55 SF
5. USE 3–FLANGE FRAME IS INSTALLED ADJACENT TO GRANITE CURB.

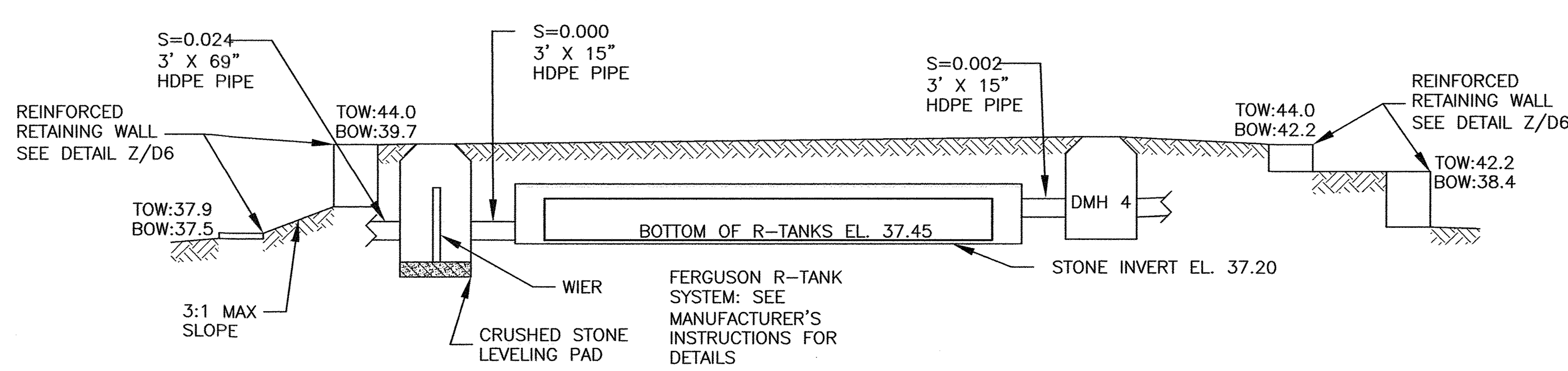


NOTES:
1. CONCRETE SHALL BE 4,000 P.S.I. AFTER 28 DAYS.
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ. IN. PER LINEAR FT. IN ALL SECTIONS & SHALL BE PLACED IN THE CENTER THIRD OF WALL.
3. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. EACH CASTING TO HAVE LIFTING HOLES CAST IN.

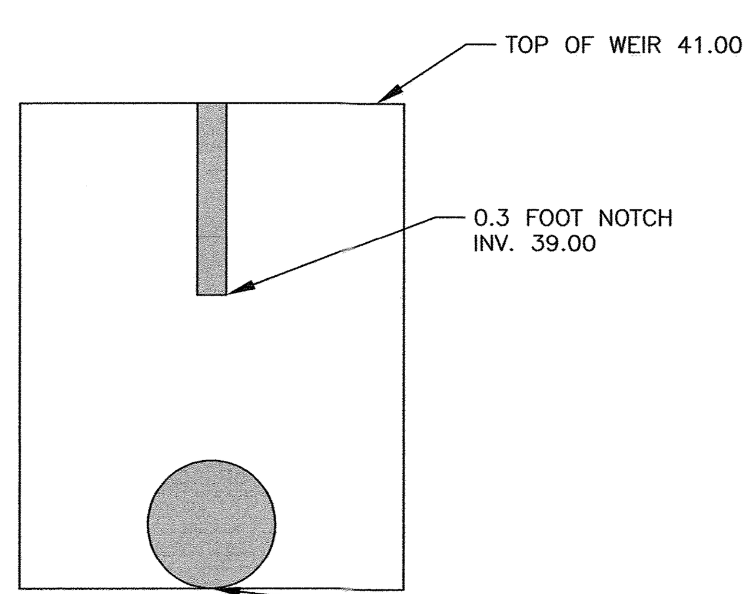
U / C3 NHDOT GRATE TYPE B & CATCH BASIN

EJPRESCOTT, INC. NTS

DMH 3
OUTLET
CONTROL STRUCTURE
RIM =44.0
INV. IN = 37.45
INV. OUT =37.45
8" DIAM. ORIFICE INV. 37.45
WIER 0.3 FOOT NOTCH, 39.00
TO TOP OF WIER AT 41.00
SUMP 36.69
BOTTOM OF STRUCTURE 36.2+/–



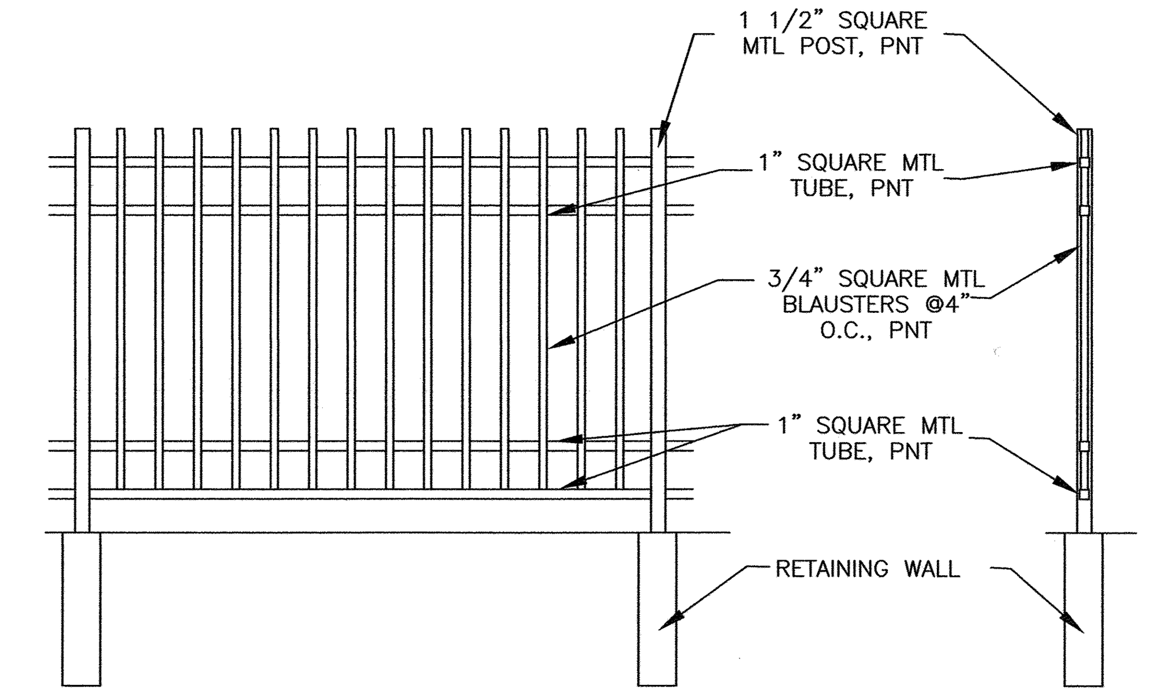
PROFILE
SCALE: 1" = 10'



WEIR
SCALE: 1" = 2'

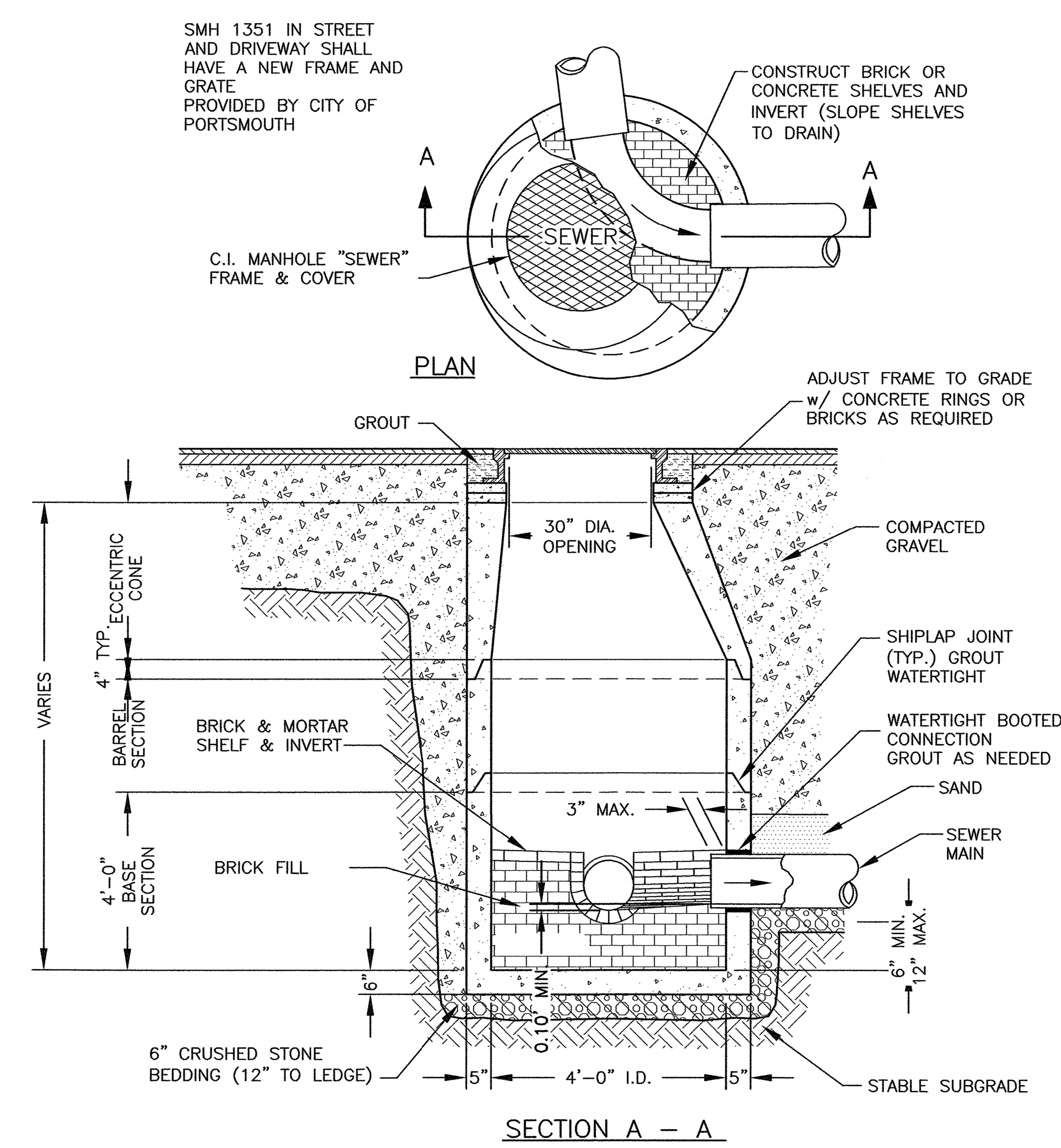
R-TANK SYSTEM	
MODULE TYPE	R-TANK HD
TRAFFIC LOAD	PEDESTRIAN
# OF TANKS	130
TANK UNIT DIMENSIONS	2H X 10W X 13 L
TANK STORAGE	1072.7 cf
STONE STORAGE	510.3 cf
TOTAL STORAGE	1583.0 cf
TOP OF COVER STONE	41.27
TOP OF R-TANK	40.27
BOTTOM OF TANK	37.45
STONE BASE INVERT	37.20

X / C4 R–TANK SYSTEM



V / C2 METAL FENCE DETAILS

NTS



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3) THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FOOT.
4) EACH PRECAST SECTION TO HAVE LIFTING HOLES CAST IN.
5) SEWER MANHOLE SHALL CONFORM TO NHDES AND CITY OF PORTSMOUTH STANDARDS.

W / C4 SEWER MANHOLE

NEW LOCATIONS NTS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

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RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
3	DETAIL X	1/24/24
2	ALL DETAILS	12/20/23
1	ISSUED FOR APPROVAL	10/23/23
0	ISSUED FOR COMMENT	10/3/23

REVISIONS

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

AS NOTED OCTOBER 2023

DETAILS

D4

2360

PRETX SPECIFICATIONS

A. GENERAL

1. PRETX SYSTEMS ARE A PRE-FILTER AND CRITICAL MAINTENANCE DEVICE THAT EXTENDS THE OPERATING LIFE AND REDUCES THE MAINTENANCE BURDEN OF BIORETENTION SYSTEMS, RAIN GARDENS, BIOSWALES AND OTHER TYPES OF SURFACE BEST MANAGEMENT PRACTICES BY FILTERING OUT SEDIMENT, TRASH AND DEBRIS AT THE INLET.

B. PRODUCTS

1. PRETX IS AVAILABLE IN 3 MODELS THAT MANAGE MOST BIORETENTIOIN INLET CONFIGURATIONS: CURB, DROP, AND INLINE.
2. PRETX-CURB IS FOR EDGE OF PAVEMENT RUNOFF AT A CURB CUT IN LIEU OF A STONE SPREADER.
3. PRETX-DROP IS FOR USE AS A DROP INLET CONFIGURATION ALONG A CURB LINE AND WOULD BE INSTALLED WITH A STANDARD DROP INLET GRATE.
4. PRETX-INLINE IS FOR USE WITH SUBSURFACE INLET AND OUTLET PIPE.
5. PRETX IS SIZED TO PRETREAT WATER QUALITY FLOWS AND BYPASS LARGER FLOWS THAT HAVE MINIMAL TRASH AND DEBRIS. PRETX CAN BE USED BOTH IN RETROFIT OR NEW INSTALLATIONS.
6. ACCEPTABLE SYSTEM SUPPLIER:
   CONVERGENT WATER TECHNOLOGIES, INC. OR ITS AUTHORIZED VALUE-ADDED RESELLER
   (800) 711-5428
   WWW.CONVERGENTWATER.COM

C. SUBMITTALS

1. SUBMIT PROPOSED LAYOUT DRAWINGS. DRAWINGS SHALL INCLUDE TYPICAL SECTION DETAILS ANNOTED WITH SYSTEM ELEVATIONS (E.G., RIM, PIPE INVERTS, OUTSIDE BOTTOM OF STRUCTURE, ETC.).
2. SUBMIT MATERIAL CERTIFICATES FOR FRAMES AND COVERS
3. ANY PROPOSED EQUAL ALTERNATE PRODUCT SUBSTITUION TO THIS SPECIFICATON MUST BE SUBMITTED FOR REVIEW AND APPROVED PRIOR TO BID OPENING.

D. EXECUTION

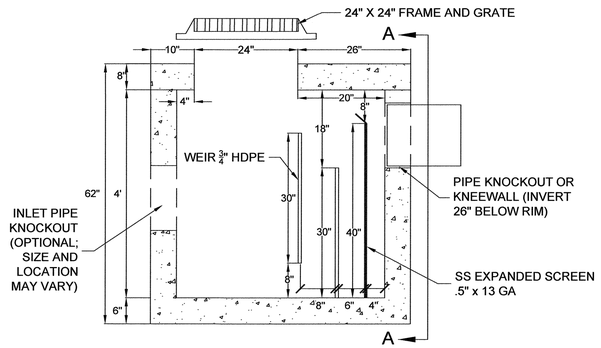
1. All PUBLIC STORM DRAINAGE SYSTEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS AND ACCORDING TO LOCAL MUNICIPAL REQ UIREME NTS.
2. All STORM DRAINAGE SYSTEM CONSTRUCTION IS SUBJECT TO INSPECTION AND APPROVAL BY THE PROJECT ENGINEER.
3. THE CONTRACTOR SHALL NOTIFYTHE PROJECT ENGINEER A MINIMUM OF TWO FULL BUSINESS DAYS PRIOR TO THE START OF CONSTRUCTIO N.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING AND OBTAINING APPROVAL FROM DIG-SAFE AND DETERMINING THE LOCATION OF All UNDERGROUND UTILITIES PRIOR TO THE START OF CONSTRUCTION/ EXCAVATI ON AND SHALL NOTIFY THE PROJECT ENGINEER OF ANY POTENTIAL CONFLICTS.
5. TO PROTECT STORMWATER FLOW CONTROL AND QUALITY TREATMENT FACILITIES FROM SEDIMENTATION, THEY SHALL BE CONNECTED TO THE STORM CONVEYANCE SYSTEM ONLY AFTER ALL SITE WORK, ROAD CONSTRUCTION, UTILITY WORK AND LANDSCAPING ARE IN PLACE IN ALL AREAS ABOVE AND UPSTREAM OF THE FACILITY.
6. THE EXISTING STORM SEWER SYSTEM SHALL STAY ISOLATED FROM THE NEW SYSTEM UNTIL THE NEW SYSTEM IS CLEANED, AND APPROVED FOR USE. THERE SHALL BE NO DEBRIS IN THE LINES OR FURTHER CLEANING Will BE REQUIRED PRIOR TO ACCEPTANCE.
7. PROVIDE A 1.5" MINIMUM GAP BETWEEN THE KNOCKOUT WALL AND THE OUTSIDE OF THE PIPE. AFTER THE PIPE IS INSTALLED, FILL THE GAP WITH JOINT MORTAR
8. THE OPENING SHALL BE MEASURED ATTHE TOP OF THE PRECAST BASE SECTION.
9. All PICKUP HOLES SHALL BE GROUTED FULL AFTER THE BASIN HAS BEEN PLACED.
10. STANDARD CURB INLETS AND TIPDOWNS SHALL BE PRECAST CONCRETE OR ASPHALT.
11. PIPE ENDS SHALL BE FLUSH WITH THE INNER WALL OR 1" MAXIMUM INTRUSION. MASONRY, CINDER BLOCKS, OR SIMILIAR MATERIALS MA Y BE USED TO ADJUST THE RISERS TO GRADE PRIOR TO GROUTING.
12. GROUTING SHALL BE SUFFICIENTTO PREVENT LEAKS BETWEEN THE PRECAST COMPONENTS OF THE COMPLETED STRUCTURE & SHALL BE PERFORMED INSIDE, BETWEEN & OUTSIDE OF All RISERS, JOINTS & PIPE PENETRATIONS.
13. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS.
14. All REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. All PRECAST CONCRETE SHALL BE CLASS 4000.
15. RECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
16. MATING SURFACES OF MANHOLE RINGS AND COVERSSHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITIONS.

