CITY OF DOVER

PLANNING TECHNICAL REVIEW COMMITTEE –AGENDA

Meeting Type: Regular Meeting
Meeting Location: Council Conference Room – City Hall, Dover NH
Meeting Date: **Thursday, November 04, 2021**
Meeting Time: **10:30 AM**

1. 10:30 AM – 11:15 AM: Site Review for Q, LLC., (Owner: Quality Way, LLC), Assessor's Map D, Lot 11-4, zoned IT, located at Quality Way & Venture Drive. (Proposal is to construct a 7,400 s.f. addition to the existing building to expand their manufacturing and product testing capabilities. The expansion would also include previously approved future additional parking. (P21-77)

2. 11:15 AM – 12:00 PM : Site Review for the City of Dover, Assessor's Map 22, Lot 1-4, zoned CWD, located on Washington Street & River Street, (Proposal is to build a recreational park, public road improvements, and utilities associated with the waterfront development. (P21-80)

City of Dover, New Hampshire
SITE REVIEW APPLICATION

[Revision Date: July 1, 2021]

Office Use Only	Project #:		Date Received:	
	Amount Paid:		Time Received:	

APPLICANT AND OWNER INFORMATION

Name of Applicant: Q, LLC Adam Johnson Telephone # 603-294-0047

Address of Applicant: 4 Cutts Street, Unit 3 Portsmouth, NH 03801

E-Mail Address: adam@liveqordie.com

Name of Property Owner (*if different from applicant*): Quality Way, LLC Telephone # 603-659-0779
William P. Lovejoy, Manager

Address of Property Owner: 55 Main Street, Unit 407 Newmarket, NH 03857

PROPERTY INFORMATION

Address of Property: Quality Way & Venture Drive

Assessor's Map # D Lot(s) # 11-4

Zoning District(s) IT Overlay District(s) NONE

Size of Parcel: 217,889 sq. ft. 5 ac. Property Deed: Book 3973 Page: 254

Existing Use of Property: Light Manufacturing Facility

SITE PLAN INFORMATION

Describe Proposed Use: Expansion of Light Manufacturing Facility

Area of Parcel to be Developed: (Building Addition) 7,400 sq. ft.

If Multi-family Residential: Number of Units N/A & Buildings Proposed N/A

If lodging: Number of Units N/A & number of Buildings N/A

Number of Parking Spaces: Existing 68 Proposed 78

Highway Access (check where applicable): X City Street ____ State Highway

Number of Employees Total: 35 In Maximum Shift: up to 3, as necessary

Disposition of Parcel:

Building Footprint 30,800 sq. ft.

Total Building Area 30,800 sq. ft.

Paved Area 47,200 sq. ft.

Building Setbacks:

Front Yard 50 ft.

Rear Yard 50 ft.

Side Yard: Right 50 ft. Left 50 ft.

City Water? X Yes ___ No How far is city water from the property? at Quality Way

City Sewer? X Yes ___ No How far is city sewer from the property? at Quality Way

TRANSFER OF DEVELOPMENT RIGHTS INFORMATION N/A

Type of TRANSFER OF DEVELOPMENT RIGHT REQUEST (Check All That Apply):

□ Residential □ Residential (reduced size) □ Industrial | □ Purchase □ Land Preservation

Relief sought (Check All That Apply):

□ Lot Size □ Frontage □ Setback □ 30' Buffer □ Increase by _____ units

Describe Proposed Use or Activity that requires TDR; describe any impacts and document mitigation:

BUILDING INFORMATION

Type of Building to be Built: Steel Frame with Metal Exterior

Height of Building: 20' Finished Floor Elevation: 188.6'

Number of Seats (where applicable) N/A

Estimated value of construction: $200,000 Refuse removal: Public/Private (circle one)

WAIVER REQUESTS

Site Review Regulations section(s) to be waived: Site Review Regulations - Section 153-15 D.

Justification for waiver request(s) (*attach additional sheets as needed*):

The site is currently developed with mature landscaping in place.

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) Kevin McEneaney, LLS
McEneaney Survey Associates

Address 24 Chestnut Street Dover, NH 03820 Telephone #: 603-742-0911

Professional License #: NH LLS #661 E-mail address: kevin@surveynh.com

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) Stephen J. Haight, PE - Civilworks New England

Address P.O. Box 1166 Dover, NH 03821 Telephone #: 603-749-0443

Professional License #: NH PE # 7978 E-mail address: shaight@civilworksne.com

ARCHITECT INFORMATION

Name of Architect and Company (Licensed in N.H.) Mark Pelletier - Maugel Architects

Address 200 Ayer Road, Suite 200 Harvard, MA 01451 Telephone #: 978-458-2800

Professional License #: _____ E-mail address: mpelletier@maugel.com

LANDSCAPE ARCHITECT INFORMATION

Name of Landscape Architect and Company (Licensed in N.H.) N/A

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

SOIL SCIENTIST INFORMATION

Name of Soil Scientist and Company (Licensed in N.H.) Damon Burt, CWS
Fraggle Rock Environmental, Inc.

Address 38 Garland Road Strafford, NH 03884 Telephone #: 603-969-5574

Professional License #: NH CWS# 163 E-mail address: frenvironmental@gmail.com

CONSERVATION EASEMENT HOLDER

Name of Easement Holder: N/A Telephone #_____

Address Easement Holder: _____

SIGNATURES

I/We hereby submit this application to the City of Dover Planning Board and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. Furthermore, I/we submit that the existing conditions sheet of the plan represents the lot in question, and that no alteration of the site shall take place during Planning Board review up to and including the pre-construction meeting. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

Signature of Property Owner: _____ Date: 10/10/21

Signature of Applicant (*if different from owner*): _____ Date: 10/8/2021

Signature of Agent: _____ Date: 10/12/21

AUTHORIZATION TO ENTER SUBJECT PROPERTY

I, and my successors, hereby authorize members of the Dover Planning Board, Planning Department and other pertinent City Departments and boards to enter my property for the purpose of evaluating this application, including performing inspections during the application phase, post-approval phase, construction phase and occupancy phase. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: _____ Date: 10/10/21

AUTHORIZATION TO COMPLETE THE PROJECT ON SUBJECT PROPERTY

I, and my successors, hereby the City of Dover or its assigns to enter my property for the purpose of completing the site work as required by the approved plan should the letter or credit or other surety be called. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: _____ Date: 10/10/21

Signature of Applicant (*if different from owner*): _____ Date: 10/8/2021

CERTIFICATION OF FEES

I, and my successors, hereby certify that I understand that the City of Dover collects impact fees, utility investment fees and inspection fees for projects developed in Dover. Said fees must be paid before a Certificate of Occupancy can be obtained for a structure, unless a different payment schedule is agreed to by the applicant and the City prior to approvals being issued by the Dover Planning Board. Additionally, should the property be in "Current Use" it will be subject to the Land Use Change Tax.

Signature of Property Owner: _____ Date: 10/10/21

Signature of Applicant (*if different from owner*): _____ Date: 10/8/2021

PLANNING BOARD FEE SCHEDULE/INVOICE

(Revised July 1, 2021)

Below are the fees associated with plan review and are subject to a nonrefundable application fee to cover administrative expenses. Please complete the information below and provide payment with your application submittal. **Plan Review Fees shall be paid prior to technical review committee (TRC) being scheduled.** For plans not requiring TRC review, **fees are due 21 days prior** to the Planning Board meeting. Staff will coordinate abutter/notice fees, which will be invoiced and must be paid 28 hours before the Planning Board meeting for an application to be heard. Fees shall be paid by cash or check made payable to "City of Dover".

A. Plan Review Fees

1. Application fee for the following (SELECT ALL THAT APPLY):

- ☐ SUBDIVISION Application fee $200.00 + $150.00 x # _____ new lots created = $_____
- ☐ LOT LINE ADJUSTMENT Application fee $200.00 + $100.00 X # ___ of lots involved = $_____
- ☐ TRANSFER OF DEVELOPMENT RIGHTS Application fee $200.00 = $_____
- ☐ SITE REVIEW – RESIDENTIAL Application fee $200.00+ $100.00 x # __ per dwelling unit =$_____
- ☒ SITE REVIEW – NON-RESIDENTIAL Application fee $200.00 + (not to exceed $10,000) $ 200.00
  - o New construction $.15 sq. ft. x # _____ sq. ft.= $_____
  - o Additions (new floor space) $.10 per sq. ft. x # 7,400 sq. ft.= $ 740.00
- ☐ MOTEL/HOTEL $35.00 x # ___ per lodging unit= $_____
- ☐ CHANGE OF USE Application fee $200.00 + (not to exceed $5,000)
  - o Existing floor spaces $.10 per sq. ft. x # _____ sq. ft. = $_____
- ☐ CONDITIONAL USE PERMIT Application fee $200.00 x # _____ per Application = $_____
- ☐ GRAVEL PIT/ EXCAVATIONS
  - o Application fee $50.00= $_____
  - o Permit fee $75.00= $_____
- ☐ EXTENSIONS/AMENDMENTS/WAIVERS FOR AN APPROVED PLAN Application fee $200.00 = $_____
- ☐ REQUEST FOR REZONING Application fee $200.00 = $_____
- ☐ DRIVEWAY WAIVER Application fee $200.00 = $_____

2. TOTAL IMPERVIOUS PAVED AREA (for new development, roadways or additions to existing parking lots, (not to exceed $10,000)) Application fee of $200.00 is N/A if it is part of a Site Review or Subdivision Plan. $200.00 + $.07 per sq. ft. x # _____ sq. ft. = $ N/A

SUBTOTAL PLAN REVIEW FEE (A) = $ 940.00

AND

B. Abutter Notification/Mailing Labels - this office will create and print the abutter list and provide labels in triplicate for each abutter. The applicant/owner will review the list for accuracy and provide to us the engineer, architect, licensed land surveyor (LLS), licensed landscape architect (LLA) and/or soil scientist whose professional seal appears on the plan with names and addresses for notices.

- ☐ Applicant & Owner, engineer, architect, LLS, LLA and/or soil scientist
  - o Certified letters fee # _____ of x $8.00= $_____
- ☐ Certified letters fee: # of abutters _____ X $8.00= $_____
- ☐ First Class Mail fee (for individual owner of units within a condominium or other collective form of ownership): # of abutters _____ X $1.00= $_____
- ☐ Creating/Printing Abutter Labels in triplicate per sheet _____ x $10.00= $_____

C. Foster's newspaper public notice fee $100.00 x # _____ applications = $_____

SUBTOTAL NOTICE FEE (B & C) = $_____

TOTAL INVOICE AMOUNT (A, B & C) = $_____

PLAN REVIEW FEE COLLECTED/PAID = $ _____

BALANCE DUE = $ _____

The balance due must be paid 28 hours prior to the Planning Board Meeting, to be heard.

City of Dover, New Hampshire
SITE PLAN REVIEW SUBMISSION CHECKLIST

[Revision Date: June 4, 2019]

This site plan review checklist, as required by Chapter 153-6-B(2), should be completed by the applicant. It is intended to assist the applicant in the planning process of preparing a Site Plan Review application for Planning Board action. The size of the project will determine the types of information required for review, therefore, a **pre-application conference** with the Planning Department to determine the list of items that must be completed is strongly encouraged.

The first step would be to appear before the Technical Review Committee, to apply, eight (8) folded copies of the site plan with scale of not less than 1"=50' or 1" =100' for larger site plans, need to be provided, along with payment of plan review fees.

Two weeks prior to Planning Board, three (3) full size and twelve (12) half size (11x17), folded, copies of the plan set and materials, including response to TRC comments, will be due. Abutter/Notice Fees will be invoiced and need to be paid 28 hours prior to the Planning Board meeting.

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: Q, LLC File Number: P21-

PROJECT TITLE: Site Plan for Q, LLC

PROPERTY LOCATION: Quality Way & Venture Drive Tax Map: D Lot: 11-4

	Where/How Provided	Reviewed
1. Completed and signed Application form	X	
2. Plan Review Fees are provided	X	
3. Electronic copy of the engineered/surveyed plan layout	X	
4. Electronic copy of supplementary materials and application	X	
5. Traffic Impact Assessment and Analysis (Standard or Advanced)	X	
6. Waiver requests to the Site Plan Review Regulations, with written justification	X	
7. Conditional Use Permit applications	N/A	
8. A colored rendering of the streetscape that will be created along the existing public right-of-way	X	
9. A colored architectural plan showing all sides of buildings	X	
10. Folded copies of site plan w/scale of not less than 1"=50' or 1"=100' for larger site plans, for TRC. Plans shall contain the following items as appropriate:	8 full size plan sets	
Location map at appropriate scale	X	
Proposed Project name and title and Planning File #	X	
Date, north arrow and scale	X	
Names of all abutting property owners	X	
Name and address of owners and/or applicants	X	
Signature & stamp of NH licensed land surveyor and/or engineer	X	
Zoning District boundaries, including any special or overlay districts	N/A	
Location of Conservation District areas	N/A	
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	X	
Location and widths of existing & proposed easements & right of ways	X	
Location and width of existing and proposed access/egress ways	X	

	Explain How Provided	Reviewed
Depict pedestrian walkways and accessible access	X	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	X	
Existing and proposed topographic information at two foot intervals	X	
Existing and proposed buildings and structure locations	X	
Minimum building setbacks or build to lines on all lots	X	
Location and size of existing and proposed electric, telephone, gas cable and other underground utilities	X	
Existing and proposed water lines and fire hydrants, including materials and capacity needed	X	
Location and materials of sanitary sewage facilities within project site and projected additional peak hour sewer load	X	
Existing and proposed stormwater lines and facilities	X	
Lighting plan depicting all existing and proposed exterior light fixtures and a lighting level analysis for parking lots	X	
Location of Flood Hazard Zone	N/A	
Location of all bodies of water and watercourses	N/A	
Location of wetlands and buffers	N/A	
Neighborhood plan with aerial underlay showing how project relates to abutting uses within the plan set	X	
Existing natural features and/or significant vegetation on property	X	
Depict existing contours up to 100 ft. beyond project limits	X	
Landscape plan depicting existing and proposed landscaping, prepared by a licensed Professional Landscape Architect	WAIVER REQUESTED	
Location of parking layout delineating spaces and arrangement; note addressing maximum required spaces	X	
Location, material and size of existing and proposed pavement area	X	
Location of proposed fire lanes	X	
Specify finished floor elevations of buildings	X	
Location of solid waste disposal facilities (dumpster, pad and screening, etc.), including required screening	X	
Depict all service, storage, loading bays and utility areas	X	
All applicable Dover Common Site Plan notes	X	
11. Additional Information if appropriate		
Stormwater Management Plan depicting the existing & proposed storm drainage system and engineered drainage analysis	X	
Stormwater Management System Operation and Maintenance Plan	X	
Letter to Serve from Public and Private Utilities	N/A	
Erosion and Sedimentation Control Plan	X	
Landscape Operation and Maintenance Plan	N/A	
Proposed restrictive covenants or homeowners association documents	N/A	
Dates and permit numbers of all required state and federal permits	N/A	
If wetland buffer, indicate placards locations, as applicable	N/A	
Depict test boring locations, groundwater elevations and soil profiles and/or soils types call-outs	N/A	
Location of proposed drive-in facilities	N/A	
Provide additional exhibits/technical data determined appropriate by the Planning Board or its staff as required	TBD	

REVIEWED BY: _____ DATE_____ TRC DATE_____

PROJECT NARRATIVE
for
Q,LLC
Site Plan
Quality Way (&Venture Drive)
Tax Map D, Lot 11-4

OCTOBER 2021

PROJECT OVERVIEW & SITE CHARACTERISTICS

The project parcel is shown on Tax Map D as Lot 11-4, located at the corner of Quality Way and Venture Drive within the IT District and consists of 5 acres+/-. The site is currently developed, consisting of a 30,800 s.f. light manufacturing facility with associated parking, utilities, and drainage. The project applicant provides engineering, design and manufacturing of products for the sporting and defense industry and is relocating their operation from Portsmouth to Dover.

The applicant is proposing a 7,400 s.f. addition to the existing building to expand their manufacturing and product testing capabilities. This expansion would also include future additional parking which was previously approved but not constructed.

All necessary utilities are currently located to the site. As this is an existing facility, there will be minimal utility upgrades as part of this project.

The project site consists of the following general improvements:

- Clearing trees to accommodate the proposed building addition.
- Construction of 7,400± SF addition to the existing light manufacturing facility with associated (pre-approved) parking expansion.

DRIVEWAY AND PARKING LOT

The driveway and parking lots are pre-existing. Employee and visitor parking is accessed from Venture Drive, and access for truck delivery to the loading areas, as well as emergency vehicles, is from Quality Way. The employee and visitor parking area currently has 64 parking spaces, including 3 accessible spaces. However, a previous site approval (2004-2005) granted an additional 10 parking spaces which were not constructed. This proposal highlights the additional pre-approved 10 parking spaces that will be constructed in the future as part of this expansion.

For the existing facility with proposed addition, the City of Dover parking maximums allow for the following:

Required:	existing 30,800 s.f. + proposed 7,400 s.f = 38,200 s.f building 7,730 sf of office: 1 space /300 sf = 25 30,740 sf of industrial/manufacturing: 1 space/ 800 sf = 38 Total allowed = 63
Provided:	74 parking spaces (includes 3 accessible spaces)

PROJECT NARRATIVE

for

Q,LLC

Site Plan

Quality Way (&Venture Drive)
Tax Map D, Lot 11-4

OCTOBER 2021

WETLAND SETBACK IMPACT TYPE

There are no wetlands present on this parcel. Reference plans refer to previous delineation's made by the City of Dover, NH Soil Consultants, Inc. and Schauer Environmental, Inc. during a 2004-2005 development of this industrial park. Damon Burt, CWS visited the site on July 18, 2021 to confirm there were no wetlands/buffers, on or in proximity, that impact this site.

DRAINAGE

The parcel is located at the corner of Quality Way and Venture Drive. The proposed development will consist of approximately 5 acres surrounded by other commercial properties within a previously established industrial park. The watershed of the parcel includes the project site. On site soils are a mix of Windsor Loamy Fine Sand, Windsor Loamy Sand, Suffield Silt Loam, and Buxton Silt Loam. The Windsor series soils are HSG A with the Suffield and Buxton series soils classified as HSG C.

The proposed development of the site includes the construction of a 7,400 s.f. addition to an existing light manufacturing facility with existing associated parking having site access from Quality Way. The site currently has a detention pond that accommodates a majority of the site.

UTILITIES

The proposed project will continue to utilize existing service provided by City of Dover for water and sewer as well as Unitil for natural gas, and Eversource for electricity. Water, sewer, electric lines and natural gas lines are currently located within the site. Any additional building connections required will be made per the City's Community Services Utility Division and Fire Department requirements and standards.

From: Scott Johnson <sj03857@gmail.com>
Date: October 11, 2021 at 8:28:21 AM EDT
To: "Barufaldi, Daniel" <d.barufaldi@dover.nh.gov>, "Parker, Christopher G." <C.Parker@dover.nh.gov>, CHRISTINE LIST <christine@liveqordie.com>, Adam Johnson <adam@liveqordie.com>, Bill Lovejoy <bill.lovejoy@comcast.net>
Subject: One Quality Way - Q, LLC

Good morning Dan/Chris,

Please accept this letter as confirmation that Quality Way, LLC acknowledges that our tenant, Q, LLC is submitting an application for a potential addition to the property at the corner of 110 Venture Drive and 1 Quality Way. We understand that this may also require changes to the existing interior of the building, landscaping, parking lot, etc.

Quality Way, LLC fully supports any and all changes. If you have any questions or concerns, please do not hesitate to contact us.

Thank you,

Scott Johnson
Member
Quality Way, LLC

Stormwater Management System Inspection & Maintenance Plan

Prepared for

Q,LLC
Map D, Lot 11-4

Quality Way- Venture Drive
Dover, New Hampshire
Strafford County

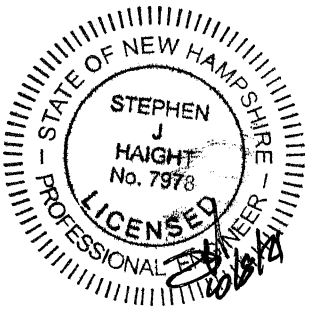
October 8, 2021

Applicant:

Q, LLC
1 Quality Way
Dover NH 03820

Prepared By:

CIVILWORKS NEW ENGLAND
P.O. Box 1166
181 Watson Road
Dover, New Hampshire 03821



Introduction

Civilworks NE, has prepared the following Stormwater Management System Inspection & Maintenance Plan for **Q, LLC** The intent of this plan is to provide a list of procedures that document the inspection and maintenance requirements of the Stormwater Management System for this site.

The following inspection and maintenance program is necessary in order to keep the Stormwater Management System functioning properly. These measures will also help to minimize potential environmental impacts to the areas surrounding the developed site. By following the enclosed procedures, the property owners, and maintenance personnel 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 while at the same time ensuring the recharge of groundwater resources through continued infiltration.

This plan also requires the Owner/Operator to prepare and implement a salt minimization plan to reduce salt usage on-site and ultimately within the watershed. This plan will allow the owner/operator to monitor and modify how much salt is needed, when it should be applied, where it needs to be applied, with the ultimate goal of reducing salt-use without compromising safety. It is expected that salt-use reduction will lead to long-term cost-savings as a result of purchasing less salt and reduced impacts on vegetation (e.g., landscaping) and corrosion of infrastructure .

The salt minimization plan should include the retention of a contractor who has completed the Green SnowPro Training course and obtained NH DES Salt Application Certification.

It is anticipated that this be a living document that will be updated at regular intervals (recommend updating annually in advance of the winter season in order to facilitate adjustments).

Owner

Q, LLC
1 Quality Way
Dover NH 03820

In the event of a change in ownership, this Inspection and Maintenance Plan shall be transferred to the new party; transfer shall be documented to NH DES in writing.

Contact / Responsible Party

Q, LLC
1 Quality Way
Dover NH 03820

Adam Johnson
PHONE: (603) 702-1087

The contact information for the Contact / Responsible Party shall be kept current; transfer shall be documented to NH DES in writing.

Management Company

Q, LLC
1 Quality Way
Dover NH 03820

The contact information for the Management Party shall be kept current.

Inspection Schedule / Record Retention

Inspection frequency should, at a minimum, be in accordance with New Hampshire Stormwater Manual, Volume 2, latest edition, as updated by NH DES. See the Inspection and Maintenance Plan for frequency requirements. A copy of the completed Stormwater Management System's Inspection & Maintenance Log and Deicing Salt Quantity Use Log shall be maintained, kept on-site, and be made available to local, state, or federal regulators as applicable by law. All Inspection and Maintenance records must be provided to NH DES upon request.

Stormwater Management System Components

The Stormwater Management System associated with the project is designed to mitigate both the quantity and quality of site-generated stormwater runoff and to recharge the underlying groundwater resources. As a result, its design includes the following elements:

- Pipes/Culverts
- Outlet Structures
- Energy Dissipation Structures
- Detention Basin
- Treatment Swale
- Pavement
- Litter / Trash Removal

Structure callouts correlate to the design plans, a copy of which shall be maintained with this Inspection and Maintenance Plan.

Control of Invasive Species

During maintenance activities, check for the presence of invasive plants and remove in a safe manner. Invasive plants shall be controlled to prevent them from reproducing, spreading, or re-growing. See the University of New Hampshire – Cooperative Extension's "Method for Disposing Non-Native Invasive Plants", included at the end of this manual, for guidance on the removal and disposal of invasive species.

Inspection and Maintenance Plan

By implementing the following procedures, the owners will be able to maintain the functional design of the Stormwater Management System and maximize the system's ability to remove sediment and other contaminants from site generated stormwater runoff and to effectively recharge the underlying groundwater resources.

PIPES/CULVERTS:

- Inspect once per year.
- Inspect for clogging and sediment accumulation.
- Remove all debris immediately and sediment accumulations $\geq$ 2 inches.

OUTLET STRUCTURE(S):

- Inspect once per year.
- Inspect for clogging and sediment accumulation.
- Remove all debris immediately and sediment accumulations $\geq$ 2 inches.

ENERGY DISSIPATION STRUCTURES (RIP RAP): As Applicable

- Inspect the outlet protection annually for damage and deterioration. Repair damages immediately.
- If stones become displaced from the riprap areas they should be replaced immediately and chinked in to assure stability. Add additional riprap as needed. Vegetation growing through the riprap should be eliminated at least yearly.

DETENTION BASIN:

- Inspection, by a **qualified professional**, of detention basin at least twice annually, and following any rainfall event exceeding 2.5 inches in a 24 hour period, with maintenance or rehabilitation conducted as warranted by such inspection.
- Embankments and spillways should be inspected by a **qualified professional** for settlement, erosion, seepage, animal burrows, woody vegetation, and other conditions that could degrade the embankment and reduce its stability for impounding water. Immediate corrective action should be implemented if any such conditions are found.
- Inlet and outlet pipes, inlet and outlet structures, energy dissipation structures or practices, and other structural appurtenances should be inspected by a **qualified professional**, and corrective action implemented (e.g., maintenance, repairs, or replacement) as indicated by such inspection.
- The bottoms, interior and exterior side slopes, and crest of earthen detention basins should be mowed, and the vegetation maintained in healthy condition, as appropriate to the function of the facility and type of vegetation.
- Vegetated embankments that serve as "berms" or "dams" that impound water should be mowed at least once annually to prevent the establishment of woody vegetation.
- Trash and debris should be removed from the pond and any inlet or outlet structures whenever observed.
- Accumulated sediment should be removed when it significantly affects pond capacity.

TREATMENT SWALE:

- Inspect once per year.
- Inspect for erosion, sediment accumulation, vegetation loss, and presence of invasive species.
- Remove debris and accumulated sediment, based on inspection.
- Repair eroded areas as needed; remove invasive species and dead vegetation.
- Perform periodic mowing of swales (at least twice annually), maintain a 4" stand of vegetative growth.

PAVEMENT:

- Minimize sanding.
- Minimize application of salt for ice control.

- Clean periodically (1-2 times per year) using a sweeper or vacuum sweeper. Vacuum sweeping is the preferred method.

LITTER / TRASH REMOVAL:

- Routinely patrol site for litter pick up.

DE-ICING AGENTS

- To address the concerns associated with the application of chlorides and other deicing materials, NHDES recommends that the Owner/Operator develop a Road Salt and Deicing Minimization Plan for the parking lots and roadways. The plan should develop the policies that the development will keep in place to minimize salt and other deicer use after the project has been completed. The plan should include tracking the use of salt and other deicers for each storm event and compiling salt use data annually. (See Anti-icing Data Form in the appendix).
- Use sand as primary agent for driveway and access way safety during ice and snow conditions
- Minimize the use of salt during the winter
- Use de-icing or anti-caking agents, added to enhance performance and application characteristics of sand mixtures, only as necessary and at minimum application rates.
- Recommend using a certified Winter Operator (Green SnowPro Trained) for applying de-icing agents.
- Monitor weather and apply de-icing agents based on weather conditions and temperatures.

ANTI-ICING AND SALT MINIMIZATION

- Owner to develop a Road Salt and Deicing Minimization Plan
- Provide a written policy that the "Development" will keep in place to minimize salt and other deicer use after the project has been completed.
- Use the attached form to track the use of salt and other deicers for each storm event and compiling salt use data annually.

Inspection & Maintenance Table

System Component / BMP	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
Pipes/Culverts	Annually	• Check for sediment accumulation • Check for erosion • Ensure swale is stabilized • Maintain healthy stand of veg., 4" minimum • Inspect for invasive species	≥ 1 in. sediment Repair immediately Restore veg. in-kind Mow twice per year Remove/Dispose of accordingly
Outlet Structure(s)	No sanding Limit 2-4 x's Year Periodically Periodically	• No sanding • Minimize salt use for ice • Vacuum to prevent tracking issues and clogging • Monitor to ensure surface drains effectively • Check for trash/debris • See attached for winter maintenance	No sanding Minimize as Req. 2-4 x's a year Remove when noticed
Energy Dissipation (ED) Structures (RipRap)	Annually	• Check for displaced stones • Check for woody vegetation	Replace immediately Remove annually
		•	
Bio-Retention Basin • Embankments • Pond Sediment • Trash/Debris • Drawdown Time • Vegetation (Veg.)	Bi-Annually Periodically Periodically Periodically Annually Periodically	• Check for erosion, settlement, seepage, etc. • Check for sediment accumulation in pond • Check for trash (in pond and structures) • 72 hour drain time • Maintain 95% veg. (pond & slopes) • Maintain healthy stand of veg.	Repair immediately ≥ 2 in. sediment Remove all trash/debris Repair immediately Restore veg. in-kind Mow when ≥ 6 in
Treatment Swales	Annually	• Check for sediment accumulation • Check for erosion • Ensure swale is stabilized • Maintain healthy stand of veg., 4" minimum • Inspect for invasive species	≥ 1 in. sediment Repair immediately Restore veg. in-kind Mow twice per year Remove/Dispose of accordingly
		•	
Pavement • Sanding • Salt Applications • Sweep/Vacuum • Trash/Debris	Limit use As Req. 1 - 2 x's Year Periodically	• Minimize use to prevent tracking issues • RECORD APPLICATION RATES • Sweep or vacuum to prevent tracking issues • Check for trash/debris	Sweep to prevent issues Minimize as Req. Sweep/Vac as needed Remove when noticed
Litter / Trash Removal	Periodically	• Check for litter and trash	Remove when noticed

Inspection & Maintenance Checklist/Log

The following page contains a blank copy of the Stormwater Management System's Inspection & Maintenance Log and a Deicing Salt Quantity Use Log. These forms are provided to assist the owners with the inspection and maintenance of the aforementioned Stormwater Management System.

Stormwater Management System's Inspection & Maintenance Log

Date of Inspection/Maintenance: _____ Inspector: _____

System Component / BMP	Cleaning / Repair Needed (List Items / Comments)	Date of Cleaning/Repair	Performed By

Deicing Salt Quantity Use Log

Date	Amount of Material Applied	Comments

CIVILWORKS NEW ENGLAND

181 WATSON ROAD
P.O. BOX 1166
DOVER, NH 03821-1166
PHONE: 603.749.0443 FAX: 603.749.7348

TRAFFIC ASSESMENT MEMORANDUM

INTRODUCTION

Civilworks New England has prepared this traffic-assessment memorandum (TAM). This TAM regards Q, LLC located on Quality Way/Venture Drive in the City of Dover, New Hampshire.

This TAM includes:

- existing site description
- proposed project description
- road description
- public transit
- sight distances at the proposed driveways
- trip generation
- trip distribution/assignment
- potential traffic impacts

This TAM concludes that:

- relevant sight distances at the existing driveway intersections will be adequate
- The proposed project is not anticipated to add significant new traffic to the area

EXISTING SITE DESCRIPTION

The site:

- is along the northerly side of Quality Way and fronts on the west side of Venture Drive
- has an area of about 5.0 acres
- is presently occupied with a 30,000 + sf light manufacturing facility

PROPOSED PROJECT DESCRIPTION

The project will provide:

- one building with a total floor area of about 38,200 square feet (sf)
- existing floor area of 30,800 sf, with an addition of 7,400 sf
- two unsignalized driveways: one on Quality Way and the other on Venture Drive

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ROAD DESCRIPTION

Quality Way and Venture Drive:

- are under the jurisdiction of the City
- Quality Way is a cul de sac local industrial street
- Venture Drive is oriented about north-south
- includes a relatively straight horizontal alignment
- has minor vertical grades
- has bituminous concrete pavement in overall good condition
- has one travel lane per direction, with 24ft. wide pavement
- has unmarked pavement
- has no posted speed limit
- has sloped granite curb on the entrance radii
- does not include utility services

PUBLIC TRANSIT

Collaborative Alliance for Seacoast Transportation (COAST) Route 33 provides on-call bus service stopping anywhere along Venture Drive. Service is on non-holiday weekdays. Sixth Street connects with: central Dover, to the southeast

- the Dover Transportation Center, to the southeast
- the New Hampshire Department of Transportation Park and Ride facility near Indian Brook Drive and Spaulding Turnpike interchange 9, to the east
- the Strafford County Complex, to the west

SIGHT DISTANCES

The American Association of State Highway and Transportation Officials (AASHTO) has established authoritative policy for sight distances at intersections with no signal in terms of:

- stopping sight distance (SSD)

Venture Drive services traffic to and from a number of abutters in the Park. The existing development will continue to be accessed from the Venture Drive and Quality Way. Due to very low traffic volume, and that this is an addition on an existing building with existing driveway access, stopping sight distance is not an applicable analysis.

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CALCULATED TRIP GENERATION

The Institute of Transportation Engineers (ITE) compiles and publishes trip-generation information for a variety of land uses in *Trip Generation Manual.*[1] This authoritative guide for calculating site traffic includes information for light industrial, Land Use Code 110, based on floor area.[2] Table 2 shows calculated vehicle trip ends due to the existing development as:

Table 2. Trip generation.

	Vehicle-Trips*		
Weekday Period	Total	In	Out
Daily	153	76	77
AM-Street-Peak Hour	15	14	1
PM-Street-Peak Hour	14	1	13

* ITE, *Trip Generation Manual*, Light Industrial, Land Use Code 110, 20,000-sf floor area.

- weekday daily, 153 (total of in and out)
- weekday AM-street-peak hour, 15 (14 in and 1 out)
- weekday PM-street-peak hour, 14 (1 in and 13 out)

TRIP DISTRIBUTION/ASSIGNMENT

Calculated trip generation is so low that area traffic operations are not sensitive to trip distribution/assignment. Vehicle-trips to and from the east may predominate largely due to connections with central Dover and the Spaulding Turnpike. All trips access the site from Sixth Street via Venture Drive.

[1] ITE, *Trip Generation Manual,* 10th edition (Washington DC, September 2017).

[2] ITE, *Trip Generation Manual,* Volume 2, Data, Industrial (Land Uses 100-199), pages 1 to 19.

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POTENTIAL TRAFFIC IMPACTS

The calculations show less than 100 peak-hour primary vehicle-trips, due to the proposed project. More specifically, tabulated peak-hour trip generation is:

- 14 to 15 vehicle-trips
- split entering versus exiting the site

Therefore, the proposed project is not anticipated to add significant new traffic to the Sixth Street or Venture Drive.