E. CONSTRUCTION AND SEQUENCING

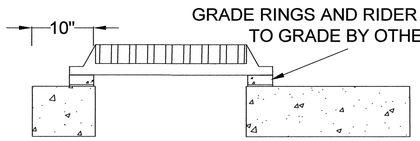
1. EXAMINATION
   A. VERIFY LAYOUT AND ORIENTATION OF PRE-TX SYSTEM AREA INCLUDING EDGE OF PAVEMENT, TIP DOWN, CURBS AND SIDEWALK, BIOFILTRATION SYSTEM, AND CONNECTIONS.
   B. VERIFY EXCAVATION BASE IS READY TO RECEIVE WORK AND EXCAVATIONS, DIMENSIONS, AND ELEVATIONS ARE AS INDICATED ON DRAWINGS.
2. PREPARATION
   A. CALL DIG SAFE AND RECEIVE APPROVAL BEFORE PERFORMING WORK.
   B. REQUEST UNDERGROUND UTILITIES TO BE LOCATED AND MARKED WITHIN AND SURROUNDING CONSTRUCTION AREAS.
   C. IDENTIFY REQUIRED LINES, LEVELS, CONTOURS, AND DATUM.
   D. CLEAR AND GRUB THE PROPOSED PRE-TX SYSTEM AREA.
3. EXCAVATION AND INSTALLATION
   A. THE FOLLOWING CONSTRUCTION SEQUENCE IS TO BE USED AS A GENERAL GUIDELINE. COORDINATE WITH THE OWNER, AND ENGINEERS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
   B. INSTALL TEMPORARY EROSION AND SEDIMENT CONTROLS TO DIVERT STORM WATER AWAY FROM THE PRE-TX SYSTEM AREA.
   C. EXCAVATE TO THE BOTTOM INVERT OF THE SYSTEM.
   D. TO MINIMIZE COMPACTION OF ADJACENT BIOFILTRATION SYSTEMS, WORK EXCAVATORS OR BACKHOES FROM THE SIDES TO EXCAVATE THE PRE-TX SYSTEM AREA TO ITS APPROPRIATE DESIGN DEPTH AND DIMENSIONS.
   E. ROUGH GRADE THE PRE-TX SYSTEM AREA DURING GENERAL CONSTRUCTION. EXCAVATE THE PRE-TX SYSTEM FACILITIES TO WITHIN 1 FOOT OF STRUCTURE BOTTOM .
   F. PLACE 1 FOOT BED OF COARSE STONE TO ELEVATION OF BASE OF STRUCTURE.
   G. ESTABLISH ELEVATIONS FOR ADJACENT CURBS, EDGE OF PAVEMENT AND TIP DOWN, SIDEWALK, PIPE INVERTS FOR INLETS AND OUTLETS AS INDICATED ON DRAWINGS.
4. INSTALLATION
   A. PLACE THE PRECAST SYSTEM TO NECESSARY ELEVATION.
   B. VERIFY ELEVATIONS FOR ADJACENT CURBS, EDGE OF PAVEMENT, PAVEMENT GRADING FOR INLET GRATE FOR PRETX-DROP, SIDEWALK, PIPE INVERTS FOR INLETS AND OUTLETS, OUTLET INVERT FOR KNEE WALL.
   C. FOR PRETX-SURFACE:
      a. VERIFY ELEVATIONS FOR ADJACENT CURBS.
      b. VERIFY EDGE OF PAVEMENT TIP DOWN PAVEMENT GRADING FOR INLET GRATE.
      c. VERIFY CURB ELEVATION IN RELATION TO PAVEMENT AND TIP DOWN.
      d. VERIFY OUTLET INVERT FOR KNEE WALL IN RELATION TO FILTER MEDIA.
   D. FOR PRETX-DROP:
      a. VERIFY ALL INLET PIPES ENTER THE STRUCTURE UPSTREAM OF BAFFLE.
      b. VERIFY FRAME AND GRATE OFFSET ON INLET SIDE AND UPSTREAM OF BAFFLE.
      c. VERIFY CURB LOCATION WITH RESPECT TO FRAME AND GRATE ORIENTATION.
   E. INSTALL BAFFLES, WEIR, AND SCREENS AS INDICATED ON DRAWINGS.
   F. VERIFY MAINTENANCE ACCESS THROUGH GRATE OR COVER AND CLEARANCE FOR VACTOR.
   G. INSTALL TOP OF STRUCTURE LEVEL WITH ADJACENT CURB OR SIDEWALK AS PER MANUFACTURERS SPECIFICATIONS. ENGINEER FIELD VISIT REQUIRED PRIOR TO BACKFILLING.
5. BACKFILLING
   A. BACKFILL WITH APPROVED SOIL AND STONE TO THE DESIGN GRADE AS SPECIFIED IN THE DRAWINGS.
   B. BACKFILL WITH 12" OF NO. 57 STONE AROUND REAR, LEFT, AND RIGHT SIDES TO LEVEL WITH TOP OF HDPE SCREEN.
   C. BACKFILL WITH BIORETENTION SOIL MIX BEYOND STONE BACKFILL TO EQUAL ELEVATION OF THE TOP OF HDPE SCREEN.
   D. DO NOT BACKFILL SOIL OR STONE AGAINST STAINLESS SCREEN.
   E. DO NOT COMPACT ADJACENT FILTRATION SYSTEM SOIL WITH MECHANICAL EQUIPMENT.
   F. STABILIZE All REMAINING DISTURBED AREAS AND SIDE SLOPES WITH SEEDING, HYDROSEEDING, AND/ ORE ROSION CONTROL BLANKETS AS INDICATED ON DRAWINGS.
6. CLEAN UP
   A. AFTER COMPLETION OF THE WORK, REMOVE AND PROPERLY DISPOSE ALL DEBRIS, CONSTRUCTION MATERIA LS, RUBBISH, EXCESS SOIL, ETC., FROM THE PROJECT SITE. REPAIR PROMPTL Y ANY IDENTIFIED DEFICIENCIES AND LEAVE THE PROJECT SITE IN A CLEAN AND SATISFACTORY CONDITION.

PRETX–DROP ELEVATION GUIDE

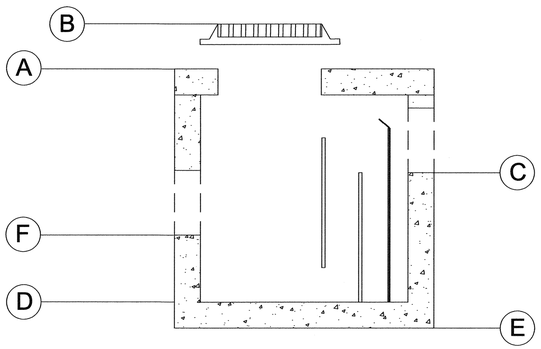
POINT	DESCRIPTION	HEIGHT IN REFERENCE TO PT. A
A	OUTSIDE OF TOP SLAB	0"
B	EDGE OF PAVEMENT	5", MIN.
C	PIPE INVERT	25.5" FOR 12" PIPE, 21" FOR 8" PIPE, 19" FOR 6" PIPE
D	SUMP INVERT	56"
E	OUTSIDE BOTTOM	62"
F	OPTIONAL INLET PIPE KNOCKOUT	VARIES



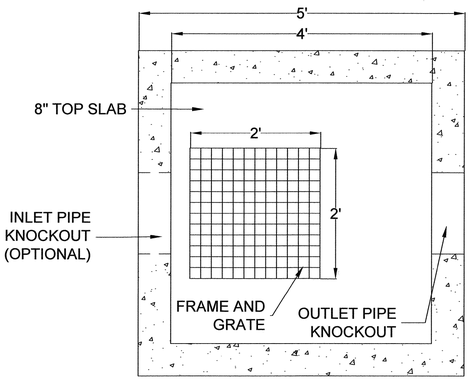
PRETREATMENT CATCH BASIN CROSS SECTION VIEW
NOT TO SCALE



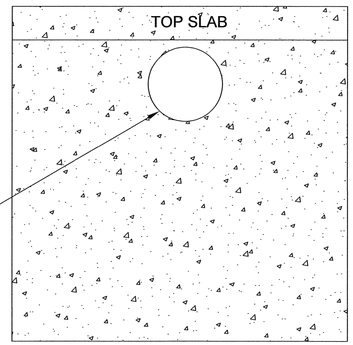
PRETX DROP SIDE DETAIL
NOT TO SCALE



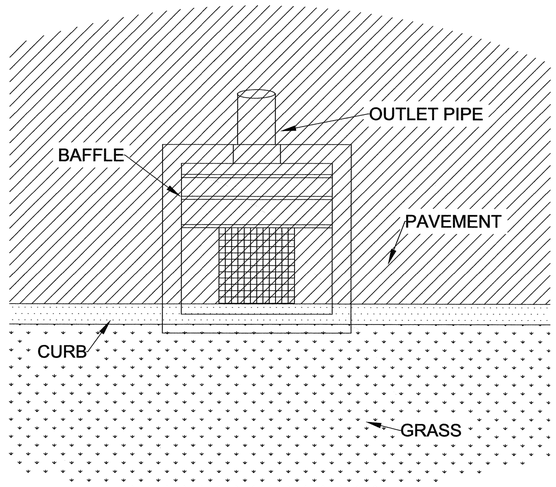
KEY TO ELEVATION GUIDE
NOT TO SCALE



PLAN VIEW DETAIL
NOT TO SCALE



SECTION A-A
NOT TO SCALE



PRETX DROP OUTLET CONFIGURATION
NOT TO SCALE

Y / C4 PRETX–DROP INLET
NTS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

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

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	10/23/23

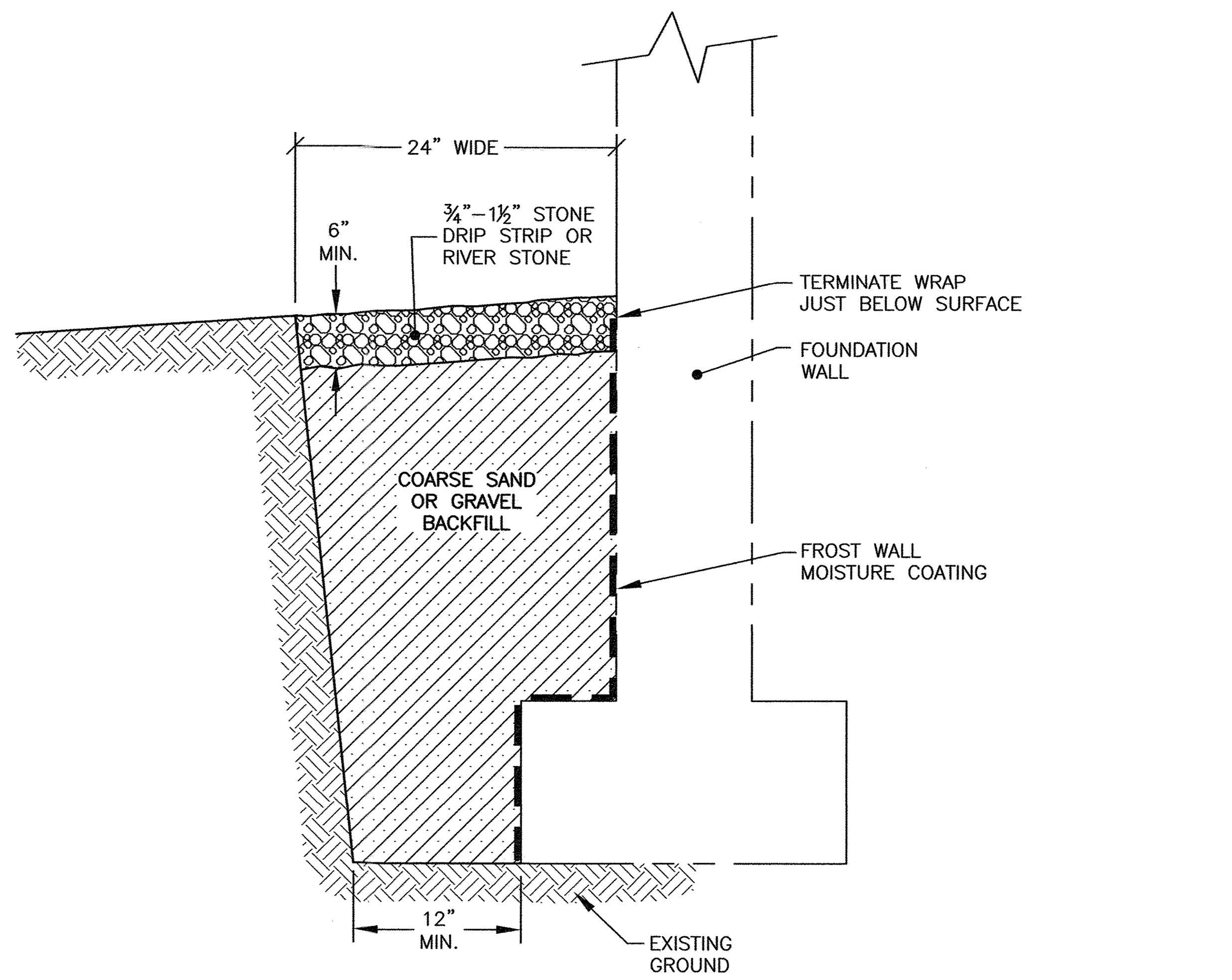
REVISIONS

AS NOTED — OCTOBER 2023

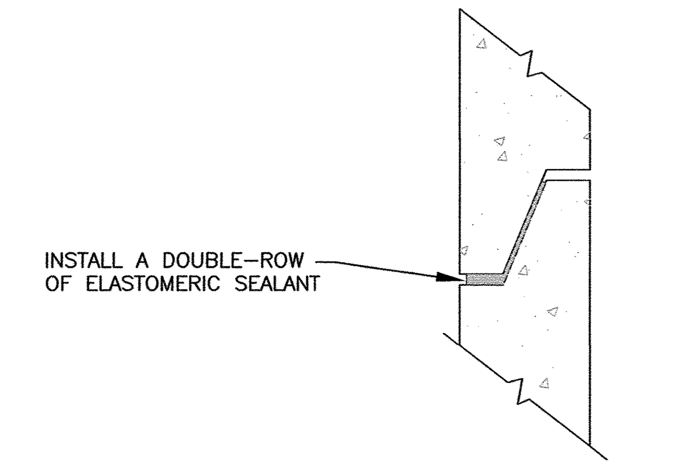
DETAILS

D5

2360



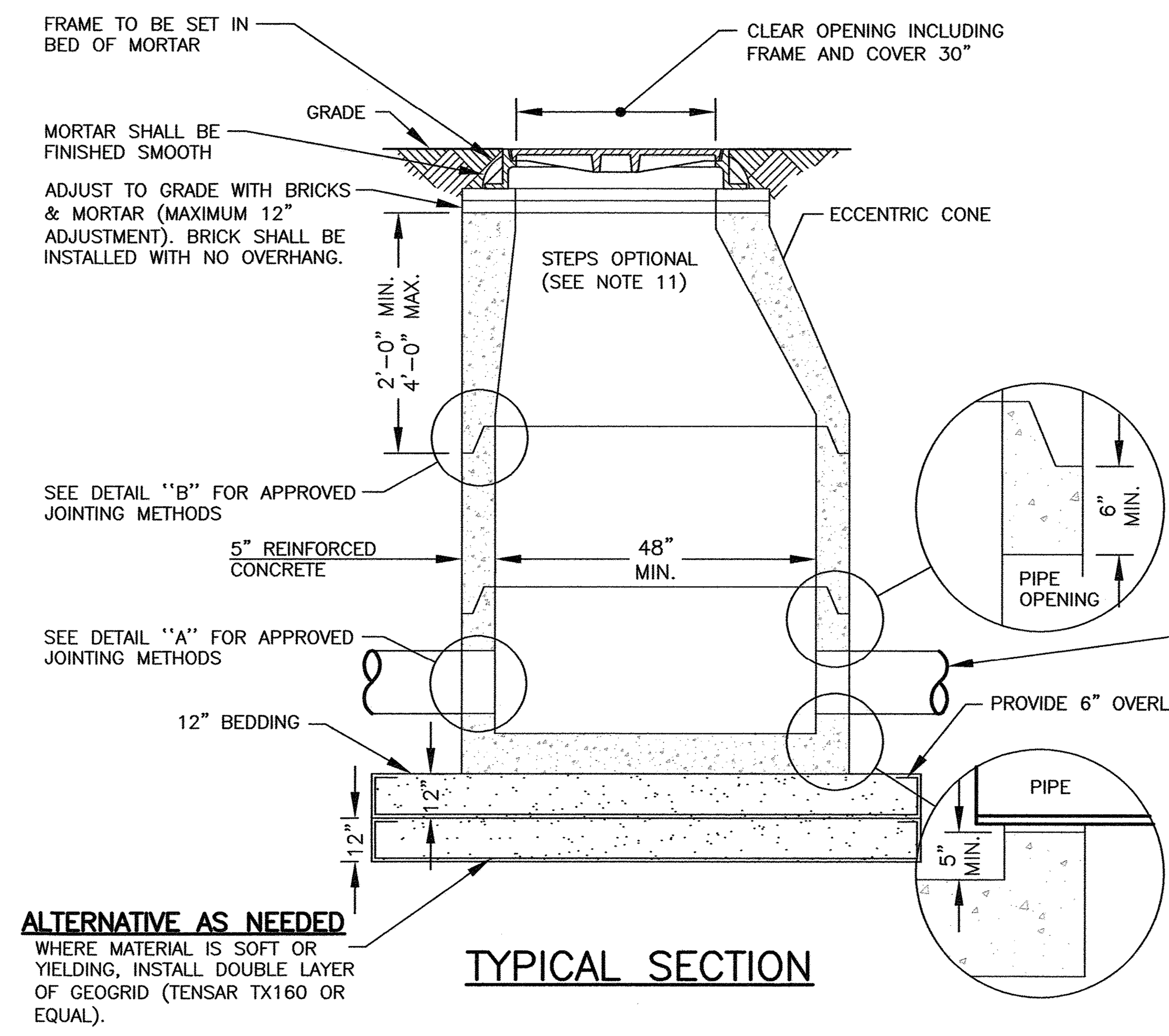
AA / C2 STONE DRIP APRON (UNDER BUILDING DRIP LINE) NTS



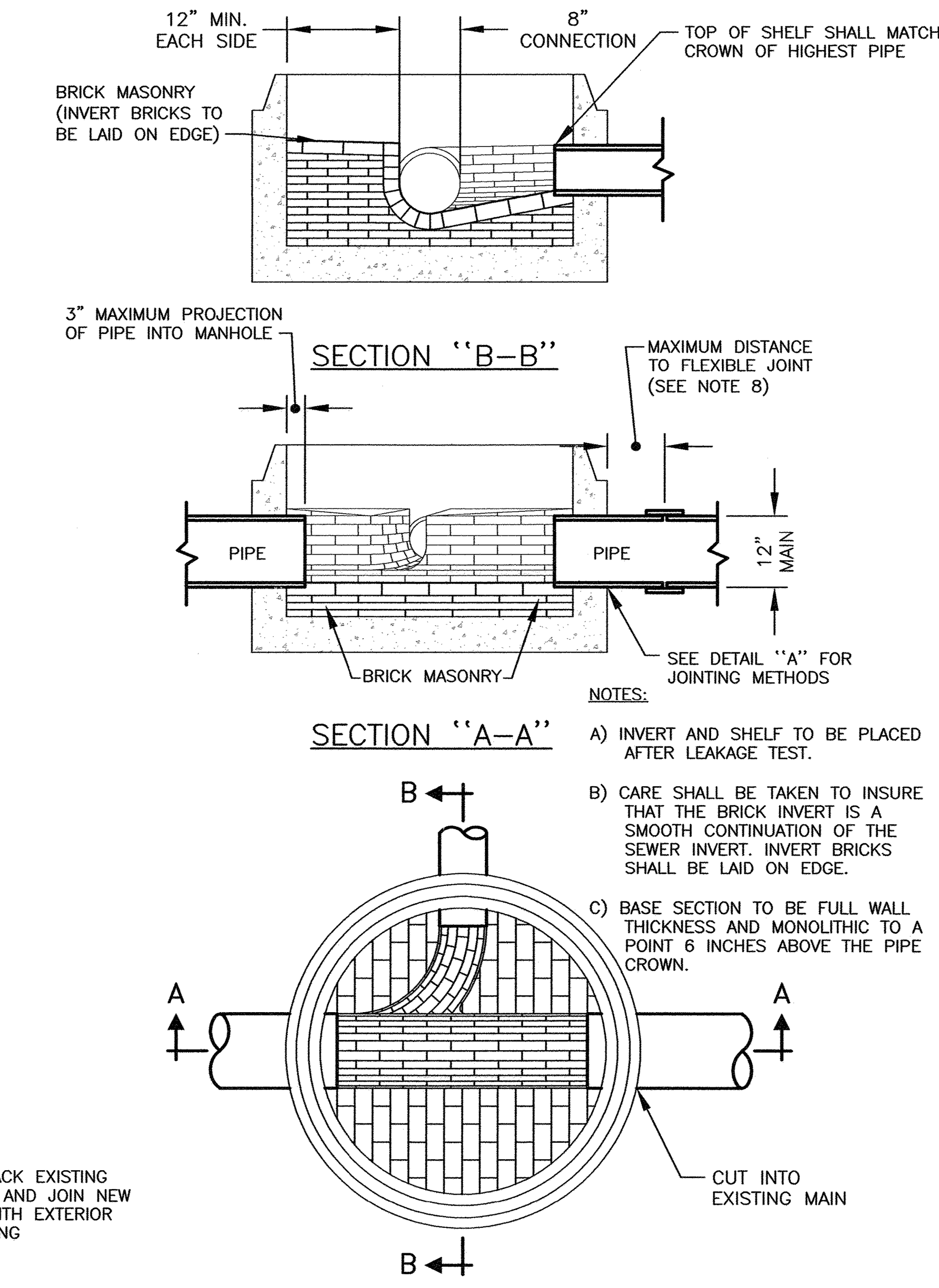
ELASTOMERIC SEALANT

NOTE:
ALL GASKETS AND SEALANTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS.