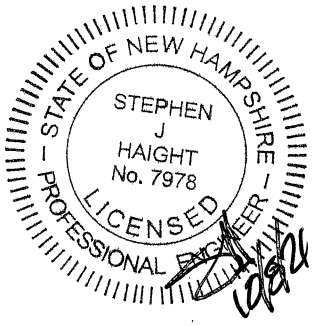
CONCLUSION

In conclusion:

- sight distances at the Quality Way and Venture Drive intersections will be adequate
- the proposed project is not anticipated to add significant new traffic to the area

CIVILWORKS NEW ENGLAND

Sincerely,



Stephen J. Haight, PE

cc. Q, LLC

DRAINAGE REPORT

for

Q,LLC
Quality Way/Venture Drive
Dover, NH

October 8, 2021

Prepared by
Civilworks New England
181 Watson Road
P.O. Box 1166
Dover, NH



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2.0 DRAINAGE ANAYLSIS

2.1 DRAINAGE DESIGN PARAMETERS

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- 2.1.2 Soils
- 2.1.3 Rainfall Data
- 2.1.4 Runoff Curve Numbers

2.2 EXISTING CONDITIONS

- 2.2.1 Table A — Existing Conditions Hydrology

2.3 DEVELOPED CONDITIONS

- 2.3.1 Table B — Developed Conditions Hydrology

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- A-1 Existing Watersheds
- A-2 Developed Watersheds

4.0 APPENDIX B – WATERSHED PLANS

- B-1 Pre-Developed Conditions
- B-2 Post-Developed Conditions

1.0 INTRODUCTION

Civilworks New England has conducted a hydrologic analysis of a 7.5 acre +/- watershed located in Dover, NH containing the subject 5 acre +/- parcel. The parcel is a developed industrial lot on the west side of Venture Drive within the Enterprise Industrial Park off Sixth Street on the northwest side of Dover.

The parcel is bounded on the east by Venture Drive, and Quality Way onf the south and a developed undisturbed wooded areas on the north and west and a future roadway on the south. Runoff generally flows southerly across the site to existing drainage structures within Venture Drive and drainage structures for the future road. A portion of the site also drains to the wooded area to the southwest. These drainage patterns will be maintained after development of the site.

This project proposes a 7,400 sf addition to the existing 30,800 s.f. light manufacturing facility. The previous analysis had contemplated an expansion to the building to 37,100 s.f.. There are no changes to the associated parking and loading areas.

Stormwater conveyance consist of road side swales directing runoff to the existing drainage structures and to a proposed detention pond at the rear of the site. All existing and proposed rip-rap applications consist of d50=6" stone with a stone layer thickness of 12" (min) on filter fabric over a 6" thick (min) gravel base. See the plan set for rip-rap locations and the drainage details for additional information.

Please note that this analysis was performed for the full build-out of the site. The analysis shows that with the mitigation measures proposed the full development of this site will have minimal impact on the watershed.

2.0 DRAINAGE ANALYSIS

A comprehensive hydrologic study of this site has been performed utilizing nationally recognized runoff estimating techniques developed by the USDA, Soil Conservation Services (SCS). The technique and runoff models are described in various SCS publications and references as follows:

"Stormwater Management and Erosion Sediment Control Handbook for Urban and Developing Areas in New Hampshire"

"Civil Engineering Reference Manual, Fifth Edition"

"Open-Channel Hydraulics" Chow.

"Stormwater Modeling System" HydroCad Ver. 10

21 DRAINAGE DESIGN PARAMETERS

A brief review of the procedures and parameters used in the drainage study follows:

2.1.1 Watersheds

The watersheds and subcatchment areas were delineated using on-site topographic survey data.

2.1.2 Soils

Soil information used to estimate the runoff curve numbers was obtained from the Strafford County Soil Maps. The parcel is contained within 2 major soils types: GIB (Gloucester fine sandy loam) and GsC (Gloucester very stony fine sandy loam). The primary drainage classification for these soils types is "A".

2.1.3 Rainfall Data

The SCS, Type III, 24-hour storm distribution has been used in all runoff models. The analysis has been performed for the 10-year storm event with a 4.32" rainfall depth. The 2yr, 25yr and 50yr storm events were also analyzed for the detention pond routing.

2.1.4 Runoff Curve Numbers

The SCS runoff curve numbers were used and summarized within each Subcatchment drainage summary within Appendix A.

2.2 EXISTING CONDTIONS

The subject parcel is contained within a larger 7.5 acre watershed. For purposes of this analysis the watershed was broken down into 5 subcatchments areas.

2.2.1 Table A — Existing Conditions (10 yr storm event)

Subcatchment	**Pre-Development Peak Flow (cfs)**
A	0.77
B	0.0

2.3 DEVELOPED CONDITIONS

The individual subcatchments have been broken into multiple subcatchments to represent the drainage conveyance system design of the detention pond.

2.3.1 Table B — Developed Conditions (10 yr storm event)

Subcatchment	Post- Development Peak Flows (cfs)
A	0.89
B	0.0

APPENDIX A

HYDROLOGIC CALCULATIONS

About this Project **Data & Products** **Daily Monitoring** **Documentation**

Select Product

- Extreme Precipitation Tables - HTML
- Extreme Precipitation Tables - Text/CSV
- Partial Duration Series - by Point
- Partial Duration Series - by Station
- Distribution Curves - Graphical
- Distribution Curves - Text/TBL
- Intensity Frequency Duration Graphs
- Precipitation Frequency Duration Graphs
- GIS Data Files
- Regional/State Maps

Select Location Double-click the map to place a marker, or enter address or latitude/longitude.



Select Options

Smoothing	Delivery
Yes	Popup

Submit

Version 1.12 Copyright 2010-2021.
This project is a joint collaboration between:

Northeast Regional Climate Center (NRCC) Cornell University

Natural Resources Conservation Service (NRCS) USDA NRCS

Contact: precip@cornell.edu

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.910 degrees West
Latitude	43.224 degrees North
Elevation	0 feet
Date/Time	Wed, 22 Sep 2021 13:25:56 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.03	**1yr**	0.70	0.98	1.20	1.54	1.99	2.59	2.86	**1yr**	2.29	2.75	3.15	3.88	4.44	**1yr**
2yr	0.32	0.49	0.61	0.80	1.01	1.28	**2yr**	0.87	1.17	1.50	1.91	2.44	3.13	3.49	**2yr**	2.77	3.36	3.85	4.59	5.22	**2yr**
5yr	0.37	0.57	0.72	0.96	1.23	1.58	**5yr**	1.06	1.44	1.85	2.38	3.06	3.95	4.47	**5yr**	3.50	4.30	4.92	5.78	6.54	**5yr**
10yr	0.40	0.63	0.80	1.09	1.42	1.85	**10yr**	1.22	1.69	2.18	2.82	3.64	4.71	5.39	**10yr**	4.17	5.18	5.93	6.90	7.75	**10yr**
25yr	0.46	0.74	0.94	1.30	1.72	2.27	**25yr**	1.49	2.09	2.69	3.52	4.58	5.96	6.91	**25yr**	5.27	6.64	7.58	8.71	9.72	**25yr**
50yr	0.52	0.83	1.06	1.48	2.00	2.66	**50yr**	1.73	2.45	3.18	4.17	5.46	7.11	8.34	**50yr**	6.29	8.02	9.14	10.40	11.54	**50yr**
100yr	0.58	0.94	1.21	1.71	2.32	3.12	**100yr**	2.01	2.88	3.74	4.94	6.49	8.49	10.07	**100yr**	7.52	9.68	11.02	12.42	13.71	**100yr**
200yr	0.64	1.05	1.36	1.96	2.71	3.67	**200yr**	2.33	3.39	4.42	5.87	7.74	10.15	12.16	**200yr**	8.98	11.70	13.29	14.83	16.29	**200yr**
500yr	0.76	1.25	1.63	2.36	3.31	4.54	**500yr**	2.86	4.21	5.50	7.35	9.74	12.85	15.62	**500yr**	11.37	15.02	17.03	18.78	20.48	**500yr**

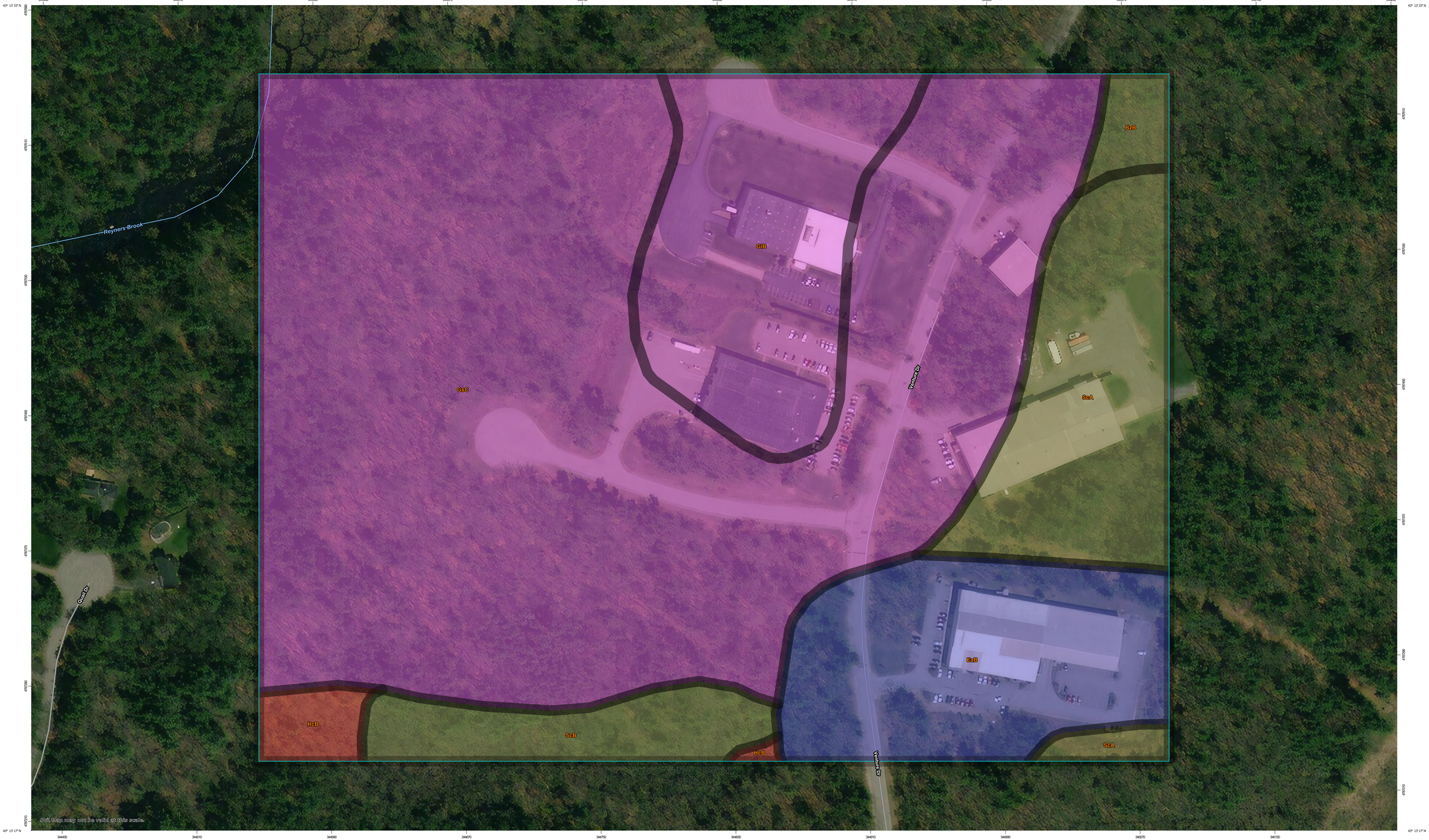
Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.37	0.45	0.60	0.74	0.90	**1yr**	0.64	0.88	0.92	1.25	1.54	2.05	2.46	**1yr**	1.82	2.36	2.94	3.42	4.10	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.18	**2yr**	0.86	1.15	1.36	1.82	2.35	3.05	3.39	**2yr**	2.70	3.26	3.74	4.46	5.08	**2yr**
5yr	0.35	0.54	0.67	0.91	1.16	1.40	**5yr**	1.00	1.37	1.61	2.14	2.77	3.69	4.11	**5yr**	3.26	3.95	4.59	5.39	6.09	**5yr**
10yr	0.38	0.59	0.73	1.02	1.31	1.60	**10yr**	1.13	1.56	1.81	2.44	3.12	4.24	4.77	**10yr**	3.75	4.58	5.30	6.21	6.97	**10yr**
25yr	0.44	0.66	0.83	1.18	1.55	1.91	**25yr**	1.34	1.87	2.11	2.84	3.64	5.08	5.76	**25yr**	4.50	5.54	6.47	7.50	8.35	**25yr**
50yr	0.48	0.73	0.91	1.31	1.77	2.19	**50yr**	1.52	2.14	2.36	3.20	4.08	5.83	6.64	**50yr**	5.16	6.39	7.51	8.63	9.55	**50yr**
100yr	0.54	0.81	1.02	1.47	2.02	2.51	**100yr**	1.74	2.45	2.65	3.58	4.55	6.69	7.65	**100yr**	5.92	7.35	8.72	9.94	10.90	**100yr**
200yr	0.60	0.90	1.14	1.65	2.30	2.87	**200yr**	1.98	2.81	2.96	4.02	5.07	7.66	8.80	**200yr**	6.78	8.46	10.12	11.45	12.46	**200yr**
500yr	0.70	1.04	1.33	1.94	2.75	3.46	**500yr**	2.38	3.39	3.44	4.67	5.87	9.13	10.59	**500yr**	8.08	10.18	12.32	13.81	14.81	**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	0.43	0.53	0.71	0.87	1.08	**1yr**	0.75	1.05	1.23	1.73	2.20	2.82	3.07	**1yr**	2.49	2.95	3.37	4.17	4.74	**1yr**
2yr	0.33	0.51	0.62	0.84	1.04	1.24	**2yr**	0.90	1.22	1.47	1.95	2.51	3.24	3.61	**2yr**	2.86	3.47	3.98	4.73	5.39	**2yr**
5yr	0.39	0.60	0.75	1.03	1.31	1.58	**5yr**	1.13	1.54	1.85	2.49	3.19	4.21	4.83	**5yr**	3.73	4.64	5.27	6.20	6.96	**5yr**
10yr	0.46	0.70	0.87	1.21	1.57	1.91	**10yr**	1.35	1.87	2.22	3.03	3.84	5.18	6.02	**10yr**	4.58	5.79	6.63	7.60	8.47	**10yr**
25yr	0.55	0.84	1.05	1.50	1.97	2.46	**25yr**	1.70	2.41	2.87	3.94	4.94	6.81	8.08	**25yr**	6.03	7.77	8.86	10.01	11.03	**25yr**
50yr	0.64	0.97	1.21	1.75	2.35	2.97	**50yr**	2.03	2.90	3.48	4.80	5.99	8.37	10.12	**50yr**	7.41	9.73	11.07	12.30	13.48	**50yr**
100yr	0.75	1.13	1.41	2.04	2.80	3.58	**100yr**	2.42	3.50	4.22	5.87	7.28	10.30	12.68	**100yr**	9.12	12.19	13.81	15.14	16.48	**100yr**
200yr	0.87	1.30	1.65	2.39	3.33	4.34	**200yr**	2.88	4.24	5.13	7.18	8.84	12.71	15.90	**200yr**	11.25	15.29	17.25	18.63	20.18	**200yr**
500yr	1.06	1.58	2.03	2.95	4.19	5.56	**500yr**	3.62	5.44	6.62	9.38	11.45	16.80	21.45	**500yr**	14.87	20.62	23.17	24.55	26.40	**500yr**

Powered by ACIS Northeast Regional Climate Center



Map Scale: 1:1,010 if printed on D landscape (34" x 22") sheet.
Meters: 0 10 20 40 60
Feet: 0 45 90 180 270
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 Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

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 1:20,000.

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: Strafford County, New Hampshire
Survey Area Data: Version 20, May 29, 2020

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

Date(s) aerial images were photographed: Dec 31, 2009—Sep 9, 2017

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BzB	Buxton silt loam, 3 to 8 percent slopes	C/D	0.6	1.2%
EaB	Elmwood fine sandy loam, 3 to 8 percent slopes	B	6.1	11.3%
GlB	Gloucester fine sandy loam, 3 to 8 percent slopes	A	6.5	11.9%
GsC	Gloucester very stony fine sandy loam, 8 to 15 percent slopes	A	32.6	60.0%
HcB	Hollis-Charlton fine sandy loams, 3 to 8 percent slopes	D	0.7	1.4%
ScA	Scantic silt loam, 0 to 3 percent slopes	C/D	5.6	10.3%
ScB	Scantic silt loam, 3 to 8 percent slopes	C/D	2.2	4.1%
Totals for Area of Interest			**54.4**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

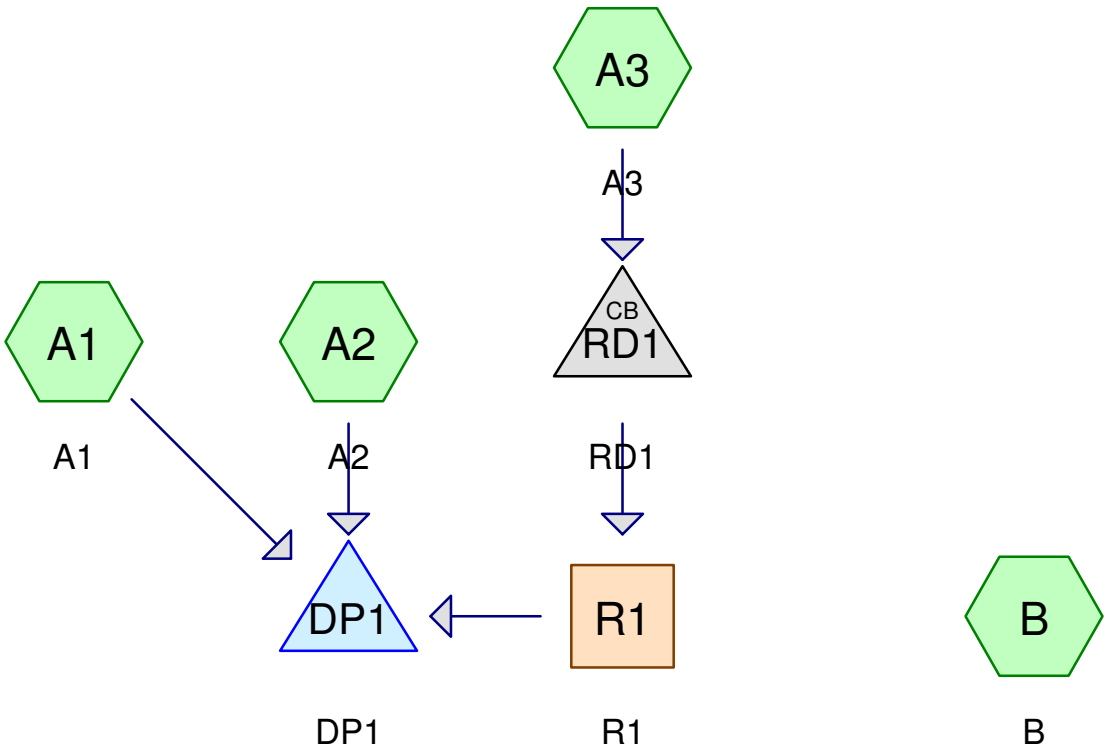
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

A-1

EXISTING WATERSHEDS



Subcat Reach Pond Link

Routing Diagram for 21043-Pre
Prepared by Civilworks New England
HydroCAD® 10.10-5a s/n 03240 © 2020 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.331	39	>75% Grass cover, Good, HSG A (A1, A2, B)
0.414	98	Paved parking, HSG A (A1, A2)
0.707	98	Roofs, HSG A (A3)
0.855	30	Woods, Good, HSG A (A1, A2, B)
2.308	**64**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.308	HSG A	A1, A2, A3, B
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.308		**TOTAL AREA**

A – 1

NODE LISTING – 2-YR

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A1: A1 Runoff Area=30,626 sf 42.51% Impervious Runoff Depth=0.38"
Flow Length=80' Slope=0.0810 '/' Tc=10.4 min CN=60 Runoff=0.11 cfs 0.022 af

Subcatchment A2: A2 Runoff Area=31,840 sf 15.78% Impervious Runoff Depth=0.02"
Flow Length=372' Tc=7.2 min CN=43 Runoff=0.00 cfs 0.001 af

Subcatchment A3: A3 Runoff Area=30,807 sf 100.00% Impervious Runoff Depth=2.90"
Tc=1.0 min CN=98 Runoff=2.45 cfs 0.171 af

Subcatchment B: B Runoff Area=7,244 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=186' Tc=11.4 min CN=30 Runoff=0.00 cfs 0.000 af

Reach R1: R1 Avg. Flow Depth=0.37' Max Vel=3.23 fps Inflow=2.45 cfs 0.171 af
n=0.035 L=155.0' S=0.0390 '/' Capacity=20.03 cfs Outflow=2.45 cfs 0.171 af

Pond DP1: DP1 Peak Elev=176.16' Storage=2,065 cf Inflow=2.46 cfs 0.194 af
Primary=0.55 cfs 0.193 af Secondary=0.00 cfs 0.000 af Outflow=0.55 cfs 0.193 af

Pond RD1: RD1 Peak Elev=185.91' Inflow=2.45 cfs 0.171 af
12.0" Round Culvert n=0.012 L=35.0' S=0.0274 '/' Outflow=2.45 cfs 0.171 af

Total Runoff Area = 2.308 ac Runoff Volume = 0.194 af Average Runoff Depth = 1.01"
51.40% Pervious = 1.186 ac 48.60% Impervious = 1.121 ac

A – 1

NODE LISTING – 10-YR

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A1: A1 Runoff Area=30,626 sf 42.51% Impervious Runoff Depth=1.14"
Flow Length=80' Slope=0.0810 '/' Tc=10.4 min CN=60 Runoff=0.54 cfs 0.067 af

Subcatchment A2: A2 Runoff Area=31,840 sf 15.78% Impervious Runoff Depth=0.28"
Flow Length=372' Tc=7.2 min CN=43 Runoff=0.03 cfs 0.017 af

Subcatchment A3: A3 Runoff Area=30,807 sf 100.00% Impervious Runoff Depth=4.47"
Tc=1.0 min CN=98 Runoff=3.18 cfs 0.264 af

Subcatchment B: B Runoff Area=7,244 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=186' Tc=11.4 min CN=30 Runoff=0.00 cfs 0.000 af

Reach R1: R1 Avg. Flow Depth=0.42' Max Vel=3.49 fps Inflow=3.18 cfs 0.264 af
n=0.035 L=155.0' S=0.0390 '/' Capacity=20.03 cfs Outflow=3.18 cfs 0.264 af

Pond DP1: DP1 Peak Elev=176.53' Storage=3,382 cf Inflow=3.45 cfs 0.347 af
Primary=0.77 cfs 0.346 af Secondary=0.00 cfs 0.000 af Outflow=0.77 cfs 0.346 af

Pond RD1: RD1 Peak Elev=186.21' Inflow=3.18 cfs 0.264 af
12.0" Round Culvert n=0.012 L=35.0' S=0.0274 '/' Outflow=3.18 cfs 0.264 af

Total Runoff Area = 2.308 ac Runoff Volume = 0.347 af Average Runoff Depth = 1.80"
51.40% Pervious = 1.186 ac 48.60% Impervious = 1.121 ac

A – 1

STORM SUMMARY – 10-YR

Summary for Subcatchment A1: A1

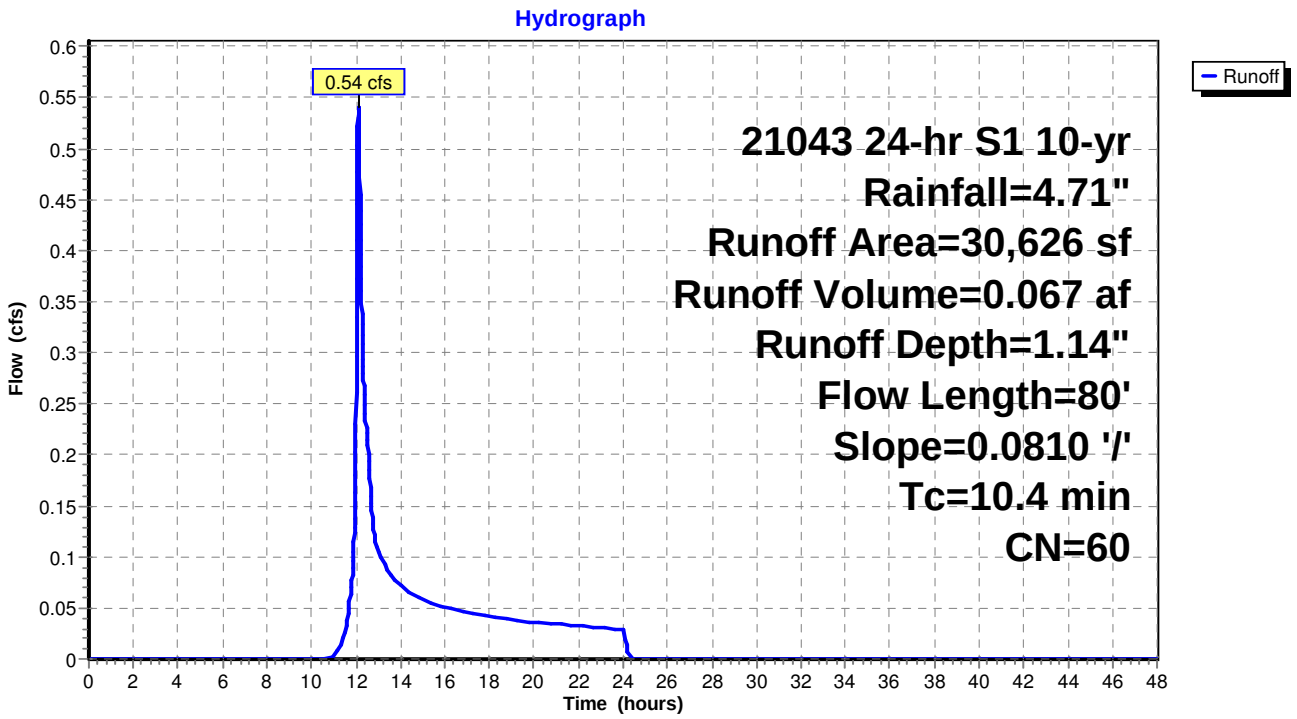
Runoff = 0.54 cfs @ 12.10 hrs, Volume= 0.067 af, Depth= 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
21043 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
12,967	30	Woods, Good, HSG A
4,639	39	>75% Grass cover, Good, HSG A
13,020	98	Paved parking, HSG A
30,626	60	Weighted Average
17,606		57.49% Pervious Area
13,020		42.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	80	0.0810	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.13"

Subcatchment A1: A1



Summary for Subcatchment A2: A2

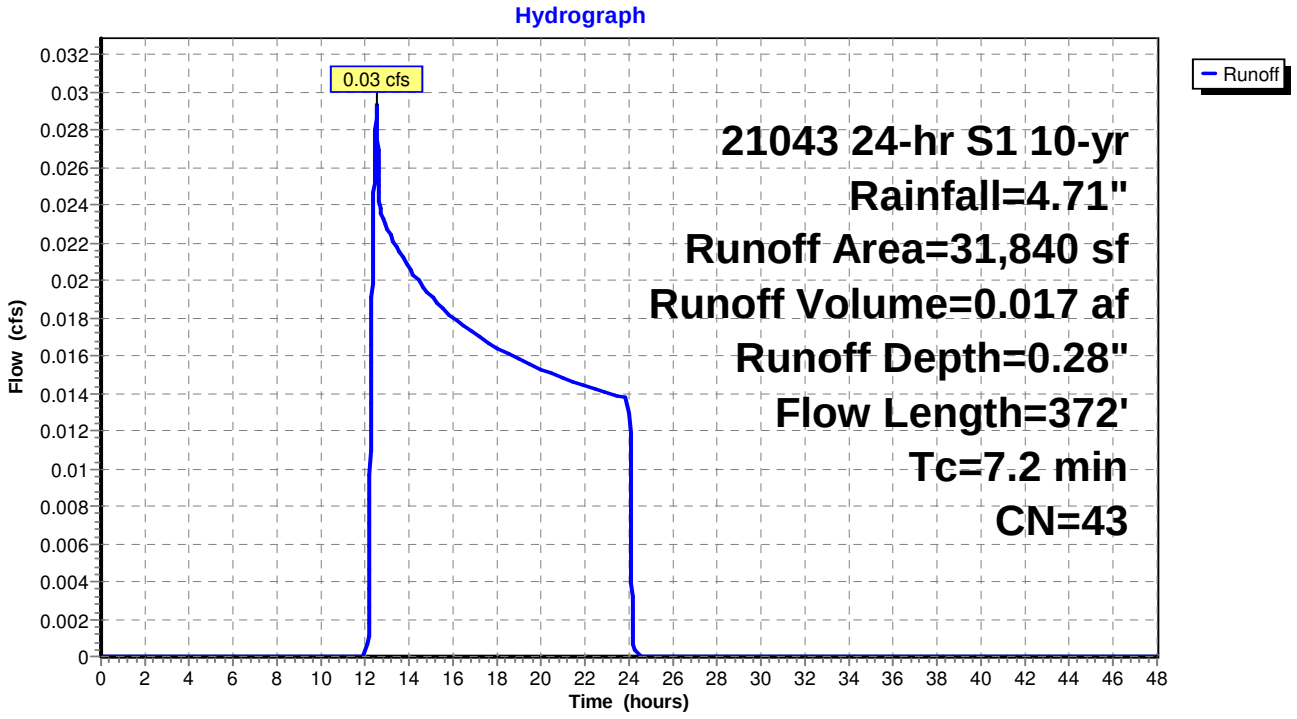
Runoff = 0.03 cfs @ 12.54 hrs, Volume= 0.017 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
21043 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
17,136	30	Woods, Good, HSG A
9,680	39	>75% Grass cover, Good, HSG A
5,024	98	Paved parking, HSG A
31,840	43	Weighted Average
26,816		84.22% Pervious Area
5,024		15.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	18	0.1670	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.13"
3.9	199	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.9	155	0.0390	2.96		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.2	372	Total			

Subcatchment A2: A2



Summary for Subcatchment A3: A3

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

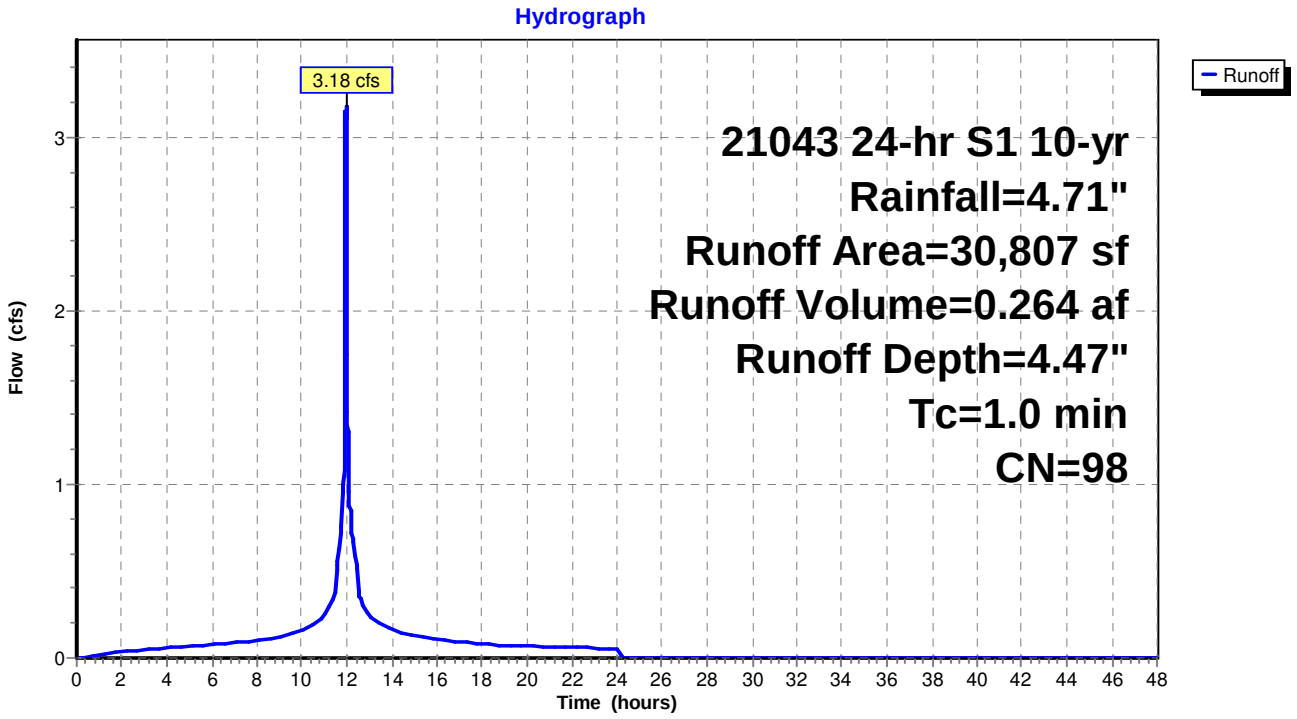
Runoff = 3.18 cfs @ 11.99 hrs, Volume= 0.264 af, Depth= 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
21043 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
30,807	98	Roofs, HSG A
30,807		100.00% Impervious Area

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

Subcatchment A3: A3



Summary for Subcatchment B: B

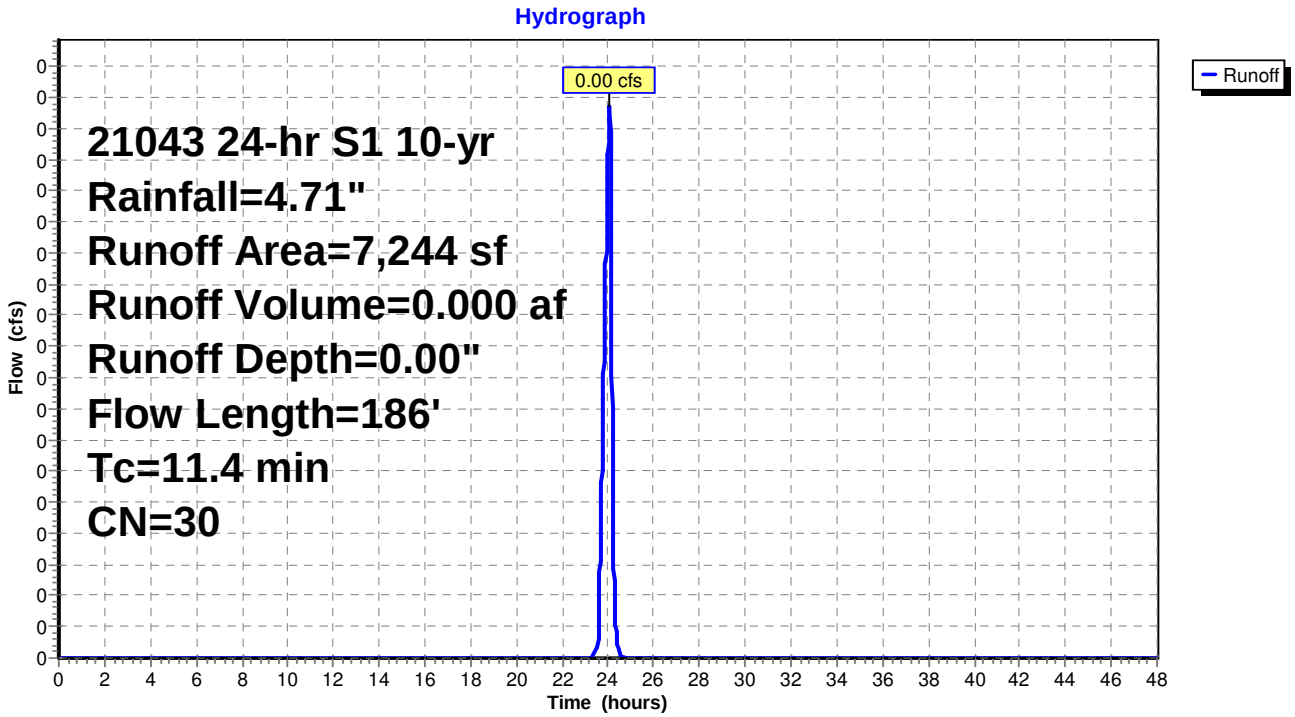
Runoff = 0.00 cfs @ 24.06 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
21043 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
7,155	30	Woods, Good, HSG A
89	39	>75% Grass cover, Good, HSG A
7,244	30	Weighted Average
7,244		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	100	0.1300	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.13"
1.1	86	0.0710	1.33		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.4	186	Total			

Subcatchment B: B



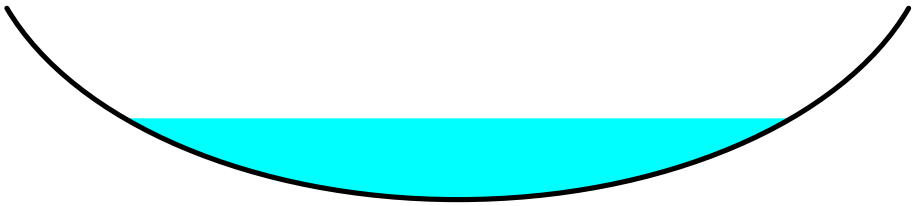
Summary for Reach R1: R1

Inflow Area = 0.707 ac,100.00% Impervious, Inflow Depth = 4.47" for 10-yr event
Inflow = 3.18 cfs @ 11.99 hrs, Volume= 0.264 af
Outflow = 3.18 cfs @ 11.99 hrs, Volume= 0.264 af, Atten= 0%, Lag= 0.0 min

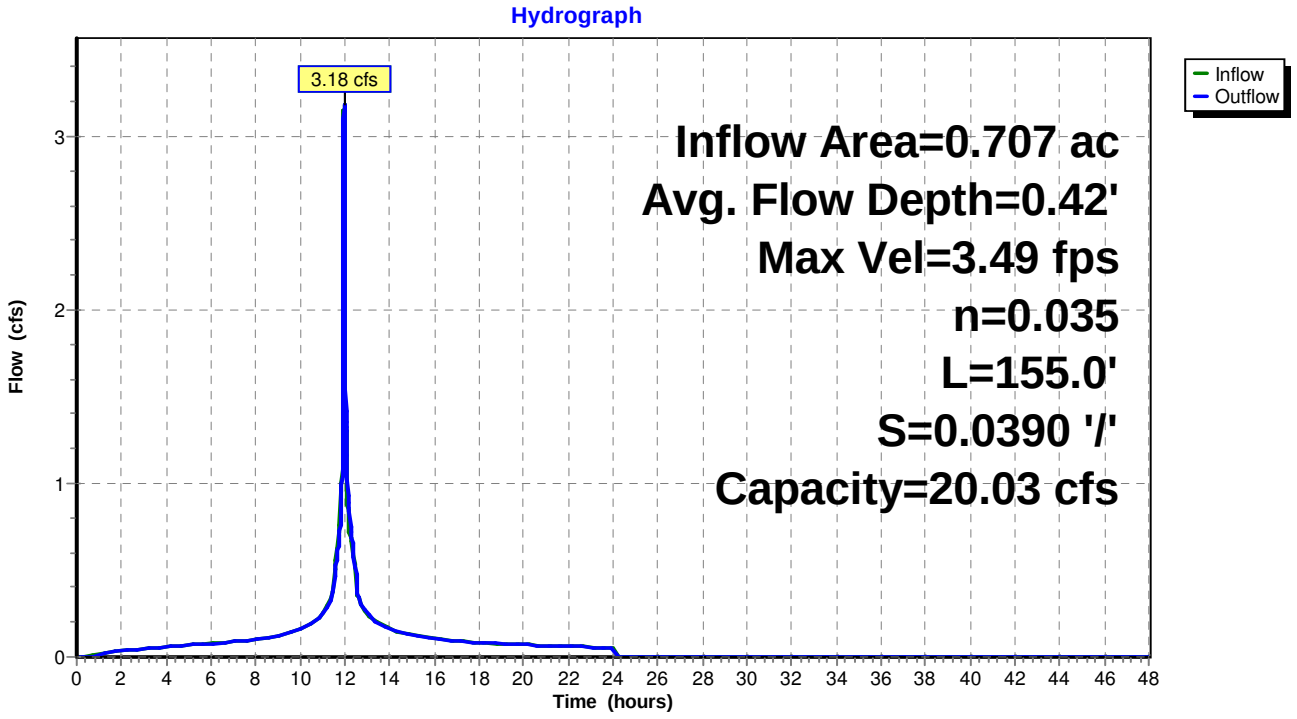
Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.49 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.19 fps, Avg. Travel Time= 2.2 min

Peak Storage= 141 cf @ 11.99 hrs
Average Depth at Peak Storage= 0.42' , Surface Width= 3.24'
Bank-Full Depth= 1.00' Flow Area= 3.3 sf, Capacity= 20.03 cfs

5.00' x 1.00' deep Parabolic Channel, n= 0.035 Riprap, 6-inch
Length= 155.0' Slope= 0.0390 '/'
Inlet Invert= 184.04', Outlet Invert= 178.00'



Reach R1: R1



Summary for Pond DP1: DP1

Inflow Area = 2.141 ac, 52.37% Impervious, Inflow Depth = 1.94" for 10-yr event
Inflow = 3.45 cfs @ 12.00 hrs, Volume= 0.347 af
Outflow = 0.77 cfs @ 12.47 hrs, Volume= 0.346 af, Atten= 78%, Lag= 28.4 min
Primary = 0.77 cfs @ 12.47 hrs, Volume= 0.346 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 176.53' @ 12.47 hrs Surf.Area= 3,801 sf Storage= 3,382 cf
Flood Elev= 178.65' Surf.Area= 8,178 sf Storage= 14,962 cf

Plug-Flow detention time= 79.4 min calculated for 0.346 af (100% of inflow)
Center-of-Mass det. time= 78.0 min (877.2 - 799.2)

Volume	Invert	Avail.Storage	Storage Description
#1	175.45'	14,962 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

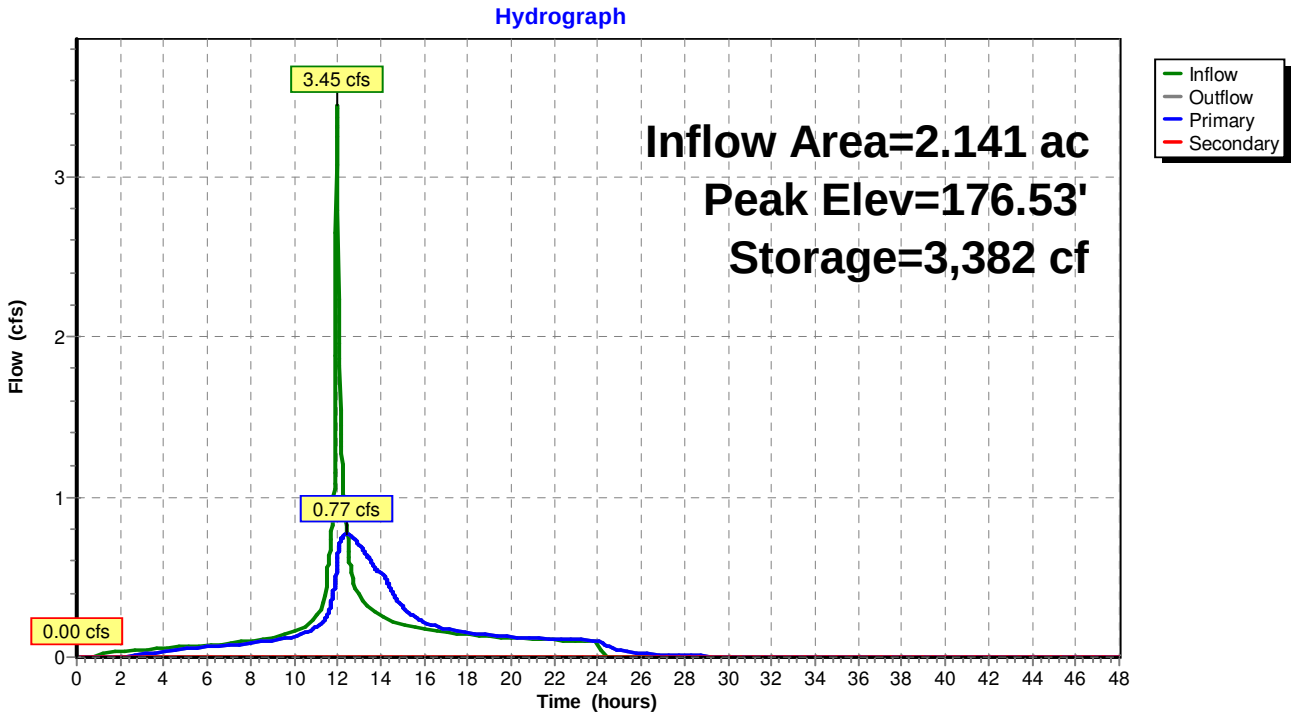
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
175.45	557	268.6	0	0	557
175.50	2,685	316.0	74	74	2,762
176.00	3,167	326.9	1,461	1,536	3,342
178.00	5,856	380.6	8,886	10,422	6,448
178.65	8,178	441.8	4,540	14,962	10,462

Device	Routing	Invert	Outlet Devices
#1	Primary	175.47'	**6.0" Round Culvert** L= 24.5' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 175.47' / 175.28' S= 0.0078 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Secondary	178.00'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.77 cfs @ 12.47 hrs HW=176.53' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.77 cfs @ 3.92 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=175.45' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DP1: DP1


Hydrograph
3.45 cfs
0.77 cfs
0.00 cfs
Inflow Area=2.141 ac
Peak Elev=176.53'
Storage=3,382 cf
Inflow
Outflow
Primary
Secondary
Flow (cfs)
Time (hours)
0
1
2
3
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Pond RD1: RD1

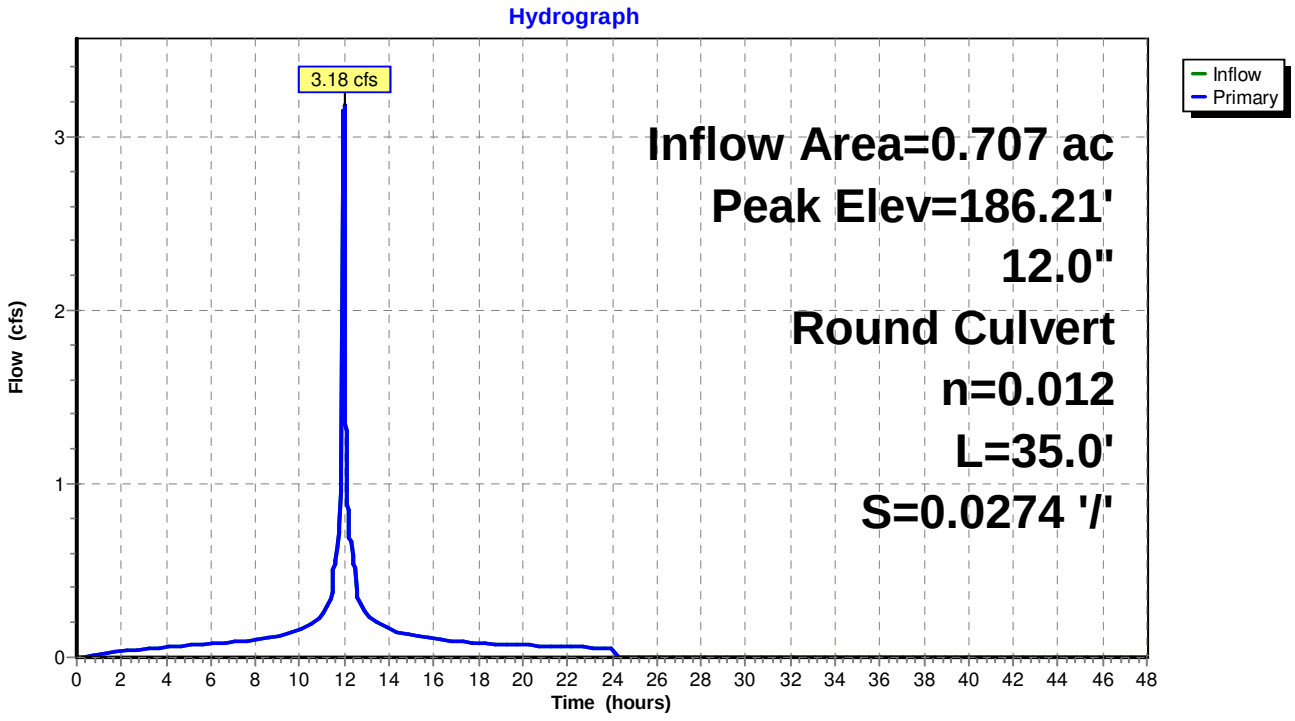
Inflow Area = 0.707 ac,100.00% Impervious, Inflow Depth = 4.47" for 10-yr event
Inflow = 3.18 cfs @ 11.99 hrs, Volume= 0.264 af
Outflow = 3.18 cfs @ 11.99 hrs, Volume= 0.264 af, Atten= 0%, Lag= 0.0 min
Primary = 3.18 cfs @ 11.99 hrs, Volume= 0.264 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 186.21' @ 11.99 hrs
Flood Elev= 188.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	185.00'	**12.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 185.00' / 184.04' S= 0.0274 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.18 cfs @ 11.99 hrs HW=186.21' TW=184.46' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.18 cfs @ 4.05 fps)

Pond RD1: RD1



A – 1

NODE LISTING – 25-YR

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A1: A1 Runoff Area=30,626 sf 42.51% Impervious Runoff Depth=1.90"
Flow Length=80' Slope=0.0810 '/' Tc=10.4 min CN=60 Runoff=0.93 cfs 0.111 af

Subcatchment A2: A2 Runoff Area=31,840 sf 15.78% Impervious Runoff Depth=0.66"
Flow Length=372' Tc=7.2 min CN=43 Runoff=0.15 cfs 0.040 af

Subcatchment A3: A3 Runoff Area=30,807 sf 100.00% Impervious Runoff Depth=5.72"
Tc=1.0 min CN=98 Runoff=3.74 cfs 0.337 af

Subcatchment B: B Runoff Area=7,244 sf 0.00% Impervious Runoff Depth=0.07"
Flow Length=186' Tc=11.4 min CN=30 Runoff=0.00 cfs 0.001 af

Reach R1: R1 Avg. Flow Depth=0.45' Max Vel=3.67 fps Inflow=3.74 cfs 0.337 af
n=0.035 L=155.0' S=0.0390 '/' Capacity=20.03 cfs Outflow=3.74 cfs 0.337 af

Pond DP1: DP1 Peak Elev=176.88' Storage=4,804 cf Inflow=4.28 cfs 0.489 af
Primary=0.93 cfs 0.488 af Secondary=0.00 cfs 0.000 af Outflow=0.93 cfs 0.488 af

Pond RD1: RD1 Peak Elev=186.48' Inflow=3.74 cfs 0.337 af
12.0" Round Culvert n=0.012 L=35.0' S=0.0274 '/' Outflow=3.74 cfs 0.337 af

Total Runoff Area = 2.308 ac Runoff Volume = 0.489 af Average Runoff Depth = 2.55"
51.40% Pervious = 1.186 ac 48.60% Impervious = 1.121 ac

A – 1

NODE LISTING – 50-YR

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A1: A1 Runoff Area=30,626 sf 42.51% Impervious Runoff Depth=2.68"
Flow Length=80' Slope=0.0810 '/' Tc=10.4 min CN=60 Runoff=1.32 cfs 0.157 af

Subcatchment A2: A2 Runoff Area=31,840 sf 15.78% Impervious Runoff Depth=1.12"
Flow Length=372' Tc=7.2 min CN=43 Runoff=0.43 cfs 0.068 af

Subcatchment A3: A3 Runoff Area=30,807 sf 100.00% Impervious Runoff Depth=6.87"
Tc=1.0 min CN=98 Runoff=4.30 cfs 0.405 af

Subcatchment B: B Runoff Area=7,244 sf 0.00% Impervious Runoff Depth=0.23"
Flow Length=186' Tc=11.4 min CN=30 Runoff=0.00 cfs 0.003 af

Reach R1: R1 Avg. Flow Depth=0.48' Max Vel=3.82 fps Inflow=4.30 cfs 0.405 af
n=0.035 L=155.0' S=0.0390 '/' Capacity=20.03 cfs Outflow=4.30 cfs 0.405 af

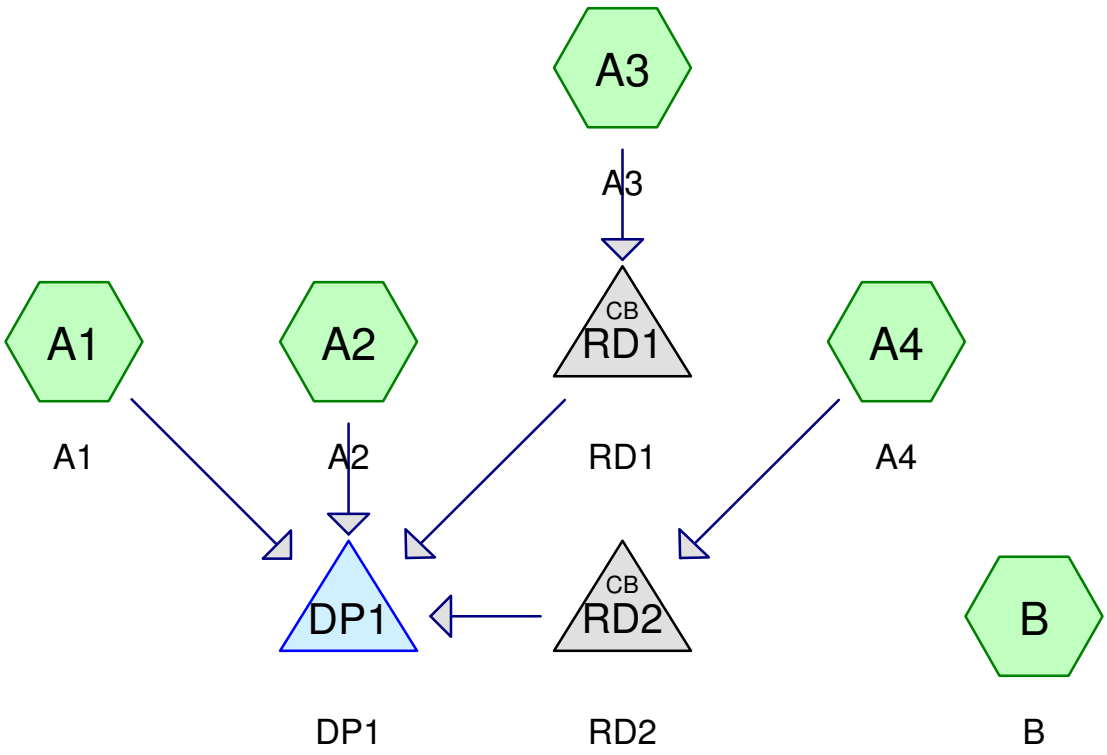
Pond DP1: DP1 Peak Elev=177.24' Storage=6,418 cf Inflow=5.29 cfs 0.630 af
Primary=1.07 cfs 0.630 af Secondary=0.00 cfs 0.000 af Outflow=1.07 cfs 0.630 af

Pond RD1: RD1 Peak Elev=186.79' Inflow=4.30 cfs 0.405 af
12.0" Round Culvert n=0.012 L=35.0' S=0.0274 '/' Outflow=4.30 cfs 0.405 af

Total Runoff Area = 2.308 ac Runoff Volume = 0.634 af Average Runoff Depth = 3.30"
51.40% Pervious = 1.186 ac 48.60% Impervious = 1.121 ac

A-2

DEVELOPED WATERSHEDS



Subcat Reach Pond Link

Routing Diagram for 21043-Post
Prepared by Civilworks New England
HydroCAD® 10.10-5a s/n 03240 © 2020 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.606	39	>75% Grass cover, Good, HSG A (A1, A2, B)
0.528	98	Paved parking, HSG A (A1, A2)
0.878	98	Roofs, HSG A (A3, A4)
0.309	30	Woods, Good, HSG A (A1, A2, B)
2.321	**74**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.321	HSG A	A1, A2, A3, A4, B
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.321		**TOTAL AREA**

A – 2

NODE LISTING – 2-YR

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A1: A1 Runoff Area=31,927 sf 41.12% Impervious Runoff Depth=0.45"
Flow Length=80' Slope=0.0810 '/' Tc=10.4 min CN=62 Runoff=0.17 cfs 0.028 af

Subcatchment A2: A2 Runoff Area=27,357 sf 36.13% Impervious Runoff Depth=0.32"
Flow Length=398' Tc=7.4 min CN=58 Runoff=0.07 cfs 0.017 af

Subcatchment A3: A3 Runoff Area=30,807 sf 100.00% Impervious Runoff Depth=2.90"
Tc=1.0 min CN=98 Runoff=2.45 cfs 0.171 af

Subcatchment A4: A4 Runoff Area=7,428 sf 100.00% Impervious Runoff Depth=2.90"
Tc=1.0 min CN=98 Runoff=0.59 cfs 0.041 af

Subcatchment B: B Runoff Area=3,592 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=131' Tc=7.1 min CN=33 Runoff=0.00 cfs 0.000 af

Pond DP1: DP1 Peak Elev=176.28' Storage=2,797 cf Inflow=3.09 cfs 0.256 af
Primary=0.63 cfs 0.255 af Secondary=0.00 cfs 0.000 af Outflow=0.63 cfs 0.255 af

Pond RD1: RD1 Peak Elev=185.41' Inflow=2.45 cfs 0.171 af
12.0" Round Culvert n=0.012 L=170.0' S=0.0265 '/' Outflow=2.45 cfs 0.171 af

Pond RD2: RD2 Peak Elev=184.89' Inflow=0.59 cfs 0.041 af
12.0" Round Culvert n=0.012 L=375.0' S=0.0187 '/' Outflow=0.59 cfs 0.041 af

Total Runoff Area = 2.321 ac Runoff Volume = 0.256 af Average Runoff Depth = 1.32"
39.42% Pervious = 0.915 ac 60.58% Impervious = 1.406 ac

A – 2

NODE LISTING – 10-YR

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A1: A1 Runoff Area=31,927 sf 41.12% Impervious Runoff Depth=1.26"
Flow Length=80' Slope=0.0810 '/' Tc=10.4 min CN=62 Runoff=0.65 cfs 0.077 af

Subcatchment A2: A2 Runoff Area=27,357 sf 36.13% Impervious Runoff Depth=1.01"
Flow Length=398' Tc=7.4 min CN=58 Runoff=0.47 cfs 0.053 af

Subcatchment A3: A3 Runoff Area=30,807 sf 100.00% Impervious Runoff Depth=4.47"
Tc=1.0 min CN=98 Runoff=3.18 cfs 0.264 af

Subcatchment A4: A4 Runoff Area=7,428 sf 100.00% Impervious Runoff Depth=4.47"
Tc=1.0 min CN=98 Runoff=0.77 cfs 0.064 af

Subcatchment B: B Runoff Area=3,592 sf 0.00% Impervious Runoff Depth=0.02"
Flow Length=131' Tc=7.1 min CN=33 Runoff=0.00 cfs 0.000 af

Pond DP1: DP1 Peak Elev=176.79' Storage=5,007 cf Inflow=4.61 cfs 0.457 af
Primary=0.89 cfs 0.456 af Secondary=0.00 cfs 0.000 af Outflow=0.89 cfs 0.456 af

Pond RD1: RD1 Peak Elev=185.71' Inflow=3.18 cfs 0.264 af
12.0" Round Culvert n=0.012 L=170.0' S=0.0265 '/' Outflow=3.18 cfs 0.264 af

Pond RD2: RD2 Peak Elev=184.95' Inflow=0.77 cfs 0.064 af
12.0" Round Culvert n=0.012 L=375.0' S=0.0187 '/' Outflow=0.77 cfs 0.064 af

Total Runoff Area = 2.321 ac Runoff Volume = 0.458 af Average Runoff Depth = 2.37"
39.42% Pervious = 0.915 ac 60.58% Impervious = 1.406 ac

A – 2

STORM SUMMARY – 10-YR

Summary for Subcatchment A1: A1

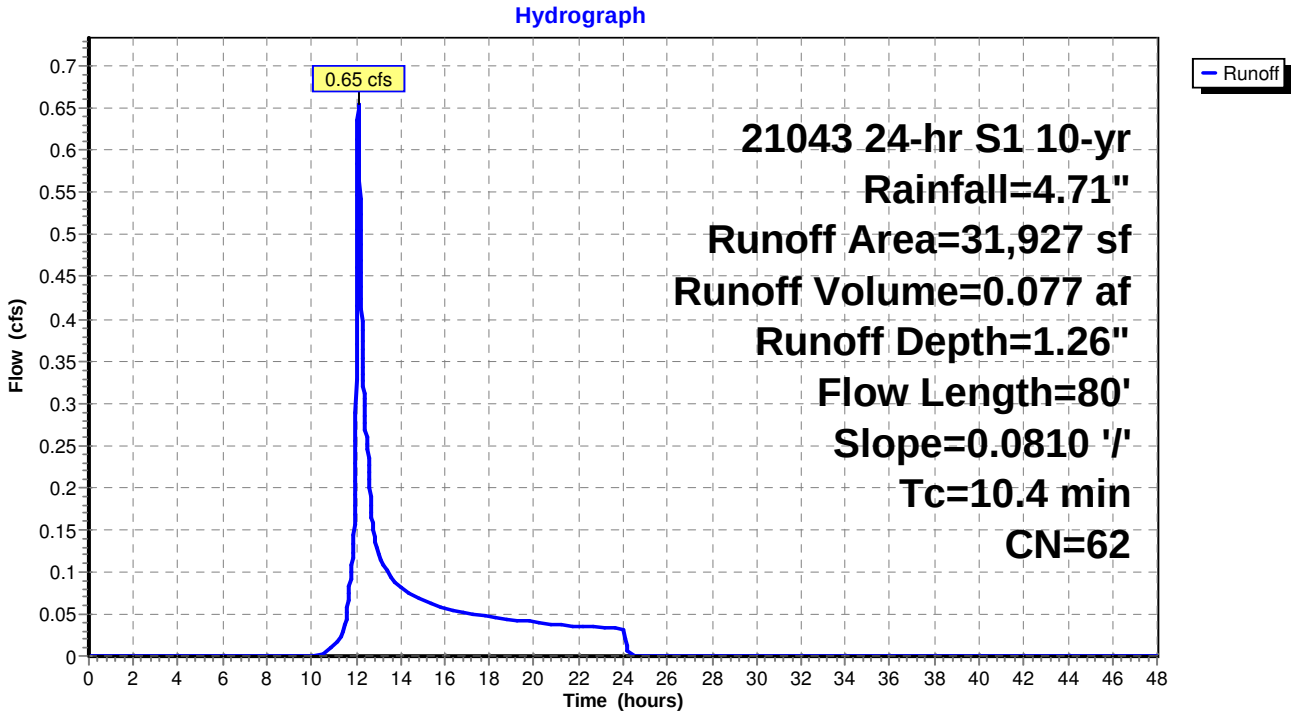
Runoff = 0.65 cfs @ 12.10 hrs, Volume= 0.077 af, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
21043 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
3,421	30	Woods, Good, HSG A
15,378	39	>75% Grass cover, Good, HSG A
13,128	98	Paved parking, HSG A
31,927	62	Weighted Average
18,799		58.88% Pervious Area
13,128		41.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	80	0.0810	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.13"

Subcatchment A1: A1



Summary for Subcatchment A2: A2

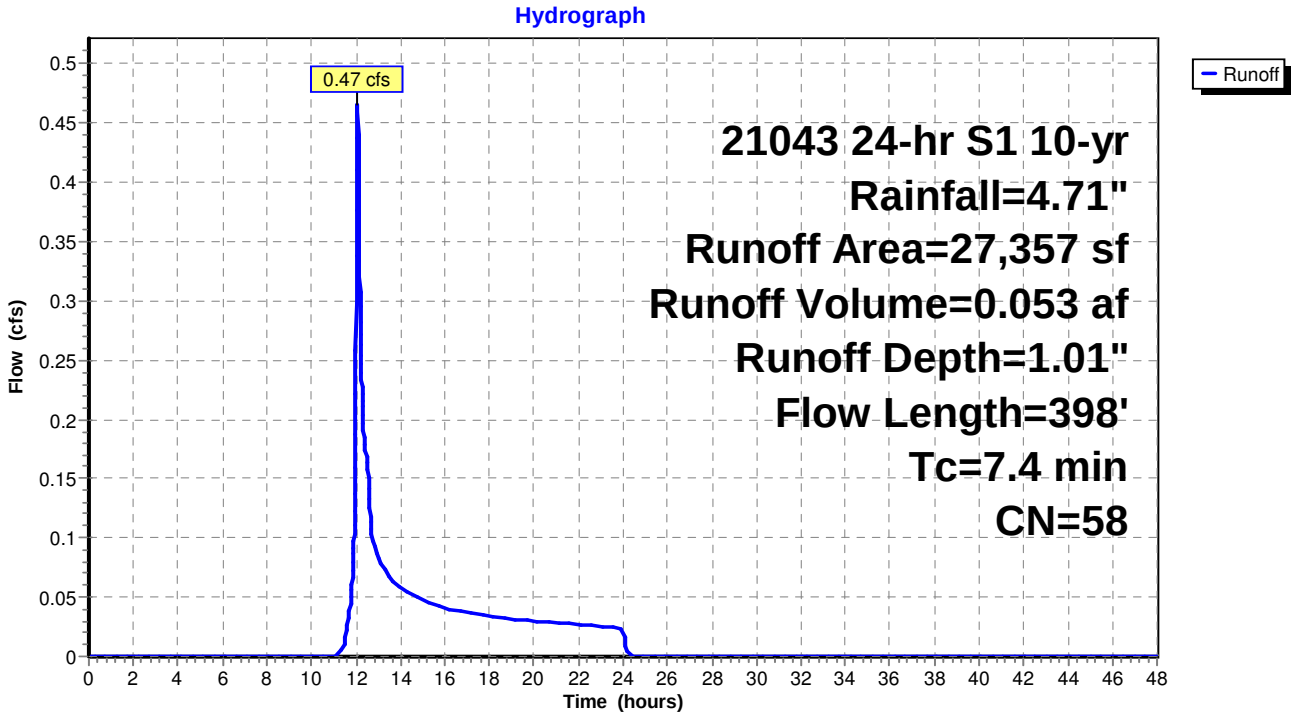
Runoff = 0.47 cfs @ 12.06 hrs, Volume= 0.053 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
21043 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
7,552	30	Woods, Good, HSG A
9,920	39	>75% Grass cover, Good, HSG A
9,885	98	Paved parking, HSG A
27,357	58	Weighted Average
17,472		63.87% Pervious Area
9,885		36.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	18	0.1670	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.13"
3.8	180	0.0130	0.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	200	0.0350	2.81		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.4	398	Total			

Subcatchment A2: A2



Summary for Subcatchment A3: A3

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

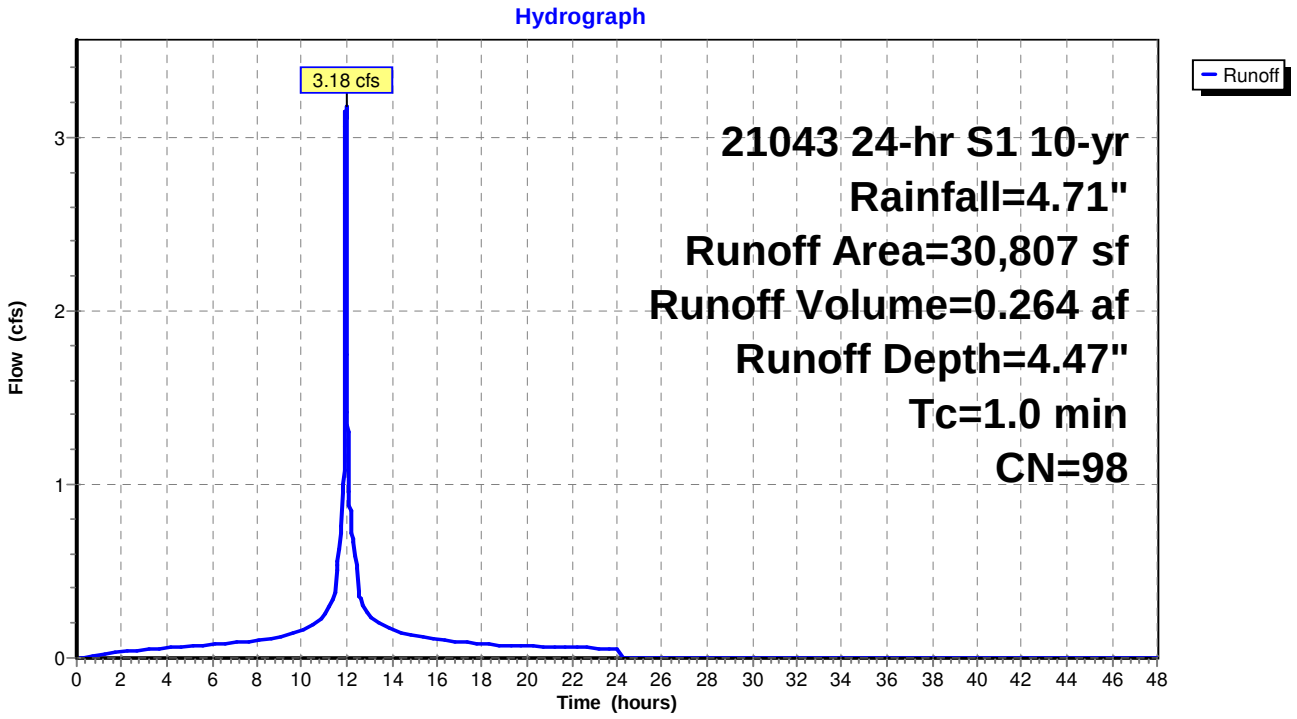
Runoff = 3.18 cfs @ 11.99 hrs, Volume= 0.264 af, Depth= 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
21043 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
30,807	98	Roofs, HSG A
30,807		100.00% Impervious Area