DETAIL "B" – HORIZONTAL JOINTS

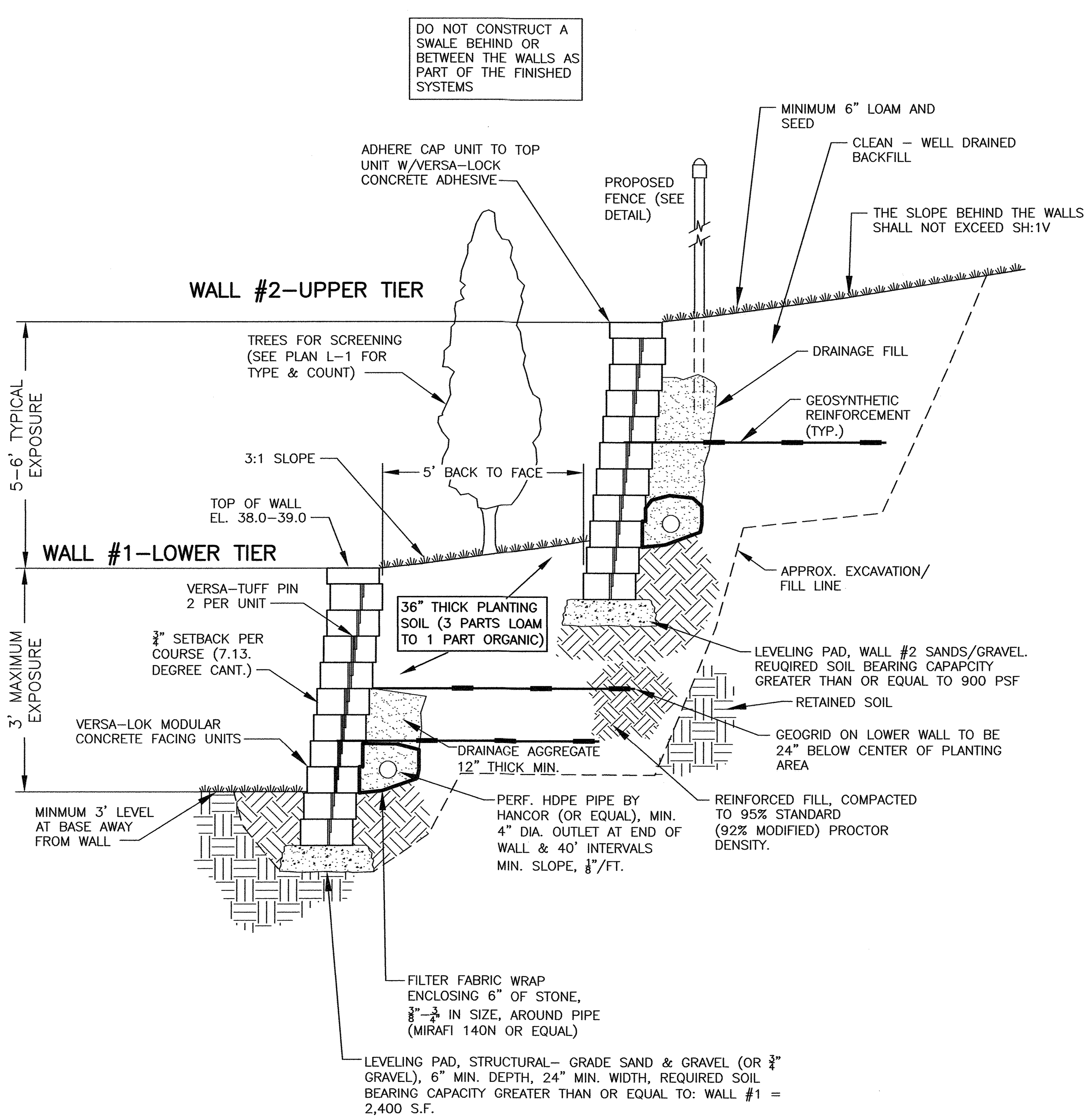


TYPICAL SECTION

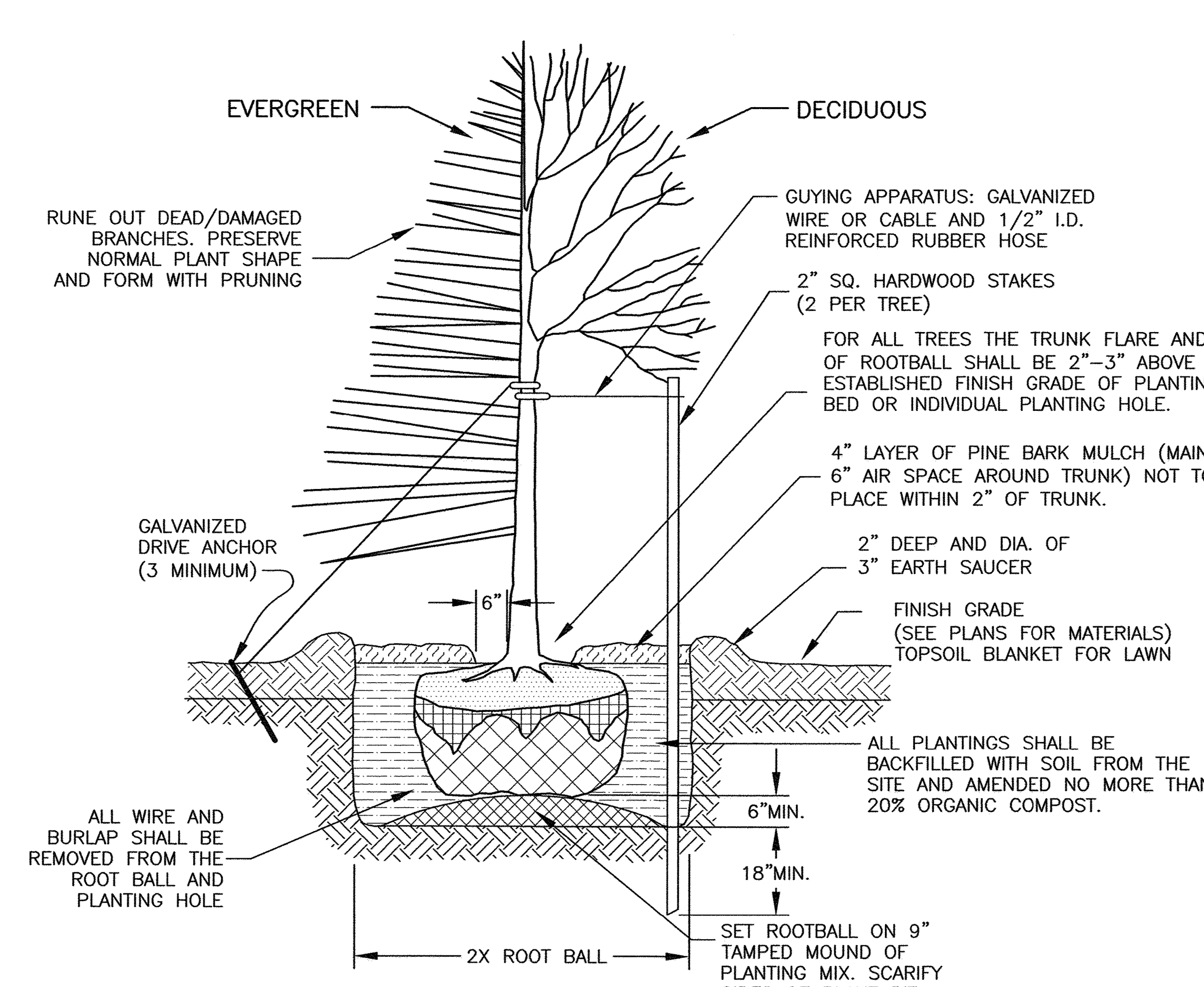


TYPICAL MANHOLE – PLAN VIEW

BB / C4 SEWER MANHOLE INSTALLATION CUT INTO EXISTING MAIN NTS



Z / C2 REINFORCED RETAINING WALL DETAIL
MODULAR CONCRETE UNIT NTS
PROVIDE STAMPED SHOP DRAWINGS PRIOR TO CONSTRUCTION



CC / L1 TREE PLANTING DETAIL NTS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

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RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
3	DETAIL Z	1/24/24
2	DETAIL BB	1/2/24
1	ADD TO SET	12/20/23
0	ISSUED FOR COMMENT	10/3/23

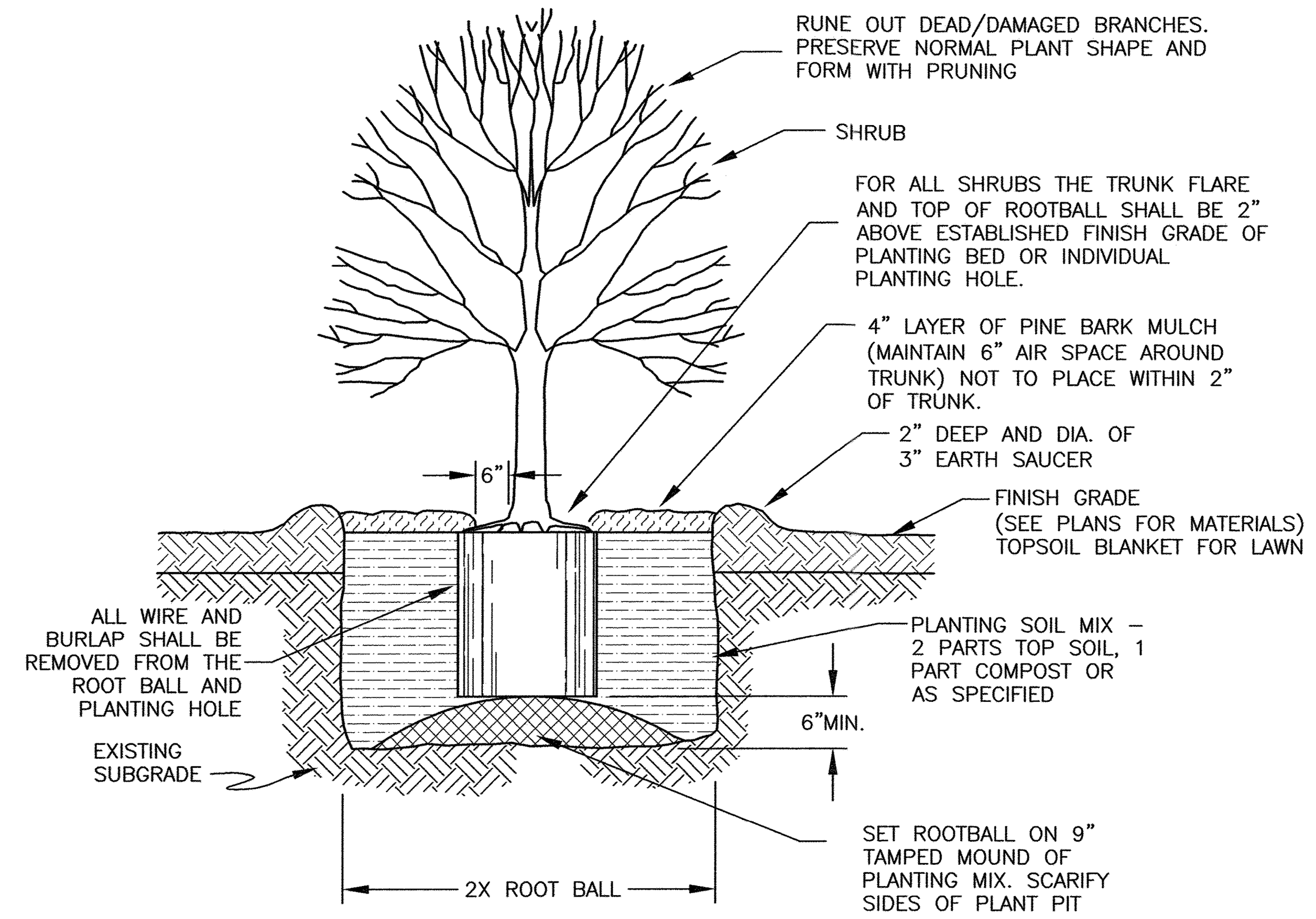
REVISIONS

STATE OF NEW HAMPSHIRE JOHN CHAGNON No. 7051 LICENSED PROFESSIONAL ENGINEER

AS NOTED OCTOBER 2023

DETAILS D6

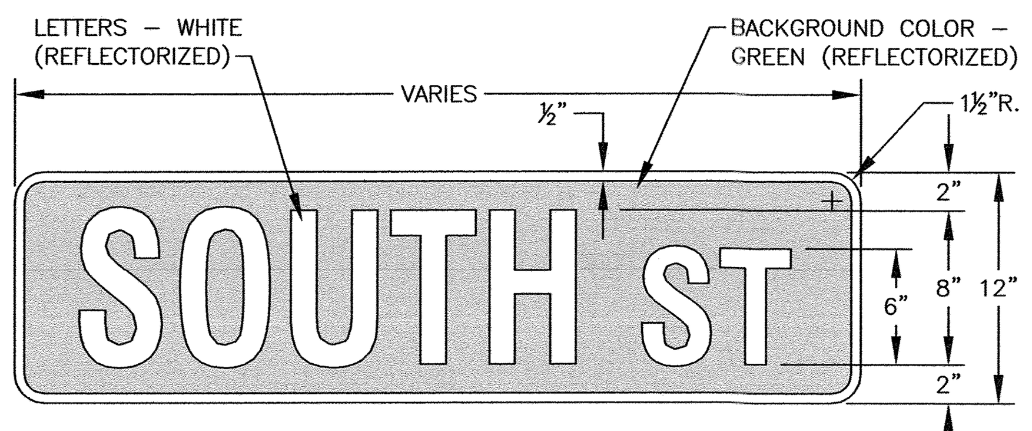
2360



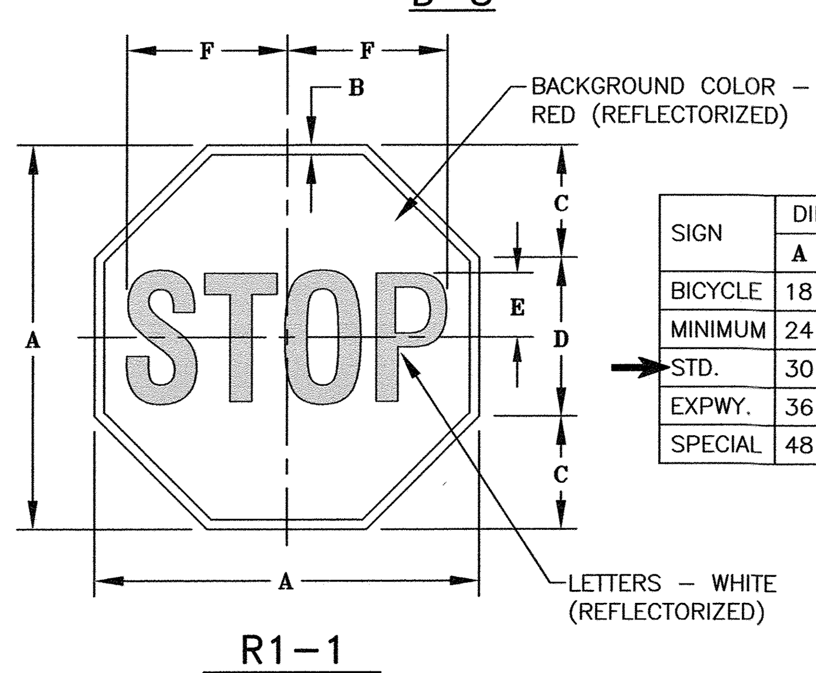
DD / L1 SHRUB PLANTING DETAIL

NTS

(SHRUB PLANTING DETAIL APPLIES TO EVERGREEN AND DECIDUOUS SHRUBS)



D-3



SIGN	DIMENSIONS (Inches)				
	A	B	C	D	E
BICYCLE	18	⅜	6	6C	7¾
MINIMUM	24	⅝	8	8C	10
STD.	30	¾	10	10C	12½
EXPWY.	36	⅞	12	12C	15
SPECIAL	48	1¼	16	16C	20

R1-1

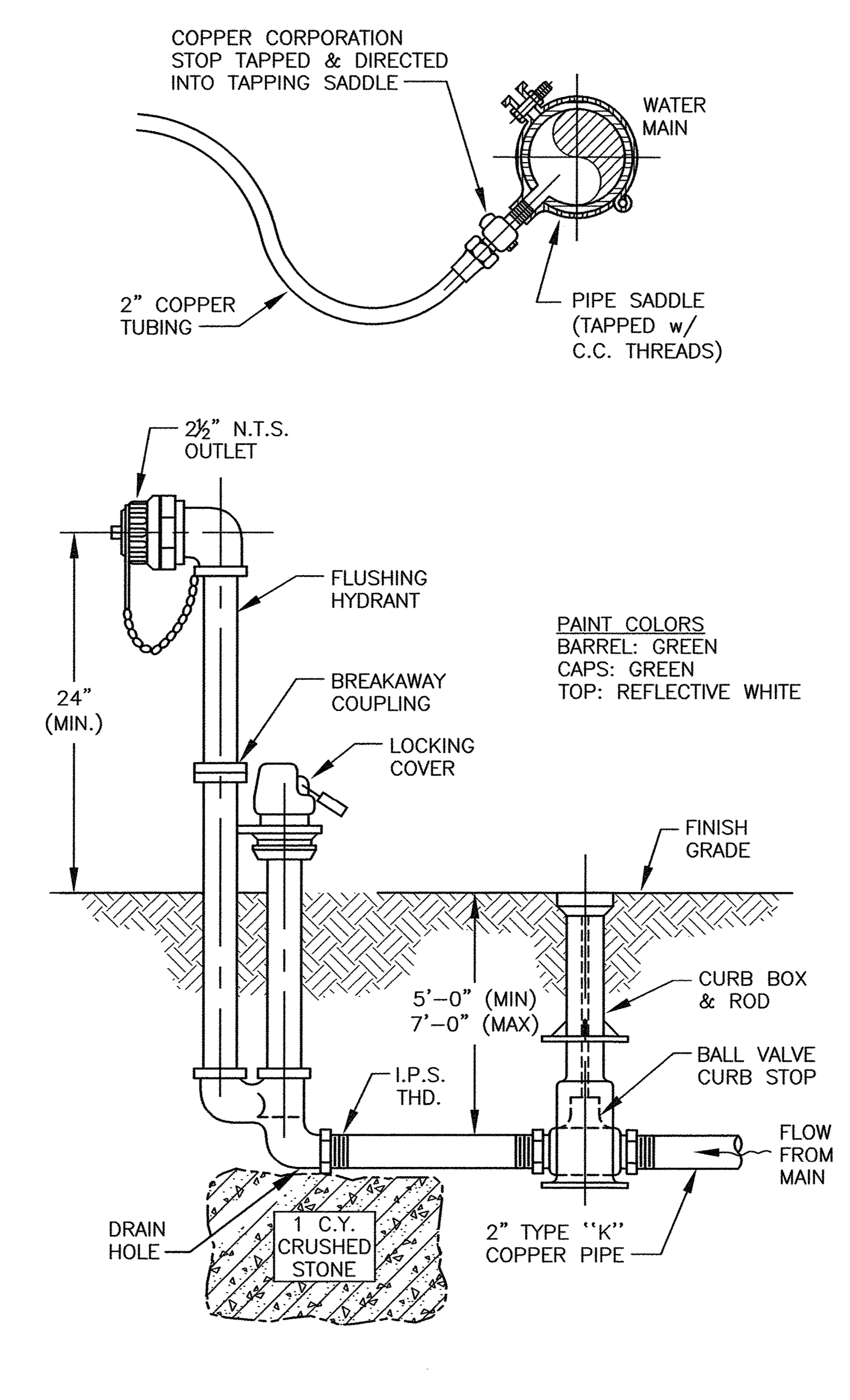
A" x A"