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

Subcatchment A3: A3



Summary for Subcatchment A4: A4

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

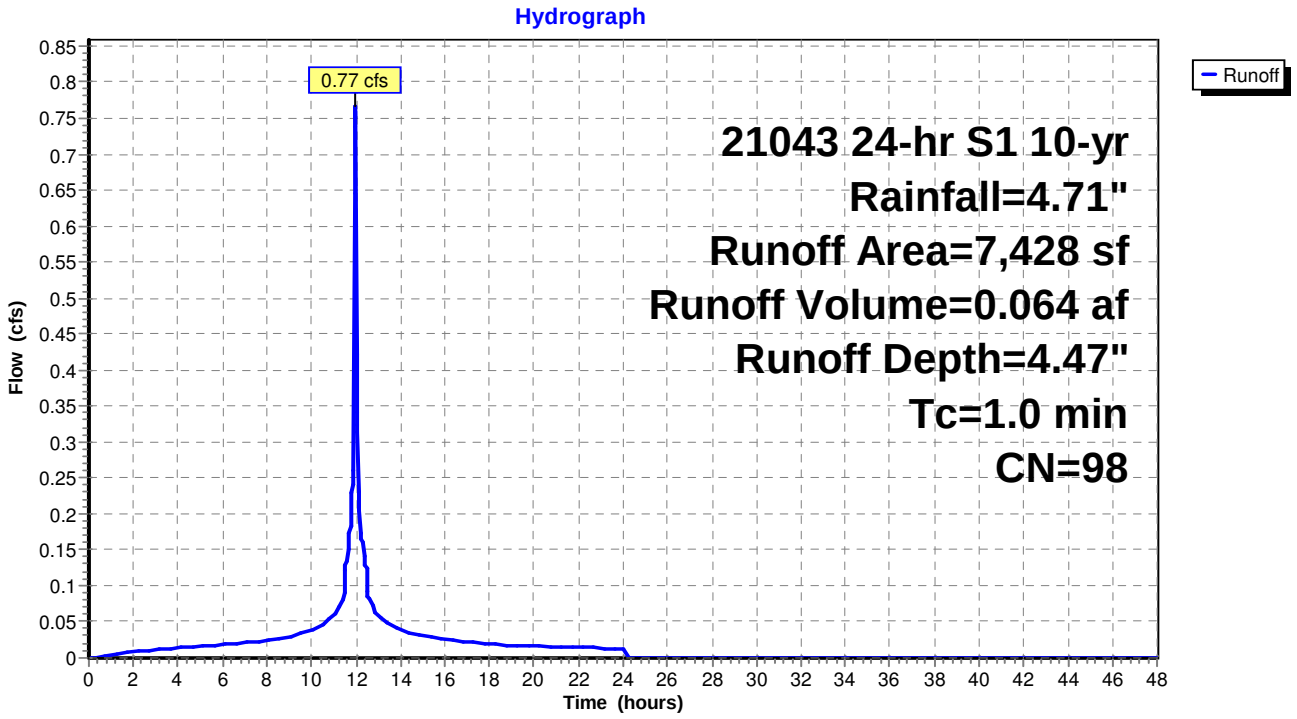
Runoff = 0.77 cfs @ 11.99 hrs, Volume= 0.064 af, Depth= 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
21043 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
7,428	98	Roofs, HSG A
7,428		100.00% Impervious Area

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

Subcatchment A4: A4



Summary for Subcatchment B: B

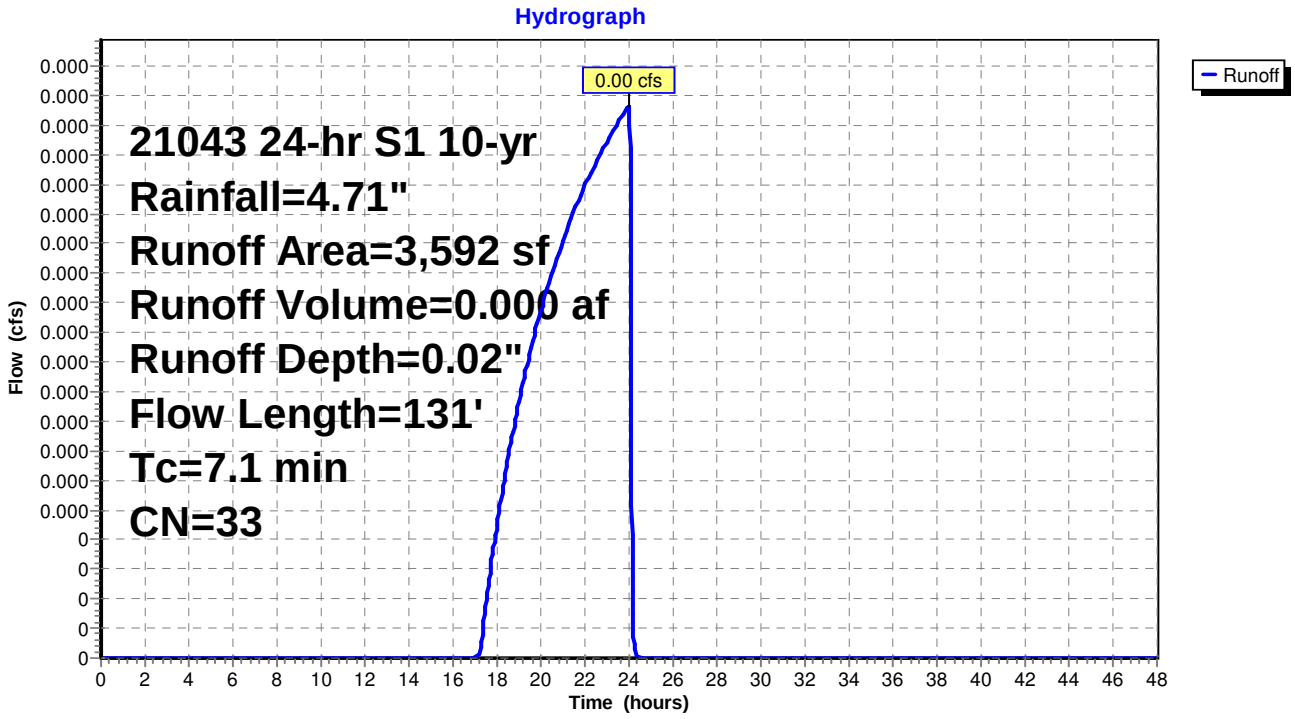
Runoff = 0.00 cfs @ 24.01 hrs, Volume= 0.000 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
21043 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
2,488	30	Woods, Good, HSG A
1,104	39	>75% Grass cover, Good, HSG A
3,592	33	Weighted Average
3,592		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	63	0.1560	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.13"
0.5	68	0.0880	2.08		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.1	131	Total			

Subcatchment B: B



Summary for Pond DP1: DP1

Inflow Area = 2.239 ac, 62.81% Impervious, Inflow Depth = 2.45" for 10-yr event
Inflow = 4.61 cfs @ 12.00 hrs, Volume= 0.457 af
Outflow = 0.89 cfs @ 12.52 hrs, Volume= 0.456 af, Atten= 81%, Lag= 31.5 min
Primary = 0.89 cfs @ 12.52 hrs, Volume= 0.456 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 176.79' @ 12.52 hrs Surf.Area= 4,727 sf Storage= 5,007 cf
Flood Elev= 178.65' Surf.Area= 8,317 sf Storage= 16,816 cf

Plug-Flow detention time= 87.0 min calculated for 0.456 af (100% of inflow)
Center-of-Mass det. time= 86.0 min (885.7 - 799.7)

Volume	Invert	Avail.Storage	Storage Description
#1	175.45'	16,816 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

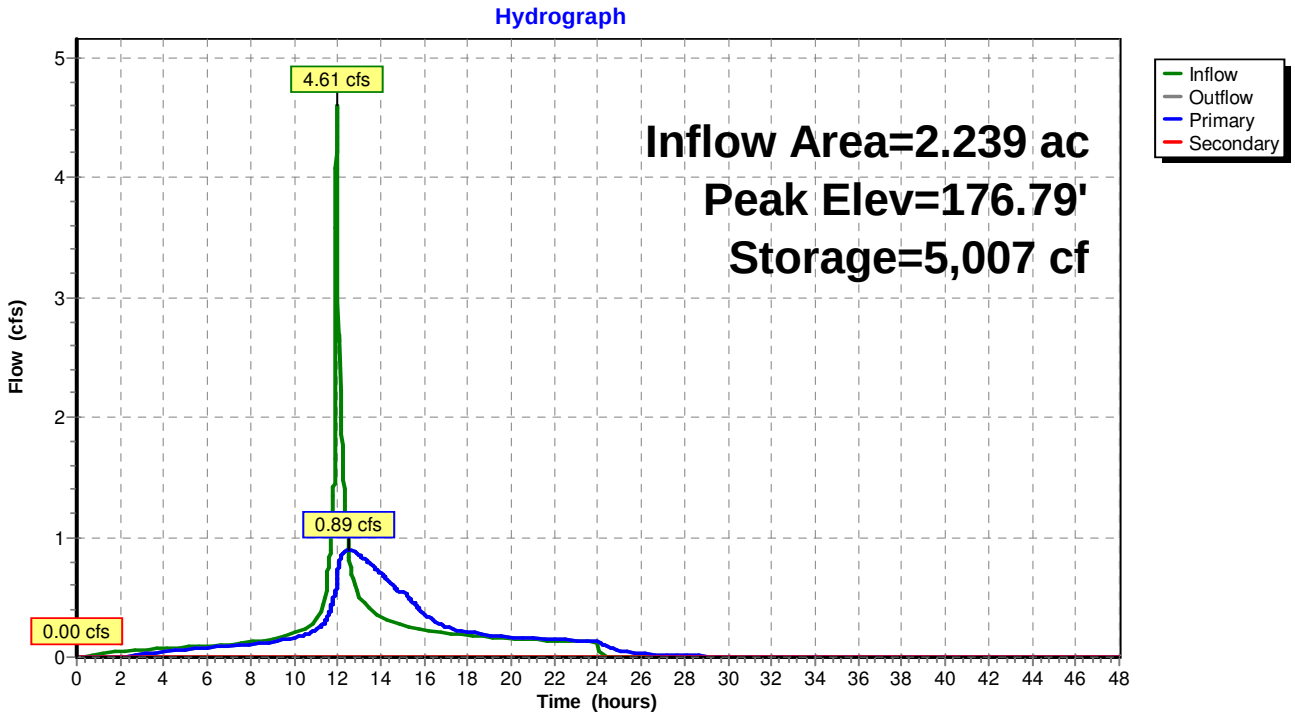
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
175.45	557	268.6	0	0	557
175.50	3,025	385.5	81	81	6,642
176.00	3,610	399.4	1,657	1,738	7,532
178.00	6,744	514.7	10,192	11,930	15,969
178.65	8,317	533.5	4,886	16,816	17,573

Device	Routing	Invert	Outlet Devices
#1	Primary	175.47'	**6.0" Round Culvert** L= 24.5' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 175.47' / 175.28' S= 0.0078 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Secondary	178.00'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.89 cfs @ 12.52 hrs HW=176.79' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.89 cfs @ 4.54 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=175.45' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond DP1: DP1


Hydrograph
Inflow Area=2.239 ac
Peak Elev=176.79'
Storage=5,007 cf
4.61 cfs
0.89 cfs
0.00 cfs
Inflow
Outflow
Primary
Secondary
Flow (cfs)
Time (hours)
0 1 2 3 4 5
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Pond RD1: RD1

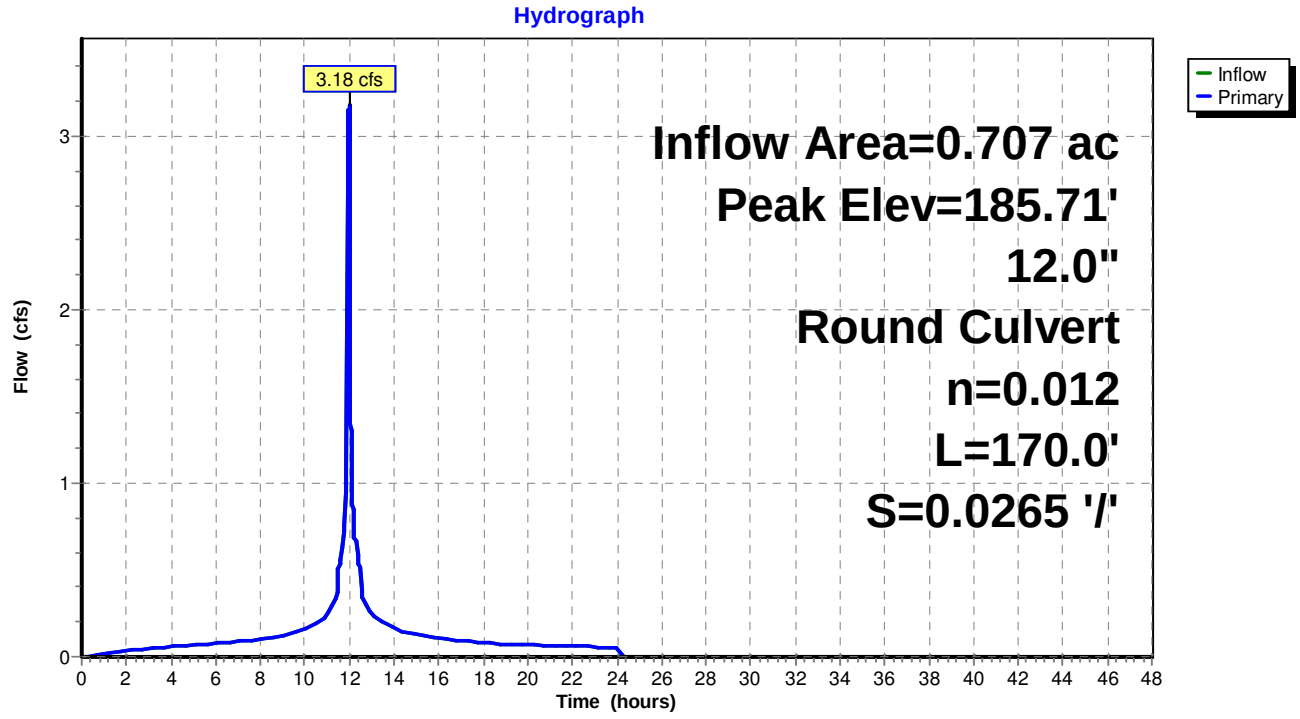
Inflow Area = 0.707 ac,100.00% Impervious, Inflow Depth = 4.47" for 10-yr event
Inflow = 3.18 cfs @ 11.99 hrs, Volume= 0.264 af
Outflow = 3.18 cfs @ 11.99 hrs, Volume= 0.264 af, Atten= 0%, Lag= 0.0 min
Primary = 3.18 cfs @ 11.99 hrs, Volume= 0.264 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 185.71' @ 11.99 hrs
Flood Elev= 188.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	184.50'	**12.0" Round Culvert** L= 170.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 184.50' / 180.00' S= 0.0265 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.18 cfs @ 11.99 hrs HW=185.71' TW=176.37' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.18 cfs @ 4.05 fps)

Pond RD1: RD1



Summary for Pond RD2: RD2

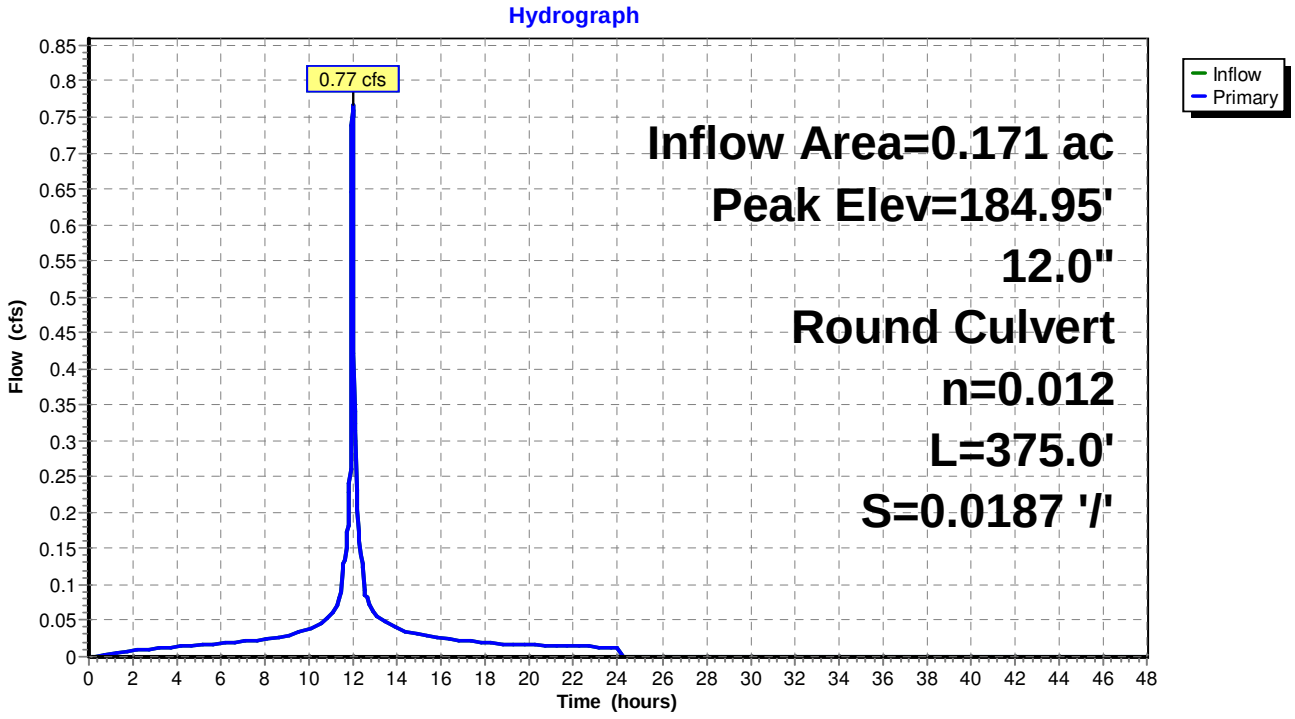
Inflow Area = 0.171 ac,100.00% Impervious, Inflow Depth = 4.47" for 10-yr event
Inflow = 0.77 cfs @ 11.99 hrs, Volume= 0.064 af
Outflow = 0.77 cfs @ 11.99 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min
Primary = 0.77 cfs @ 11.99 hrs, Volume= 0.064 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 184.95' @ 11.99 hrs
Flood Elev= 188.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	184.50'	**12.0" Round Culvert** L= 375.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 184.50' / 177.50' S= 0.0187 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.77 cfs @ 11.99 hrs HW=184.95' TW=176.37' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.77 cfs @ 2.27 fps)

Pond RD2: RD2



A – 2

NODE LISTING – 25-YR

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A1: A1 Runoff Area=31,927 sf 41.12% Impervious Runoff Depth=2.06"
Flow Length=80' Slope=0.0810 '/' Tc=10.4 min CN=62 Runoff=1.08 cfs 0.126 af

Subcatchment A2: A2 Runoff Area=27,357 sf 36.13% Impervious Runoff Depth=1.73"
Flow Length=398' Tc=7.4 min CN=58 Runoff=0.84 cfs 0.091 af

Subcatchment A3: A3 Runoff Area=30,807 sf 100.00% Impervious Runoff Depth=5.72"
Tc=1.0 min CN=98 Runoff=3.74 cfs 0.337 af

Subcatchment A4: A4 Runoff Area=7,428 sf 100.00% Impervious Runoff Depth=5.72"
Tc=1.0 min CN=98 Runoff=0.90 cfs 0.081 af

Subcatchment B: B Runoff Area=3,592 sf 0.00% Impervious Runoff Depth=0.16"
Flow Length=131' Tc=7.1 min CN=33 Runoff=0.00 cfs 0.001 af

Pond DP1: DP1 Peak Elev=177.21' Storage=7,149 cf Inflow=5.84 cfs 0.635 af
Primary=1.06 cfs 0.634 af Secondary=0.00 cfs 0.000 af Outflow=1.06 cfs 0.634 af

Pond RD1: RD1 Peak Elev=185.98' Inflow=3.74 cfs 0.337 af
12.0" Round Culvert n=0.012 L=170.0' S=0.0265 '/' Outflow=3.74 cfs 0.337 af

Pond RD2: RD2 Peak Elev=184.99' Inflow=0.90 cfs 0.081 af
12.0" Round Culvert n=0.012 L=375.0' S=0.0187 '/' Outflow=0.90 cfs 0.081 af

Total Runoff Area = 2.321 ac Runoff Volume = 0.636 af Average Runoff Depth = 3.29"
39.42% Pervious = 0.915 ac 60.58% Impervious = 1.406 ac

A – 2

NODE LISTING – 50-YR

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A1: A1 Runoff Area=31,927 sf 41.12% Impervious Runoff Depth=2.88"
Flow Length=80' Slope=0.0810 '/' Tc=10.4 min CN=62 Runoff=1.50 cfs 0.176 af

Subcatchment A2: A2 Runoff Area=27,357 sf 36.13% Impervious Runoff Depth=2.48"
Flow Length=398' Tc=7.4 min CN=58 Runoff=1.22 cfs 0.130 af

Subcatchment A3: A3 Runoff Area=30,807 sf 100.00% Impervious Runoff Depth=6.87"
Tc=1.0 min CN=98 Runoff=4.30 cfs 0.405 af

Subcatchment A4: A4 Runoff Area=7,428 sf 100.00% Impervious Runoff Depth=6.87"
Tc=1.0 min CN=98 Runoff=1.04 cfs 0.098 af

Subcatchment B: B Runoff Area=3,592 sf 0.00% Impervious Runoff Depth=0.40"
Flow Length=131' Tc=7.1 min CN=33 Runoff=0.00 cfs 0.003 af

Pond DP1: DP1 Peak Elev=177.61' Storage=9,414 cf Inflow=7.08 cfs 0.809 af
Primary=1.20 cfs 0.808 af Secondary=0.00 cfs 0.000 af Outflow=1.20 cfs 0.808 af

Pond RD1: RD1 Peak Elev=186.29' Inflow=4.30 cfs 0.405 af
12.0" Round Culvert n=0.012 L=170.0' S=0.0265 '/' Outflow=4.30 cfs 0.405 af

Pond RD2: RD2 Peak Elev=185.03' Inflow=1.04 cfs 0.098 af
12.0" Round Culvert n=0.012 L=375.0' S=0.0187 '/' Outflow=1.04 cfs 0.098 af

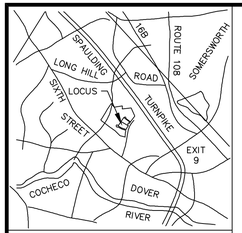
Total Runoff Area = 2.321 ac Runoff Volume = 0.811 af Average Runoff Depth = 4.19"
39.42% Pervious = 0.915 ac 60.58% Impervious = 1.406 ac

APPENDIX B

WATERSHED PLANS

B – 1

PRE-DEVELOPED CONDITIONS



LOCATION PLAN
(NO SCALE)

HEINE USA
10 INNOVATION WAY
DOVER, NH 03820
3410 / 510
SCRD PLAN 86-73

6" PVC (RD)

12" RCP

6" PVC (RD)

RIPRAP SWALE

INV. = 176.24

12"ø RCP

INV. =176.10

CB RIM =178.50

INV. =175.97

CB RIM =178.43

RIPRAP SWALE

12"ø ADS
INV. OUT = 184.04

CONCRETE WALK

DISCHARGE PT. B

EMERGENCY SPILLWAY

EDGE OF PAVEMENT

EXISTING DETENTION POND
BOTTOM ELEVATION = 175.5±

EXISTING SWALE

CONCRETE PAD

ASPHALT DRIVE AND LOADING BAYS

GIB

EXISTING
1 STORY STEEL FRAME
LIGHT MANUFACTURING
BUILDING
30,800 S.F.
F.F. = 188.6'

CONCRETE WALK

ASPHALT WALK

ASPHALT WALK

D / 11-1

DBIDA
288 CENRAL AVENUE
DOVER, NH 03820
4368 / 961

DISCHARGE PT. A

INV. =175.28

INV.=175.47

6"ø ADS CULVERT

CONCRETE PAD

ASPHALT WALK

SMH A

GsC

SMH B

CB RIM =174.25

DMH RIM = 174.25

VENTURE DRIVE

D/11-3

MERCHANDISE CENTRAL, LLC
111 VENTURE DRIVE
DOVER, NH 03820
4422 / 309

DMH RIM = 173.22

CB RIM =172.35

D / 11-8

DBIDA
288 CENRAL AVENUE
DOVER, NH 03820
1559 / 394

QUALITY WAY

D / 11-7

DBIDA
288 CENRAL AVENUE
DOVER, NH 03820
1559 / 394

D / 11-6

DBIDA
288 CENRAL AVENUE
DOVER, NH 03820
1559 / 394

D / 11-5

DENNIS CIOTTI, TRUSTEE
DENNIS CIOTTI REVOCABLE TRUST
P.O. Box 757
DOVER, NH 03821
3758 / 50

D / 14-4

CHURCHILL MEDICAL SYSTEMS, INC.
ADVANCED MEDICAL, INC.
935 HORSHAM ROAD, SUITE M
HORSHAM, PA 19044-1230
1951 / 542

NH STATE PLANE
NAD 83 - GPS OBS.

LEGEND:

- EX 2' CONTOUR
- EX 10' CONTOUR
- EDGE OF PAVEMENT
- EDGE OF TREELINE
- SOIL BOUNDARY
- **SUBCATCHMENT BOUNDARY**
- **LONGEST FLOW PATH WITH DIRECTION OF FLOW**
- (B) **SUBCATCHMENT DESIGNATION**
- **GsC** **SOIL DESIGNATION**

PRE-DEVELOPMENT WATERSHED CHARACTERISTICS

SUBCATCHMENT DESIGNATION	AREA (ACRES)	LONGEST FLOW PATH (FEET)	Tc (MIN)
A1	0.70	80	10.4
A2	0.73	372	7.4
A3	0.71	104	1.0
B	0.17	186	11.4

SOILS DATA

HYDROLOGIC DRAINAGE CLASS C:

GIB – GLOUCESTER FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES
GsC – GLOUCESTER VERY STONY FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P21-

NO.	REVISION	APP'D	DATE

DATE: 10-11-21
SCALE: 1"=40'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:21043
FILE: SITE.DWG

CIVILWORKS NEW ENGLAND
CIVIL & WATERFRONT ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

PRE-DEVELOPMENT WATERSHED PLAN

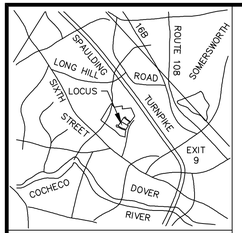
QUALITY WAY, LLC
55 MAIN STREET, UNIT 407
NEWMARKEY, NH 03857

BUILDING ADDITION
1 QUALITY WAY
DOVER, NH

WS1

B – 2

POST-DEVELOPED CONDITIONS



LOCATION PLAN
(NO SCALE)

HEINE USA
10 INNOVATION WAY
DOVER, NH 03820
3410 / 510
SCRD PLAN 86-73

6" PVC (RD)

12" RCP

6" PVC (RD)

DISCHARGE PT. B

DISCHARGE PT. A

EMERGENCY SPILLWAY

EXISTING DETENTION POND
BOTTOM ELEVATION = 175.5±

EXISTING SWALE

INV. =175.50

INV.=175.67

6"ø ADS CULVERT

EDGE OF PAVEMENT

CONCRETE PAD

ASPHALT DRIVE AND LOADING BAYS

CONCRETE PAD

GIB

EXISTING
1 STORY STEEL FRAME
LIGHT MANUFACTURING
BUILDING
30,800 S.F.
F.F. = 188.6'

ASPHALT WALK

ASPHALT WALK

CONCRETE WALK

CONCRETE WALK

ASPHALT WALK

SMH A

GsC

SMH B

RIPRAP SWALE

INV. = 176.24

INV. =176.10

INV. =175.97

RIPRAP SWALE

CB RIM =178.50

CB RIM =178.43

CB RIM =174.25

DMH RIM = 174.25

DMH RIM = 173.22

CB RIM =172.35

VENTURE DRIVE

QUALITY WAY

D / 11-1
DBIDA
288 CENRAL AVENUE
DOVER, NH 03820
4368 / 961

D / 11-3
MERCHANDISE CENTRAL, LLC
111 VENTURE DRIVE
DOVER, NH 03820
4422 / 309

D / 11-8
DBIDA
288 CENRAL AVENUE
DOVER, NH 03820
1559 / 394

D / 11-7
DBIDA
288 CENRAL AVENUE
DOVER, NH 03820
1559 / 394

D / 11-6
DBIDA
288 CENRAL AVENUE
DOVER, NH 03820
1559 / 394

D / 11-5
DENNIS CIOTTI, TRUSTEE
DENNIS CIOTTI REVOCABLE TRUST
P.O. Box 757
DOVER, NH 03821
3758 / 50

D / 14-4
CHURCHILL MEDICAL SYSTEMS, INC.
ADVANCED MEDICAL, INC.
935 HORSHAM ROAD, SUITE M
HORSHAM, PA 19044-1230
1951 / 542

LEGEND:

- EX 2' CONTOUR
- EX 10' CONTOUR
- EDGE OF PAVEMENT
- EDGE OF TREELINE
- SOIL BOUNDARY
- **PROPOSED EDGE OF PAVEMENT**
- **PROPOSED TREELINE**
- **SUBCATCHMENT BOUNDARY**
- **LONGEST FLOW PATH WITH DIRECTION OF FLOW**
- (1) **SUBCATCHMENT DESIGNATION**
- **GsC SOIL DESIGNATION**
- RD **PROPOSED ROOFDRAIN**

POST-DEVELOPMENT WATERSHED CHARACTERISTICS

SUBCATCHMENT DESIGNATION	AREA (ACRES)	LONGEST FLOW PATH (FEET)	Tc (MIN)
A1	0.73	80	10.4
A2	0.63	398	7.4
A3	0.71	104	1.0
A4	0.17	20	1.0
B	0.08	131	7.1

SOILS DATA

HYDROLOGIC DRAINAGE CLASS C:

GIB – GLOUCESTER FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES
GsC – GLOUCESTER VERY STONY FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES

NH STATE PLANE NAD 83 - GPS OBS.

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P21-

NO.	REVISION	APP'D	DATE

DATE: 10-11-21
SCALE: 1"=40'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:21043
FILE: SITE.DWG

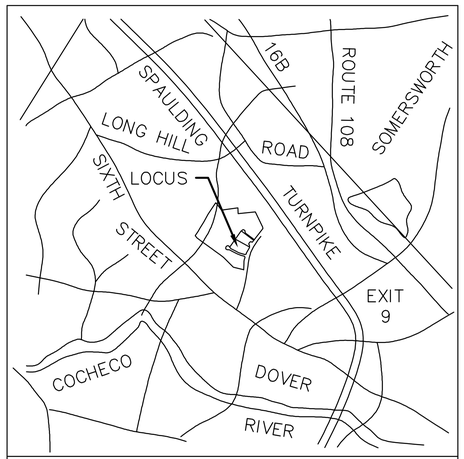
CIVILWORKS NEW ENGLAND
CIVIL & WATERFRONT ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

POST-DEVELOPMENT WATERSHED PLAN

QUALITY WAY, LLC
55 MAIN STREET, UNIT 407
NEWMARKEY, NH 03857

BUILDING ADDITION
1 QUALITY WAY
DOVER, NH

WS2



LOCATION PLAN
(NO SCALE)

Q, LLCSITE PLAN

FOR

AN ADDITION ON EXISTING MANUFACTURING FACILITY

TAX MAP D, LOT 11-4

1 QUALITY WAY & VENTURE DRIVE

DOVER, NH

OCTOBER 15, 2021

OWNER
QUALITY WAY, LLC
55 MAIN STREET, UNIT 407
NEWMARKET, NH 03857

_____ _____
DATE

APPLICANT
Q, LLC
4 CUTTS ROAD, UNIT 3
PORTSMOUTH, NH 03801

_____ _____
DATE

SITE CIVIL ENGINEER
CIVILWORKS NEW ENGLAND
CIVIL & WATERFRONT ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

LAND SURVEYOR
MCENEANEY SURVEY ASSOCIATES OF NEW ENGLAND
P.O. BOX 681
24 CHESTNUT STREET
DOVER, NH 03820
(603) 742-0911

ARCHITECT
MAUGEL ARCHITECTS
200 AYER ROAD, SUITE 200
HARVARD, MA 01451
(978)458-2800

WETLAND SCIENTIST
DAMON E. BURT, CWS
FRAGGLE ROCK ENVIRONMENTAL
38 GARLAND ROAD
STRAFFORD, NH 03884
(603) 969-5574

SHEET INDEX	SHEET
COVER SHEET	1
NEIGHBORHOOD PLAN	2
EXISTING CONDITIONS PLAN (BY MCENEANEY SURVEY)	3
NOTE SHEET	4
DEMOLITION PLAN	5
SITE & UTILITY PLAN	6
GRADING, DRAINAGE & EROSION CONTROL PLAN	7
EROSION CONTROL NOTES	8
EROSION CONTROL DETAILS	9
DETAIL SHEET	10
LIGHTING PLAN	11
DOVER LADDER TRUCK MOVEMENT PLAN	12
ARCHITECTURAL FLOOR PLAN	-
STREET SCAPE PLAN	-

PLANNING FILE NO.: P21-



ABUTTERS LIST
(WITHIN 200 FT)

TAX MAP	LOT NO.	NAME & ADDRESS
D 11-004	D 11-004	QUALITY WAY, LLC 55 MAIN STREET, UNIT 407 NEWMARKET, NH 03857
D 11-005	D 11-005	COTTO DENNIS TRUSTEE, CIOTTI DENNIS REVOCABLE TRUST P.O. BOX 757 DOVER, NH 03821
D 11-006	D 11-006	DOVER BUSINESS & IND DEV AUTHORITY, F/K/A/ DOVER IND DEV AUTHORITY 288 CENTRAL AVE. DOVER, NH 03820
D 11-007	D 11-007	DOVER BUSINESS & IND DEV AUTHORITY, F/K/A/ DOVER IND DEV AUTHORITY 288 CENTRAL AVE. DOVER, NH 03820
D 11-008	D 11-008	DOVER BUSINESS & IND DEV AUTHORITY, F/K/A/ DOVER IND DEV AUTHORITY 288 CENTRAL AVE. DOVER, NH 03820
D 11-001	D 11-001	DOVER BUSINESS & IND DEV AUTHORITY, F/K/A/ DOVER IND DEV AUTHORITY 288 CENTRAL AVE. DOVER, NH 03820
D 11-009	D 11-009	HEINE USA 10 INNOVATION WAY DOVER, NH 03820
D 11-003	D 11-003	MERCHANDISE CENTRAL LLC 111 VENTURE DRIVE DOVER, NH 03820
D 14-004	D 14-004	CHURCHILL MEDICAL SYSTEMS INC. ADVANCED MEDICAL INC 2750 MORRIS RD #A200 LANSDALE, PA 19446-6083

D / 11-004 — TAX MAP / LOT NUMBER

MAGNETIC

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P21_

CIVILWORKS NEW ENGLAND
CIVIL & WATERFRONT ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

NO.	REVISION	APP'D	DATE

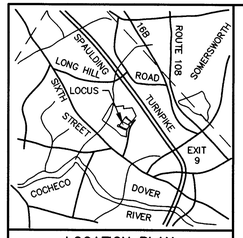
DATE: XXX
SCALE: 1"=200'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:JH
PROJECT NO: 21043
FILE: SITE.DWG

NEIGHBORHOOD PLAN

BUILDING ADDITION
1 QUALITY WAY
DOVER, NH

QUALITY WAY, LLC
55 MAIN STREET, UNIT 407
NEWMARKEY, NH 03857

2



LOCATION PLAN
(NO SCALE)

LEGEND

S.F. – SQUARE FEET
Ac. – ACRE
(TYP.) – TYPICAL
± – MORE OR LESS
ø – DIAMETER
S.C.R.D. – STRAFFORD COUNTY REGISTRY OF DEEDS
UP – UTILITY POLE
S – SEWER MANHOLE
– WATER GATE VALVE
– WATER SHUT OFF (CURB STOP)
UGE – UNDERGROUND ELECTRIC
UGU – UNDERGROUND UTILITIES
G – GAS LINE
RCP – REINFORCED CONCRETE PIPE
TBM – TEMPORARY BENCH MARK
– SIGN
CB – CATCH BASIN
SGC – SLOPED GRANITE CURB
I.R.(fnd) – IRON ROD FOUND
48 – CONTOUR LINE (2 FOOT INTERVAL)
– ROW OF ARBORVITAE

I.R.(fnd)
N – 265008.10
E – 1185524.80

D / 11-9
HEINE USA
10 INNOVATION WAY
DOVER, NH 03820
3410 / 510
SCRD PLAN 86-73

S71°54'43"E 595.01'

I.R.(fnd)

RIPRAP SWALE

ASPHALT PARKING
32 SPACES (1 HC)

12"ø RCP

CONCRETE WALK

12"ø ADS
INV. OUT = 184.04

RIPRAP SWALE

EMERGENCY SPILLWAY

EDGE OF PAVEMENT

D / 11-4

PARCEL AREA
217,889S.F.
5.00 Ac.

1 STORY STEEL
FRAME BUILDING
30,800 S.F.
F.F. = 188.6'

CONCRETE PAD

ASPHALT DRIVE AND LOADING BAYS

4 PARKING SPACES

ASPHALT PARKING
32 SPACES (2 HC)

CONCRETE WALK

ASPHALT WALK

S17°46'42"W 168.05'

NORTH VENTURE DRIVE

D / 11-1
DBIDA
288 CENRAL AVENUE
DOVER, NH 03820
4368 / 961

N18°05'17"E 361.60'

EXISTING SWALE

EXISTING DETENTION POND
BOTTOM ELEVATION = 175.5±

6"ø ADS
CULVERT

CONCRETE PAD

ASPHALT WALK

SMH A

SMH B

N – 264664.36
E – 1185412.53

D / 11-8
DBIDA
288 CENRAL AVENUE
DOVER, NH 03820
1559 / 394

195.05'
N71°54'43"W

148.76'
N84°54'43"W

C4

C5

QUALITY WAY

UGU

D / 11-7
DBIDA
288 CENRAL AVENUE
DOVER, NH 03820
1559 / 394

D / 11-6
DBIDA
288 CENRAL AVENUE
DOVER, NH 03820
1559 / 394

D / 11-5
DENNIS CIOTTI, TRUSTEE
DENNIS CIOTTI REVOCABLE TRUST
P.O. Box 757
DOVER, NH 03821
3758 / 50

SMH A
RIM = 187.08
INV. 6" PVC IN = 181.75 (DROP) FROM BUILDING
INV. 6" PVC OUT = 172.00 TO SMH B

SMH B
RIM = 177.56
INV. 6" PVC IN = 171.91 (DROP) FROM SMH A
INV. 6" PVC OUT = 164.46 TO QUALITY WAY

D/11-8
MERCHANDISE CENTRAL, LLC
111 VENTURE DRIVE
DOVER, NH 03820
4422 / 309

D / 14-4
CHURCHILL MEDICAL SYSTEMS, INC.
ADVANCED MEDICAL, INC.
935 HORSHAM ROAD, SUITE M
HORSHAM, PA 19044-1230
1951 / 542

NH STATE PLANE NAD 83 - GPS OBS.

NOTES:

1.) OWNERS OF RECORD:
QUALITY WAY, LLC
55 MAIN STREET, UNIT 407
NEWMARKET, NEW HAMPSHIRE 03857
S.C.R.D. VOL. 3973, PAGE 254

2.) D / 11-4 – DENOTES TAX MAP AND PARCEL NUMBER.

3.) THE INTENT OF THIS PLAN IS TO DEPICT THE EXISTING CONDITIONS OF TAX MAP D, LOT 11-4.

4.) ZONING DISTRICT IS IT (INNOVATIVE TECHNOLOGY)
MINIMUM LOT SIZE = 2 ACRES
MINIMUM FRONTAGE = 200 FEET
BUILDING SETBACK REQUIREMENTS:
FRONT = 50 FEET
SIDE = 50 FEET
REAR = 50 FEET
MAXIMUM LOT COVERAGE = 33 PERCENT
MAXIMUM BUILDING HEIGHT = 55 FEET

REFERENCE IS MADE TO DOVER ZONING CHAPTER 170, WITH REGARDS TO ZONING OVERLAY DISTRICTS AND ORDINANCES.

7.) VERTICAL DATUM IS USGS NAVD88. CONTOUR INTERVAL IS 2 FEET.

8.) NO WETLANDS WERE FOUND ON THE SUBJECT PARCEL PER REFERENCE PLANS #1 & #3, AND VERIFIED BY DAMON E. BURT, N.H.C.W.S. #163 OF FRAGGLE ROCK ENVIRONMENTAL SERVICES ON JULY 18, 2021.

9.) THE SUBJECT PARCEL IS LOCATED OUTSIDE OF THE 0.2 PERCENT ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY NUMBER 330145; PANEL 0310; SUFFIX E; MAP NUMBER 33017C0310E; EFFECTIVE DATE SEPTEMBER 30, 2015.

REFERENCE PLANS:

1.) SUBDIVISION OF LAND PREPARED FOR DOVER INDUSTRIAL DEVELOPMENT AUTHORITY, TAX MAP H, LOT No. 11-1, VENTURE DRIVE, DOVER, STRAFFORD COUNTY, NEW HAMPSHIRE. SCALE: 1" = 100'; DATED: FEBRUARY 28, 2005; BY THIS OFFICE. RECORDED S.C.R.D. PLAN 79-87.

2.) SUBDIVISION PLAN – DOVER INDUSTRIAL DEVELOPMENT AUTHORITY – SIXTH STREET / LONG HILL ROAD EXT., DOVER, NEW HAMPSHIRE. SCALE: 1" = 100'; DATED: JANUARY 17, 1992; BY: TERRASCAN. RECORDED S.C.R.D. PLAN 41-91 + 41-92.

3.) AMENDED SUBDIVISION AND LOT LINE ADJUSTMENT PLAN PREPARED FOR GEORGE J. FOSTER & Co., INC. AND DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY, TAX MAP D, LOT Nos. 9A & 11-1, VENTURE DRIVE AND QUALITY WAY, DOVER, STRAFFORD COUNTY, NEW HAMPSHIRE. SCALE: 1" = 100'; DATED: FEBRUARY 14, 2006, REVISED THROUGH 5/3/06; BY THIS OFFICE. RECORDED S.C.R.D. PLANS 85-99 & 85-100.

4.) ROADWAY AS-BUILT PLAN & PROFILE PREPARED FOR DOVER INDUSTRIAL DEVELOPMENT AUTHORITY, QUALITY WAY AT VENTURE DRIVE, DOVER, STRAFFORD COUNTY, NEW HAMPSHIRE; SCALE: 1" = 400/4; DATED: JANUARY 16, 2006, REVISED THROUGH 3/18/06; BY: McENEANEY SURVEY ASSOCIATES, INC.; ON FILE WITH THE CITY OF DOVER.

5.) AS-BUILT PLAN, HEINE USA, LTD., LOT 11-9, TAX ASSESSOR'S MAP "D", VENTURE DRIVE, DOVER, NEW HAMPSHIRE, COUNTY OF STRAFFORD; SCALE: 1" = 30'; DATED: 5-31-07, REVISED THROUGH 4/3/08; BY: CIVILWORKS; ON FILE WITH THE CITY OF DOVER.

NO.	DATE	DESCRIPTION	BY	CHK
		REVISIONS		

21-1595	EXIST.COND.	21-09	18-28
PROJECT NO	TYPE	FIELDBOOK & PAGES	

No.	Central Angle	Radius	Arc Length	Chord Length	Chord Bearing
C1	23°12'25"	100.00'	40.50'	40.23'	S06°10'29"W
C2	4°38'34"	930.00'	75.36'	75.34'	S15°27'25"W
C3	81°59'02"	35.00'	50.08'	45.92'	S54°05'46"W
C4	13°00'00"	847.69'	192.33'	191.92'	N78°24'43"W
C5	30°00'00"	100.00'	52.36'	51.76'	N56°54'43"W

"I HEREBY CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL GROUND SURVEY PERFORMED WITH A TOTAL STATION, BY ME OR THOSE UNDER MY DIRECT SUPERVISION AND THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, SAID SURVEY MEETS OR EXCEEDS THE MINIMUM PRECISION REQUIREMENTS FOR SURVEY CLASSIFICATION "U" AS SET FORTH IN TABLE 500.1 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS."

SHEET 3

EXISTING CONDITIONS PLAN
PREPARED FOR
Q, LLC
TAX MAP D, LOT No. 11-4
1 QUALITY WAY
CITY of DOVER
COUNTY of STRAFFORD
STATE of NEW HAMPSHIRE

DOVER PLANNING FILE No. P 21-

DRAWN BY: KJF	FILE: MSA\1595\DWG\21-1595
SCALE: 1" = 40'	DATE: SEPTEMBER 27, 2021

40 20 0 20 40 80 120 160

STATE OF NEW HAMPSHIRE – LICENSED LAND SURVEYOR – No. 661 – KEVIN M. McENEANEY – SIGNATURE

McEneaney Survey Associates of NEW ENGLAND
P.O. Box 681 – 24 CHESTNUT STREET
DOVER, NH 03820 (603) 742-0911

SURVEYING – PLANNING – CONSULTING

SITE NOTES

1.) OWNERS OF RECORD:
QUALITY WAY, LLC
55 MAIN STREET, UNIT 407
NEWMARKET, NH 03857

2.) D/11-4 – DENOTES TAX MAP AND PARCEL NUMBER.

3.) THE INTENT OF THIS PLAN IS TO DEPICT THE EXISTING CONDITIONS OF TAX MAP D, LOT 11-4.

4.) ZONING DISTRICT IS IT (INNOVATIVE TECHNOLOGY)
MINIMUM LOT SIZE = 2 ACRES
MINIMUM FRONTAGE = 200 FEET
BUILDING SETBACK REQUIREMENTS:
FRONT = 50 FEET
SIDE = 50 FEET
REAR = 50 FEET
MAXIMUM LOT COVERAGE = 33 PERCENT
MAXIMUM BUILDING HEIGHT = 55 FEET

5.) VERTICAL DATUM IS USGS NAVD88. CONTOUR INTERVAL IS 2 FEET.

6.) NO WETLANDS WERE DELINEATED ON THE SUBJECT PARCEL PER REFERENCE PLANS #1 & #3 AND VERIFIED BY DAMMON BURT, FRAGGLE ROCK ENVIRONMENTAL ON 7-18-21.

7.) THE SUBJECT PARCEL IS LOCATED OUTSIDE OF THE 0.2 PERCENT ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY NUMBER 330145; PANEL 0310; SUFFIX E; MAP NUMBER 33017C0310E; EFFECTIVE DATE SEPTEMBER 30, 2015.

DEMOLITION NOTES:

1. COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
2. ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO MATCH ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
3. THE CONTRACTOR SHALL NOTIFY "DIG SAFE" PRIOR TO ANY DEMOLITION/ CONSTRUCTION ACTIVITIES. (811).
4. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, UTILITIES AND PAVEMENT ON THE SITE TO THE LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN.
5. IT IS THE CONTRACTORS RESPONSIBILITY TO FAMILIARIZE HIMSELF WITH THE CONDITIONS OF ALL OF THE PERMIT APPROVALS.
6. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS NOT ALREADY OBTAINED BY THE OWNER AND ARRANGE AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK, EXCEPT FOR WORK NOTED TO BE COMPLETED BY OTHERS.
8. THE LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATION IS NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK.
9. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES, AND CODES.
10. ALL EROSION CONTROL NOTES SHALL INCLUDE PROVISIONS FOR CONSTRUCTION SEQUENCING, TEMPORARY EROSION CONTROL MEASURES, AND PERMANENT STANDARDS SUCH AS LOAM SPREAD RATE FOR DISTURBED AREAS, RATES OF LIME, TYPE AND RATES FOR FERTILIZER, AND SEED AND MULCH MIXTURE WITH RATES OF APPLICATION.

PERMIT SUMMARY:

1. THE FOLLOWING FEDERAL AND STATE PERMITS HAVE BEEN ISSUED FOR THE SUBJECT PROPERTY: N/A
2. LIST ANY VARIANCES OR SPECIAL EXCEPTIONS GRANTED BY THE ZONING BOARD OF ADJUSTMENT OR CONDITIONAL USE PERMITS GRANTED BY THE PLANNING BOARD FOR THE PROPOSED USE OR STRUCTURE, INCLUDING THE CASE NUMBER AND DATE OF DECISION AND ANY CONDITIONS: N/A
CONDITIONAL USE PERMIT: N/A
3. SITE REVIEW PERMIT: PENDING

WAIVERS GRANTED:

1. SITE REVIEW REGULATION SECTION 153-15D
– RELIEF FROM PROVIDING LANDSCAPE PLAN

SITE NOTES

1. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A PLAN REFERENCED AND PREPARED BY MCENEANEY SURVEY ASSOCIATES OF NEW ENGLAND (SEE EXISTING CONDITIONS PLAN IN THIS PLAN SET).
2. THE PURPOSE OF THIS PLAN IS TO DEPICT IMPROVEMENTS ASSOCIATED WITH A 7,400 S.F. ADDITION TO THE EXISTING LIGHT MANUFACTURING FACILITY BUILDING AND ASSOCIATED SITE IMPROVEMENTS.
3. EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 153-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.
4. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO APPLICABLE CITY AND STATE CODES.
5. ON-SITE SNOW STORAGE SHALL OCCUR ALONG THE EDGES OF PROPOSED PAVEMENT.
6. ALL CONSTRUCTION LAYOUT SHALL BE DONE BY A LICENSED SURVEYOR UNDER CONTRACT WITH THE CONTRACTOR.
7. SEE DETAILS FOR SIGN LEGENDS.
8. ALL PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", THE "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS, AND THE AMERICAN WITH DISABILITIES ACT, LATEST EDITIONS.
9. THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE CONSTRUCTION PROCEDURES AND SEQUENCE TO ENSURE THE SAFETY OF THE FACILITIES AND THEIR COMPONENTS DURING DEMOLITION AND CONSTRUCTION UNLESS OTHERWISE DIRECTED BY THE OWNERS REPRESENTATIVE. THIS INCLUDES THE ADDITION OF NECESSARY SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIE-DOWNS. SUCH MATERIALS SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AT THE COMPLETION OF THE PROJECT.
10. METHODS OF DEMOLITION, CONSTRUCTION AND ERECTION ARE THE CONTRACTOR'S RESPONSIBILITY UNLESS OTHERWISE SPECIFIED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE AND MAINTAIN ENVIRONMENTAL CONTROLS AS REQUIRED BY FEDERAL, STATE AND MUNICIPAL REGULATIONS AND PERMITS. ENVIRONMENTAL CONTROLS SHALL INCLUDE BUT SHALL NOT BE LIMITED TO DUST CONTROL AND SILT BARRIERS.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE DONE TO STRUCTURES OR UTILITIES OR INJURIES TO THE PUBLIC DURING THE CONSTRUCTION PHASE CAUSED BY HIMSELF, HIS EMPLOYEES, HIS SUBCONTRACTORS OR EMPLOYEES OF SAME. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TEMPORARY FACILITIES FOR THE PROTECTION OF THE WORK, WORKERS AND PUBLIC SAFETY.
12. BUILDING ADDRESSES TO BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.
13. THE SITE LAYOUT IS DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS AND NH RSA 155-A:5. THE PROPOSED STRUCTURE WILL ALSO BE DESIGNED IN ACCORDANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS.
14. THE SITE SHALL BE MAINTAINED TO PROVIDE ACCESSIBILITY IN ALL WEATHER CONDITIONS.
15. COMMERCIAL VEHICLE ROUTE DURING CONSTRUCTION SHALL CONFORM WITH DOVER CITY CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR.
16. THE SUBJECT PARCEL(S) IS (ARE) SERVED BY MUNICIPAL WATER AND SEWER.
17. THE LIMITS OF CONSTRUCTION DISTURBANCE THAT ARE LOCATED IN OR WITHIN THE 50 FT. OF CONSERVATION AND WETLAND DISTRICTS SHALL BE STAKED, FLAGGED AND CLEARLY IDENTIFIED PRIOR TO ANY EARTH DISTURBANCE ACTIVITY OCCURRING.
18. AS-BUILT PLANS OF THE SITE SHALL BE SUBMITTED ON PAPER AND IN A DIGITAL FORMAT IN PDF AND AUTOCAD DWG, AUTOCAD DXF OR AN ESRI FORMAT TO THE CITY OF DOVER ENGINEER'S OFFICE UPON COMPLETION OF PROJECT. AS-BUILT PLANS SHALL BE PREPARED AND CERTIFIED CORRECT BY A L.L.S. OR P.E. DIGITAL FILES SHALL BE GEO-REFERENCED TO NEW HAMPSHIRE STATE PLANE COORDINATES NAD83 AND SHALL BE EXPRESSED IN FEET.
19. SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY-FRIDAY 7 AM-6 PM, SATURDAY 9 AM-4 PM. HOURS OF CONSTRUCTION MUST BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. SAID SIGNAGE MUST BE LOCATED AND APPROVED BY THE CITY ENGINEER OR ASSISTANT CITY MANAGER.
20. A PRE-CONSTRUCTION CONFERENCE WITH THE DEVELOPER, THE DESIGN ENGINEER, THE EARTHWORK CONTRACTOR AND THE CITY ENGINEER SHALL OCCUR PRIOR TO ANY EARTH DISTURBING ACTIVITY.
21. ALL CONSTRUCTION SHALL CONFORM WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION (NHDOT) "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AND WITH THE CITY OF DOVER COMMUNITY SERVICES REGULATIONS AND STANDARD SPECIFICATION FOR CONSTRUCTION. THE MORE STRINGENT SPECIFICATION SHALL APPLY.
22. ANY RETAINING WALL TALLER THAN FOUR FEET (4') REQUIRES ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
23. ANY FENCE TALLER THAN SEVEN FEET (7') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
24. APPLICANT SHALL COMPLETE LAND USE DEVELOPMENT TRACKING FORM, MOST RECENTLY REVISED VERSION, UTILIZING THE ONLINE POLLUTION TRACKING AND ACCOUNTING PILOT PROJECT (PTAPP) PORTAL.
HTTP://WWW.UNH.EDU/UNHSC/PTAPP.
25. A LETTER OF CREDIT FOR THE COST OF REVEGETATING ALL DISTURBED AREAS ON THE SITE SHALL BE SUBMITTED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS.
26. THE OWNER OF RECORD SHALL RECORD AT THE REGISTRY OF DEEDS DOCUMENTATION SUFFICIENT TO PROVIDE NOTICE TO ALL PERSONS/ENTITIES THAT MAY ACQUIRE ANY PROPERTY SUBJECT TO THE REQUIREMENTS AND RESPONSIBILITIES DESCRIBED IN THE APPROVED STORMWATER MANAGEMENT PLAN, THE NOTICE SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS FOR RECORDING CONTAINED IN RSA 477 AND 478. THE NOTICE NEED NOT SET FORTH THE REQUIREMENTS AT LENGTH, SO LONG AS IT IS SUFFICIENT TO PROVIDE NOTICE TO PROSPECTIVE PURCHASERS TO THE REQUIREMENTS FOR MAINTENANCE AND REPORTING.
27. FIRE DEPARTMENT ACCESS SHALL BE INSTALLED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF FIRE APPARATUS IN ALL WEATHER CONDITIONS AT ALL TIMES.
28. REFUSE PICKUP WILL BE BY PRIVATE CONTRACTOR AND WILL BE VIA DUMPSTER ON-SITE.
29. SNOW STORAGE WILL BE ACCORDING TO THE OPERATION AND MAINTENANCE PLAN AND WITHIN AREAS AS INDICATED.
30. ALL EXTERIOR DOORS ARE MANUAL AND OPENED FROM THE INTERIOR BY PANIC HARDWARE. ALL EXTERIOR DOORS SHALL COMPLY WITH ADA AND ALL LOCAL BUILDING CODE REQUIREMENTS.

UTILITY NOTES

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES, AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
2. SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
3. THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION AND TELEPHONE LINES SHALL BE UNDERGROUND THROUGHOUT THE SITE FOR WHICH DEVELOPMENT IS PROPOSED. SITE PLANS SHALL SHOW ANY EASEMENTS FOR THESE SERVICES.
4. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
5. THE SUBJECT PARCEL(S) IS (ARE) SERVED BY MUNICIPAL WATER AND SEWER.
6. SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
7. ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, DOUBLE CEMENT LINED DUCTILE IRON PIPE OR TYPE "K" COPPER, OR CITY APPROVED MATERIAL.
8. ALL WATER MAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION PRIOR TO ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE CHLORINATION AND TESTING WITH THE CITY OF DOVER WATER DEPARTMENT.
9. ALL GRAVITY SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE NOTED AND CONFORM TO THE REQUIREMENTS OF THE CITY OF DOVER SEWER DEPARTMENT STANDARDS.
10. EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE CITY OF DOVER COMMUNITY SERVICES DEPARTMENT 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 THE BUILDING DRAWINGS AND THE UTILITY COMPANIES.
13. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
14. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO THE COMPLETION OF THIS PROJECT.
15. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES, AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
16. CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES. COORDINATE WITH GAS COMPANY.
17. A 10-FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18-INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS.
18. THE CONTRACTOR SHALL CONTACT "DIG-SAFE" 72 HOURS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL HAVE THE "DIG-SAFE" NUMBER ON SITE AT ALL TIMES.
19. SAWCUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN
20. GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF DOVER.
21. COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF DOVER.
22. CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK INCLUDING BUT NOT LIMITED TO: CONDUIT CONSTRUCTION, MANHOLE CONSTRUCTION, UTILITY POLE CONSTRUCTION, OVERHEAD WIRE RELOCATION, AND TRANSFORMER CONSTRUCTION WITH POWER COMPANY.
23. CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION, PARTICULARLY WATER MAIN AND GAS MAIN CONSTRUCTION AS TO MAINTAIN CONTINUOUS SERVICE TO ABUTTING PROPERTIES. CONTRACTOR SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH THE UTILITY COMPANY AND AFFECTED ABUTTER.
24. SITE LIGHTING SPECIFICATIONS, CONDUIT LAYOUT AND CIRCUITRY FOR PROPOSED SITE LIGHTING AND SIGN ILLUMINATION SHALL BE PREPARED BY THE PROJECT ELECTRICAL ENGINEER.
25. APPROVED BACKFLOW PREVENTORS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.
26. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE CITY AND STATE CODES.
27. A SECURITY ALARM SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 58, ARTICLE I, SECTION 58-2 OF THE CODE OF THE CITY OF DOVER.
28. THE PROPOSED STRUCTURE SHALL COMPLY WITH CHAPTER 81, ARTICLE IV, SECTION 81-27 AND THE STATE BUILDING CODES OF THE CODE OF THE CITY OF DOVER.
29. FINAL PLANS FOR TANK LOCATIONS, DISTRIBUTION SYSTEMS, AND CROSS SECTIONS ASSOCIATED WITH THE FUEL BAYS, SHALL BE PROVIDED TO THE CITY OF DOVER ENGINEER PRIOR TO CONSTRUCTION.
30. FIRE SUPPRESSION PLANS SHALL BE PROVIDED TO THE FIRE/INSPECTION DEPARTMENT PRIOR TO INSTALLATION.
31. THE STRUCTURE SHALL BE SERVED BY A SPRINKLER SYSTEM AS REQUIRED UNDER CHAPTER 81-30 OF THE CODE OF THE CITY OF DOVER AND THE ADOPTED STATE OF NEW HAMPSHIRE BUILDING & FIRE CODE.
32. SPRINKLER CONNECTIONS MUST BE FLUSHED IN ACCORDANCE WITH NFPA 24 AND A CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING FORM MUST BE COMPLETED.
33. FIRE DEPARTMENT CONNECTIONS SHALL BE LOCATED ON THE STREET SIDE OF THE BUILDING PER NFPA 13.
34. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.
35. SEWAGE LOADING: NO CHANGE TO CURRENT SEWER LOADING

GRADING NOTES:

1. ALL ROAD DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS FOR CONSTRUCTION OF THE CITY OF DOVER, N.H. AND "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION", LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL APPLY.
2. CONTRACTOR SHALL RETAIN A GEOTECHNICAL ENGINEERING CONSULTANT APPROVED BY THE OWNER, TO CONDUCT COMPACTION TESTING AND FILL GRADATION MONITORING PER THE ABOVE REFERENCED "STANDARD SPECIFICATIONS".
3. SEE EROSION CONTROL NOTES & DETAIL SHEET FOR TEMPORARY AND PERMANENT EROSION CONTROL MEASURES.
4. ALL DRAINAGE PIPES SHALL BE HDPE OR APPROVED EQUAL UNLESS OTHERWISE NOTED.
5. ALL DISTURBED AREAS NOT OTHERWISE CALLED FOR SURFACE TREATMENT SHALL RECEIVE 6" OF HIGH QUALITY LOAM AND SHALL BE SEEDED WITH GRASS.
6. ALL SITEWORK CONSTRUCTION SHALL BE ADVANCED USING "BEST MANAGEMENT PRACTICES" SANCTIONED BY THE USDA SCS AND NHDES.
7. TEMPORARY CONSTRUCTION ENTRANCE SHALL BE INSTALLED, UTILIZED AND MAINTAINED UNTIL BASE MATERIALS ARE CONSTRUCTED.
8. CONTRACTOR SHALL PROVIDE A FINISH GRADED SURFACE FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCE AND UNDER RAISED STRUCTURES.
9. DENSITY REQUIREMENTS:

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

*ALL PERCENTAGES SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH AASHTO STANDARD 180, METHOD C. FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH AASHTO STANDARD T-191, T-204, OR T-238 AND T-239.

10. SEE GENERAL EROSION CONTROL NOTES ON DETAIL SHEET.
11. PROVIDE INLET PROTECTION BARRIERS AROUND ALL EXISTING AND PROPOSED STORM DRAINAGE INLETS WITHIN THE WORK LIMITS AND AS SHOWN ON PLAN. MAINTAIN FOR THE DURATION OF THE PROJECT UNTIL PAVEMENT HAS BEEN INSTALLED AND UPSTREAM AREAS HAVE BEEN STABILIZED.
12. INSPECT SILT BARRIERS AFTER EACH RAIN STORM OF 1/4 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE STRUCTURE HEIGHT.
13. A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IS REQUIRED FOR THIS PROJECT. THE SWPPP MUST INCLUDE THE APPROPRIATE BEST MANAGEMENT PRACTICES (BMP'S) TO MINIMIZE THE DISCHARGE OF POLLUTANTS FROM THE SITE. PARTIES RESPONSIBLE FOR DEVELOPING THE SWPPP SHOULD REFER TO THE EPA NPDES CONSTRUCTION GENERAL PERMITS NOTICE OF INTENT FOR A COMPLETE OUTLINE OR REQUIRED ELEMENTS. THESE PLANS AND THE STORMWATER MANAGEMENT SYSTEM INSPECTION & MAINTENANCE PLAN PREPARED FOR THIS PROJECT MAY BE UTILIZED IN FULFILLING THE REQUIREMENTS.
14. ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS.
15. LIMIT TREE CLEARING TO ONLY THE EXTENT NECESSARY FOR CONSTRUCTION.
16. PLACARDS SHALL BE INSTALLED ALONG THE EDGE OF WETLAND PRIOR TO CONSTRUCTION AS APPLICABLE.

LEGEND

I.R. (set) o	– IRON ROD W/ I.D. CAP (SET)
⊙ I.P.	– IRON PIPE
□ G.B.	– GRANITE BOUND
⊙ I.R.	– IRON ROD
⊙ I.R.(fnd)	– IRON ROD (FOUND)
D.H.	– DRILL HOLE
S.F.	– SQUARE FEET
Ac.	– ACRE
(TYP.)	– TYPICAL
±	– MORE OR LESS
ø	– DIAMETER
S.C.R.D.	– STRAFFORD COUNTY REGISTRY OF DEEDS
-o- UP	– UTILITY POLE
— · · · —	– EDGE OF WETLAND
O.A.	– OVERALL
TBR	– TO BE REMOVED
R.O.W.	– RIGHT OF WAY
Ⓓ DMH	– DRAIN MANHOLE
◘ CB	– CATCH BASIN
Ⓢ SMH	– SEWER MANHOLE
HYD.	– FIRE HYDRANT
WV	– WATER GATE VALVE
	– TREE
GV	– GAS VALVE
ICC	– INTEGRATED CONCRETE CURB
5'R	– PROPOSED PAVEMENT RADIUS
PW	– PROPOSED WATER
PE	– PROPOSED ELECTRIC
PS	– PROPOSED SEWER
PD	– PROPOSED DRAINAGE
PG	– PROPOSED GAS
55	– PROPOSED FINISH GRADE
x 55	– PROPOSED SPOT GRADE

UTILITY CONTACTS

NATURAL GAS: UNITIL CORPORATION
CONTACT: DAVID BEAULIEU
325 WEST ROAD
PORTSMOUTH, NH 03801
TEL: (603)-294-5144

WATER & SEWER: CITY OF DOVER COMMUNITY SERVICES DEPARTMENT
PUBLIC WORKS & UTILITIES
CONTACT: BILL BOULANGER
271 MAST ROAD
DOVER, NH 03820
TEL: (603)-516-6450

ELECTRIC: EVERSOURCE
CONTACT: PIERRE BOUGIE
4 OLD DOVER ROAD
ROCHESTER, NH 03867
TEL: (603)-332-4227

TELEPHONE: FAIRPOINT COMMUNICATIONS, INC.
CONTACT: ED LANAGAN
HIGHWAY 33, BOX 307
1575 GREENLAND ROAD
GREENLAND, NH 03804
TEL: (603)-528-7335

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PLANNING FILE NO.: P21_

NO.	REVISION	APP'D	DATE

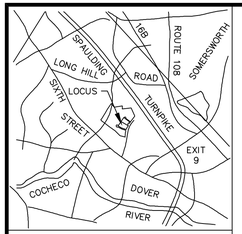
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DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY: SJH
PROJECT NO: 21043
FILE: SITE.DWG

CIVILWORKS NEW ENGLAND
CIVIL & WATERFRONT ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

QUALITY WAY, LLC
55 MAIN STREET, UNIT 407
NEWMARKEY, NH 03857

BUILDING ADDITION
1 QUALITY WAY
DOVER, NH

NOTE SHEET



LOCATION PLAN
(NO SCALE)

I.R.(fnd)
N – 265008.10
E – 1185524.80

I.R.(fnd)

6" PVC (RD)

12" RCP

6" PVC (RD)

LIMIT OF TREES TO BE REMOVED

RIPRAP SWALE

INV. = 176.24

PROPOSED TREELINE

SAWCUT LIMITS

ASPHALT PARKING
32 SPACES (1 HC)

GRIND PARKING MARKING FOR RESTRIPEING

SAWCUT LIMITS

PAVEMENT TO BE REMOVED

12"ø RCP

INV. =176.10

CB RIM =178.50

CB RIM =178.43

INV. =175.97

RIPRAP SWALE

RIP-RAP SWALE TO BE REMOVED

SIDEWALK TO BE REMOVED

CONCRETE WALK

SIDEWALK TO BE REMOVED

12"ø ADS
INV. OUT = 184.04

TREES TO BE REMOVED

EMERGENCY SPILLWAY

RIPRAP SWALE

EDGE OF PAVEMENT

ROOF DRAIN TO BE REMOVED

SIDEWALK TO BE REMOVED

SIGN TO BE REMOVED AND STOCKPILED FOR REUSE

CONCRETE PAD

ASPHALT DRIVE AND LOADING BAYS

EXISTING DETENTION POND BOTTOM ELEVATION = 175.5±

EXISTING SWALE

EXISTING
1 STORY STEEL FRAME
LIGHT MANUFACTURING
BUILDING
30,800 S.F.
F.F. = 188.6'

EXISTING
4 PARKING
SPACES

CONCRETE WALK

EXISTING
ASPHALT PARKING
32 SPACES (2 HC)

ASPHALT WALK

INV. =175.88

INV.=175.47

6"ø ADS
CULVERT

LIMIT OF TREES TO BE REMOVED

CONCRETE PAD

ASPHALT WALK

ASPHALT WALK

SMH A

CB RIM =174.25

DMH
RIM = 174.25

UGE

SMH B

DMH
RIM = 173.12

CB RIM =172.35

8"S

UGU

QUALITY WAY

R.O.W.