EE / C2 STOP SIGN & STREET NAME DETAILS

NTS

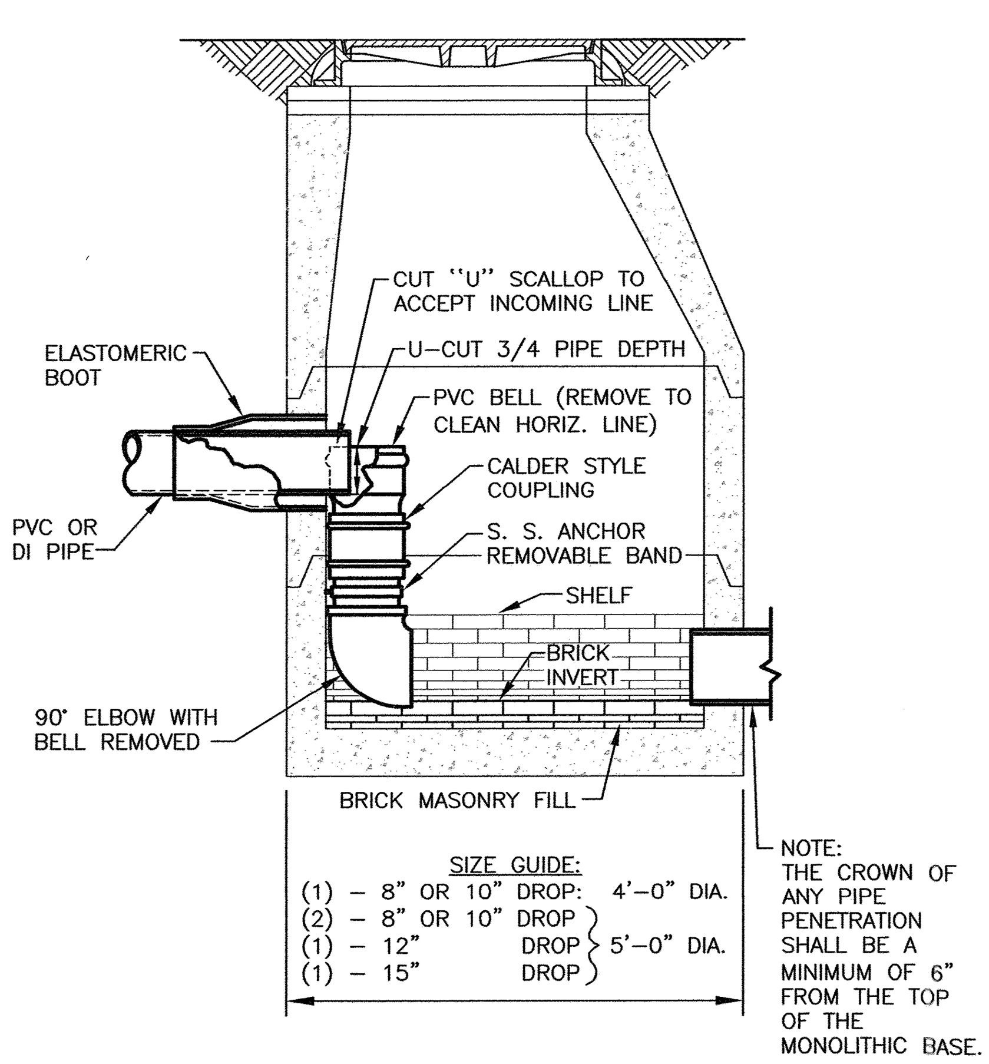
NOTES:

1. FLUSHING HYDRANTS SHALL BE POST TYPE HYDRANTS, 5' BURY (MIN.), WITH 1 CU. YD. OF CRUSHED STONE BENEATH HYDRANT TO ALLOW FREE DRAINAGE.
2) ALL WORKING PARTS SHALL BE BRASS. HYDRANT MAIN VALVE OPENING TO BE 2³⁄₁₆" (MIN.).
3) INLET CONNECTION SHALL BE 2" I.P. WITH ONE OUTLET BEING 2½" NATIONAL STANDARD HOSE THREAD.
4) ALL OPERATING PARTS SHALL BE REMOVABLE FROM ABOVE GROUND WITH NO SPECIAL TOOLS.
5) THE HYDRANT SHALL BE SELF–DRAINING, NONFREEZING.
6) THE HYDRANT SHALL HAVE A PENTAGON SOCKET OPERATOR AND BE SUPPLIED WITH AN APPROPRIATE WRENCH.
7) THE HYDRANT SHALL BE A MAINGUARD MODEL #77 BLOW–OFF HYDRANT W/ TAMPER PROOF OPTION AS MANUFACTURED BY KUPFERLE FOUNDRY, 2511 n. 9TH ST., ST. LOUIS, MISSOURI 63102 TEL. (800) 231–3990.



FF / P1 TYPE II FLUSHING HYDRANT DETAIL

NTS



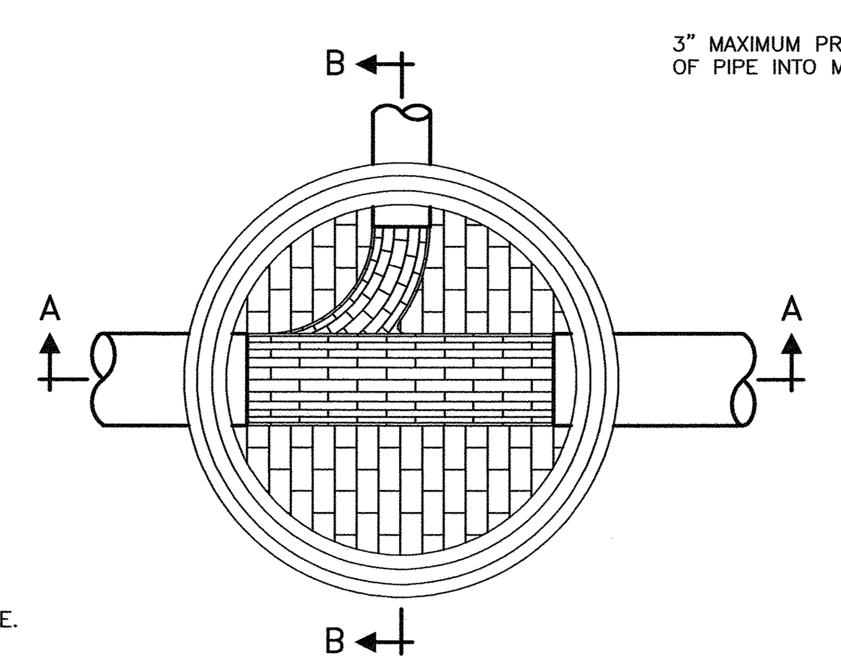
INSIDE DROP MANHOLE

NOTES:

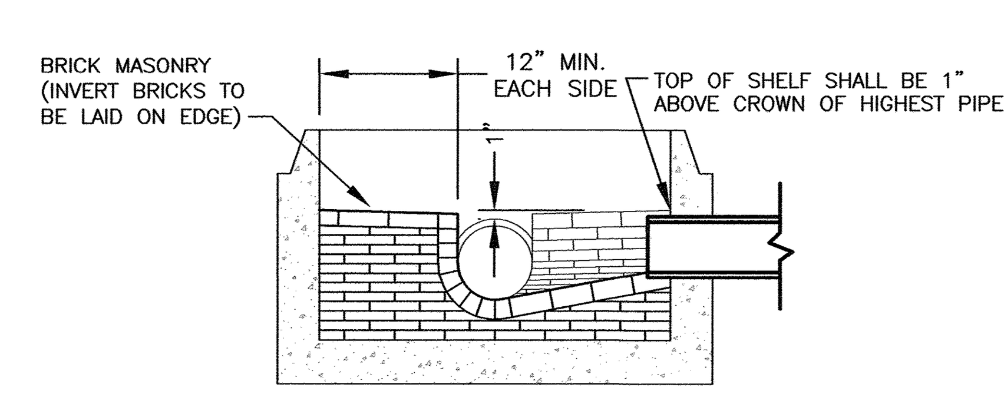
A) INVERT AND SHELF TO BE PLACED AFTER LEAKAGE TEST.

B) 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.

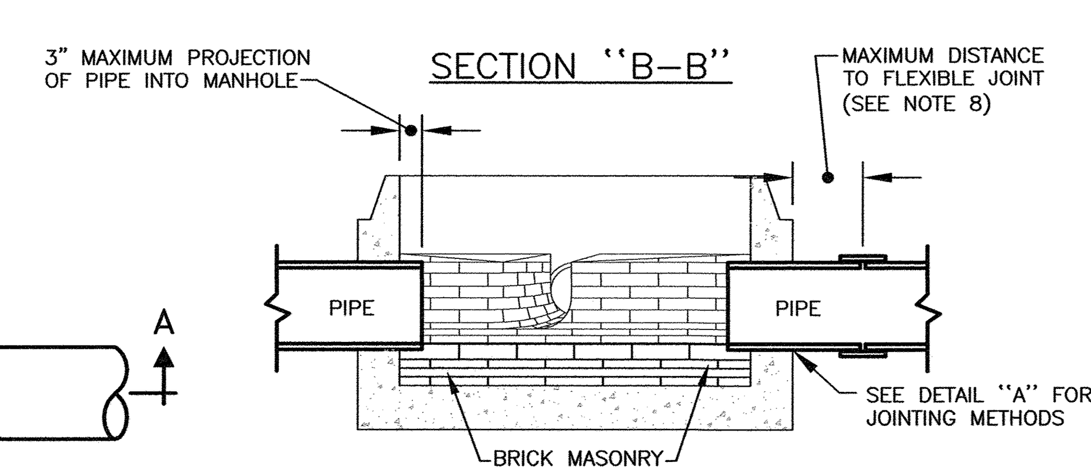
C) BASE SECTION TO BE FULL WALL THICKNESS AND MONOLITHIC TO A POINT 6 INCHES ABOVE THE PIPE CROWN.



TYPICAL MANHOLE – PLAN VIEW



SECTION "B–B"



SECTION "A–A"

GENERAL NOTES

1) IT IS THE INTENTION THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE, STRENGTH AND LEAK PROOF QUALITIES CONSIDERED NECESSARY FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS, SHALL BE AS SHOWN ON THE DRAWING. MANHOLES SHALL BE AN ASSEMBLY OF PRECAST SECTIONS, WITH STEEL REINFORCEMENT, WITH ADEQUATE JOINTING, OR CONCRETE CAST MONOLITHICALLY IN PLACE WITH REINFORCEMENT. IN ANY APPROVED MANHOLE, THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS (H–20 LOADING) WITHOUT FAILURE AND PREVENT LEAKAGE IN EXCESS OF ONE GALLON PER DAY PER VERTICAL FOOT OF MANHOLE, CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE. A PERIOD GENERALLY IN EXCESS OF 25 YEARS IS TO BE UNDERSTOOD IN BOTH CASES.

2) BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE, OR POURED IN PLACE REINFORCED CONCRETE IF POURED AS A COMPLETE MANHOLE.

3) PRECAST CONCRETE BARREL SECTIONS, CONES AND BASES SHALL CONFORM TO ASTM C478.

4) LEAKAGE TEST MAY NOT BE FEASIBLE, BUT SHALL CONFORM TO ENV–WQ 704.17.

5) INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF THE PIPE AND FLOW. AT CHANGES IN DIRECTIONS, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE AND TANGENT TO THE CENTERLINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPED TO DRAIN TOWARD FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY.

6) FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30–INCH CLEAR OPENING. A THREE INCH (MINIMUM HEIGHT) WORD "SEWER" FOR SEWERS AND "DRAIN" FOR DRAINS SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER. CASTINGS SHALL CONFORM TO CLASS 30, ASTM A48.

7) 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

WHEN ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR
CRUSHED STONE 1/2 INCH TO 1–1/2 INCH SHALL BE USED.

8) FLEXIBLE JOINT: A FLEXIBLE JOINT SHALL BE PROVIDED WITHIN THE FOLLOWING DISTANCES:
RCP & CI PIPE – ALL SIZES – 48"

9) SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H–20 LOADS.

10) MANHOLE STEPS MAY BE PERMITTED UPON REQUEST BY THE OWNER AS SECONDARY ADDITIONAL SAFETY FEATURE SUPPLEMENTARY TO THE PRIMARY PORTABLE LADDER ENTRY AND WHEN INSTALLED UNDER THE FOLLOWING CONDITIONS:

1. THE STEPS SHALL BE MANUFACTURED OF 5/8ths INCH ROUND STAINLESS STEEL, PLASTIC COVERED STEEL OR PLASTIC. THEY SHALL BE SHAPED SO THAT THEY CANNOT BE PULLED OUT OF THE CONCRETE WALL IN WHICH THEY ARE EMBEDDED.

2. THE STEPS SHALL BE EMBEDDED IN THE CONCRETE BY THE MANUFACTURER DURING MANUFACTURE OR IMMEDIATELY FOLLOWING REMOVAL OF FORMS. SECURING THE STEPS WITH MORTAR IN DRILLED OR CAST HOLES, WILL NOT BE ACCEPTABLE.

3. THE STEPS SHALL BE OF THE DROP TYPE WITH A DEPRESSED SECTION FOR HANDHOLD. APPROXIMATELY 14" x 10" IN DIMENSION.

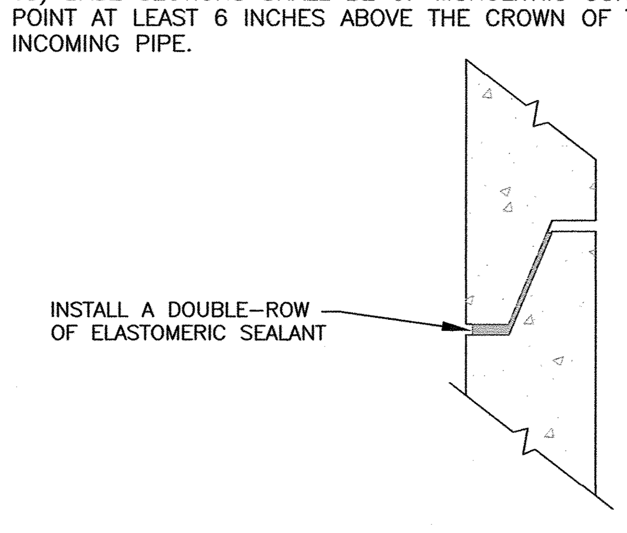
11) HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF A TYPE APPROVED BY THE ENGINEER, WHICH TYPE SHALL, IN GENERAL, DEPEND FOR WATER TIGHTNESS UPON AN ELASTOMERIC OR MASTIC–LIKE GASKET, IN 2 ROWS.

12) PIPE TO MANHOLE JOINTS SHALL BE ONLY AS APPROVED BY THE ENGINEER AND IN GENERAL, WILL DEPEND FOR WATERTIGHTNESS UPON EITHER AN APPROVED NON–SHRINKING MORTAR OR ELASTOMERIC SEALANT.

13) THE PURPOSE OF THIS PLAN IS TO SHOW STANDARDS FOR SEWER CONSTRUCTION.

14) ALL WORK SHALL BE IN COMPLIANCE WITH NHDES CODE OF ADMINISTRATIVE RULES PART ENV–WQ 704 DESIGN OF SEWERAGE.

15) BASE SECTIONS SHALL BE OF MONOLITHIC CONSTRUCTION TO A POINT AT LEAST 6 INCHES ABOVE THE CROWN OF THE LARGEST INCOMING PIPE.



ELASTOMERIC SEALANT

NOTE:
ALL GASKETS AND SEALANTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS.

DETAIL "B" – HORIZONTAL JOINTS

GG / P1 SEWER (MANHOLE) DETAILS

INSTALL PER PORTSMOUTH REQUIREMENTS NTS

GENERAL NOTES

1) MINIMUM PIPE SIZE FOR HOUSE SERVICE SHALL BE FOUR INCHES.

2) PIPE AND JOINT MATERIALS:

A. PLASTIC SEWER PIPE

1. PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

ASTM STANDARDS	GENERIC PIPE MATERIAL	SIZES APPROVED
D3034	*PVC (SOLID WALL)	8" THROUGH 15" (SDR 35)
F679	PVC (SOLID WALL)	18" THROUGH 27" (T–1 & T–2)
F794	PVC (RIBBED WALL)	8" THROUGH 36"
AWWA C900	PVC (SOLID WALL)	8" THROUGH 18"

*PVC: POLYVINYL CHLORIDE

2. JOINT SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D–3212 AND SHALL BE PUSH–ON BELL AND SPIGOT TYPE.

3) DAMAGED PIPE SHALL BE REJECTED AND REMOVED FROM THE JOB SITE.

4) JOINTS SHALL BE DEPENDENT UPON A NEOPRENE OR ELASTOMERIC GASKET FOR WATER TIGHTNESS. ALL JOINTS SHALL BE PROPERLY MATCHED WITH THE PIPE MATERIALS USED. WHERE DIFFERING MATERIALS ARE TO BE CONNECTED, AS AT THE STREET SEWER WYE OR AT THE FOUNDATION WALL, APPROPRIATE MANUFACTURED ADAPTERS SHALL BE USED.

5) HOUSE SEWER INSTALLATION: THE PIPE SHALL BE HANDLED, PLACED AND JOINTED IN ACCORDANCE WITH INSTALLATION GUIDES OF THE APPROPRIATE MANUFACTURER. IT SHALL BE CAREFULLY BEDDED ON A 4 INCH LAYER OF CRUSHED STONE AND/OR GRAVEL AS SPECIFIED IN NOTE 10. BEDDING AND REFILL FOR DEPTH OF 12 INCHES ABOVE THE TOP OF THE PIPE SHALL BE CAREFULLY AND THOROUGHLY TAMPED BY HAND OR WITH APPROPRIATE MECHANICAL DEVICES.

6) THE PIPE SHALL BE LAID AT A CONTINUOUS AND CONSTANT GRADE FROM THE STREET SEWER CONNECTION TO THE FOUNDATION AT A GRADE OF NOT LESS THAN 1/4 INCH PER FOOT. PIPE JOINTS MUST BE MADE UNDER DRY CONDITIONS. IF WATER IS PRESENT, ALL NECESSARY STEPS SHALL BE TAKEN TO DEWATER THE TRENCH.

7) TESTING: WHEN REQUIRED BY THE GOVERNING AUTHORITY, TESTING SHALL CONFORM TO ENV–WQ 704.09.

8) ILLEGAL CONNECTIONS: NOTHING BUT SANITARY WASTE FLOW FROM HOUSE TOILETS, SINKS, LAUNDRY ETC. SHALL BE PERMITTED. ROOF LEADERS, FOOTING DRAINS, SUMP PUMPS OR OTHER SIMILAR CONNECTIONS CARRYING RAIN WATER, DRAINAGE OR GROUND WATER SHALL NOT BE PERMITTED.

9) HOUSE WATER SERVICE SHALL NOT BE LAID IN SAME TRENCH AS SEWER SERVICE, UNLESS IT IS ON A SHELF 12" HIGHER, AND 18" APART.

10) BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE, FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33 STONE SIZE NO. 67.

100% PASSING	1 INCH SCREEN
90%–100% PASSING	3/4 INCH SCREEN
20%– 55% PASSING	3/8 INCH SCREEN
0%– 10% PASSING	#4 SIEVE
0%– 5% PASSING	#8 SIEVE

WHERE ORDERED BY THE ENGINEER, OVEREXCAVATE UNSTABLE TRENCH BOTTOM AND BACKFILL WITH CRUSHED STONE.

11) LOCATION: THE LOCATION OF THE TEE OR WYE SHALL BE RECORDED AND FILED IN THE MUNICIPAL RECORDS. IN ADDITION, A FERROUS METAL ROD OR PIPE SHALL BE PLACED OVER THE TEE OR WYE AS DESCRIBED IN THE TYPICAL "CHIMNEY" DETAIL, TO AID IN LOCATING THE BURIED PIPE WITH A DIP NEEDLE OR PIPE FINDER.

12) CAST–IN–PLACE CONCRETE: SHALL CONFORM TO THE REQUIREMENTS FOR CLASS A (3000 PSI) CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AS FOLLOWS:

CEMENT: 6.0 BAGS PER CUBIC YARD
WATER: 5.75 GALLONS PER BAG OF CEMENT
MAXIMUM AGGREGATE SIZE: 3/4 INCH

13) BACKFILL UP TO SUBBASE GRAVEL SHALL BE WITH EXCAVATED SOIL FROM TRENCHING OPERATIONS. COMPACT IN 8" LIFTS WITH VIBRATORY PLATE COMPACTORS TO 90% OF MODIFIED PROCTOR DENSITY. IF FINE–GRAINED, COMPACT WITH POGO STICKS OR SHEEPSFOOT ROLLERS. PLACE NO LARGE ROCKS WITHIN 24" OF PIPE. TRENCHES THAT ARE NOT ADEQUATELY COMPACTED SHALL BE RE–EXCAVATED AND BACKFILLED UNDER THE SUPERVISION OF THE DESIGN ENGINEER OR GOVERNING BODY. UNSUITABLE BACKFILL MATERIAL INCLUDES CHUNKS OF PAVEMENT, TOPSOIL, ROCKS OVER 6" IN SIZE, MUCK, PEAT OR PIECES OF PAVEMENT.

14) THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB–SITE SAFETY AND COMPLIANCE WITH GOVERNING REGULATIONS.

15) ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE. REFILL WITH BEDDING MATERIAL. FOR TRENCH WIDTH SEE TRENCH DETAIL.

16) SAND BLANKET: CLEAN SAND, FREE FROM ORGANIC MATTER, SO GRADED THAT 90% – 100% PASSES A 1/2 INCH SIEVE AND NOT MORE THAN 15% WILL PASS A #200 SIEVE. BLANKET MAY BE OMITTED FOR DUCTILE IRON AND REINFORCED CONCRETE PIPE PROVIDED THAT NO STONE LARGER THAN 2 INCHES IS IN CONTACT WITH THE PIPE.

17) BASE COURSE GRAVEL, IF ORDERED BY THE ENGINEER, SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE LATEST EDITION OF THE:

STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
OF THE STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION.

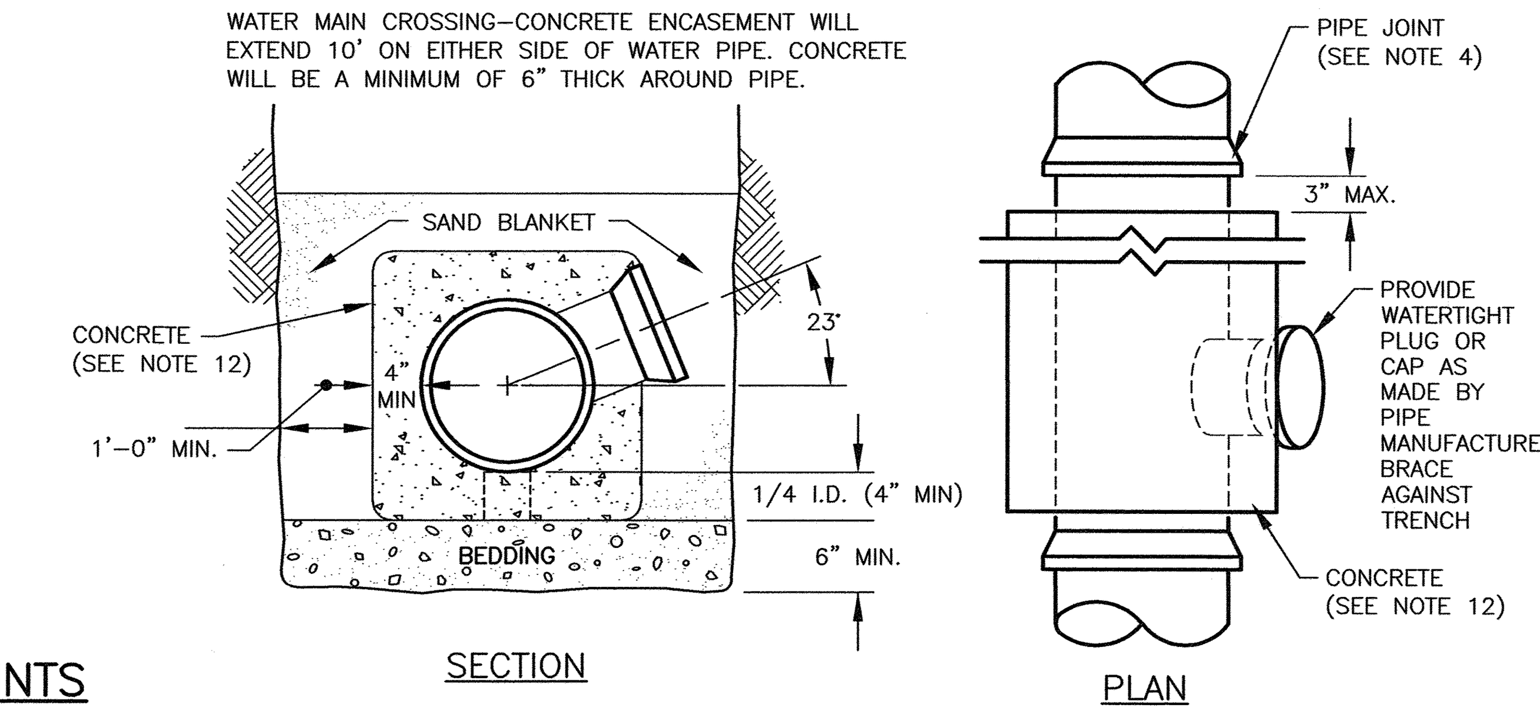
18) IF FULL ENCASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MIN.) BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS.

19) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1–888–DIG–SAFE (1–888–344–7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION.

20) THE PURPOSE OF THIS PLAN IS TO SHOW STANDARDS FOR SEWER CONSTRUCTION.

21) ALL WORK SHALL BE IN COMPLIANCE WITH NHDES CODE OF ADMINISTRATIVE RULES PART ENV–WQ 704 DESIGN OF SEWERAGE.

WATER MAIN CROSSING–CONCRETE ENCASEMENT WILL EXTEND 10' ON EITHER SIDE OF WATER PIPE. CONCRETE WILL BE A MINIMUM OF 6" THICK AROUND PIPE.



SECTION

PLAN

CONCRETE FULL ENCASEMENT

NOT TO SCALE

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

WWW.HALEYWARD.COM

200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

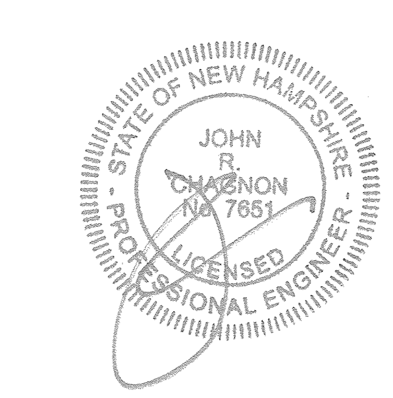
2) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1–888–DIG–SAFE (1–888–344–7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	1/24/24

REVISIONS



AS NOTED OCTOBER 2023

DETAILS D7

2360

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

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200 Griffin Road, Unit 3
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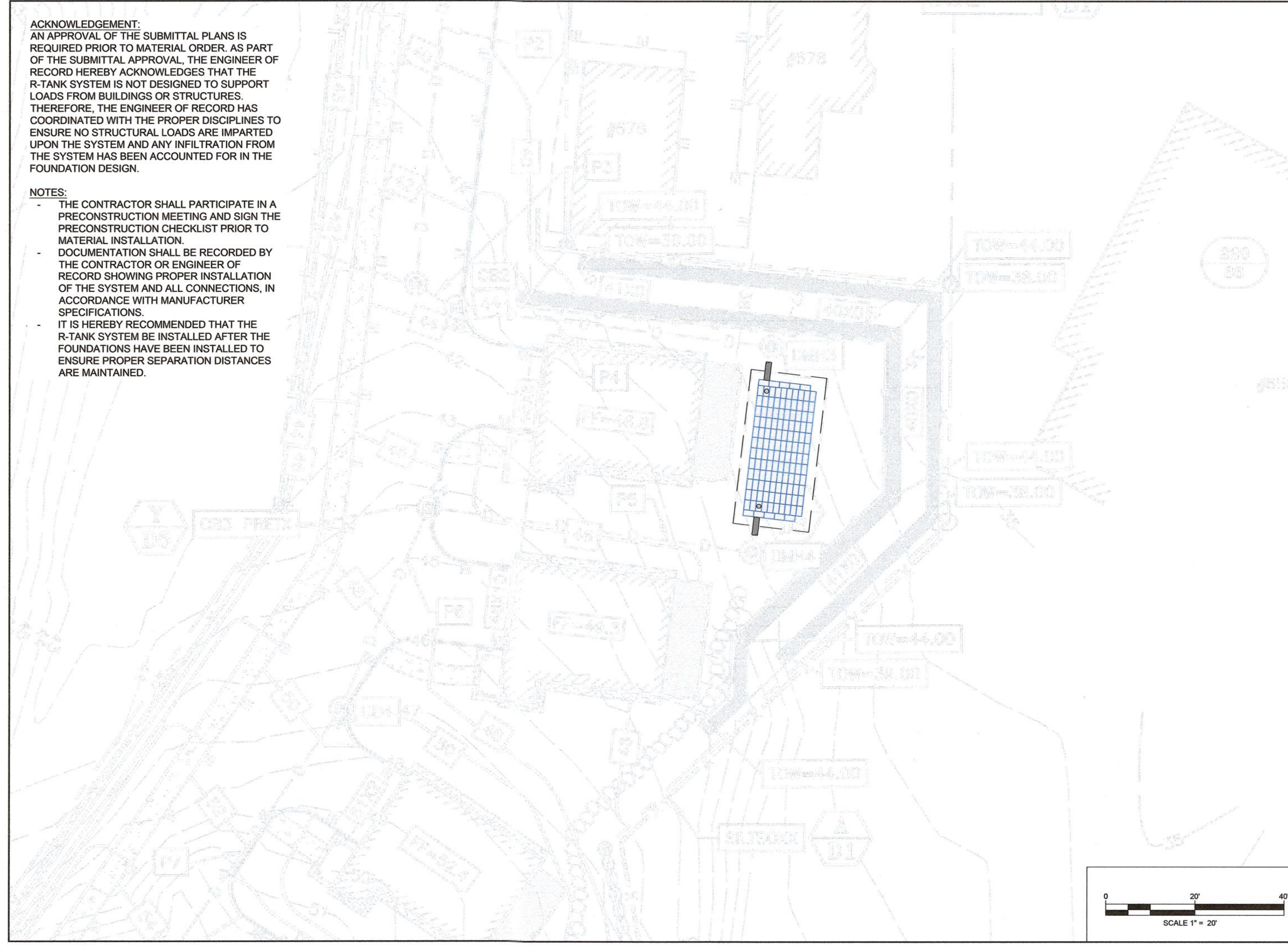
Sheet 1 of 6 — R-TANK^{HD} SYSTEM OVERLAY, 686 MAPLEWOOD AVE, PORTSMOUTH, NH

ACKNOWLEDGEMENT:
AN APPROVAL OF THE SUBMITTAL PLANS IS REQUIRED PRIOR TO MATERIAL ORDER. AS PART OF THE SUBMITTAL APPROVAL, THE ENGINEER OF RECORD HEREBY ACKNOWLEDGES THAT THE R-TANK SYSTEM IS NOT DESIGNED TO SUPPORT LOADS FROM BUILDINGS OR STRUCTURES. THEREFORE, THE ENGINEER OF RECORD HAS COORDINATED WITH THE PROPER DISCIPLINES TO ENSURE NO STRUCTURAL LOADS ARE IMPARTED UPON THE SYSTEM AND ANY INFILTRATION FROM THE SYSTEM HAS BEEN ACCOUNTED FOR IN THE FOUNDATION DESIGN.

NOTES:
- THE CONTRACTOR SHALL PARTICIPATE IN A PRECONSTRUCTION MEETING AND SIGN THE PRECONSTRUCTION CHECKLIST PRIOR TO MATERIAL INSTALLATION.
- DOCUMENTATION SHALL BE RECORDED BY THE CONTRACTOR OR ENGINEER OF RECORD SHOWING PROPER INSTALLATION OF THE SYSTEM AND ALL CONNECTIONS, IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS.
- IT IS HEREBY RECOMMENDED THAT THE R-TANK SYSTEM BE INSTALLED AFTER THE FOUNDATIONS HAVE BEEN INSTALLED TO ENSURE PROPER SEPARATION DISTANCES ARE MAINTAINED.



SCALE 1" = 20'

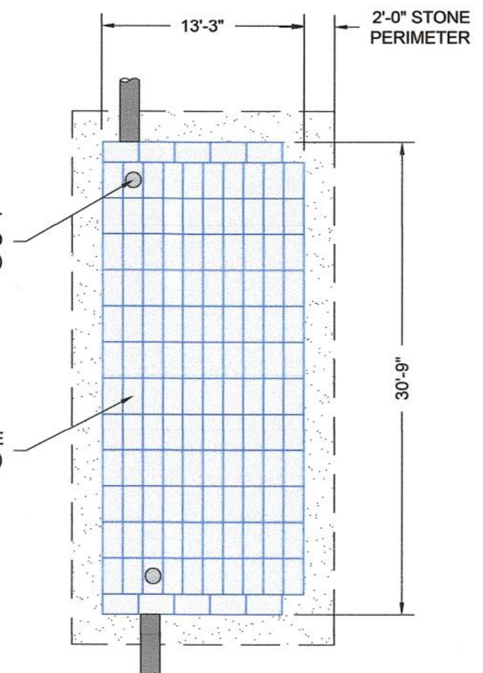
FERGUSON WATERWORKS — R-TANK HD

SCALE 1" = 20' | DRAWN BY BMK | DATE 01/04/2024 | SHEET NO. 1 of 6

Sheet 2 of 6 — R-TANK^{HD} SYSTEM LAYOUT, 686 MAPLEWOOD AVE, PORTSMOUTH, NH

ACKNOWLEDGEMENT:
AN APPROVAL OF THE SUBMITTAL PLANS IS REQUIRED PRIOR TO MATERIAL ORDER. AS PART OF THE SUBMITTAL APPROVAL, THE ENGINEER OF RECORD HEREBY ACKNOWLEDGES THAT THE R-TANK SYSTEM IS NOT DESIGNED TO SUPPORT LOADS FROM BUILDINGS OR STRUCTURES. THEREFORE, THE ENGINEER OF RECORD HAS COORDINATED WITH THE PROPER DISCIPLINES TO ENSURE NO STRUCTURAL LOADS ARE IMPARTED UPON THE SYSTEM AND ANY INFILTRATION FROM THE SYSTEM HAS BEEN ACCOUNTED FOR IN THE FOUNDATION DESIGN.

NOTES:
- THE CONTRACTOR SHALL PARTICIPATE IN A PRECONSTRUCTION MEETING AND SIGN THE PRECONSTRUCTION CHECKLIST PRIOR TO MATERIAL INSTALLATION.
- DOCUMENTATION SHALL BE RECORDED BY THE CONTRACTOR OR ENGINEER OF RECORD SHOWING PROPER INSTALLATION OF THE SYSTEM AND ALL CONNECTIONS, IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS.
- IT IS HEREBY RECOMMENDED THAT THE R-TANK SYSTEM BE INSTALLED AFTER THE FOUNDATIONS HAVE BEEN INSTALLED TO ENSURE PROPER SEPARATION DISTANCES ARE MAINTAINED.



R-TANK QUANTITIES

R-TANK^{HD} MODULE TYPE	DOUBLE
TRAFFIC LOAD	HS-20
# OF DOUBLE R-TANKS	130
TOTAL SYSTEM STORAGE	1,591 CF
R-TANK STORAGE VOLUME	1,073 CF
STONE STORAGE VOLUME (40% VOID RATIO)	518 CF
STONE BED FOOTPRINT	596 SF
STONE QUANTITY	48 CY
N080 NON-WOVEN GEOTEXTILE TANK WRAP	134 SY
N080 NON-WOVEN GEOTEXTILE EXCAVATION WRAP	206 SY
ACF BX-12 GEOGRID	120 SY
12" INSPECTION PORTS	2
GEOTEXTILE PIPE BOOTS (15")	2
STORMRING CPS (15")	1

NOTE: STONE QUANTITY INCLUDES 12" OF COVER AND 3" OF BASE.
NOTE: GEOTEXTILE / LINER QUANTITIES INCLUDE A 15% WASTE FACTOR.
SEE SHEETS 3 - 6 FOR DETAILS AND ADDITIONAL INFORMATION

GRAPHIC SCALE

0 — 10' — 20'
SCALE 1" = 10'

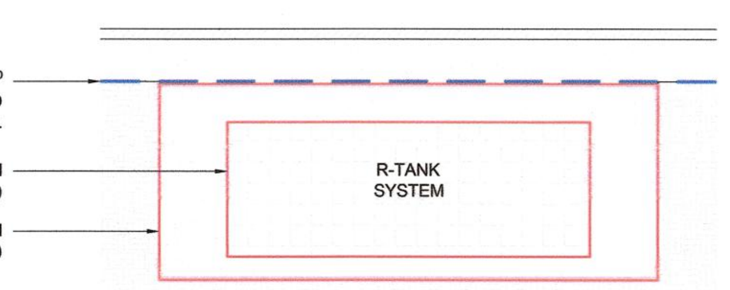
R-TANK ELEVATIONS

DESCRIPTION	ELEVATION
BASE INV.	37.20
TANK INV.	37.45
TOP OF TANK	40.27
GEOGRID	41.27
MIN. ALLOW. FINAL GRADE	41.94
MAX. ALLOW. FINAL GRADE	47.26

GEOGRID (ACF BX-12) PLACED 12" ABOVE THE R-TANK^{HD} SYSTEM. OVERLAP ADJACENT PANELS BY 18" MIN. GEOGRID SHOULD EXTEND 3' BEYOND THE EXCAVATION FOOTPRINT.