CB

CB

VENTURE DRIVE

NH STATE PLANE
NAD 83 - GPS OBS.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

EXISTING SEWER STRUCTURES

SMH A
RIM = 187.08
INV. 6" PVC IN = 181.75 (DROP) FROM BUILDING
INV. 6" PVC OUT = 172.00 TO SMH B

SMH B
RIM = 177.56
INV. 6" PVC IN = 171.91 (DROP) FROM SMH A
INV. 6" PVC OUT = 164.46 TO QUALITY WAY

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PLANNING FILE
NO.: P21_

NO.	REVISION	APP'D	DATE

DATE: XXX
SCALE: 1"=40'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:JH
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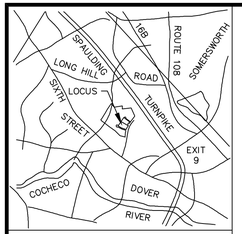
CIVILWORKS NEW ENGLAND
CIVIL & WATERFRONT ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

DEMOLITION PLAN

QUALITY WAY, LLC
55 MAIN STREET, UNIT 407
NEWMARKEY, NH 03857

BUILDING ADDITION
1 QUALITY WAY
DOVER, NH

5



LOCATION PLAN
(NO SCALE)

I.R.(fnd)
N – 265008.10
E – 1185524.80

I.R.(fnd)

6" PVC (RD)

12" RCP

6" PVC (RD)

6" W

PROPOSED FUTURE NEW PAVEMENT

PROPOSED FUTURE 18'x25' PAINTED ISLAND

PROPOSED 10 FUTURE PARKING SPACES

RIPRAP SWALE

INV. = 176.24

18'

9' TYP

9' TYP

18'

23' (EXISTING)

PROPOSED 10'x60' CONCRETE PAD

PROPOSED RESTRIPEING

6'

9' 8'

9' 9'

EXISTING ASPHALT PARKING 32 SPACES (1 HC)

INV. =176.10

12"ø RCP

CB RIM =178.50

CB RIM =178.43

INV. =175.97

RIPRAP SWALE

PROPOSED TREELINE

ICC

CONCRETE WALK

PROPOSED 1 STORY 7,400 S.F. BUILDING ADDITION

PROPOSED CONCRETE SIDEWALK

PROPOSED FUTURE 18'x28' PAINTED ISLAND

RELOCATED SIGN FROM STOCKPILE

10'

PROPOSED RAMP WITH TIP DOWN CURB

EMERGENCY SPILLWAY

EDGE OF PAVEMENT

PROPOSED 8'x8' CONCRETE LANDING WITH STAIRS

CONCRETE PAD

ASPHALT DRIVE AND LOADING BAYS

EXISTING DETENTION POND BOTTOM ELEVATION = 175.5±

EXISTING SWALE

EXISTING 1 STORY STEEL FRAME LIGHT MANUFACTURING BUILDING 30,800 S.F. F.F. = 188.6'

EXISTING 4 PARKING SPACES

EXISTING ASPHALT PARKING 32 SPACES (2 HC)

CONCRETE WALK

ASPHALT WALK

INV. =175.88

INV.=175.47

6"ø ADS CULVERT

CONCRETE PAD

ASPHALT WALK

ASPHALT WALK

SMH A

CB RIM =174.25

DMH RIM = 174.25

UGE

SMH B

UGU

DMH RIM = 173.12

CB RIM =172.35

8"S

8"S

8"S

UGU

QUALITY WAY

R.O.W.

CB

CB

W

S

G

W

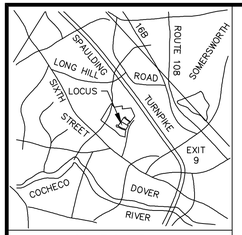
S

W

S

W

S



LOCATION PLAN
(NO SCALE)

I.R.(fnd)
N – 265008.10
E – 1185524.80

I.R.(fnd)

RIPRAP SWALE

PROPOSED SILTSOXX

PROPOSED 1 STORY 7,400 S.F. BUILDING ADDITION
ELEV= 188.6'

CONCRETE WALK

RIPRAP SWALE

EMERGENCY SPILLWAY

EDGE OF PAVEMENT

PROPOSED SILTSOXX CHECK DAM (TYP)

EXISTING DETENTION POND BOTTOM ELEVATION = 175.5±

EXISTING SWALE

CONCRETE PAD

ASPHALT DRIVE AND LOADING BAYS

EXISTING 1 STORY STEEL FRAME LIGHT MANUFACTURING BUILDING 30,800 S.F. F.F. = 188.6'

EXISTING 4 PARKING SPACES

EXISTING ASPHALT PARKING 32 SPACES (2 HC)

CONCRETE WALK

ASPHALT WALK

VENTURE DRIVE

CONCRETE PAD

ASPHALT WALK

ASPHALT WALK

SMH A

SMH B

QUALITY WAY

NH STATE PLANE NAD 83 2 GPS OBS.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

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PLANNING FILE NO.: P21_

NO.	REVISION	APP'D	DATE

DATE: XXX
SCALE: 1"=40'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:JH
PROJECT NO: 21043
FILE: SITE.DWG

CIVILWORKS NEW ENGLAND
CIVIL & WATERFRONT ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

GRADING, DRAINAGE & EROSION PLAN

BUILDING ADDITION
1 QUALITY WAY
DOVER, NH

QUALITY WAY, LLC
55 MAIN STREET, UNIT 407
NEWMARKEY, NH 03857

7

DESCRIPTION

1. THE INTENT OF THIS PLAN IS TO SHOW SITE IMPROVEMENTS ASSOCIATED WITH THE CONSTRUCTION OF A 7,400 S.F. ADDITION TO EXISTING BUILDING.

PROJECT NAME AND LOCATION

Q, LLC
1 QUALITY WAY
DOVER, NH 03820

LATITUDE N43° 13' 25"
LONGITUDE W70° 54' 36"

DISTURBED AREA

±40,590 S.F.

NOTES:

1. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL EXCEED 5 ACRES AT ANY TIME BEFORE DISTURBED AREAS ARE STABILIZED.
2. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.

SEQUENCE OF MAJOR ACTIVITIES

1. CONTRACTOR SHALL PREPARE THE SWPPP, FILE FOR AND OBTAIN THE NOI A MINIMUM OF 2 WEEKS PRIOR TO COMMENCEMENT OF SITE WORK.
2. PLACE TEMPORARY EROSION AND SEDIMENT CONTROL BMP'S PRIOR TO EARTH MOVING ACTIVITIES.
3. ALL EROSION CONTROL AND PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO COMMENCING EARTH MOVING OPERATIONS.
4. SELECTIVE DEMOLITION.
5. REGRADE SITE TO SUBGRADE.
6. TEMPORARY WATER DIVERSION (SWALES, BASINS) MUST BE USED AS NECCESSARY UNTIL AREAS ARE STABILIZED.
7. SWALES AND PONDS (AS APPLICABLE) SHALL BE CONSTRUCTED EARLY ON IN THE CONSTRUCTION SEQUENCE AND BEFORE ROUGH GRADING OF THE SITE AND ALL DITCHES AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
8. INSTALL DRAINAGE STRUCTURES AND CONTROLS.
9. INSTALL FOUNDATION FOOTINGS AND WALLS.
10. INSTALL UTILITIES.
11. PLACE GRAVELS AND FINE GRADE.
12. STABILIZE ROADWAYS WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
13. ALL CUT AND FILL SLOPES SHALL BE LOAMED AND SEEDED (AS APPLICABLE) WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.
14. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY 1/2" OF RAINFALL.
15. IN ALL CASES THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION AND IN NO CASE SHALL EXCEED 5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
16. WHEN ALL SITE WORK IS COMPLETE AND ALL DISTURBED AREAS ARE STABILIZED REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AND FILE THE EPA – N.O.T.

DEFINITIONS

AN AREA SHALL BE CONSIDERED STABLE OF ONE OF THE FOLLOWING HAS OCCURRED.

1. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED
2. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
3. A MINIMUM OF 3" OF NON–EROSIVE MATERIAL SUCH AS STONE OR RIP–RAP HAS BEEN INSTALLED; OR
4. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED

INSTALLATION, MAINTENANCE, AND INSPECTION PROCEDURES OF EROSION AND SEDIMENT CONTROLS

A. SILT BARRIER

1. INSTALLATION
   a. USE SILT BARRIER AS PERIMETER CONTROLS, PARTICULARLY AT THE LOWER OR DOWN SLOPE EDGE OF A DISTURBED AREA.
   b. LEAVE SPACE FOR MAINTENANCE BETWEEN TOE AND SLOPE OF SILT BARRIER.
   c. TRENCH IN THE SILT BARRIER ON THE UPHILL SIDE (6 INCHES DEEP BY 6 INCHES WIDE).
   d. INSTALL STAKES ON THE DOWNHILL SIDE OF THE SILT BARRIER.
   e. CURVE THE END OF THE SILT BARRIER UP–GRADIENT TO HELP IT CONTAIN RUNOFF.
2. SEQUENCE OF INSTALLATION
   a. SEDIMENT BARRIERS SHALL BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM.
3. MAINTENANCE
   a. SILT BARRIERS SHOULD BE INSPECTED AND MAINTAINED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
   b. SILT BARRIERS HAVE A USEFUL LIFE OF ONE SEASON. ON LONGER CONSTRUCTION PROJECTS, SILT BARRIERS SHOULD BE REPLACED PERIODICALLY TO MAINTAIN EFFECTIVENESS.
   c. REMOVE SEDIMENT WHEN IT REACHES ONE–THIRD (1/3) THE HEIGHT OF THE SILT BARRIER.
   d. REPLACE THE SILT BARRIERS WHERE THEY ARE TORN, WORN, OR OTHERWISED DAMAGED AND MONITOR PERFORMANCE TO ENSURE EFFECTIVE PERFORMANCE.
   e. RETRENCH OR REPLACE ANY SILT BARRIER THAT IS NOT PROPERLY ANCHORED TO THE GROUND.
   f. IF THERE IS EVIDENCE OF END FLOW ON PROPERLY INSTALLED BARRIERS, EXTEND BARRIERS UPHILL OR CONSIDER REPLACING THEM WITH OTHER MEASURES, SUCH AS TEMPORARY DIVERSIONS AND SEDIMENT TRAPS.
   g. SILT BARRIERS SHOULD BE REPAIRED IMMEDIATELY IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THEM. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES OF THE BARRIER, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, SILT BARRIERS SHOULD BE REPLACED WITH A TEMPORARY CHECK DAM.

B. MULCHING

1. TIMING
   a. APPLY MULCH PRIOR TO ANY STORM EVENT. IT WILL BE NECESSARY TO CLOSELY MONITOR WEATHER PREDICTIONS TO HAVE ADEQUATE WARNING OF SIGNIFICANT STORMS.
   b. IN OTHER AREAS, THE TIME PERIOD CAN RANGE FROM 14 TO 30 DAYS OF INACTIVITY ON A AREA. THE LENGTH OF TIME VARYING WITH SITE CONDITIONS. PROFESSIONAL JUDGEMENT SHALL BE USED TO EVALUATE THE INTERACTION OF SITE CONDITIONS (SOIL ERODIBILITY, SEASON OF YEAR, EXTENT OF DISTURBANCE, PROXIMITY TO SENSITIVE RESOURCES, ETC.) AND THE POTENTIAL IMPACT OF EROSION ON ADJACENT AREAS TO CHOOSE AN APPROPRIATE TIME RESTRICTION.
   c. WITHIN 100 FEET OF RIVERS, STREAMS, WETLANDS, AND IN LAKE AND POND WATERSHEDS, THE TIME PERIOD OF WHICH MULCHING SHOULD TAKE OCCUR SHOULD BE NO GREATER THAN SEVEN (7) DAYS. THIS SEVEN DAY LIMIT SHOULD BE REDUCED FURTHER DURING WET WEATHER PERIODS.
2. APPLICATION RATE
   a. MULCH SHALL BE APPLIED AT A RATE OF BETWEEN 1.5 TO 2 TONS PER ACRE, OR 70 TO 90 POUNDS PER 1000 SQUARE FEET.
   b. GUIDELINES FOR WINTER MULCH APPLICATION. WHEN MULCH IS APPLIED TO PROVIDE PROTECTION OVER WINTER (PAST THE GROWING SEASON) IT SHALL BE AT A RATE OF 150–200 POUNDS OF HAY OR STRAW PER ACRE WITH ABOUT 4 INCHES IN DEPTH. A TACKIFIER MAY BE ADDED TO THE MULCH.
3. MAINTENANCE
   a. ALL MULCHES MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS. CHECK FOR SIGNS OF EROSION OR DISPLACEMENT OF THE MULCH. IF LESS THAN 90% OF THE SOIL SURFACE IS COVERED BY MULCH, ADDITIONAL MULCH SHALL BE IMMEDIATELY APPLIED.
   b. NETS MUST BE INSPECTED AFTER RAIN EVENTS FOR DISLOCATION OR FAILURE AND SHOULD BE REPAIRED AS NECCESSARY.
   c. INSPECTIONS SHOULD TAKE PLACE UNTIL THE SITE IS ESTABLISHED.
   d. EROSION CONTROL MULCH USED FOR TEMPORARY STABILIZATION SHOULD BE LEFT IN PLACE. VEGETATION ADDS STABILITY AND SHOULD BE PROMOTED.

C. TEMPORARY SEEDING

1. SEEDBED PREPARATION
   a. STONES AND TRASH SHOULD BE REMOVED SO AS NOT TO INTERFERE WITH THE SEEDING AREA.
   b. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED.
   c. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS.
      i) APPLY FERTILIZER AT A RATE OF 600 POUNDS PER ACRE OR 13.8 POUNDS PER 1,000 SQUARE FEET OF LOW PHOSPHATE FERTILIZER OR EQUIVALENT.
      ii) APPLY LIMESTONE AT A RATE OF 3 TONS PER ACRE OR 138 POUNDS PER 1,000 SQUARE FEET.
2. SEEDING
   a. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTIPACKER TYPE SEEDER OR HYDROSEEDER (SUMMARY INCLUDING SEED AND FERTILIZER) WITH A SEEDING DEPTH FROM A QUARTER (1/4) TO A HALF (1/2) INCH.
   b. SEEDING RATES MUST BE INCREASED BY 10% WHEN HYDROSEEDING.
   c. TEMPORARY SEEDING BETWEEN MAY 15TH AND AUGUST 15TH SHOULD BE COVERED WITH HAY OR STRAW MULCH, ACCORDING TO THE "TEMPORARY AND PERMANENT MULCHING" PRACTICE.
   d. VEGETATED GROWTH COVERING 85% OF THE DISTURBED AREA SHOULD BE ACHIEVED PRIOR TO OCTOBER 15TH.
3. MAINTENANCE
   a. TEMPORARY SEEDING SHALL BE INSPECTED PERIODICALLY. AT A MINIMUM, 85% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES USED IN THE INTERIM (MULCH, FILTER FABRICS, CHECK DAMS, ETC.).

D. PERMANENT SEEDING

1. BEDDING – STONES LARGER THAN 2 INCHES, TRASH, ROOTS, AND OTHER DEBRIS INTERFERRING WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA SHOULD BE REMOVED. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF 4" TO PREPARE A SEEDBED AND MIX FERTILIZER INTO THE SOIL.
2. FERTILIZER
   a. LIME AND FERTILIZER SHOULD BE WORKED INTO THE SOIL TO A DEPTH OF 4 INCHES USING A DISC, SPRING TOOTH HARROW, OR OTHER SUITABLE EQUIPMENT PRIOR TO OR AT THE SAME TIME OF SEEDING.
   b. FERTILIZER SHOULD BE RESTRICTED TO A LOW PHOSPHATE, SLOW RELEASE NITORGEN FERTILIZER WHEN APPLIED TO AREAS BETWEEN 25 FEET AND 250 FEET FROM A SURFACE WATER BODY. NO FERTILIZER EXCEPT LIMESTONE SHOULD BE APPLIED WITHIN 25 FEET OF THE SURFACE WATER.
   c. KINDS AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:
      AGRICULTURAL LIMESTONE @ 138 LBS. PER 1,000 S.F.
      LOW PHOSPHATE (N–P205–K20) FERTILIZER @ 13.8 LBS. PER 1,000 S.F.
3. SEED MIXTURE (RECOMMENDED)
   RATE:

TYPE	LBS. PER ACRE	LBS. PER 1,000 S.F.
TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
BIRDSFOOT TREFOIL	8	0.20
TOTAL	48	1.10

4. SEEDING
   a. SPRING SEEDING USUALLY GIVES THE BEST RESULTS FOR ALL SEED MIXES OR WITH LEGUMES. PERMANENT SEEDING SHOULD BE COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST.
   b. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL, CULTIPACKER TYPE SEEDER OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER) WITH A SEEDING DEPTH FROM A QUARTER (1/4) TO A HALF (1/2) INCH.
   c. VEGETATED GROWTH COVERING AT LEAST 85% OF THE DISTURBED SHOULD BE ACHIEVED PRIOR TO OCTOBER 15TH. IF THIS CONDITION IS NOT ACHIEVED, IMPLEMENT TEMPORARY STABILIZATION MEASURES FOR OVERWINTER PROTECTION.
5. HYDROSEEDING
   a. LIME AND FERTILIZER MAY BE APPLIED SIMULTANEOUSLY WITH THE SEED. THE USE OF STRAW MULCH ON CRITICAL AREAS IS PREFERRED SINCE IT GRANTS BETTER SLOPE PROTECTION BY USING ADHESIVE MATERIALS.
   b. SLOPES MUST BE NO STEEPER THAN 2 TO 1 (2 FEET HORIZONTALLY TO 1 FOOT VERTICALLY).
   c. SEEDING RATES MUST BE INCREASED BY 10% WHEN HYDROSEEDING.
6. MAINTENANCE
   a. PERMANENT SEEDED AREAS SHOULD BE INSPECTED AT LEAST MONTHLY DURING THE COURSE OF CONSTRUCTION. INSPECTIONS, MAINTENANCE, AND CORRECTIVE ACTIONS SHOULD CONTINUE UNTIL THE OWNER ASSUMES PERMANENT OPERATION OF THE SITE.
   b. SEEDED AREAS SHOULD BE MOWED AS REQUIRED TO MAINTAIN A HEALTHY STAND OF VEGETATION, WITH MOWING HEIGHT AND FREQUENCY DEPENDENT ON TYPE OF GRASS COVER.
   c. BASED ON INSPECTION, AREAS SHOULD BE RESEEDED TO ACHIEVE FULL STABALIZATION OF EXPOSED SOILS.
   d. IF EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHOULD BE MADE AND AREAS RESEEDED. WITH OTHER TEMPORARY MEASURES USED TO PROVIDE EROSION PROTECTION DURING THE PERIOD OF VEGETATION ESTABLISHMENT.
   e. AT A MINIMUM, 85% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION.

E. STORM DRAIN INLET PROTECTION

1. SPECIFICATIONS
   a. THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE BARRIER SHOULD BE LESS THAN ONE ACRE.
   b. ANY RESULTANT PONDING OF STORMWATER MUST NOT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT AREAS OR STRUCTURES.
2. INSTALLATION
   a. INSTALL INLET PROTECTION AS SOON AS STORM DRAIN INLETS ARE INSTALLED AND BEFORE LAND–DISTURBANCE ACTIVITIES BEGIN IN AREAS WITH EXISTING STORM DRAIN SYSTEMS.
   b. PROTECT ALL INLETS THAT COULD RECEIVE STORMWATER FROM YOUR CONSTRUCTION PROJECT.
   c. USE IN CONJUNCTION WITH OTHER EROSION PREVENTION AND SEDIMENT CONTROL BMPS.
   d. DESIGN YOUR INLET PROTECTION TO HANDLE THE VOLUME OF WATER FROM THE AREA BEING DRAINED. ENSURE THAT THE DESIGN IS SIZED APPROPRIATELY.
3. MAINTENANCE
   a. INSPECT INLETS BARRIERS FREQUENTLY, BEFORE AND AFTER EACH RAINFALL EVENT AND REPAIR WHEN NECESSARY.
   b. SEDIMENT SHOULD BE REMOVED AND THE STORM DRAIN SEDIMENT BARRIER RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE BARRIER.
   c. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
   d. SWEEP STREETS, SIDEWALKS, AND OTHER PAVED AREAS REGULARLY.
   e. ALL CATCH BASINS AND STORM DRAIN INLETS MUST BE CLEANED AT THE END OF CONSTRUCTION AND AFTER THE SITE HAS BEEN FULLY STABILIZED

TIMING OF CONTROLS/MEASURES

AS INDICATED IN THE SEQUENCE OF MAJOR ACTIVITIES THE SILT BARRIERS SHALL BE INSTALLED PRIOR TO COMMENCING ANY CLEARING OR GRADING OF THE SITE. STRUCTURAL CONTROLS SHALL BE INSTALLED CONCURRENTLY WITH THE APPLICABLE ACTIVITY. AREAS WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASES FOR MORE THAN TWENTY ONE (21) DAYS WILL BE STABILIZED WITH A TEMPORARY SEED AND MULCH WITHIN FOURTEEN (14) DAYS OF THE LAST DISTURBANCE. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN AREA, SILT FENCES AND ANY EARTH/DIKES WILL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED. ALL AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.

WASTE DISPOSAL

a. WASTE MATERIALS
   ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN A DUMPSTER. NO CONSTRUCTION WASTE MATERIALS WILL BE BURIED ON SITE. ALL PERSONEL WILL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
b. HAZARDOUS WASTE
   ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER. SITE PERSONNEL WILL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
c. SANITARY WASTE
   ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

MAINTENACE OF STORMWATER MANAGEMENT FACILITIES

THE PROJECT PROPONENT IS RESPONSIBLE FOR THE MAINTENANCE OF ALL STORMWATER FACILITIES DURING CONSTRUCTION AND THE PORPERTY OWNER IS RESPONSIBLE AFTER CONSTRUCTION IS COMPLETE.

CATCH BASINS & STORMWATER TREATMENT STRUCTURES

1. CATCH BASINS & STORMWATER TREATMENT STRUCTURES SHOULD BE INSPECTED ON A MONTHLY BASIS AND/OR AFTER A MAJOR RAINFALL EVENT TO ASSURE THAT DEBRIS OR SEDIMENTS DO NOT REDUCE THE EFFECTIVENESS OF THE SYSTEM.

SPILL PREVENTION

A. MATERIAL MANAGEMENT PRACTICES

THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT WILL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL SANITARY EXPOSURE OF MATERIALS AND SUBSTANCES DURING CONSTRUCTION TO STORMWATER RUNOFF:
GOOD HOUSEKEEPING:
THE FOLLOWING GOOD HOUSEKEEPING PRACTICES THAT WILL BE FOLLOWED ON SITE DURING

1. THE CONSTRUCTION PROJECT:
   a. AN EFFORT WILL BE MADE TO STORE ONLY SUFFICIENT AMOUNTS OF PRODUCTS TO DO THE JOB.
   b. ALL MATERIALS STORED ON SITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE.
   c. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED.
   d. THE SITE SUPERINTENDENT WILL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS.
   e. SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
   f. WHENEVER POSSIBLE ALL OF A PRODUCT WILL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
2. HAZARDOUS PRODUCTS:
   a. THE FOLLOWING PRACTICES WILL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
   b. PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE.
   c. ORIGINAL LABELS AND MATERIAL SAFETY DATA WILL BE RETAINED FOR IMPORTANT PRODUCT INFORMATION.
   d. SURPLUS PRODUCT THAT MUST BE DISPOSED OF WILL BE DISCARDED ACCORDING TO THE MANUFACTURER'S RECOMMENDED METHODS OF DISPOSAL.

B. PRODUCT SPECIFICATION PRACTICES

THE FOLLOWING PRODUCT SPECIFIC PRACTICES WILL BE FOLLOWED ON SITE:

1. PETROLEUM PRODUCTS:
   a. ALL ON SITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTATIVE MAINTENACE TO REDUCE LEAKAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED SUBSTANCES USED ON SITE WILL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
2. FERTILIZERS:
   a. FERTILIZERS USED WILL BE APPLIED ONLY IN THE MINIMUM AMOUNTS DIRECTED BY THE SPECIFICATIONS. ONCE APPLIED, FERTILIZER WILL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER. STORAGE WILL BE IN A COVERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILZER WILL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
3. PAINTS:
   a. ALL CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM BUT WILL BE DISPOSED OF PROPERLY ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.
4. CONCRETE TRUCKS:
   a. CONCRETE TRUCKS WILL DISCHARGE AND WASH OUT SURPLUS CONCRETE OR DRUM WASH WATER IN A CONTAINED AREA ON SITE.

C. SPILL CONTROL PRACTICES

IN ADDITION TO GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTION THE FOLLOWING PRACTICES WILL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:

a. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND SITE PERSONNEL WILL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.
b. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS WILL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST, AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE.
c. ALL SPILLS WILL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY.
d. THE SPILL AREA WILL BE KEPT WELL VENTILATED AND PERSONNEL WILL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE.
e. SPILLS OF TOXIC OR HAZARDOUS MATERIAL WILL BE REPORTED TO THE APPROPRIATE STATE OF LOCAL GOVERNMENT AGENCY, REGARDLESS OF THE SIZE.
f. THE SPILL PREVENTION PLAN WILL BE ADJUSTED TO INCLUDE MEASURES TO PREVENT THIS TYPE OF SPILL FROM RECURRING AND HOW TO CLEANUP THE SPILL IF IT OCCURS. A DESCRIPTION OF THE SPILL, ITS CAUSE, AND THE CLEANUP MEASURES WILL BE INCLUDED.
g. THE SITE SUPERINTENDENT RESPONSIBLE FOR DAY–TO–DAY SITE OPERATIONS WILL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.

THE PROJECT PROPONENT IS REQUIRED TO MANAGE CONSTRUCTION TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO CONTROLLING INVASIVE SPECIES AND CONTROLLING FUGITIVE DUST IN ACCORDANCE WITH ENV–A 1002.

AGR 3800 PROHIBITED INVASIVE PLANT SPECIES RULES

THE RULE, AGR 3800, STATES: '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, NEW HAMPSHIRE PROHIBITED INVASIVE SPECIES LIST'. A COMPLETE COPY OF THE RULES CAN BE ACCESSED ON THE INTERNET AT
HTTP://AGRICULTURE.NH.GOV/TOPICS/PLANTS_INSECTS.HTM.

ENV–A 1002 FUGITIVE DUST; PRECAUTIONS TO PREVENT, ABATE, AND CONTROL FUGITIVE DUST.

a. ANY PERSON ENGAGED IN ANY ACTIVITY WITHIN THE STATE EMITS FUGITIVE DUST, OTHER THAT THOSE LISTED IN ENV–A 1002.02 (b), SHALL TAKE PRECAUTIONS THROUGHOUT THE DURATION OF THE ACTIVITY IN ORDER TO PREVENT, ABATE, AND CONTROL THE EMISSION OF FUGITIVE DUST.
b. PRECAUTIONS REQUIRED BY (a) ABOVE, SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:
   i) THE USE OF WATER OR HYDROPHILIC MATERIAL ON OPERATIONS OR SURFACES, OR BOTH;
   ii) THE APPLICATION OF ASPHALT, WATER, OR HYDROPHILIC MATERIAL, OR TARPS OR OTHER SUCH COVERS TO MATERIAL STOCKPILES;
   iii) THE USE OF HOODS, FANS, FABRIC FILTERS, OR OTHER DEVICES TO ENCLOSE AND VENT AREAS WHERE MATERIALS PRONE TO PRODUCING FUGITIVE DUST ARE HANDLED;
   iv) THE USE OF CONTAINMENT METHODS FOR SANDBLASTING OR SIMILAR OPERATIONS; AND
   v) THE USE OF VACUUMS OR OTHER SUCTION DEVICES TO COLLECT AIRBORNE PARTICULATE MATTER.

PER 153–10 F:

ALL SITE IMPROVEMENTS WHICH REQUIRE BLASTING OF LAND SHALL MEET THE FOLLOWING REQUIRMENTS PRIOR TO ANY BLASTING OCCURING.

1. THE APPLICANT SHALL PREPARE A PRE–BLAST SURVEY OF ALL STRUCTURES WITHIN FIVE HUNDRED (500) FEET OF THE EXTERNAL BOUNDARIES OF THE PROPOSED LOT TO BE DEVELOPED. THIS SURVEY, ALONG WITH A MONITORING PLAN, SHALL BE ON FILE WITH THE DOVER FIRE AND RESCUE. UPON RECOMMENDATIONS OF THE CHIEF, THE PLANNING BOARD MAY REQUIRE A PRE–BLAST SURVEY OF ALL STRUCTURES WITHIN ONE THOUSAND (1000) FEET.
2. THE APPLICANT SHALL HOLD A NEIGHBORHOOD MEETING TO REVIEW THE BLASTING PLAN AND PRE–BLAST SURVEY WITH REPRESENTATIVES OF THE FIRE AND RESCUE AND THE BLASTING COMPANY IN ATTENDANCE, PRIOR TO ANY ON–SITE BLASTING. ABUTTERS WITHIN ONE THOUSAND (1000) FEET OF THE EXTERNAL BOUNDARY OF THE PROJECT PARCEL SHALL BE NOTIFIED BY THE CERTIFIED MAIL (PAID FOR BY THE APPLICANT) OF THE MEETING NO LESS THAN TEN (10) DAYS PRIOR TO THE MEETING AND NO MORE THAN FIFTEEN (15) DAYS PRIOR TO THE MEETING. THE NOTICE SHALL STATE THE TIME AND DATE OF THE BLASTING AND CONTAIN A MAP SHOWING THE BLASTING AREA, THE 1,000–FOOT–RADIUS AREA, AND THE 500–FOOT–RADIUS AREA.
3. PERMIT HOLDERS SHALL BE IN COMPLIANCE WITH NFPA 495, EXPLOSIVE MATERIALS CODE, IN ADDITION TO ALL OTHER ORDINANCES AND CODES SET FORTH IN THE CITY OF DOVER CODE, § 153–14A, STORMWATER MANAGEMENT, EROSION CONTROL AND FLOOD HAZARDS, OF THIS CHAPTER AND THE CITY OF DOVER FIRE PREVENTION CODE, WHICH SPECIFICALLY PROHIBITS THE OVERNIGHT STORAGE OF EXPLOSIVES OR BLASTING AGENTS. FURTHER, ALL STORAGE MAGAZINES SHALL BE LOCKED IN THE OPEN POSITION AT THE END OF THE DAY'S OPERATION FOR EASY INSPECTION BY CITY OFFICIALS.
4. BLASTING PERMITS MAY BE OBTAINED BY CALLING THE DOVER FIRE AND RESCUE DURING NORMAL BUSINESS HOURS. THE PERMITS ARE ONLY ACTIVE FOR THE DATES AND TIME SPECIFIED ON THE PERMIT.
5. PERMIT HOLDERS SHALL HOLD INSURANCE AGAINST CLAIMS FOR DAMAGES FOR PERSONAL INJURY AND PROPERTY WHICH MAY ARISE FROM THE PERFORMANCE OF THE WORK.
6. HOURS OF OPERATION FOR THE BLASTING SHALL BE NO EARLIER THAN 8:00AM AND NO LATER THAN 6:00PM, MONDAY THROUGH FRIDAY, EXCLUDING FEDERAL HOLIDAYS.

WINTER CONSTRUCTION NOTES

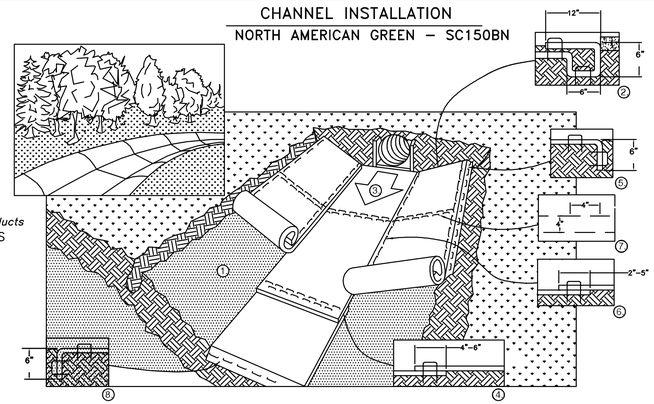
1. ALL PROPOSED POST–DEVELOPMENT VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE PLACEMENT OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT.
2. ALL SLOPES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH SHALL BE STABILIZED WITH STONE OR EROSION CONTROL BLANKETS.
3. AFTER OCTOBER 15TH, INCOMPLETE ROAD SURFACES SHALL BE PROTECTED WITH A MINIMUM OF 3–INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 403.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT.