R-TANK^{HD} UNITS WRAPPED WITH N080 NON-WOVEN GEOTEXTILE (OR EQUAL)

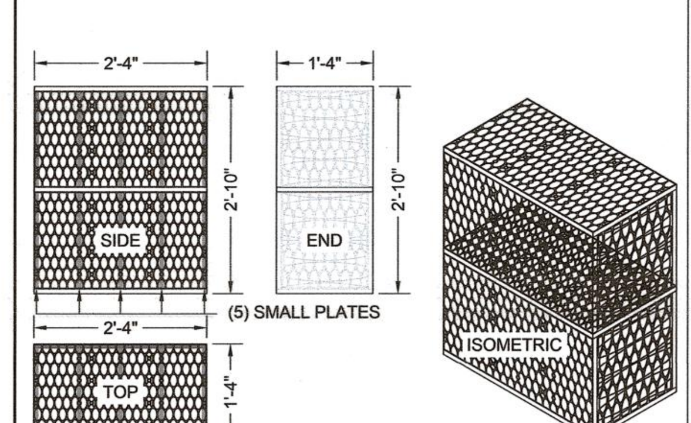
EXCAVATION WRAPPED WITH N080 NON-WOVEN GEOTEXTILE (OR EQUAL)



R-TANK^{HD} TANK WRAP & EXCAVATION ENVELOPE DETAIL

SCALE 1" = 10' | DRAWN BY BMK | DATE 01/04/2024 | SHEET NO. 2 of 6

Sheet 3 of 6 — R-TANK^{HD} SYSTEM DETAILS, 686 MAPLEWOOD AVE, PORTSMOUTH, NH



MODULE DATA

GEOMETRY:
LENGTH = 28.15 IN. (715 MM)
WIDTH = 15.75 IN. (400 MM)
HEIGHT = 33.86 IN. (860 MM)
TANK VOLUME = 8.69 CF
STORAGE VOLUME = 8.25 CF
VOID INTERNAL VOLUME: 95%
VOID SURFACE AREA: 90%

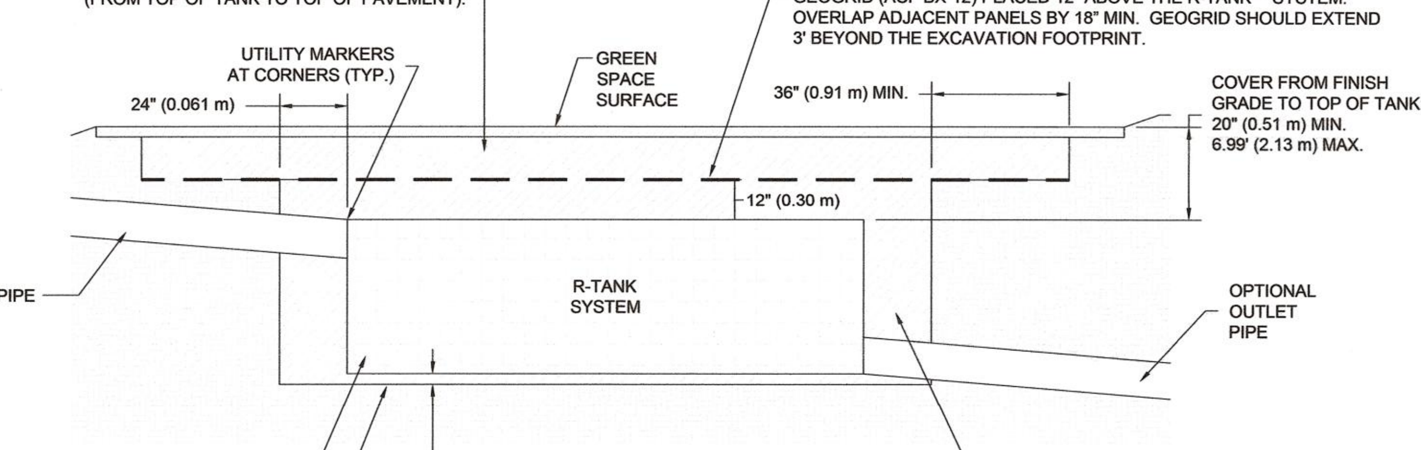
LOAD RATING:
33.4 PSI, (MODULE ONLY)
HS20/HS25 - SEE SPEC FOR COVER REQUIREMENTS
MATERIAL:
100% RECYCLED POLYPROPYLENE
SMALL PLATES REQUIRED:
5/SEGMENT, 10/MODULE

DOUBLE R-TANK^{HD} - MODULE DETAIL

TOTAL COVER: 20" MINIMUM AND 84" MAXIMUM. FIRST 12" MUST BE FREE DRAINING BACKFILL (SPEC SECTION 2.03B): STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). ADDITIONAL FILL MAY BE STRUCTURAL FILL (SPEC SECTION 2.03C): STONE OR SOIL (USCS CLASS SM, SP, SW, GM, GP OR GW) WITH MAX CLAY CONTENT<10%, MAX 25% PASSING NO. 200 SIEVE, AND MAX PLASTICITY INDEX OF 4. A MIN. 12" COVER MUST BE MAINTAINED BETWEEN BACKFILL EQUIPMENT AND THE TOP OF THE R-TANK™ SYSTEM AT ALL TIMES. TOTAL HEIGHT OF TOP BACKFILL SHOULD NOT EXCEED 7'. CONTACT FERGUSON WATERWORKS IF MORE THAN 7' OR LESS THAN 20" OF TOP BACKFILL IS REQUIRED (FROM TOP OF TANK TO TOP OF PAVEMENT).

NOTES:
1. FOR COMPLETE MODULE DATA, SEE APPROPRIATE R-TANK^{HD} MODULE SHEET .
2. INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF HL-93 LOADING PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, CUSTOMARY U.S. UNITS, 7TH EDITION, 2014 WITH 2015 AND 2016 INTERIM REVISIONS.
3. PRE-TREATMENT STRUCTURES NOT SHOWN.
4. FOR INFILTRATION APPLICATIONS, GEOTEXTILE ENVELOPING R-TANK SHALL BE ACF M200 (PER SPEC SECTION 2.02A) AND BASE SHALL BE 4" MIN. UNCOMPACTED FREE DRAINING BACKFILL (SPEC SECTION 2.03A) TO PROVIDE A LEVEL BASE. SURFACE MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK^{HD} FOOTPRINT.

GEOGRID (ACF BX-12) PLACED 12" ABOVE THE R-TANK^{HD} SYSTEM. OVERLAP ADJACENT PANELS BY 18" MIN. GEOGRID SHOULD EXTEND 3' BEYOND THE EXCAVATION FOOTPRINT.



R-TANK^{HD} UNITS
LOAD RATING: 33.4 PSI (MODULE ONLY)

SUBGRADE / EXCAVATION LINE: COMPACT PER SPEC SECTION 3.02 D. A BEARING CAPACITY OF 2,000 PSF MUST BE ACHIEVED PRIOR TO INSTALLING R-TANK^{HD}

BASE: 3" (0.08 m) MIN. FREE DRAINING BACKFILL (SPEC SECTION 2.03B) COMPACTED TO 95% STANDARD PROCTOR DENSITY IS REQUIRED TO PROVIDE A LEVEL BASE SURFACE. MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK^{HD} FOOTPRINT. A BEARING CAPACITY OF 2,000 PSF MUST BE ACHIEVED PRIOR TO INSTALLING R-TANK^{HD}. NATIVE SOILS MAY BE ACCEPTABLE IF DETERMINED TO BE STABLE BY OWNER'S ENGINEER.

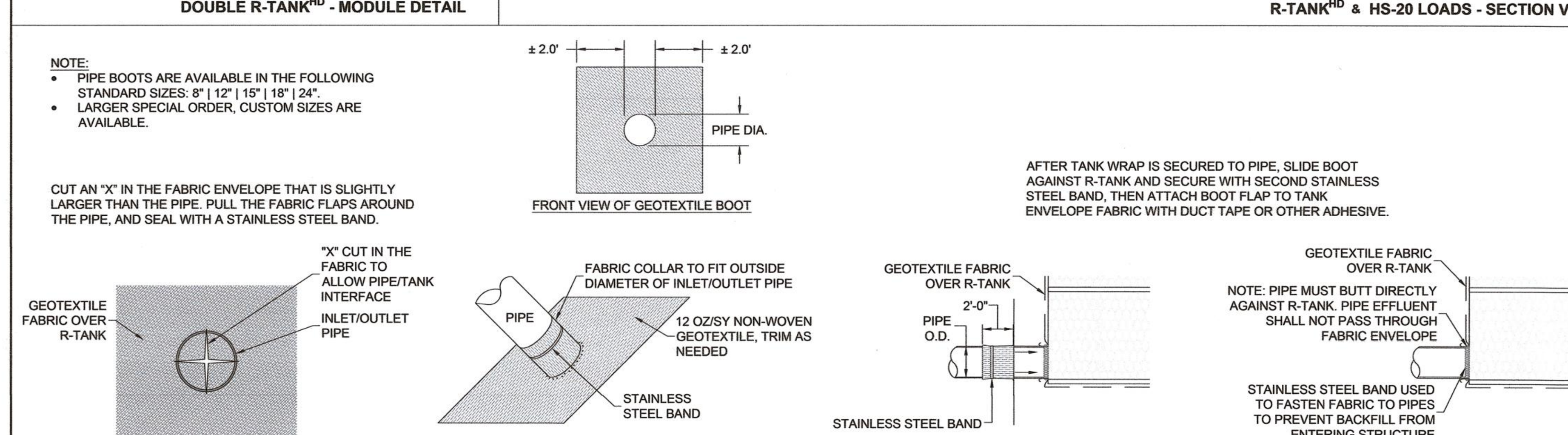
SIDE BACKFILL: FREE DRAINING BACKFILL (SPEC SECTION 2.03B): STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). MUST BE FREE FROM LUMPS, DEBRIS AND OTHER SHARP OBJECTS. SPREAD EVENLY TO PREVENT R-TANK^{HD} MOVEMENT. COMPACT SIDE BACKFILL WITH POWERED MECHANICAL COMPACTOR IN 12" LIFTS (PER SPEC SECTION 3.05 A2).

R-TANK^{HD} & HS-20 LOADS - SECTION VIEW

NOTE:
- PIPE BOOTS ARE AVAILABLE IN THE FOLLOWING STANDARD SIZES: 8" | 12" | 15" | 18" | 24".
- LARGER SPECIAL ORDER, CUSTOM SIZES ARE AVAILABLE.

CUT AN "X" IN THE FABRIC ENVELOPE THAT IS SLIGHTLY LARGER THAN THE PIPE. PULL THE FABRIC FLAPS AROUND THE PIPE, AND SEAL WITH A STAINLESS STEEL BAND.

AFTER TANK WRAP IS SECURED TO PIPE, SLIDE BOOT AGAINST R-TANK AND SECURE WITH SECOND STAINLESS STEEL BAND, THEN ATTACH BOOT FLAP TO TANK ENVELOPE FABRIC WITH DUCT TAPE OR OTHER ADHESIVE.



R-TANK TYPICAL TANK INLET/OUTLET W/ GEOTEXTILE PIPE BOOT DETAIL

SCALE NTS | DRAWN BY BMK | DATE 01/04/2024 | SHEET NO. 3 of 6

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	ISSUED FOR COMMENT	1/5/24

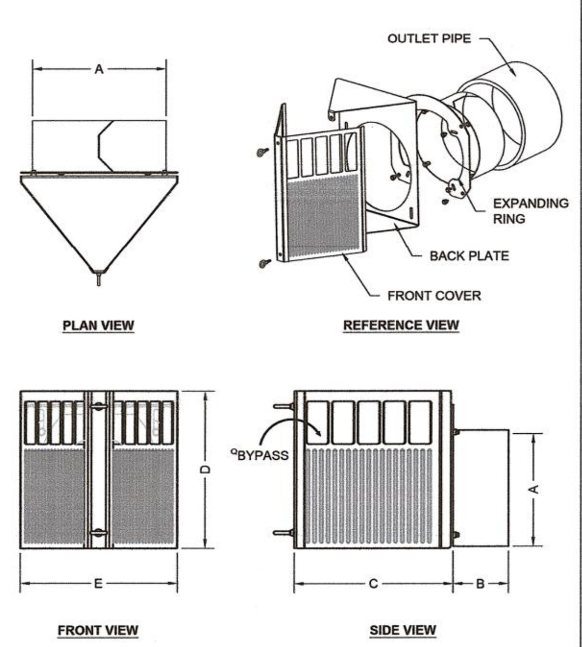
REVISIONS

AS NOTED — JANUARY 2024

DETAILS

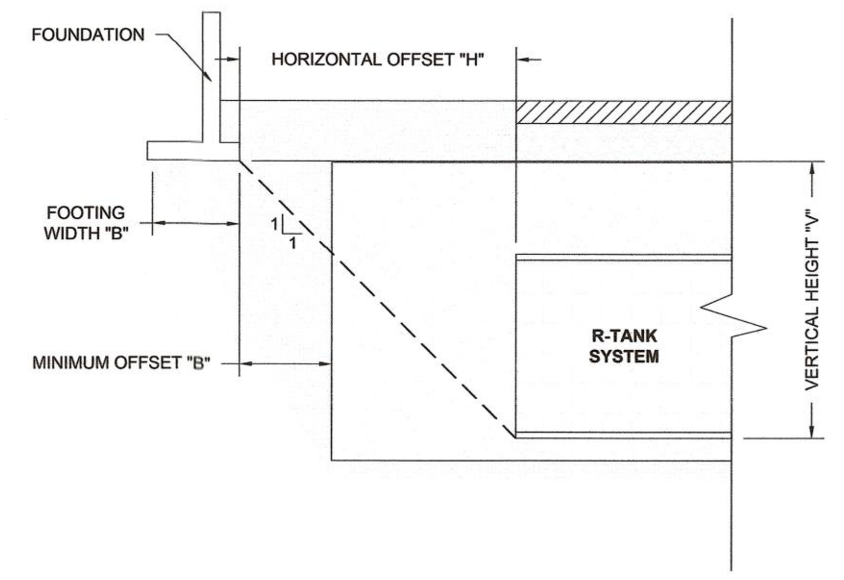
D8

2360



PART NUMBER	NOMINAL PIPE DIA.	EXPANDING COLLAR DIA. (A)		STUB LENGTH (B)	CPS DEPTH (C)	CPS HEIGHT (D)	CPS WIDTH (E)
		MIN.	MAX.				
SCA6-1	6"	5.63"	6.50"	6.00"	10.00"	10.13"	10.13"
SCA8-1	8"	7.50"	8.50"	6.00"	13.00"	11.88"	11.38"
SCA10-1	10"	9.50"	10.50"	8.00"	13.50"	13.50"	13.25"
SCA12-1	12"	11.38"	12.63"	8.00"	15.50"	15.38"	15.38"
SCA15-1	15"	14.25"	15.50"	8.00"	15.50"	21.38"	18.38"
SCA18-1	18"	17.38"	18.63"	8.00"	15.75"	28.00"	21.38"
SCA24-1	24"	23.25"	24.50"	9.00"	17.00"	40.00"	28.38"

STORMRING CPS PRETREATMENT DETAIL

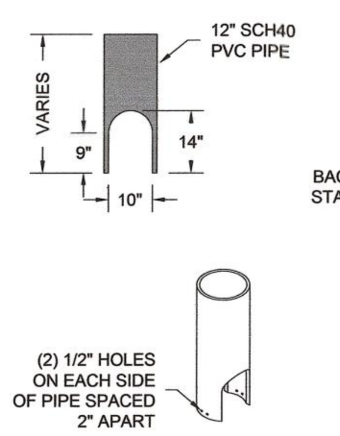


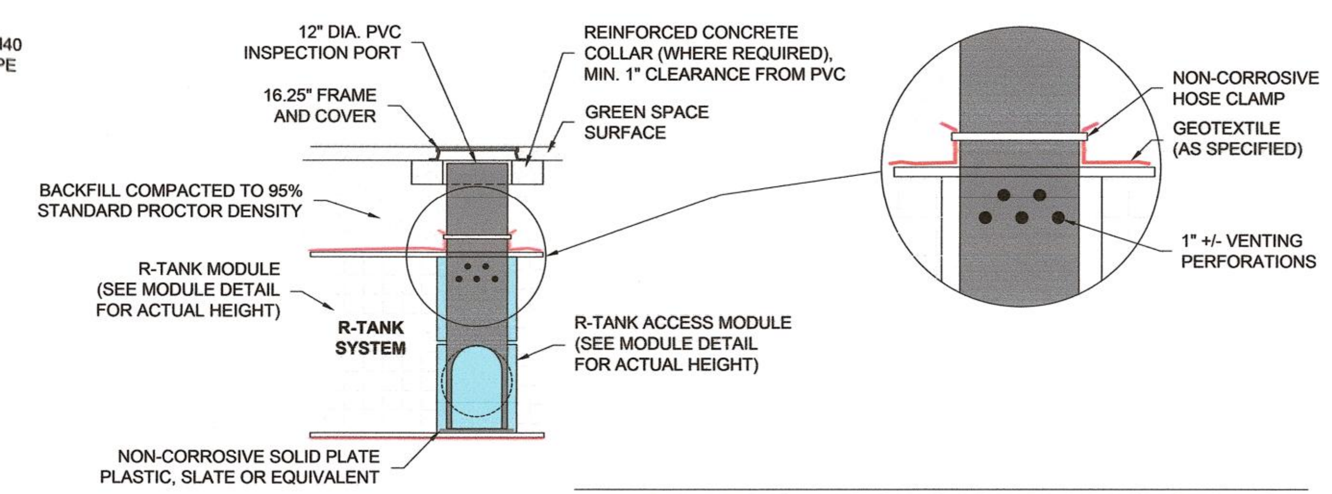
R-TANK IS NOT DESIGNED TO SUPPORT STRUCTURAL LOADS ASSOCIATED WITH BUILDINGS, RETAINING WALLS OR OTHER STRUCTURES.

- FOUNDATIONS OF WIDTH "B" SHALL BE OFFSET A MINIMUM "B" FEET FROM THE STONE BACKFILL.
- THE CIVIL ENGINEER AND STRUCTURAL ENGINEER SHALL REVIEW ALL DOCUMENTATION AND DESIGNS TO ENSURE NO STRUCTURAL LOADS ARE APPLIED BY THE STRUCTURE ON THE R-TANK UNITS. IT IS RECOMMENDED THAT ALL R-TANK UNITS BE INSTALLED ABOVE THE ELEVATION OF ANY SUBSURFACE STRUCTURAL ELEMENTS SUCH AS FOOTERS. IF THIS CANNOT BE ACHIEVED, IT RECOMMENDED THAT A MINIMUM 1:1 ZONE OF INFLUENCE, SITE SPECIFIC SOILS MAY REQUIRE GREATER SEPARATION DISTANCE, BE MAINTAINED BETWEEN THE STRUCTURAL ELEMENT AND THE UNITS.
- THE STRUCTURAL ENGINEER AND GEOTECHNICAL ENGINEER SHALL REVIEW ALL DOCUMENTATION AND DESIGNS TO ENSURE PROPER STABILITY OF STRUCTURAL ELEMENTS DURING SATURATED SOIL CONDITIONS POTENTIALLY CAUSED BY THE PROXIMITY OF INFILTRATION FACILITIES TO THE STRUCTURAL ELEMENTS.

R-TANK - MINIMUM OFFSET DETAIL

NOTES
1. THE INSPECTION PORT IS USED IN THE ACCESS MODULE TO INSPECT THE LEVEL OF SEDIMENT ACCUMULATION.
2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
3. R-TANK^{HD}, R-TANK^{SD}, R-TANK^{UD} AND R-TANK^{XD} MAY BE USED IN TRAFFIC APPLICATIONS.
4. SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.
5. IF INSPECTION PORT IS LOCATED IN A NON-TRAFFIC AREA, A PLASTIC CAP CAN BE USED IN LIEU OF A FRAME AND COVER WITH CONCRETE COLLAR.



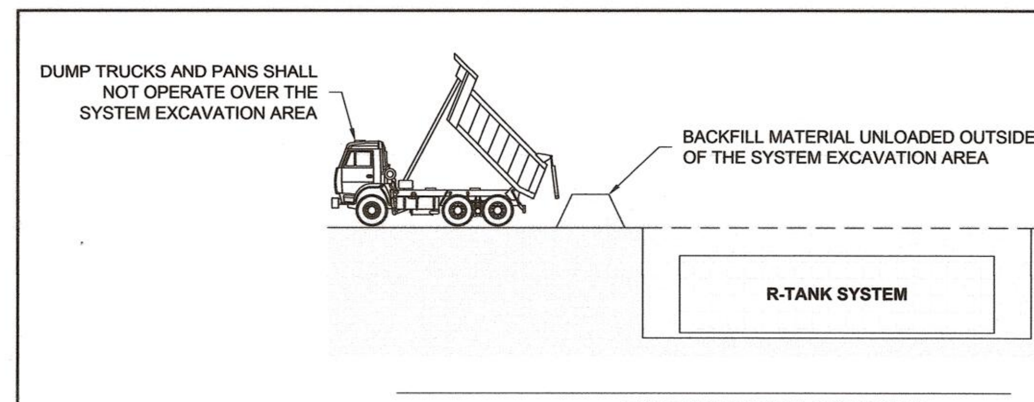


R-TANK TYPICAL VEHICULAR LOAD RATED INSPECTION PORT

FERGUSON WATERWORKS
R-TANK HD

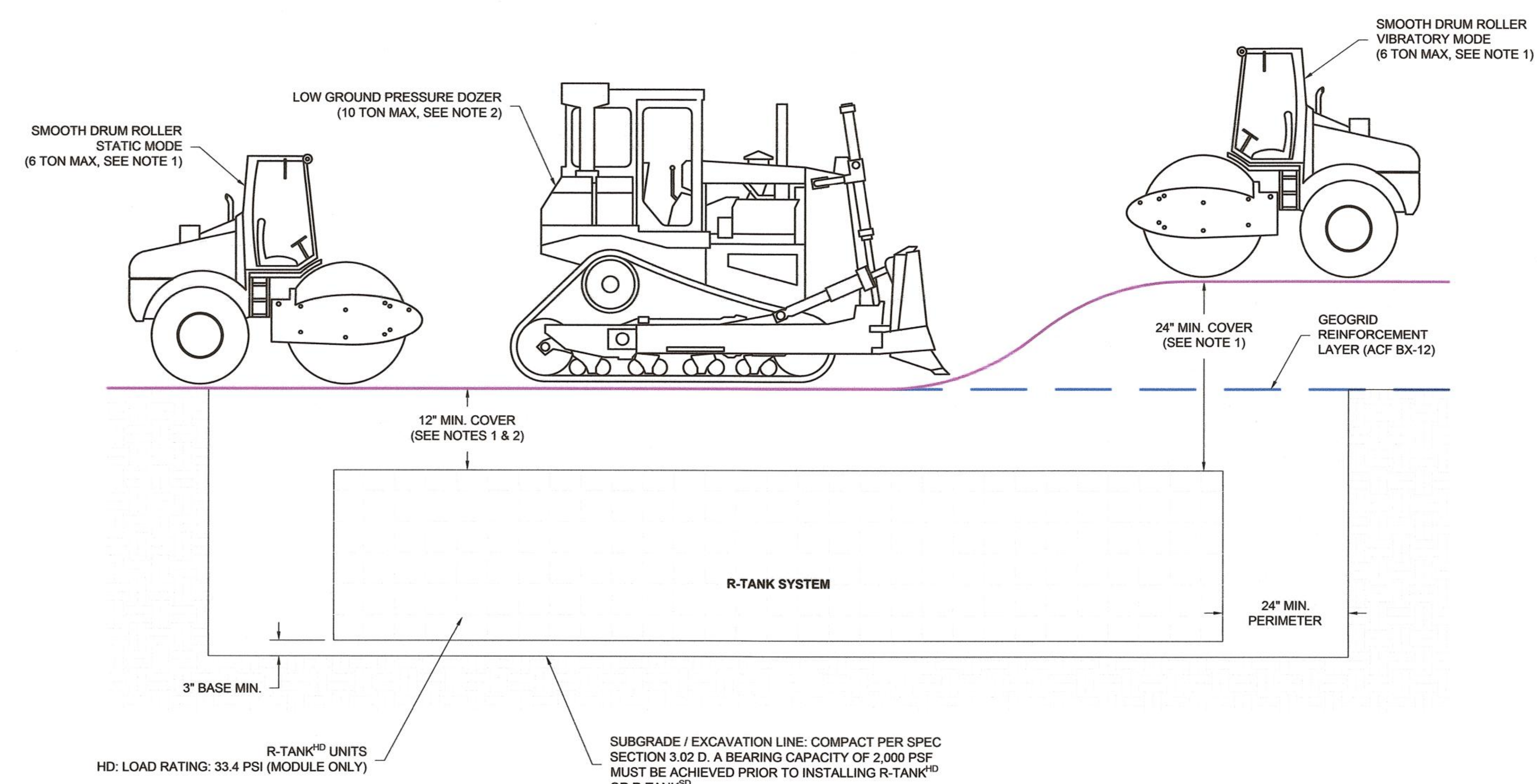
R-TANK^{HD} SYSTEM DETAILS
686 MAPLEWOOD AVE
PORTSMOUTH, NH

SCALE	NTS
DRAWN BY	BMK
DATE	01/04/2024
SHEET NO.	4 of 6



DUMP TRUCK DETAIL (SEE NOTE 3)

NOTES:
1. FOLLOWING PLACEMENT OF SIDE BACKFILL, A UNIFORM 12" LIFT OF THE FREELY DRAINING MATERIAL (SPEC SECTION 2.03 B1) SHALL BE PLACED OVER THE R-TANK AND LIGHTLY COMPACTED USING A WALK-BEHIND TRENCH ROLLER. ALTERNATELY, A ROLLER (MAXIMUM GROSS VEHICLE WEIGHT OF 6 TONS) MAY BE USED. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED. **SPEC SECTION 3.05 A5**
2. ONLY LOW PRESSURE TIRE OR TRACK VEHICLES (LESS THAN 7 PSI AND OPERATING WEIGHT OF LESS THAN 20,000 LBS) SHALL BE OPERATED OVER THE R-TANK SYSTEM DURING CONSTRUCTION. **SPEC SECTION 3.05 A5**
3. DUMP TRUCKS AND PANS SHALL NOT BE OPERATED WITHIN THE R-TANK SYSTEM AT ANY TIME. WHERE NECESSARY, THE HEAVY EQUIPMENT SHOULD UNLOAD IN AN AREA ADJACENT TO THE R-TANK SYSTEM AND THE MATERIAL SHOULD BE MOVED OVER THE SYSTEM WITH TRACKED EQUIPMENT. **SPEC SECTION 3.05 A5**
4. ENSURE THAT ALL UNRELATED CONSTRUCTION TRAFFIC IS KEPT AWAY FROM THE LIMITS OF EXCAVATION UNTIL THE PROJECT IS COMPLETE AND FINAL SURFACE MATERIALS ARE IN PLACE. NO NON-INSTALLATION RELATED LOADING SHOULD BE ALLOWED OVER THE R-TANK SYSTEM UNTIL THE FINAL DESIGN SECTION HAS BEEN CONSTRUCTED (INCLUDING PAVEMENT). **SPEC SECTION 3.05 B**
5. SEE R-TANK INSTALLATION GUIDE OR CONTACT YOUR LOCAL FERGUSON REPRESENTATIVE FOR ADDITIONAL INFORMATION.



CONSTRUCTION EQUIPMENT COVER DETAIL - VEHICULAR TRAFFIC

FERGUSON WATERWORKS
R-TANK HD

R-TANK^{HD} CONSTRUCTION EQUIPMENT COVER DETAIL
686 MAPLEWOOD AVE
PORTSMOUTH, NH

SCALE	NTS
DRAWN BY	BMK
DATE	01/04/2024
SHEET NO.	5 of 6

R-TANK SPECIFICATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS
A. Drawings, technical specification and general provisions of the Contract as modified herein apply to this section.

1.02 DESCRIPTION OF WORK INCLUDED
A. Provide excavation and base preparation per geotechnical engineer's recommendations and/or as shown on the design drawings, to provide adequate support for project design loads and safety from excavation sidewall collapse. Excavations shall be in accordance with the owner's and OSHA requirements.
B. Provide and install R-TankLD/, R-TankHD/, R-TankSD/, or R-TankU/D/ system (hereafter called R-Tank) and all related products including fill materials, geotextiles, geogrids, inlet and outlet pipe with connections per the manufacturer's installation guidelines provided in this section.
C. Provide and construct the cover of the R-Tank system including; stone backfill, structural fill cover, and pavement section as specified.
D. Protect R-Tank system from construction traffic after installation until completion of all construction activity in the installation area.

1.03 QUALITY CONTROL
A. All materials shall be manufactured in ISO certified facilities.
B. Installation Contractor shall demonstrate the following experience:
1. A minimum of three R-Tank or equivalent projects completed within 2 years; and,
2. A minimum of 25,000 cubic feet of storage volume completed within 2 years.
3. Contractor experience requirement may be waived if the manufacturer's representative provides on-site training and review during construction.
C. Installation Personnel: Performed only by skilled workers with satisfactory record of performance on bulk earthworks, pipe, chamber, or pond/landfill construction projects of comparable size and quality.
D. Contractor must have manufacturer's representative available for site review if requested by Owner.

1.04 SUBMITTALS
A. Submit proposed R-Tank layout drawings. Drawings shall include typical section details as well as the required base elevation of stone and tanks, minimum cover requirements and tank configuration.
B. Submit manufacturer's product data, including compressive strength and unit weight.
C. Submit manufacturer's installation instructions.
D. Submit R-Tank sample for review. Reviewed and accepted samples will be returned to the Contractor.
E. Submit material certificates for geotextile, geogrid, base course and backfill materials.
F. Submit required experience and personnel requirements as specified in Section 1.03.
G. Any proposed equal alternative product substitution to this specification must be submitted for review and approved prior to bid opening. Review package should include third party reviewed performance data that meets or exceeds criteria in Table 2.01 B.

1.05 DELIVERY, STORAGE, AND HANDLING
A. Protect R-Tank and other materials from damage during delivery, and store UV sensitive materials under tarp to protect from sunlight when time from delivery to installation exceeds two weeks. Storage of materials should be on smooth surfaces, free from dirt, mud and debris.
B. Handling is to be performed with equipment appropriate to the materials and site conditions, and may include hand, handcart, forklifts, extension lifts, etc.
C. Cold weather:
1. Care must be taken when handling plastics when air temperature is 40 degrees or below as plastic becomes brittle.
2. Do not use frozen materials or materials mixed or coated with ice or frost.
3. Do not build on frozen ground or wet, saturated or muddy subgrade.

1.06 PREINSTALLATION CONFERENCE.
A. Prior to the start of the installation, a preinstallation conference shall occur with the representatives from the design team, the general contractor, the excavation contractor, the R-Tank installation contractor, and the manufacturer's representative.

1.07 PROJECT CONDITIONS
A. Coordinate installation for the R-Tank system with other on-site activities to eliminate all non-installation related construction traffic over the completed R-Tank system. No loads heavier than the design loads shall be allowed over the system, and in no case shall loads higher than a standard AASHTO HS20 (or HS25, depending on design criteria) load be allowed on the system at any time.
B. Protect adjacent work from damage during R-Tank system installation.
C. All pre-treatment systems to remove debris and heavy sediments must be in place and functional prior to operation of the R-Tank system. Additional pretreatment measures may be needed if unit is operational during construction due to increased sediment loads.
D. Contractor is responsible for any damage to the system during construction.

PART 2 - PRODUCTS

2.01 R-TANK UNITS
A. R-Tank - Injection molded plastic tank plates assembled to form a 95% void modular structure of predesigned height (custom for each project).
B. R-Tank units shall meet the following Physical & Chemical Characteristics:

PROPERTY	DESCRIPTION	R-Tank^{LD} VALUE	R-Tank^{HD} VALUE	R-Tank^{SD} VALUE	R-Tank^{UD} VALUE
Void Area	Volume available for water storage	95%	95%	95%	95%
Surface Void Area	Percentage of exterior available for infiltration	90%	90%	90%	90%
Vertical Compressive Strength	ASTM D 2412 / ASTM F 2418	30.0 psi	33.4 psi	42.9 psi	134.2 psi
Lateral Compressive Strength	ASTM D 2412 / ASTM F 2418	20.0 psi	22.4 psi	28.9 psi	N/A
HS-20 Minimum Cover	Cover required to support HS-20 loads	N/A	20"	18"	12" (STONE BACKFILL)
HS-25 Minimum Cover	Cover required to support HS-25 loads	N/A	24"	19"	15" (STONE BACKFILL)
Maximum Cover	Maximum allowable cover depth	3 feet	< 7 feet	< 10 feet	5 feet
Unit Weight	Weight of plastic per cubic foot of tank	3.29 lbs / cf	3.62 lbs/cf	3.96 lbs / cf	4.33 lbs / cf
Rib Thickness	Thickness of load-bearing members	0.18 inches	0.18 inches	0.18 inches	N/A
Service Temperature	Safe temperature range for use	-14 – 167° F	-14 – 167° F	-14 – 167° F	-14 – 167° F

C. Supplier: Ferguson Waterworks 2831 Cardwell Road Richmond, VA 23234 (T): 800-448-3636; (F): 804-743-7779 www.ferguson.com

2.02 GEOSYNTHETICS
A. Geotextile. A geotextile envelope is required to prevent backfill material from entering the R-Tank modules.
1. Standard Application: The standard geotextile shall be an 8 oz per square yard nonwoven geotextile (ACF N080 or equivalent).
2. Infiltration Applications: When water must infiltrate/exfiltrate through the geotextile as a function of the system design, a woven monofilament (ACF M200 or equivalent) shall be used.
B. Geogrid. For installations subject to traffic loads and/or when required by project plans, install geogrid (ACF BX12 or equivalent) to reinforce backfill above the R-Tank system. Geogrid is not always required for R-TankUD/ installations, and is often not required for non-traffic load applications.

2.03 BACKFILL & COVER MATERIALS
A. Bedding Materials: Stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System) shall be used below the R-Tank system (3" minimum). Material must be free from lumps, debris, and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation. For infiltration applications bedding material shall be free draining.
B. Side and Top Backfill: Material must be free from lumps, debris and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.
1. Traffic Applications - Free draining material shall be used adjacent to (24" minimum) and above (for the first 12") the R-Tank system.
a. For HD, and SD modules, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System).
b. For UD modules with less than 14" of top cover, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter). The use of soil backfill on the sides and top of the UD module is not permitted unless the modules are installed outside of traffic areas or with cover depths of 14" or more. Top backfill material (from top of module to bottom of pavement base or 12" maximum) must be consistent with side backfill.
2. Non-Traffic / Green Space Applications - For all R-Tank modules installed in green spaces and not subjected to vehicular loads, backfill materials may either follow the guidelines for Traffic Applications above, or the top backfill layer (12" minimum) may consist of AASHTO #57 stone blended with 30-40% (by volume) topsoil to aid in establishing vegetation.
C. Additional Cover Materials: Structural Fill shall consist of granular materials meeting the gradational requirements of SM, SP, SW, GM, GP or GW as classified by the Unified Soil Classification System. Structural fill shall have a maximum of 25 percent passing the No. 200 sieve, shall have a maximum clay content of 10 percent and a maximum Plasticity Index of 4. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.

2.04 OTHER MATERIALS
A. Utility Marker: Install metallic tape at corners of R-Tank system to mark the area for future utility detection.

PART 3 - EXECUTION

3.01 ASSEMBLY OF R-TANK UNITS
A. Assembly of modules shall be performed in accordance with the R-Tank Installation Manual, Section 2.

3.02 LAYOUT AND EXCAVATION
A. Installer shall stake out, excavate, and prepare the subgrade area to the required plan grades and dimensions, ensuring that the excavation is at least 2 feet greater than R-Tank dimensions in each direction allowing for installation of geotextile filter fabric, R-Tank modules, and free draining backfill materials.
B. All excavations must be prepared with OSHA approved excavated sides and sufficient working space.
C. Protect partially completed installation against damage from other construction traffic by establishing a perimeter with high visibility construction tape, fencing, barricades, or other means until construction is complete.
D. Base of the excavation shall be uniform, level, and free of lumps or debris and soft or yielding subgrade areas. A minimum 2,000 pounds per square foot bearing capacity is required.
1. Standard Applications: Compact subgrade to a minimum of 95% of Standard Proctor (ASTM D698) density or as required by the Owner's engineer.
2. Infiltration Applications: Subgrade shall be prepared in accordance with the contract documents. Compaction of subgrade should not be performed in infiltration applications.
E. Unsuitable Soils or Conditions: All questions about the base of the excavation shall be directed to the owner's engineer, who will approve the subgrade conditions prior to placement of stone. The owner's engineer shall determine the required bearing capacity of the R-Tank subgrade; however in no case shall a bearing capacity of less than 2,000 pounds per square foot be provided.
1. If unsuitable soils are encountered at the subgrade, or if the subgrade is pumping or appears excessively soft, repair the area in accordance with contract documents and/or as directed by the owner's engineer.
2. If indications of the water table are observed during excavation, the engineer shall be contacted to provide recommendations.
3. Do not start installation of the R-Tank system until unsatisfactory subgrade conditions are corrected and the subgrade conditions are accepted by the owner's engineer.

3.03 PREPARATION OF BASE
A. Place a thin layer (3" unless otherwise specified) of bedding material (Section 2.03 A), over the subgrade to establish a level working platform for the R-Tank modules. Level to within ½" (+/- ¼") or as shown on the plans. Native subgrade soils or other materials may be used if determined to meet the requirements of 2.03 A and are accepted by the owner's engineer.
1. Standard Applications: Static roll or otherwise compact bedding materials until they are firm and unyielding.
2. Infiltration Applications: Bedding materials shall be prepared in accordance with the contract documents.
B. Outline the footprint of the R-Tank system on the excavation floor using spray paint or chalk line to ensure a 2' perimeter is available around the R-Tank system for proper installation and compaction of backfill.

3.04 INSTALLATION OF THE R-TANKS
A. Where a geotextile wrap is specified on the stone base, cut strips to length and install in excavation, removing wrinkles so material lays flat. Overlap geotextile a minimum 12" or as recommended by manufacturer. Use tape, special adhesives, sandbags or other ballast to secure overlaps. As geotextiles can be damaged by extreme heat, smoking is not permissible on/near the geotextile, and tools using a flame to tack the overlaps, such as propane torches, are prohibited.
B. Where an impervious liner (for containment) is specified, install the liner per manufacturer's recommendations and the contract documents. The R-Tank units shall be separated from impervious liner by a non-woven geotextile fabric installed accordance with Section 3.04A.
C. Install R-Tank modules by placing side by side, in accordance with the design drawings. No lateral connections are required. It is advisable to use a string line to form square corners and straight edges along the perimeter of the R-Tank system. The modules are to be oriented as per the design drawing with required depth as shown on plans.
1. For LD, HD, and SD installations, the large side plate of the tank should be placed on the perimeter of the system. This will typically require that the two ends of the tank area will have a row of tanks placed perpendicular to all other tanks. If this is not shown in the construction drawings, it is a simple field adjustment that will have minimal effect on the overall system footprint. Refer to R-Tank Installation Guide for more details
2. For UD installations, there is no perpendicular end row required.
D. Wrap the R-Tank top and sides in specified geotextile. Cut strips of geotextile so that it will cover the sides and top, encapsulating the entire system to prevent backfill entry into the system. Overlap geotextile 12" or as recommended by manufacturer. Take great care to avoid damage to geotextile (and, if specified, impervious liner) during placement.
E. Identify locations of inlet, outlet and any other penetrations of the geotextile (and optional liner). These connections should be installed flush (butted up to the R-Tank) and the geotextile fabric shall be cut to enable hydraulic continuity between the connections and the R-Tank units. These connections shall be secured using pipe boots with stainless steel pipe clamps. Support pipe in trenches during backfill operations to prevent pipe from settling and damaging the geotextile, impervious liner (if specified) or pipe. Connecting pipes at 90 degree angles facilitates construction, unless otherwise specified. Ensure end of pipe is installed snug against R-Tank system.
F. Install Inspection and Maintenance Ports in locations noted on plans. At a minimum one maintenance port shall be installed within 10' of each inlet & outlet connection, and with a maximum spacing of one maintenance port for every 2,500 square feet. Install all ports as noted in the R-Tank Installation Guide.
G. If required, install ventilation pipes and vents as specified on drawings to provide ventilation for proper hydraulic performance. The number of pipes and vents will depend on the size of the system. Vents are often installed using a 90 degree elbow with PVC pipe into a landscaped area with 'U" bend or venting bollard to inhibit the ingress of debris. A ground level concrete or steel cover can be used.