ENV–WQ 1510: BEST MANAGEMENT PRACTICES FOR BLASTING

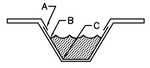
1) ALL ACTIVITIES ASSOCIATED WITH BLASTING NEED TO BE OPTIMIZED TO PREVENT THE RELEASE OF CHEMICALS ASSOCIATED WITH BLASTING ACTIVITIES TO THE ENVIRONMENT.
2) IF MORE THAN 5,000 CY OF ROCK REMOVAL IS REQUIRED DRINKING WATER WELLS MUST BE IDENTIFIED AND LOCATED WITHIN 2000 FEET OF THE PROPOSED BLASTING ACTIVITIES. DEVELOP A GROUNDWATER QUALITY SAMPLING PROGRAM TO MONITOR FOR NITRATE AND NITRITE EITHER IN THE DRINKING WATER SUPPLY WELLS OR IN OTHER WELLS THAT ARE REPRESENTATIVE OF THE DRINKING WATER SUPPLY WELLS IN THE AREA. THE PLAN MUST INCLUDE PRE AND POST BLAST WATER QUALITY MONITORING AND BE APPROVED BY NHDES PRIOR TO INITIATING BLASTING. THE GROUNDWATER SAMPLING PROGRAM MUST BE IMPLEMENTED ONCE APPROVED BY NHDES.
3) THE FOLLOWING BEST MANAGEMENT PROCEDURES FOR BLASTING SHALL BE COMPLIED WITH:
   (1) LOADING PRACTICES. THE FOLLOWING BLASTHOLE LOADING PRACTICES TO MINIMIZE ENVIRONMENTAL EFFECTS SHALL BE FOLLOWED:
      (A) DRILLING LOGS SHALL BE MAINTAINED BY THE DRILLER AND COMMUNICATED DIRECTLY TO THE BLASTER. THE LOGS SHALL INDICATE DEPTHS AND LENGTHS OF VOIDS, CAVITIES, AND FAULT ZONES OR OTHER WEAK ZONES ENCOUNTERED AS WELL AS GROUNDWATER CONDIT

CHANNEL INSTALLATION
NORTH AMERICAN GREEN – SC150BN

NORTH AMERICAN GREEN
EROSION CONTROL *Products Guaranteed* SOLUTIONS



1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE RECP's IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" ACROSS THE WIDTH OF THE RECP's.
3. ROLL CENTER RECP's IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. PLACE CONSECUTIVE RECP's END OVER END (SHINGLE STYLE) WITH A 4" – 6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE RECP's.
5. FULL LENGTH EDGE OF RECP's AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT RECP's MUST BE OVERLAPPED APPROXIMATELY 2" – 5" (DEPENDING ON RECP's TYPE) AND STAPLED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE RECP's MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. NOTE: * IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP's.



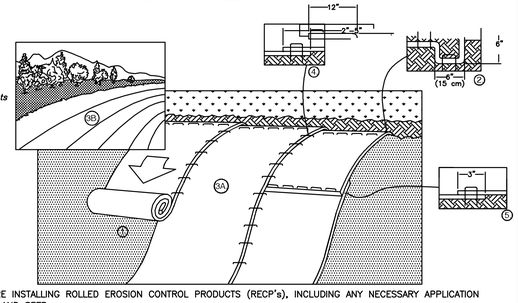
CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTE:
* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP's.

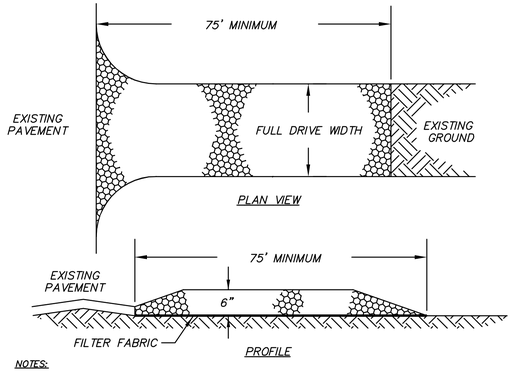
SLOPE INSTALLATION
NORTH AMERICAN GREEN – SC150BN

NORTH AMERICAN GREEN
EROSION CONTROL *Products Guaranteed* SOLUTIONS



1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
   NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP's IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE RECP's.
3. ROLL THE RECP's (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM™ , STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECP's MUST BE STAPLED WITH APPROXIMATELY 2" – 5" (5 CM – 12.5 CM) OVERLAP DEPENDING ON RECP's TYPE.
5. CONSECUTIVE RECP's SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECP's WIDTH.
   NOTE:
   *IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECP's.

NOTE: THE USE OF WELDED PLASTIC OR BIODEGRADABLE PLASTIC NETTING OR THREAD IN EROSION CONTROL MATTING IS PROHIBITED. THE USE OF WILDLIFE FRIENDLY ORGANIC MATERIALS IS RECOMMENDED.



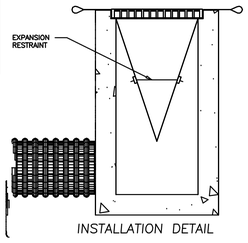
NOTES:
1. *SEE EROSION CONTROL NOTES BELOW FOR MATERIAL, INSTALLATION AND MAINTENANCE REQUIREMENTS.*
2. *TO BE INSTALLED AT EACH POINT OF EGRESS FROM THE WORK AREA.*

STABILIZED CONSTRUCTION ENTRANCE

1. SPECIFICATIONS
   A. AGGREGATE SIZE: USE THREE (3) INCHES STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
   B. AGGREGATE THICKNESS: NOT LESS THAN SIX (6) INCHES.
   C. WIDTH TEN (10) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH OF POINTS WHERE INGRESS OR EGRESS OCCURS.
   D. LENGTH: AS REQUIRED, BUT NOT LESS THAN SEVENTY-FIVE (75) FEET. PIPING OF SURFACE WATER UNDER ENTRANCE SHALL BE PROVIDED AS REQUIRED.
   E. GEOTEXTILE: TO BE PLACED OVER THE ENTIRE AREA TO BE COVERED WITH AGGREGATE.
   F. CRITERIA FOR GEOTEXTILE: THE FABRICS SHALL BE TREVIA SPUNBOND 1135, MIRAFI 600X OR EQUAL.

2. MAINTENANCE
   THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH AGGREGATE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS.

STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



SILTSACK®
SPECIFICATIONS

NOTE: THE SILTSACK WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS. AS SUPPLIED BY AH HARRIS OF PORTSMOUTH OR APPROVED EQUAL

REGULAR FLOW SILTSACK®
(FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC -1

HI-FLOW SILTSACK®
(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

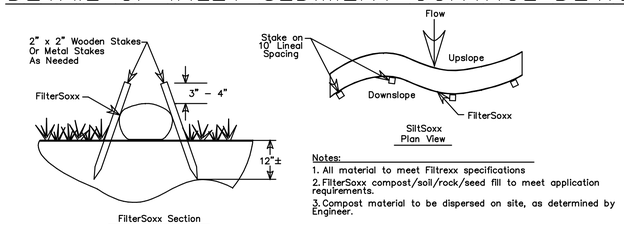
PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491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

OIL-ABSORBANT SILTSACK®

(FOR AREAS WHERE THERE IS A CONCERN FOR OIL RUN-OFF OR SPILLS)

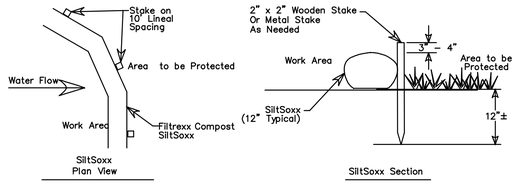
DEPENDING ON YOUR PARTICULAR APPLICATION, THE SILTSACK® CAN BE MADE FROM EITHER ONE OF THE ABOVE FABRICS WITH AN OIL-ABSORBANT PILLOW INSERT OR, MADE COMPLETELY FROM AN OIL-ABSORBANT SILTSACK®, WITH A WOVEN PILLOW INSERT.

DETAIL OF INLET SEDIMENT CONTROL DEVICE



Notes:
1. All material to meet Filtrexx specifications
2. FilterSoxx compost/soil/rock/seed fill to meet application requirements.
3. Compost material to be dispersed on site, as determined by Engineer.

FilterSoxx Staking Details



Notes:
1. All material to meet Filtrexx specifications
2. SiltSoxx compost/soil/rock/seed fill to meet application requirements.
3. SiltSoxx depicted is for minimum slopes. Greater slopes may require larger socks per the Engineer.
4. Compost material to be dispersed on site, as determined by Engineer.

SILTSOXX DETAILS
NOT TO SCALE

SEEKING REPORTS OF RARE TURTLES

The NH Fish & Game Department is collecting observations of four turtle species:



Blanding's turtle (state endangered)
- Large, dark/black domed shell with lighter speckles
- Distinct yellow throat/chin
- Aquatic but often moves on land



Wood turtle (special concern)
- Sculpted, pyramidal brownish shell
- Orange around neck and limbs
- River/stream turtle spending many months on land



Eastern box turtle (state endangered)
- Small terrestrial turtle with highly domed shell
- Irregular yellow or orange markings over brown/black base



Spotted turtle (state threatened)
- Small, mostly aquatic with black or dark brown with yellow spots.
- Fairly flat shell compared to Blanding's turtle

Report sightings to RAARP@wildlife.nh.gov or 603-271-2461 *Please report promptly, noting specific location and date – Photographs strongly encouraged*

NOTES:
1. *ALL OUTSIDE CONSTRUCTION PERSONNEL SHALL RECEIVE TRAINING IN THE IDENTIFICATION OF RARE TURTLE SPECIES AND MADE AWARE OF THEIR PROTECTED STATUS.*
2. *THE USE OF WELDED PLASTIC OR 'BIODEGRADABLE PLASTIC' NETTING OR THREAD IN EROSION CONTROL MATTING IS PROHIBITED*
3. *THE USE OF EROSION CONTROL BERM, WHITE FILTREXX DEGRADABLE WOVEN SILT SOCK, OR 'WILDLIFE FRIENDLY' WOVEN ORGANIC MATERIAL (E.G. COCO OR JUTE MATTING SUCH AS NORTH AMERICAN GREEN SC150BN OR EQUIVALENT) ARE ACCEPTABLE FOR USE*
4. *IF WOOD, SPOTTED, OR BLANDING'S TURTLES ARE FOUND LAYING EGGS IN THE WORK AREA, PLEASE CONTACT MELISSA DOPERALSKI AT 271-1738 or JOSH MEGYESY AT 271-1125 FOR FURTHER INSTRUCTIONS.*

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P21_

CIVILWORKS NEW ENGLAND
CIVIL & WATERFRONT ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

NO.	REVISION	APP'D	DATE

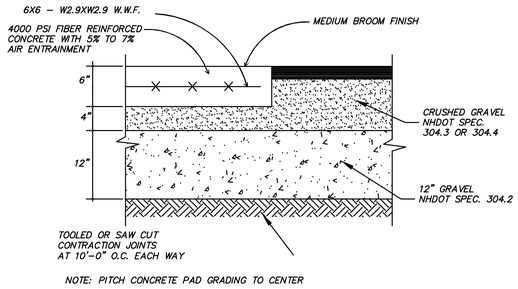
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SCALE: 1"=40'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO: 21043
FILE: SITE.DWG

EROSION CONTROL DETAILS

QUALITY WAY, LLC
55 MAIN STREET, UNIT 407
NEWMARKEY, NH 03857

BUILDING ADDITION
1 QUALITY WAY
DOVER, NH

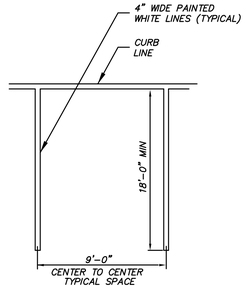
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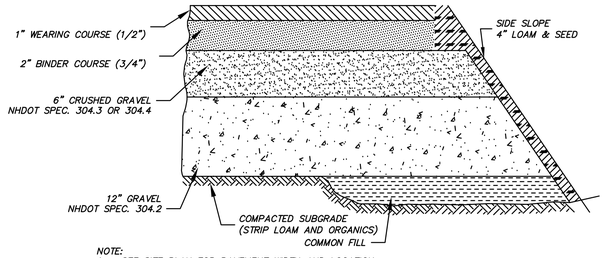
NOTE: PITCH CONCRETE PAD GRADING TO CENTER

HVAC PAD DETAIL

NOT TO SCALE



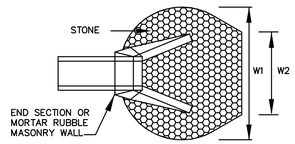
STANDARD PARKING STALL



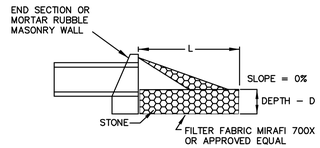
NOTE:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS–SLOPE.
3. GEOTEXTILE FABRIC MAYBE REQUIRED UNDER THE ROADWAY AND /OR THE PARKING AREAS AS REQUIRED BY THE ENGINEER BASED UPON SITE CONDITIONS.

TYPICAL PAVEMENT SECTION

NOT TO SCALE

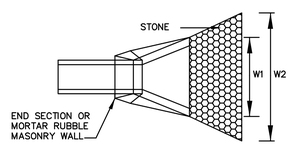


PLAN

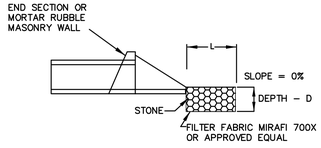


SECTION

STONE APRON OUTLET PROTECTION DETAIL
OUTLET TO DEFINED CHANNEL



PLAN



SECTION

STONE APRON OUTLET PROTECTION DETAIL
OUTLET TO FLAT AREA, NON DEFINED CHANNEL

MAINTENANCE

THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM. IF THE RIPRAP HAS BEEN DISPLACED, UNDERMINED OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE OUTLET PROTECTION APRON.

STONE GRADATION

% OF WEIGHT SMALLER THAN THE GIVEN SIZE	SIZE OF STONE
100	1.5 TO 2.0 D50
85	1.3 TO 1.8 D50
50	1.0 TO 1.5 D50
15	0.3 TO 0.5 D50

CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIPRAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE ROCK OR GRAVEL USED FOR FILTER OR RIPRAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIPRAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

OUTLET FROM	W1(ft)	W2(ft)	L(ft)	D (ft)	D50(IN)	CHANNEL TYPE
FES1	2	5	5	1	6	UNDEFINED
FES2	4	18	14	1	6	UNDEFINED

RIP RAP OUTLET PROTECTION

NOT TO SCALE

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P21_

CIVILWORKS NEW ENGLAND
CIVIL & WATERFRONT ENGINEERING
181 Watson Road , PO Box 1166
Dover, New Hampshire 03821
603.749.0443

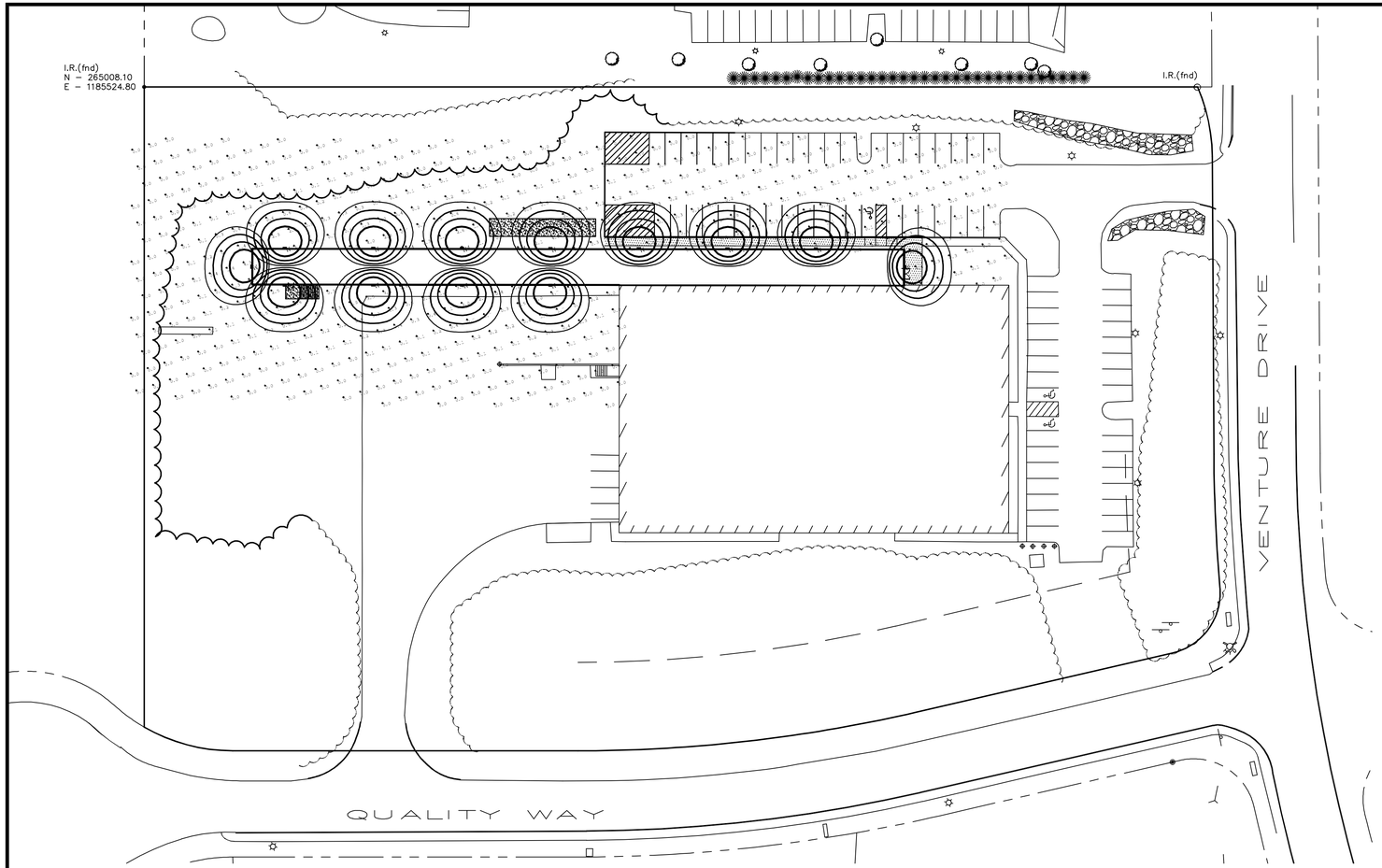
NO.	REVISION	APP'D	DATE

DATE: XXX
SCALE: 1"=40'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:JH
PROJECT NO: 21043
FILE: SITE.DWG

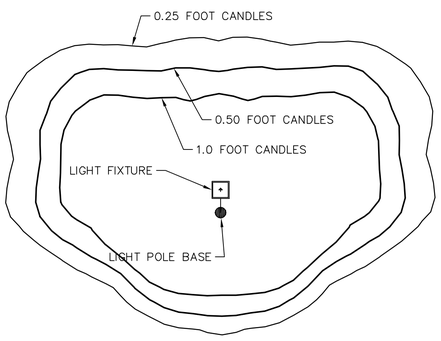
DETAIL SHEET

QUALITY WAY, LLC
55 MAIN STREET, UNIT 407
NEWMARKEY, NH 03857

BUILDING ADDITION
1 QUALITY WAY
DOVER, NH



Luminaire Schedule				
Symbol	Qty	Label	Arrangement	Description
	13	W	Single	AXCS1A / WALL MTD 12' AFG



TYPICAL LIGHT SPREAD
NOT TO SCALE

Project		Catalog #		Type	
Prepared by		Notes		Date	



Lumark

Axcent

Wall Mount Luminaire

Product Features

Selectable lumens · DIGI® TU-DARK · LumenSafe Technology · Light Alkahest™

Interactive Menu

- Ordering Information page 2
- Mounting Details page 3
- Product Specifications page 4
- Energy and Performance Data page 4
- Control Options page 6

Product Certifications

TSID · UL LISTED · DLC · DLC PREMIUM · FC CLASS A · IDA · IP66 · 3G VIB · UL CERTIFIED · RoHS · 5 YEAR · PROGRESS EXPECT

Quick Facts

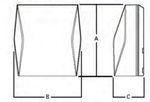
- Available in 14W - 123W (1,800 - 17,000 lumens) models
- Full cutoff and refractive lens models available
- Energy and maintenance savings up to 95% compared to HID
- Energy efficient illumination results in up to 144 LPW
- Replaces 70W up to 450W HID equivalents

Connected Systems

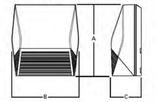
- WaveLinx Lite
- Enlighted

Dimensional Details

Full Cutoff



Refractive Lens



Deep Back Housing

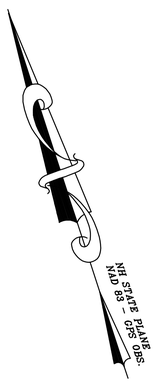


Dimensional Data

	AXCS Small	AXCL Large
A	8" [202mm]	11-1/2" [292mm]
B	7-1/2" [190mm]	10-3/4" [273mm]
C	3-5/8" [94mm]	4-7/8" [124mm]
D	6-1/8" [155mm]	7-1/8" [181mm]

COOPER Lighting Solutions

PS514102EN page 1
March 2, 2021 5:31 PM



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

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PLANNING FILE NO.: P21_

CIVILWORKS NEW ENGLAND
CIVIL & WATERFRONT ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

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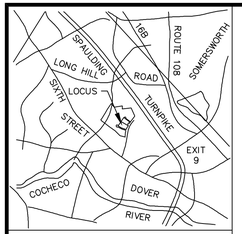
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SCALE: 1"=40'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:JH
PROJECT NO: 21043
FILE: SITE.DWG

LIGHTING PLAN

QUALITY WAY, LLC
55 MAIN STREET, UNIT 407
NEWMARKEY, NH 03857

BUILDING ADDITION
1 QUALITY WAY
DOVER, NH

11



LOCATION PLAN
(NO SCALE)

I.R.(fnd)
N – 265008.10
E – 1185524.80

I.R.(fnd)

RIPRAP SWALE

CONCRETE WALK

PROPOSED 1 STORY 7,400 S.F. BUILDING ADDITION

RIPRAP SWALE

EMERGENCY SPILLWAY

EDGE OF PAVEMENT

EXISTING DETENTION POND
BOTTOM ELEVATION = 175.5±

CONCRETE PAD

ASPHALT DRIVE AND LOADING BAYS

EXISTING SWALE

EXISTING
1 STORY STEEL FRAME
LIGHT MANUFACTURING
BUILDING
30,800 S.F.
F.F. = 188.6'

EXISTING
4 PARKING
SPACES

CONCRETE WALK

EXISTING
ASPHALT PARKING
32 SPACES (2 HC)

ASPHALT WALK

CONCRETE PAD

ASPHALT WALK

ASPHALT WALK

SMH A

SMH B

UGE

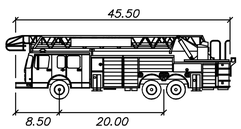
UGU

VENTURE DRIVE

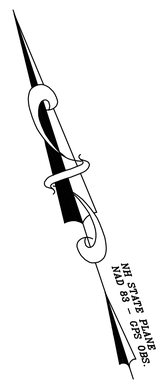
QUALITY WAY

UGU

UGU



Dover ldder	*feet*
Width	*: 8.50*
Track	*: 8.50*
Lock to Lock Time	*: 6.0*
Steering Angle	*: 44.0*



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE
NO.: P21_

NO.	REVISION	APP'D	DATE

DATE: XXX
SCALE: 1"=40'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:JH
PROJECT NO: 21043
FILE: SITE.DWG

CIVILWORKS NEW ENGLAND
CIVIL & WATERFRONT ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

DOVER LADDER TRUCK MOVEMENT PLAN

BUILDING ADDITION
1 QUALITY WAY
DOVER, NH

QUALITY WAY, LLC
55 MAIN STREET, UNIT 407
NEWMARKEY, NH 03857

12

110 Venture Drive _ Q LLC Addition

Project Address:
110 Venture Drive
Dover, NH 03820

Architects Project # 21096
Issue Date: 10081021

Project Team:

Client:
Q LLC
4 Cutts St. Unit 3
Portsmouth, NH 03801
Tel: (603) 294-0047

General Contractor:
Jewett Construction Co., LLC
25 Spaulding Road, Suite 17-2
Fremont, NH 03044
Tel: (603) 895-2412

Architect:
Maugel Architects, Inc
200 Ayer Road
Harvard, MA 01451
Tel: (978) 456-2800

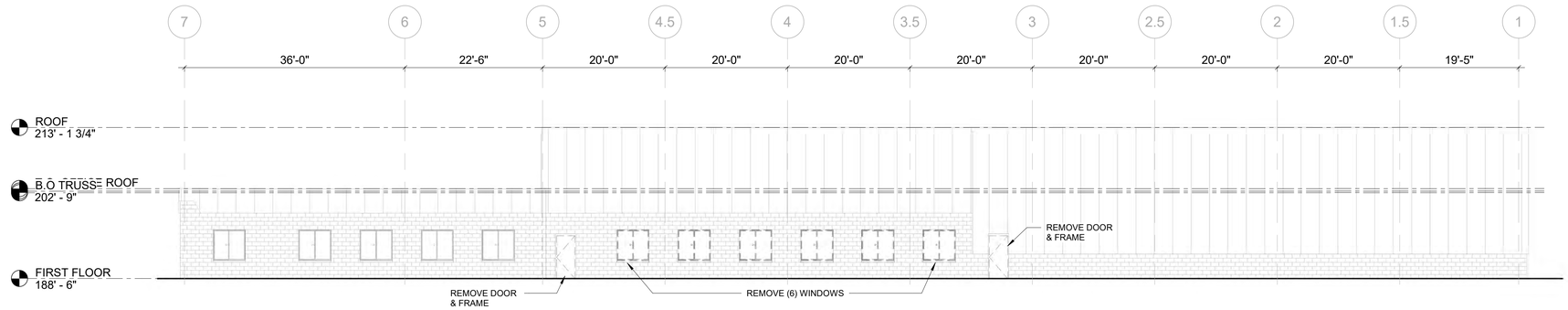
Structural Engineer:
Trillium Engineering Group
424 Fore Street
Portland, ME 04101
Tel: (207) 307-0872

MEP-FP Engineer:
Avid Engineers
205 Portland Street, Suite 504
Boston, MA 02114
Tel: (978) 663-5580

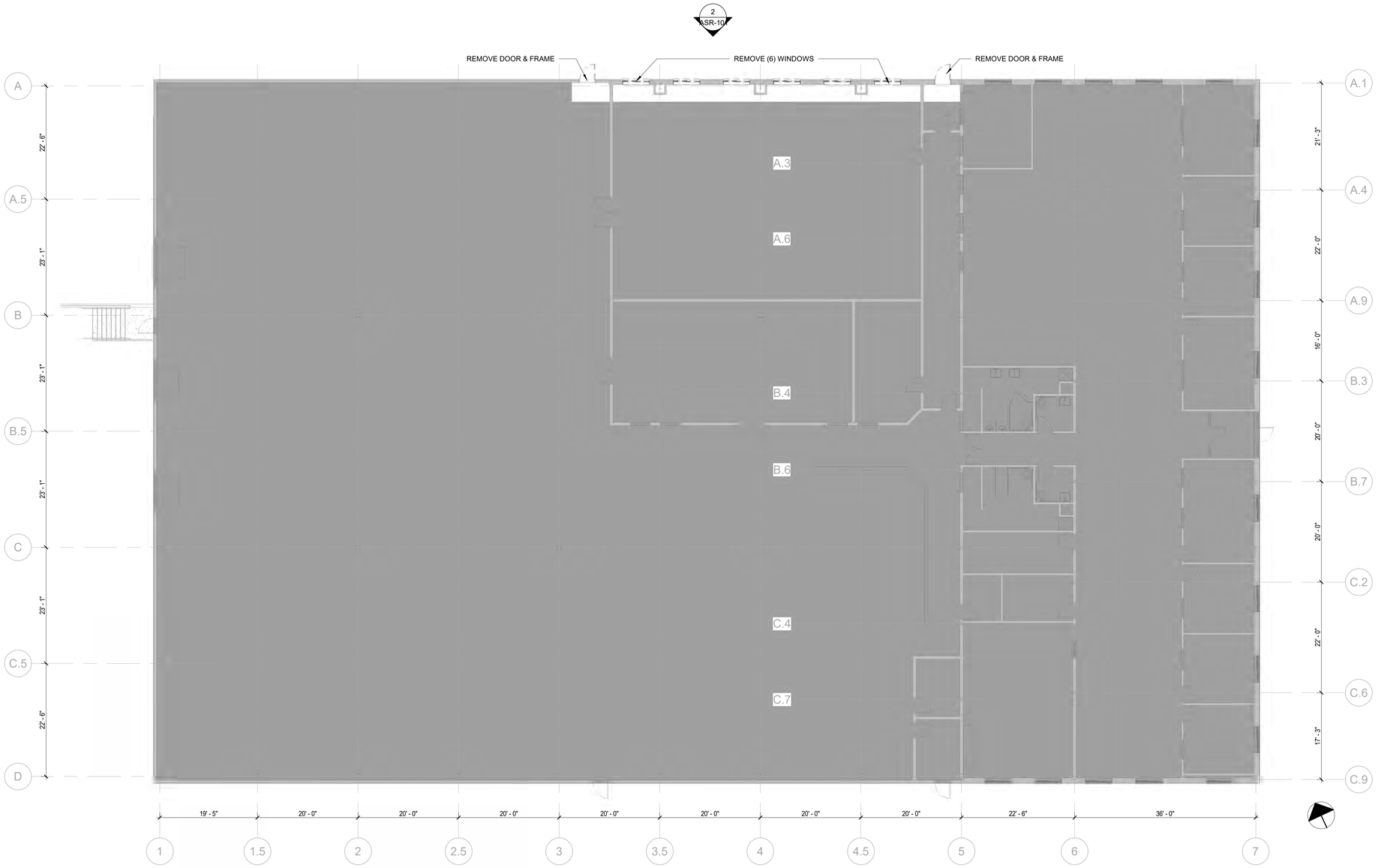
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Progress

MAUGEL ARCHITECTS
200 AYER ROAD I SUITE 200
HARVARD, MA 01451
978 456 2800
MAUGEL.COM



SELECTIVE REMOVAL NORTH ELEVATION (2)
SCALE: 3/32" = 1'-0"



FIRST FLOOR SELECTIVE REMOVAL PLAN - PHASE 2 (1)
SCALE: 3/32" = 1'-0"

Notes:

SCOPE LEGEND

	AREA NOT IN SCOPE

DEMOLITION LEGEND

	EXISTING WALL, VERIFY CONSTRUCTION IN FIELD
	EXISTING TO BE REMOVED

SELECTIVE REMOVAL

1. REMOVE ALL WALLS, DOORS, DOOR FRAMES, MASONRY, CEILINGS, LIGHTS, ETC. AS SHOWN ON THE PLANS & ELEVATIONS. SEE PROPOSED PLANS FOR ALL LOCATIONS.
2. REMOVE ALL FINISH FLOORING DOWN TO CONCRETE SLAB. PATCH AND REPAIR SLAB AS REQUIRED. ALTERNATE - VCT FLOORING CAN BE LEFT IN PLACE IF IN GOOD CONDITION, PATCH FLOOR AS REQUIRED.
3. REMOVE ALL OBSOLETE WIRING, DUCTS, PIPES, ETC.
4. TEST ALL SUSPECTED HAZARDOUS MATERIALS PRIOR TO REMOVAL.