3.05 BACKFILLING OF THE R-TANK UNITS
A. Backfill and fill with recommended materials as follows:
1. Place freely draining backfill materials (Section 2.03 B) around the perimeter in lifts with a maximum thickness of 12". Each lift shall be placed around the entire perimeter such that each lift is no more than 24" higher than the side backfill along any other location on the perimeter of the R-Tank system. No fill shall be placed over top of tanks until the side backfill has been completed.
2. Each lift shall be compacted at the specified moisture content to a minimum of 95% of the Standard Proctor Density until no further densification is observed (for self-compacting stone materials). The side lifts must be compacted with walk behind compaction equipment. Even when "self-compacting" backfill materials are selected, a walk behind vibratory compactor must be used.
3. Take care to ensure that the compaction process does not allow the machinery to come into contact with the modules due to the potential for damage to the geotextile and R-Tank units.
4. No compaction equipment is permissible to operate directly on the R-Tank modules.
5. Top Backfill: Only low pressure track vehicles shall be operated over the R-Tank system during construction. Dump Trucks and Pans shall not be operated within the R-Tank system footprint at any time. Heavy equipment should unload in an area adjacent to the R-Tank system and the material should be moved over the system using tracked equipment with an operating weight of less than 10 tons.
a. Typical Applications: Install a 12" (or as shown on plans) lift of freely draining material (Section 2.03 B) over the R-Tank Units, maintaining 12" between equipment tracks and R-Tank System. Lightly compacted using a walk-behind trench roller. Alternately, a roller (maximum gross vehicle weight of 6 tons) may be used. Roller must remain in static mode until a minimum of 24" of cover has been placed over the modules. Sheep foot rollers should not be used.
b. Shallow Applications (< 18" total cover): Install top backfill in accordance with plans.
6. If required, install a geogrid as shown on plans. Geogrid shall extend a minimum of 3 feet beyond the limits of the excavation wall.
7. Following placement and compaction of the initial cover, subsequent lifts of structural fill (Section 2.03 C) shall be placed at the specified moisture content and compacted to a minimum of 95% of the Standard Proctor Density and shall cover the entire footprint of the R-Tank system. During placement of fill above the system, unless otherwise specified, a uniform elevation of fill shall be maintained to within 12" across the footprint of the R-Tank system. Do not exceed maximum cover depths listed in Table 2.01 B.
8. Place additional layers of geotextile and/or geogrid at elevations as specified in the design details. Each layer of geosynthetic reinforcement placed above the R-Tank system shall extend a minimum of 3 feet beyond the limits of the excavation wall.
B. Ensure that all unrelated construction traffic is kept away from the limits of excavation until the project is complete and final surface materials are in place. No non-installation related loading should be allowed over the R-Tank system until the final design section has been constructed (including pavement).
C. Place surfacing materials, such as groundcovers (no large trees), or paving materials over the structure with care to avoid displacement of cover fill and damage to surrounding areas.
D. Backfill depth over R-Tank system must be within the limitations shown in the table in Section 2.01 B. If the total backfill depth does not comply with this table, contact engineer or manufacturer's representative for assistance.

3.06 MAINTENANCE REQUIREMENTS
A. A routine maintenance effort is required to ensure proper performance of the R-Tank system. The Maintenance program should be focused on pretreatment systems. Ensuring these structures are clean and functioning properly will reduce the risk of contamination of the R-Tank system and stormwater released from the site. Pre-treatment systems shall be inspected yearly, or as directed by the regulatory agency and by the manufacturer (for proprietary systems). Maintain as needed using acceptable practices or following manufacturer's guidelines (for proprietary systems).
B. All inlet pipes and Inspection and/or Maintenance Ports in the R-Tank system will need to be inspected for accumulation of sediments at least quarterly through the first year of operation and at least yearly thereafter.
C. If sediment has accumulated to the level noted in the R-Tank Maintenance Guide or beyond a level acceptable to the Owner's engineer, the R-Tank system should be flushed.
D. All inspection and maintenance activities should be performed in accordance with the R-Tank Operation, Inspection & Maintenance Manual.

FERGUSON WATERWORKS
R-TANK HD

R-TANK^{HD} SPECIFICATION
686 MAPLEWOOD AVE
PORTSMOUTH, NH

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DRAWN BY	BMK
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AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.
WWW.HALEYWARD.COM
200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

1) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.

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

3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION. (NHDES DECEMBER 2008).

RESIDENTIAL DEVELOPMENT
CHINBURG DEVELOPMENT
686 MAPLEWOOD AVE.
PORTSMOUTH, N.H.

NO.	DESCRIPTION	DATE
1	ISSUED FOR COMMENT	1/5/24

REVISIONS

AS NOTED JANUARY 2024

DETAILS

D9

2360

Findings of Fact | Highway Noise Overlay Conditional Use Permit

City of Portsmouth Planning Board

Date: February 5, 2024
Property Address: 686 Maplewood Ave
Application #: **LU-23-57**
Decision: □ Approve □ Deny □ Approve with Conditions

Findings of Fact:
Per RSA 676:3, I: The local land use board shall issue a final written decision which either approves or disapproves an application for a local permit and make a copy of the decision available to the applicant. **The decision shall include specific written findings of fact that support the decision. Failure of the board to make specific written findings of fact supporting a disapproval shall be grounds for automatic reversal and remand by the superior court upon appeal, in accordance with the time periods set forth in RSA 677:5 or RSA 677:15, unless the court determines that there are other factors warranting the disapproval.** If the application is not approved, the board shall provide the applicant with written reasons for the disapproval. If the application is approved with conditions, the board shall include in the written decision a detailed description of all conditions necessary to obtain final approval.

Highway Noise Overlay District Conditional Use Permit
10.674.10 Within the HNOD, noise sensitive land uses shall require a conditional use permit from the Planning Board.

	Highway Nose Overlay Requirements	Finding (Meets Criteria/Requirement)	Supporting Information
1	Section 10.674.20 A noise analysis prepared in compliance with Section 10.675 must be submitted with any application for a conditional use permit under this section.	**Meets** **Does Not Meet**	• Reuter Associates report dated January 18, 2024
2	Section 10.674.30 An application for a conditional use permit for a noise sensitive land use in the Highway Noise Overlay District may be approved only if a noise analysis prepared in compliance with Section 10.675 demonstrates that any applicable exterior and interior sound level standards established in Section 10.673 will be met through one or more of the following measures: (a) Site design to ensure that noise sensitive land uses are placed	**Meets** **Does Not Meet**	• Exterior noise mitigation results from placement of residential structures and provides adequate outdoor use areas associated with each residence below the 65-dBA limit. • Building envelope upgrades will result in interior levels below the 45-dBA limit.

	Highway Nose Overlay Requirements	Finding (Meets Criteria/Requirement)	Supporting Information
	outside of the applicable noise contour; (b) Site design that achieves noise mitigation through placement of accessory structures between the noise source and the noise receiver; (c) Installation of a noise barrier; or (d) Superinsulated building design and construction.		
3	Section 10.675 A noise analysis must be prepared by a registered engineer or qualified professional transportation noise analyst who has been trained in the use of the Federal Highway Administration (FHWA) Transportation Noise Model or a replacement model that has been approved by the FHWA. A noise analysis must include the following: (1) A description of the proposed development. (2) A narrative description of the proposed site configuration and any proposed noise mitigation measures. (3) A diagram showing the proposed site configuration including the location of noise sensitive land uses and any proposed noise mitigation measures. (4) Unadjusted 60, 65 and 70 dBA noise contours for the loudest traffic hour sound levels shown as an overlay on the site diagram. Noise contours must be developed using the FHWA Transportation Noise Model (or a replacement model that has been approved by the FHWA). (5) If the noise analysis shows that projected noise levels will	**Meets** **Does Not Meet**	• Reuter Associates study prepared by Eric Reuter, Board Certified by the Institute of Noise Control Engineering – equivalent to PE in noise control. (No PE exists for noise control engineering.) • Modeling was conducted using the FHWA TNM module in SoundPLAN. • Requirements 1-5 are addressed in and satisfied by the Reuter Associates report dated January 18, 2024.

	Highway Nose Overlay Requirements	Finding (Meets Criteria/Requirement)	Supporting Information
	exceed the sound level standard for the applicable activity at the location specified, the noise analysis must include: (a) Any adjusted noise contours and site-specific analyses used to adjust the noise contours based on improved topography; (b) Calculations to support the noise level reduction of any proposed noise mitigation measure; (c) A description of the width, depth, height, length, and materials used in any proposed noise barrier; and (d) A description of construction methods and materials used in any proposed super insulated building design. The sound transmission class must be provided for materials used.		
6	**<u>Other Board Findings:</u>**		
7	**<u>Additional Conditions of Approval</u>:**		

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

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

24 January 2024

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

RE: Highway Noise Overlay District Conditional Use Permit at 686 Maplewood Avenue, Tax Map 220, Lot 90

Dear Mr. Chellman and Planning Board Members:

On behalf of Chinburg Development, we are pleased to submit the attached Highway Noise Analysis for **Conditional Use Approval** for the above-mentioned project and request that we be placed on the agenda for your **February 15, 2024,** Planning Board Meeting. The project is the proposed new construction of a six (6) unit residential condominium with the associated and required site improvements. The associated plan set, and additional exhibits have been submitted as attachments to the Site Plan Review application for this project. The Site Plan Review of this project should also be on the agenda for the February 15th Planning Board meeting.

Portsmouth Ordinance Section 10.670, the Highway Noise Overlay District, identifies the purpose and regulations in the District. The associated sub-sections identify the following:

Purpose: to ensure development in the District meets the standards. The attached study details that it will.
Applicability: the section applies to this development.
Standards: the standards are outlined in this section, and the Noise Study shows compliance.
Conditional Use: this section allows the Planning Board, under 10.674.40, to grant a Conditional Use Permit for the site if the standards are shown to be met in a Noise Analysis.
Noise Analysis: the details regarding the preparation of the Noise Analysis are outlined in this section. The attached Analysis conclusions, from a qualified professional, contain the information and analysis to allow the Planning Board to grant the Noise Overlay District Conditional Use Permit.

Therefore, we hereby request that the Planning Board grant a Noise Overlay District Conditional Use Permit for the 686 Maplewood Avenue project. We look forward to an in-person presentation of this submission to the Planning Board and hereby request approval. If there are any questions or concerns, please feel free to contact me.

Sincerely,

John R. Chagnon, PE, Ambit Engineering – Haley Ward
P:\NH\5010220-Chinburg_Builders\2360.01-696 Maplewood Ave., Portsmouth-JRC\2023 Site Plan\Applications\City of Portsmouth Site Plan\Planning Board Submission Letter 1-24-24.doc

Reuter Associates LLC
CONSULTANTS IN ACOUSTICS

10 Vaughan Mall, Suite 201A
Portsmouth, NH 03801
603-430-2081

January 18, 2024

Maria Pyburn
Chinburg
3 Penstock Way
Newmarket, NH 03857

SUBJECT: 686 Maplewood Ave. – Highway Noise Overlay District Analysis

Dear Maria,

I have conducted a study of the proposed development at 686 Maplewood Ave. in Portsmouth. This project involves construction of six single-family homes on the currently undeveloped site. The site lies within the City of Portsmouth's Highway Noise Overlay District, defined in Section 10.670 of the Zoning Ordinance. As such, development is subject to both interior and exterior traffic noise level limits.

Sound Level Limits

Section 10.673 of the Ordinance provides hourly-average limits for the interior of a dwelling (45 dBA) and outdoor activity areas (65 dBA), based on the "Loudest Traffic Hour Sound Level" from the highway (I-95 in this case).

Analysis

The study was conducted in accordance with 10.675 Noise Analysis. Each subsection is addressed below:

(1) Description of the proposed development

> The development consists of six single-family homes on a single site. The site is currently undeveloped.

(2) A narrative description of the proposed site configuration and any proposed noise mitigation measures.

> A shared driveway along the west edge of the site (closest to the highway) will allow access to the homes from Maplewood Ave. The homes are situated in a line along the driveway, roughly parallel to the highway. Outdoor activity areas are in the areas behind the homes with the homes themselves serving as noise control barriers protecting these outdoor activity areas. No further noise control is proposed.

(3) A diagram showing the proposed site configuration including the location of noise sensitive land uses and any proposed noise mitigation measures.

The attached Figure 1 provides a site plan.

(4) Unadjusted 60, 65 and 70 dBA noise contours for the loudest traffic hour sound levels shown as an overlay on the site diagram. Noise contours must be developed using the FHWA Transportation Noise Model (or a replacement model that has been approved by the FHWA).

A computer model of the site was constructed in SoundPlan. Calculations were conducted using the required FHWA TNM 2.5 engine. Traffic count data for the relevant section of I-95 were obtained from the NHDOT database, as presented in the attached Figure 2.

As "loudest hour" is not a conventional traffic noise metric (average hour and peak hour are typical), the DHV-30 value was used as a conservative surrogate. This design hour volume represents the 30th-highest volume hour of the year. The most recent traffic count was 2022. However, the 2020-2022 counts show a decrease in volume that is presumably attributable to the Covid-19 pandemic. As no DHV-30 value was published for 2019, the 2018 value was used.

Use of the DHV-30 as a surrogate for the loudest hour was validated with field measurements for the One Clark Drive project permitted in 2020.

Traffic counts used in the model were 8730 automobiles and 759 heavy trucks, divided evenly across the northbound and southbound lanes. This represents the 92% - 8% split between passenger and commercial vehicles from the 2018 traffic data.

Figure 1, attached, depicts the 60-dBA, 65-dBA, and 70-dBA contours.

(5) If the noise analysis shows that projected noise levels will exceed the sound level standard for the applicable activity at the location specified, the noise analysis must include:

(a) Any adjusted noise contours and site-specific analyses used to adjust the noise contours based on improved topography;

Not applicable.

(b) Calculations to support the noise level reduction of any proposed noise mitigation measure;

The Ordinance requires that outdoor activity areas fall outside of the 65-dBA contour. This site has been designed to place these areas behind the residences, relying on the structures themselves to provide noise control in these shielded areas. They fall predominantly below the 65-dBA contour, though the contour does protrude from the gaps between the homes. The decks and most of the lawn areas will be adequately protected. Due to the relative geometries of the highway and site features, sound barriers or other means of noise control are impractical.

(c) A description of the width, depth, height, length, and materials used in any proposed noise barrier; and

Not applicable.

(d) A description of construction methods and materials used in any proposed superinsulated building design. The sound transmission class must be provided for materials used.

Interior noise levels are limited to 45 dBA. It has been generally accepted for decades that the outdoor to indoor noise level reduction resulting from normal residential construction is 20 dBA. Where exterior noise levels are 65 dBA, an interior limit of 45 dBA is effectively equivalent. However modern windows and other building elements make this assumption conservative. For this project, this is balanced by predicted exterior levels being somewhat higher than 65 dBA.

Windows are the weakest element of a building façade and control the overall sound transmission performance.

Sound transmission through building elements is characterized using a single number rating known as sound transmission class (STC). Based on the exterior noise levels calculated in the SoundPlan model, windows with a view of the highway should achieve STC 28 or greater. The windows proposed for the project are Paradigm Window Solutions Model 8321. The manufacturer has provided a laboratory test of each of the windows in this series, and all exceed the minimum requirement.

Windows that do not have a view of the highway will not require this upgrade, as the assumed 20 dB of reduction will be adequate.

Summary

Undeveloped, this site lies within the 65-dBA contour, based on the DHV calculated by NHDOT. Use of DHV has been shown through sound monitoring at another nearby site to be a conservative surrogate for the loudest hour (a non-standard metric).

To meet the requirement that outdoor activity areas be located outside of the 65-dBA contour, the proposed site has been designed to utilize the residential structures as sound barriers.

Any window with a view of the highway will be upgraded to meet the interior limit of 45 dBA.

This project will comply with Ordinance sound level limits for both outdoor activity areas behind the homes, and the dwelling interiors.

Sincerely,

Eric L. Reuter, FASA, INCE Bd. Cert.
Principal

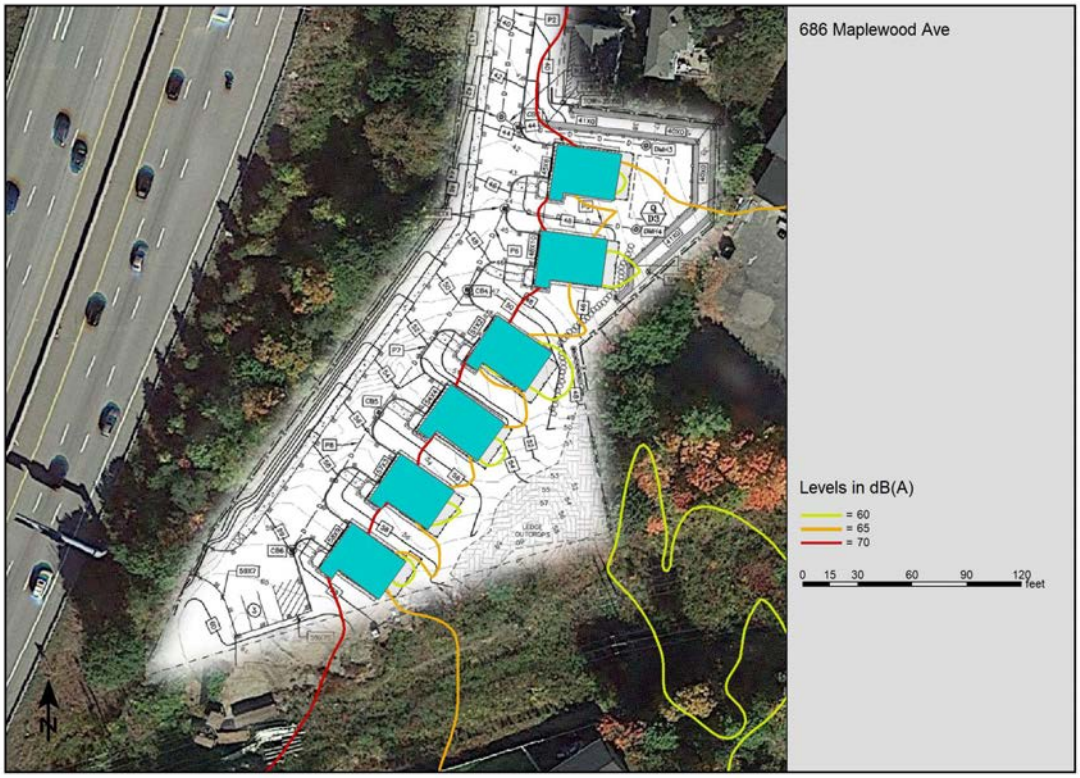

Figure 1 – Site Plan and Noise Contours

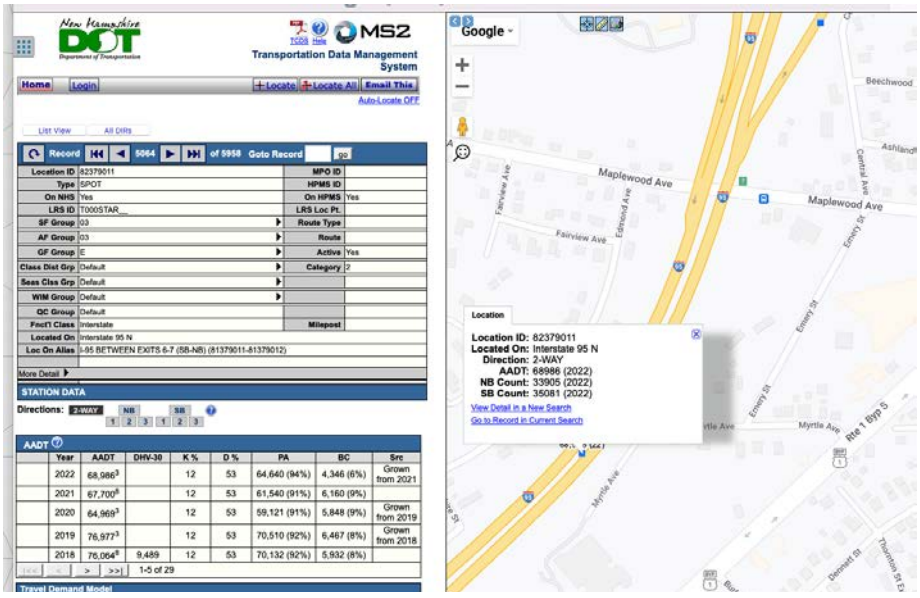

Figure 2 – NHDOT Traffic Data