Key Plan:

Architect's Stamp:

Project:
110 Venture Drive _ Q LLC Addition

110 Venture Drive
Dover, NH 03820

Client:
QLLC

4 Cutts St. Unit 3, Portsmouth, NH 03801

Project #: 21096

Scale: As indicated

Issue:	Date:
Progress	10081021

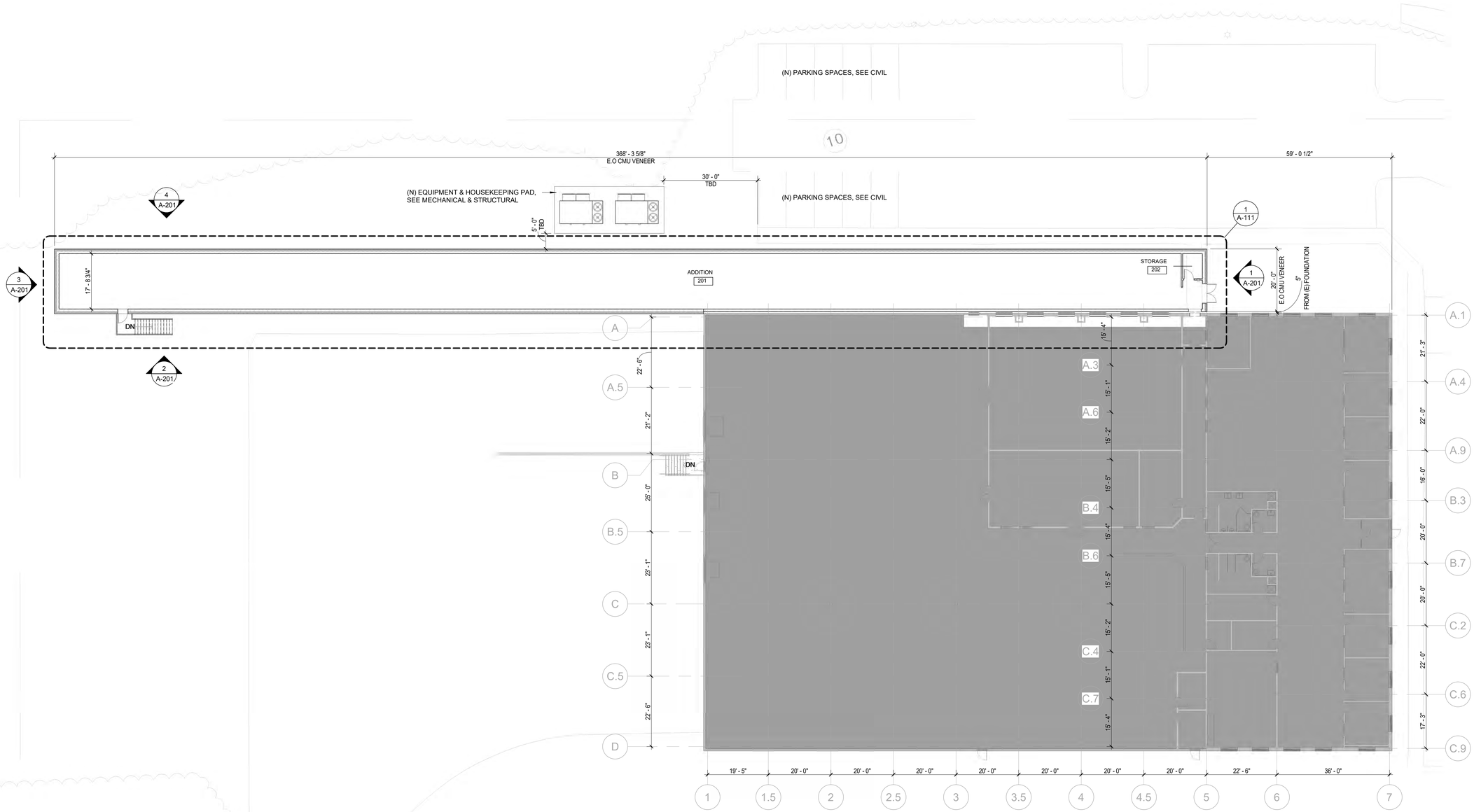
Revisions:	Date:

Drawing Title:
Selective Removal Floor Plan & Elevation

Sheet Number:
ASR-101

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HARVARD, MA
978.456.2800
WWW.MAUGEL.COM

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FIRST FLOOR PLAN (1)
SCALE: 1/16" = 1'-0"

Notes:

SCOPE LEGEND	
	AREA NOT IN SCOPE

PARTITION LEGEND	
	EXISTING WALL, VERIFY CONSTRUCTION IN FIELD
	INTERIOR PARTITION
	(N) EXTERIOR WALL: • 3 5/8" CMU VENEER • 1 7/8" AIR GAP • 2 1/2" RIGID INSULATION • 9 5/8"CMU BACKUP
	(N) EXTERIOR WALL: • 9 5/8"CMU BACKUP

PARTITION NOTES

1. ALL NEW WALLS NOT KEYED IN BY WALL TYPE DESIGNATION TO BE COORDINATED W/ ARCHITECT

DIMENSIONING NOTES

1. INTERIOR PARTITIONS ARE IMENSIONED TO THE CENTERLINE, UON

FIRE EXTINGUISHER	
FE-1	SURFACE MOUNT FIRE EXTINGUISHER, JL INDUSTRIES COSMIX 5X
FE-2	RECESSED FIRE EXTINGUISHER- 1-1/2" TRIM, JL INDUSTRIES COSMIX 5X, CABINET #1826G17, MILL FINISH

Key Plan:



Architect's Stamp:

Project:
110 Venture Drive _ Q LLC
Addition

110 Venture Drive
Dover, NH 03820

Client:
QLLC

4 Cutts St. Unit 3, Portsmouth, NH 03801

Project #: 21096
Scale: As indicated

Issue:	Date:
Progress	10081021

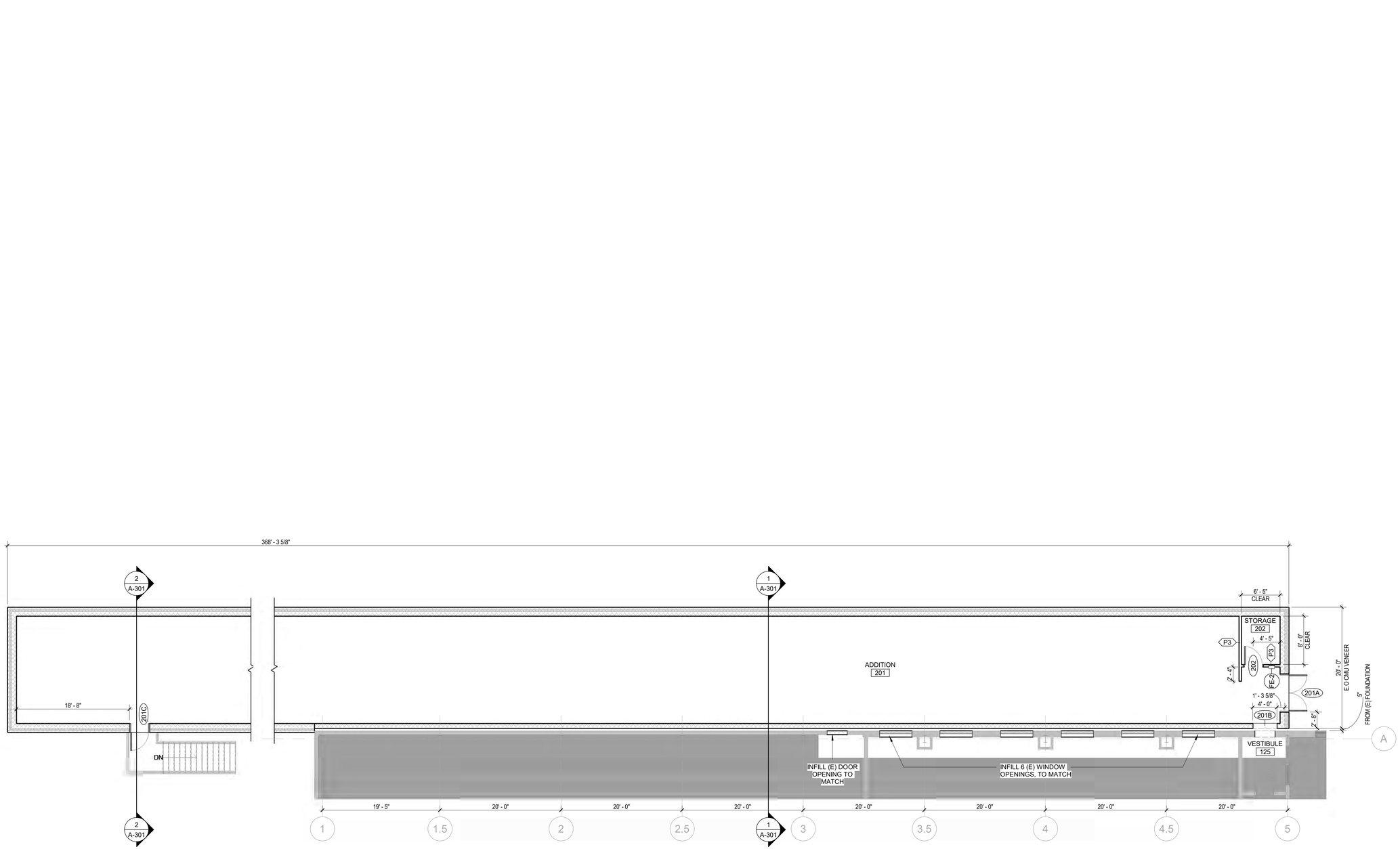
Revisions:	Date:

Drawing Title:
First Floor Plan

Sheet Number:
A-101

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978-456-2800
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FIRST FLOOR - PHASE 2 - Callout 1 (1)

SCALE: 1/8" = 1'-0"

Notes:

SCOPE LEGEND	
	AREA NOT IN SCOPE

PARTITION LEGEND	
	EXISTING WALL, VERIFY CONSTRUCTION IN FIELD
	INTERIOR PARTITION
	(N) EXTERIOR WALL: • 3 5/8" CMU VENEER • 1 7/8" AIR GAP • 2 1/2" RIGID INSULATION • 9 5/8"CMU BACKUP
	(N) EXTERIOR WALL: • 9 5/8"CMU BACKUP

PARTITION NOTES
1. ALL NEW WALLS NOT KEYED IN BY WALL TYPE DESIGNATION TO BE COORDINATED W/ ARCHITECT

DIMENSIONING NOTES
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FIRE EXTINGUISHER	
FE-1	SURFACE MOUNT FIRE EXTINGUISHER, JL INDUSTRIES COSMIX 5X
FE-2	RECESSED FIRE EXTINGUISHER- 1-1/2" TRIM, JL INDUSTRIES COSMIX 5X, CABINET #1826G17, MILL FINISH

Key Plan:

Architect's Stamp:

Project:
110 Venture Drive _ Q LLC Addition

110 Venture Drive
Dover, NH 03820

Client:
QLLC

4 Cutts St. Unit 3, Portsmouth, NH 03801

Project #: 21096

Scale: 1/8" = 1'-0"

Issue:	Date:
Progress	10081021

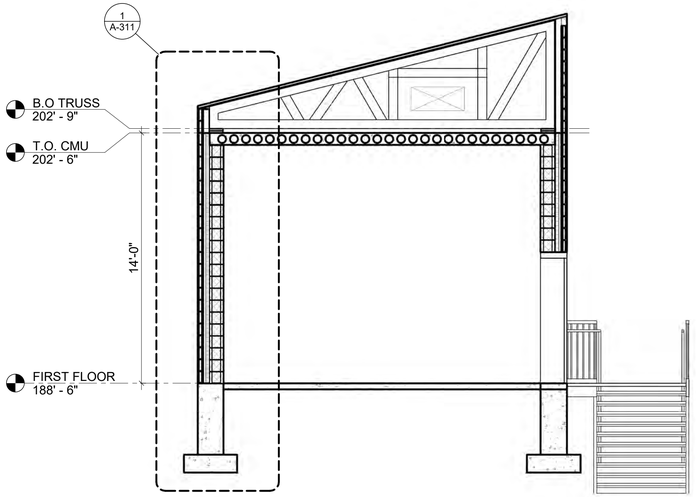
Revisions:	Date:

Drawing Title:
Enlarged Partial Floor Plan, Partition Types & Door Schedule

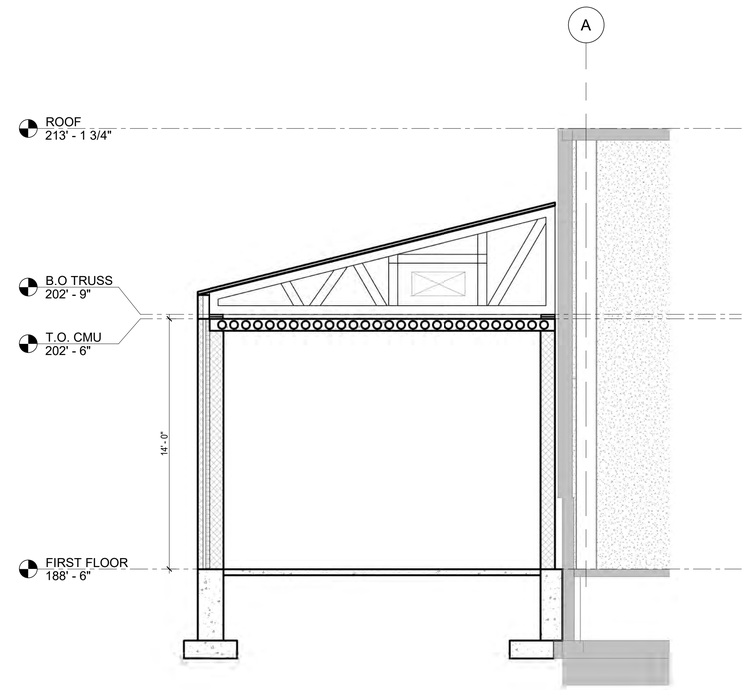
Sheet Number:
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SECTION @ STAIR 2
SCALE: 1/4" = 1'-0"



TYPICAL SECTION @ EXISTING BUILDING 1
SCALE: 1/4" = 1'-0"

Notes:

Key Plan:



Architect's Stamp:

Project:
110 Venture Drive _ Q LLC Addition

110 Venture Drive
Dover, NH 03820

Client:
QLLC

4 Cutts St. Unit 3, Portsmouth, NH 03801

Project #: 21096

Scale: 1/4" = 1'-0"

Issue:	Date:
Progress	10081021

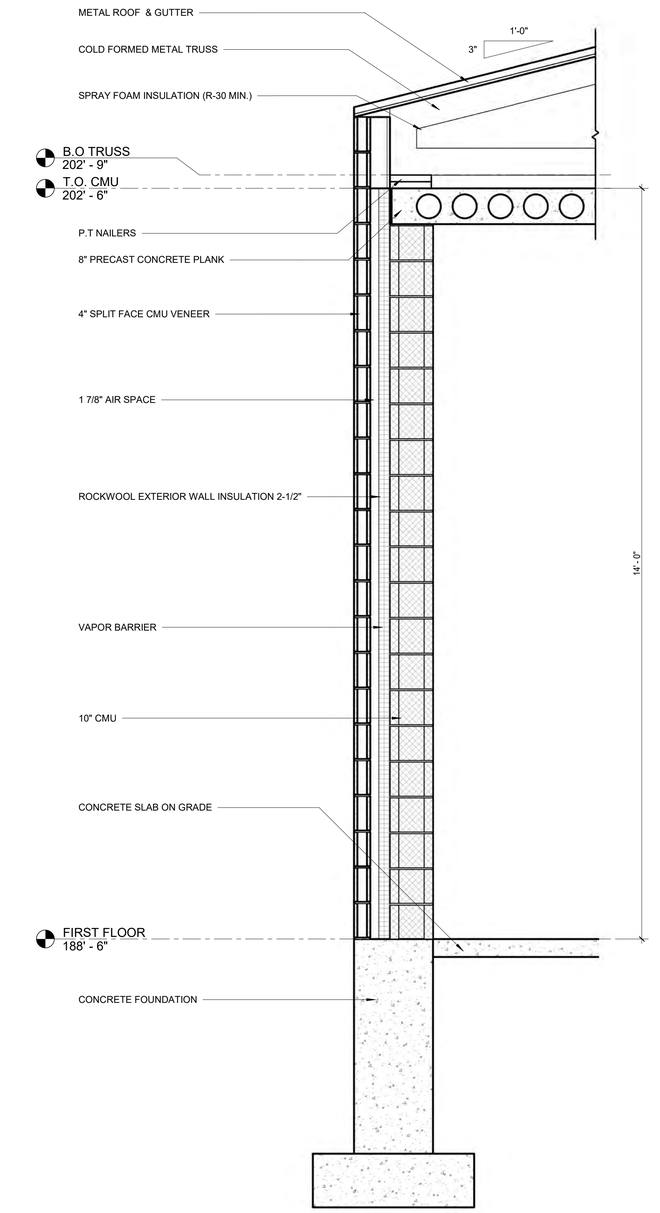
Revisions:	Date:

Drawing Title:
Building Sections

Sheet Number:
A-301

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WALL SECTION @ EAVE 1

SCALE: 3/4" = 1'-0"

Notes:

Key Plan:

Architect's Stamp:

Project:
110 Venture Drive _ Q LLC Addition

110 Venture Drive
Dover, NH 03820

Client:
QLLC

4 Cutts St. Unit 3, Portsmouth, NH 03801

Project #: 21096

Scale: 3/4" = 1'-0"

Issue:	Date:
Progress	10081021

Revisions:	Date:

Drawing Title:
Wall Sections

Sheet Number:
A-311

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110 Venture Drive / Exterior View from Site Entrance / 05/05/2021

MAUGEL ARCHITECTS

City of Dover, New Hampshire
SITE REVIEW APPLICATION

[Revision Date: July 1, 2021]

RECEIVED
Planning Office
OCT 28 2021
Dover, New Hampshire

Office Use Only	Project #: P21-80	Date Received:
	Amount Paid:	Time Received:

APPLICANT AND OWNER INFORMATION

Name of Applicant: J. Michael Joyal, Jr./City of Dover Telephone # (603) 516-6023

Address of Applicant: 288 Central Avenue, Dover, NH 03820

E-Mail Address: m.joyal@dover.nh.gov

Name of Property Owner (*if different from applicant*): City of Dover Telephone # (603) 516-6023

Address of Property Owner: 288 Central Avenue, Dover, NH 03820

PROPERTY INFORMATION

Address of Property: River Street

Assessor's Map # 22 Lot(s) # 1-1

Zoning District(s) CWD Overlay District(s) Wetland Protection District

Size of Parcel: 4.3 Acres Property Deed: Book 225 Page: 493

Existing Use of Property: Municipal Uses – paddlesports dock

SITE PLAN INFORMATION

Describe Proposed Use: Municipal Park with Park Building, walking paths and docks

Area of Parcel to be Developed: Entire lot - 189,130 sq. ft.

If Multi-family Residential: Number of Units _____ & Buildings Proposed _____

If lodging: Number of Units _____ & number of Buildings _____

Number of Parking Spaces: Existing _____ Proposed None on site

Highway Access (check where applicable): _X_ City Street ____ State Highway

Number of Employees Total: N/A In Maximum Shift: _____

Disposition of Parcel:

Building Footprint 2,340 +/- sq. ft.

Total Building Area 4,680 +/- sq. ft.

Paved Area _____ sq. ft.

Building Setbacks:

Front Yard 12 +/- ft.

Rear Yard 105 +/- ft.

Side Yard: Right N/A ft. Left N/A ft.

City Water? _X_ Yes ___ No How far is city water from the property? On property

City Sewer? _X_ Yes ___ No How far is city sewer from the property? On property

TRANSFER OF DEVELOPMENT RIGHTS INFORMATION

Type of TRANSFER OF DEVELOPMENT RIGHT REQUEST (Check All That Apply):

□ Residential □ Residential (reduced size) □ Industrial | □ Purchase □ Land Preservation

Relief sought (Check All That Apply):

□ Lot Size □ Frontage □ Setback □ 30' Buffer □ Increase by _____ units

Describe Proposed Use or Activity that requires TDR; describe any impacts and document mitigation:

_____

_____

_____

BUILDING INFORMATION

Type of Building to be Built: Park Building

Height of Building: Two stories Finished Floor Elevation: 10 +/- feet

Number of Seats (where applicable) N/A

Estimated value of construction: $680,000 Refuse removal: **Public**/Private (circle one)

WAIVER REQUESTS

Site Review Regulations section(s) to be waived: _____

Justification for waiver request(s) (*attach additional sheets as needed*):

_____

_____

_____

_____

_____

_____

_____

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) John Kaiser – Doucet Survey, LLC

Address 102 Kent Place, Newmarket, NH 03857 Telephone #: (603) 659-6560

Professional License #: #937 E-mail address: Jack@doucetsurvey.com

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) Richard Claytor, Jr. – Horsley Witten Group, LLC

Address 90 Route 6A, Sandwich, MA 02563 Telephone #: 508-833-6600

Professional License #: #12433 E-mail address: rclaytor@horsleywitten.com

ARCHITECT INFORMATION

Name of Architect and Company (Licensed in N.H.) _____

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

LANDSCAPE ARCHITECT INFORMATION

Name of Landscape Architect and Company (Licensed in N.H.) Jeffrey R. Hyland, PLA, ASLA, CLARB

Address 55 Main St #129, Newmarket, NH 03857 Telephone #: 603.772.0590

Professional License #: #00026 E-mail address: jhyland@fewood.com

SOIL SCIENTIST INFORMATION

Name of Soil Scientist and Company (Licensed in N.H.) _____

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

CONSERVATION EASEMENT HOLDER

Name of Easement Holder: _____ Telephone #_____

Address Easement Holder: _____

SIGNATURES

I/We hereby submit this application to the City of Dover Planning Board and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. Furthermore, I/we submit that the existing conditions sheet of the plan represents the lot in question, and that no alteration of the site shall take place during Planning Board review up to and including the pre-construction meeting. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

Signature of Property Owner: _____ Date: _____

Signature of Applicant (*if different from owner*): _____ Date: _____

Signature of Agent: _____ Date: _____

AUTHORIZATION TO ENTER SUBJECT PROPERTY

I, and my successors, hereby authorize members of the Dover Planning Board, Planning Department and other pertinent City Departments and boards to enter my property for the purpose of evaluating this application, including performing inspections during the application phase, post-approval phase, construction phase and occupancy phase. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: _____ Date: _____

AUTHORIZATION TO COMPLETE THE PROJECT ON SUBJECT PROPERTY

I, and my successors, hereby the City of Dover or its assigns to enter my property for the purpose of completing the site work as required by the approved plan should the letter or credit or other surety be called. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: _____ Date: _____

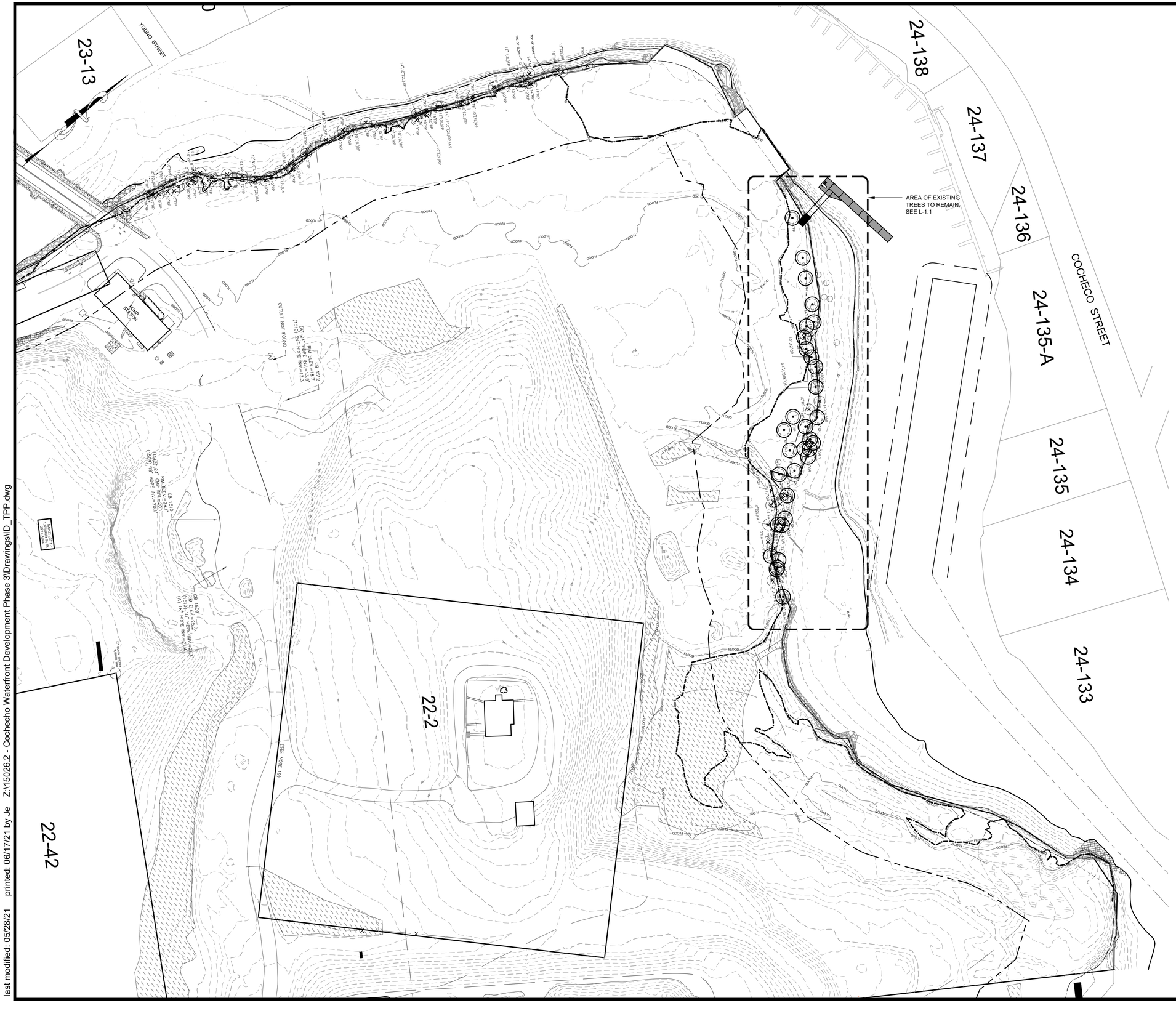
Signature of Applicant (*if different from owner*): _____ Date: _____

CERTIFICATION OF FEES

I, and my successors, hereby certify that I understand that the City of Dover collects impact fees, utility investment fees and inspection fees for projects developed in Dover. Said fees must be paid before a Certificate of Occupancy can be obtained for a structure, unless a different payment schedule is agreed to by the applicant and the City prior to approvals being issued by the Dover Planning Board. Additionally, should the property be in "Current Use" it will be subject to the Land Use Change Tax.

Signature of Property Owner: _____ Date: _____

Signature of Applicant (*if different from owner*): _____ Date: _____



LEGEND

- HIGHEST OBSERVABLE TIDE (*HOT*)
- 100' *HOT* OFFSET
- MEAN HIGHER HIGH WATER (*MHHW*)
- MEAN HIGH WATER (*MHW*)
- MEAN LOW WATER (*MLW*)
- MEAN LOWER LOW WATER (*MLLW*)
- 100-YEAR FLOOD
- FLOODWAY
- FEDERAL NAVIGATION CHANNEL
- EXISTING PARCEL LINES
- COCHECO RIVER MULTICOMPONENT SITE 27-ST-123
- FRESHWATER WETLANDS
- APPROXIMATE LOCATION OF RARE PLANTS; SEE CIVIL DOCUMENTS
- EXISTING TREE TO BE REMOVED WITHIN 50' OF SHORELINE WITH >8" TRUNK DIAMETER
- EXISTING TREE TO REMAIN SEE TREE PROTECTION NOTES

SITE PREPARATION NOTES

1. EVERY EFFORT SHALL BE TAKEN TO PRESERVE THE HEALTH OF EXISTING VEGETATION TO REMAIN ON SITE. TREE PROTECTION MEASURES SHALL BE INSTALLED PER CONSTRUCTION DRAWINGS BEFORE ANY CONSTRUCTION ACTIVITY IS TO TAKE PLACE. TREE PROTECTION SHALL REMAIN INTACT THROUGHOUT THE DURATION OF THE PROJECT. ALL TREE PROTECTION SHALL BE REMOVED UPON PROJECT CLOSEOUT.
2. THE CRITICAL ROOT ZONE OF AN EXISTING TREE TO REMAIN IS DEFINED AS A CIRCLE WHOSE CENTER IS THE CENTER OF THE TREE TRUNK AND WHOSE RADIUS IS EQUAL TO THE TREE'S DIAMETER AT BREAST-HEIGHT (DBH) IN INCHES TIMES 12".
3. NO WORK, EQUIPMENT STORAGE, OR STOCKPILING OR DISPOSAL OF MATERIALS SHALL TAKE PLACE WITHIN THE CRITICAL ROOT ZONE OF AN EXISTING TREE TO REMAIN UNLESS OTHERWISE CALLED OUT ON THE PLANS. ANY WORK WITHIN THE CRITICAL ROOT ZONE SHALL PROCEED WITH CARE, AND TREE PROTECTION MEASURES SHALL BE IMMEDIATELY REPLACED UPON COMPLETION OF THAT WORK.
6. EXCAVATION WORK WITHIN THE CRITICAL ROOT ZONE OF AN EXISTING TREE TO REMAIN SHALL BE DONE WITH AN AIR SPADE AND/OR BY HAND DIGGING. IF REQUIRED, ROOTS SHALL BE CUT USING A STERILIZED HAND SAW, LOPPERS, OR HAND PRUNERS. ENSURE THAT CUTS ARE CLEAN WITH NO JAGGED EDGES. PROMPTLY BACKFILL ANY CUT ROOTS. IF CUT ROOTS WILL BE EXPOSED FOR MORE THAN A FEW HOURS, COVER THE EXPOSED ROOTS WITH WET BURLAP TO PREVENT THEM FROM DRYING OUT.
7. CLEAR ALL VEGETATION WITHIN THE CRITICAL ROOT ZONE OF EXISTING TREES TO REMAIN BY CUTTING AT GROUND LEVEL, LEAVING STUMPS AND ROOT SYSTEMS IN PLACE.
8. IDENTIFY AND REMOVE ALL INVASIVE SPECIES COMPLETELY, INCLUDING ROOTS AND CLIMBING VINES, IN ACCORDANCE WITH THE NEW HAMPSHIRE GUIDE TO UPLAND AND INVASIVE SPECIES BY NEW HAMPSHIRE DEPARTMENT OF AGRICULTURE MARKETS AND FOOD, PLANT INDUSTRY DIVISION, MOST RECENT EDITION. DISPOSE OF INVASIVE PLANTS IN A MANNER THAT RENDERS THE PLANT NONLIVING AND NONVIABLE, IN ACCORDANCE WITH FEDERAL AND STATE REGULATIONS.
9. TREE REMOVAL SHALL INCLUDE REMOVAL AND DISPOSAL OF ENTIRE TREE, BRANCHES, AND UNDERGROUND ROOTS >2" DIAMETER. DEBRIS SHALL BE REMOVED FROM THE SITE AND LEGALLY DISPOSED OF BY CONTRACTOR.

GRAPHIC SCALE

60 0 30 60 120 240

(in feet)

1 INCH = 60 FEET

Revisions

Rev.	Date	By	Appr.	Description
1	21/05/28	JM	JRH	DRAFT Response to Wetland RFI
2	21/06/25	JM	JRH	Response to Wetland RFI

Ironwood
Landscape Architecture + Planning
Ironwood, LLC | Rochester, NH | 603.781.0233 | www.ironwoodlla.com

Date: DECEMBER 2019 | Designed By: JM | Drawn By: JM | Checked By: JRH

DOVER WATERFRONT
PERMIT SET
DOVER, NEW HAMPSHIRE

Plan Set:

Plan Title: TREE PROTECTION PLAN

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: —

Survey Provided By:
Doucet Survey, Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603) 659-6560
Fax: —
Dated: OCTOBER 19, 2016

Registration:

DRAFT
NOT FOR CONSTRUCTION

Project Number: 15026

Sheet: 30 of 46

Sheet Number: L-1.0

last modified: 05/28/21 printed: 06/17/21 by Je Z:\15026.2 - Cocheco Waterfront Development Phase 3\Drawings\ID_TPP.dwg

SITE PREPARATION NOTES

1. EVERY EFFORT SHALL BE TAKEN TO PRESERVE THE HEALTH OF EXISTING VEGETATION TO REMAIN ON SITE. TREE PROTECTION MEASURES SHALL BE INSTALLED PER CONSTRUCTION DRAWINGS BEFORE ANY CONSTRUCTION ACTIVITY IS TO TAKE PLACE. TREE PROTECTION SHALL REMAIN INTACT THROUGHOUT THE DURATION OF THE PROJECT. ALL TREE PROTECTION SHALL BE REMOVED UPON PROJECT CLOSEOUT.
2. THE CRITICAL ROOT ZONE OF AN EXISTING TREE TO REMAIN IS DEFINED AS A CIRCLE WHOSE CENTER IS THE CENTER OF THE TREE TRUNK AND WHOSE RADIUS IS EQUAL TO THE TREE'S DIAMETER AT BREAST-HEIGHT (DBH) IN INCHES TIMES 12".
3. NO WORK, EQUIPMENT STORAGE, OR STOCKPILING OR DISPOSAL OF MATERIALS SHALL TAKE PLACE WITHIN THE CRITICAL ROOT ZONE OF AN EXISTING TREE TO REMAIN UNLESS OTHERWISE CALLED OUT ON THE PLANS. ANY WORK WITHIN THE CRITICAL ROOT ZONE SHALL PROCEED WITH CARE, AND TREE PROTECTION MEASURES SHALL BE IMMEDIATELY REPLACED UPON COMPLETION OF THAT WORK.
4. CLEAR ALL VEGETATION WITHIN THE CRITICAL ROOT ZONE OF EXISTING TREES TO REMAIN BY CUTTING AT GROUND LEVEL, LEAVING STUMPS AND ROOT SYSTEMS IN PLACE.
5. IDENTIFY AND REMOVE ALL INVASIVE SPECIES COMPLETELY, INCLUDING ROOTS AND CLIMBING VINES, IN ACCORDANCE WITH THE NEW HAMPSHIRE GUIDE TO UPLAND AND INVASIVE SPECIES BY NEW HAMPSHIRE DEPARTMENT OF AGRICULTURE MARKETS AND FOOD, PLANT INDUSTRY DIVISION, MOST RECENT EDITION. DISPOSE OF INVASIVE PLANTS IN A MANNER THAT RENDERS THE PLANT NONLIVING AND NONVIABLE, IN ACCORDANCE WITH FEDERAL AND STATE REGULATIONS.
6. EXCAVATION WORK WITHIN THE CRITICAL ROOT ZONE OF AN EXISTING TREE TO REMAIN SHALL BE DONE WITH AN AIR SPADE AND/OR BY HAND DIGGING. IF REQUIRED, ROOTS SHALL BE CUT USING A STERILIZED HAND SAW, LOPPERS, OR HAND PRUNERS. ENSURE THAT CUTS ARE CLEAN WITH NO JAGGED EDGES. PROMPTLY BACKFILL ANY CUT ROOTS. IF CUT ROOTS WILL BE EXPOSED FOR MORE THAN A FEW HOURS, COVER THE EXPOSED ROOTS WITH WET BURLAP TO PREVENT THEM FROM DRYING OUT.

LEGEND

- HIGHEST OBSERVABLE TIDE (*HOT*)
- 100' *HOT* OFFSET
- MEAN HIGHER HIGH WATER (*MHHW*)
- MEAN HIGH WATER (*MHW*)
- MEAN LOW WATER (*MLW*)
- MEAN LOWER LOW WATER (*MLLW*)
- 100-YEAR FLOOD
- FLOODWAY
- FEDERAL NAVIGATION CHANNEL
- EXISTING PARCEL LINES
- COCHECO RIVER MULTICOMPONENT SITE 27-ST-123
- FRESHWATER WETLANDS
- APPROXIMATE LOCATION OF RARE PLANTS; SEE CIVIL DOCUMENTS
- EXISTING TREE TO BE REMOVED WITHIN 50' OF SHORELINE WITH >8" TRUNK DIAMETER
- EXISTING TREE TO REMAIN SEE TREE PROTECTION NOTES

TREE PROTECTION FENCE, TYP

CRITICAL ROOT ZONE OF EXISTING TREES TO REMAIN, TYP

GRAPHIC SCALE

20 0 10 20 40 80

(in feet)

1 INCH = 20 FEET

Revisions

Rev.	Date	By	Appr.	Description
2	210528	JM	JRH	DRAFT Response to Wetland RFI
1	210625	JM	JRH	Response to Wetland RFI

Ironwood
Landscape Architecture + Planning
Ironwood, LLC | Rumford, ME | 603.520.6555 | www.ironwood.com

Date: DECEMBER 2019 | Designed By: JM | Drawn By: JM | Checked By: JRH

Plan Set:
DOVER WATERFRONT
PERMIT SET
DOVER, NEW HAMPSHIRE

Plan Title:
TREE PROTECTION PLAN

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: ---

Survey Provided By:
Doucet Survey, Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603) 659-6560
Fax: ---
Dated: OCTOBER 19, 2016

Registration:

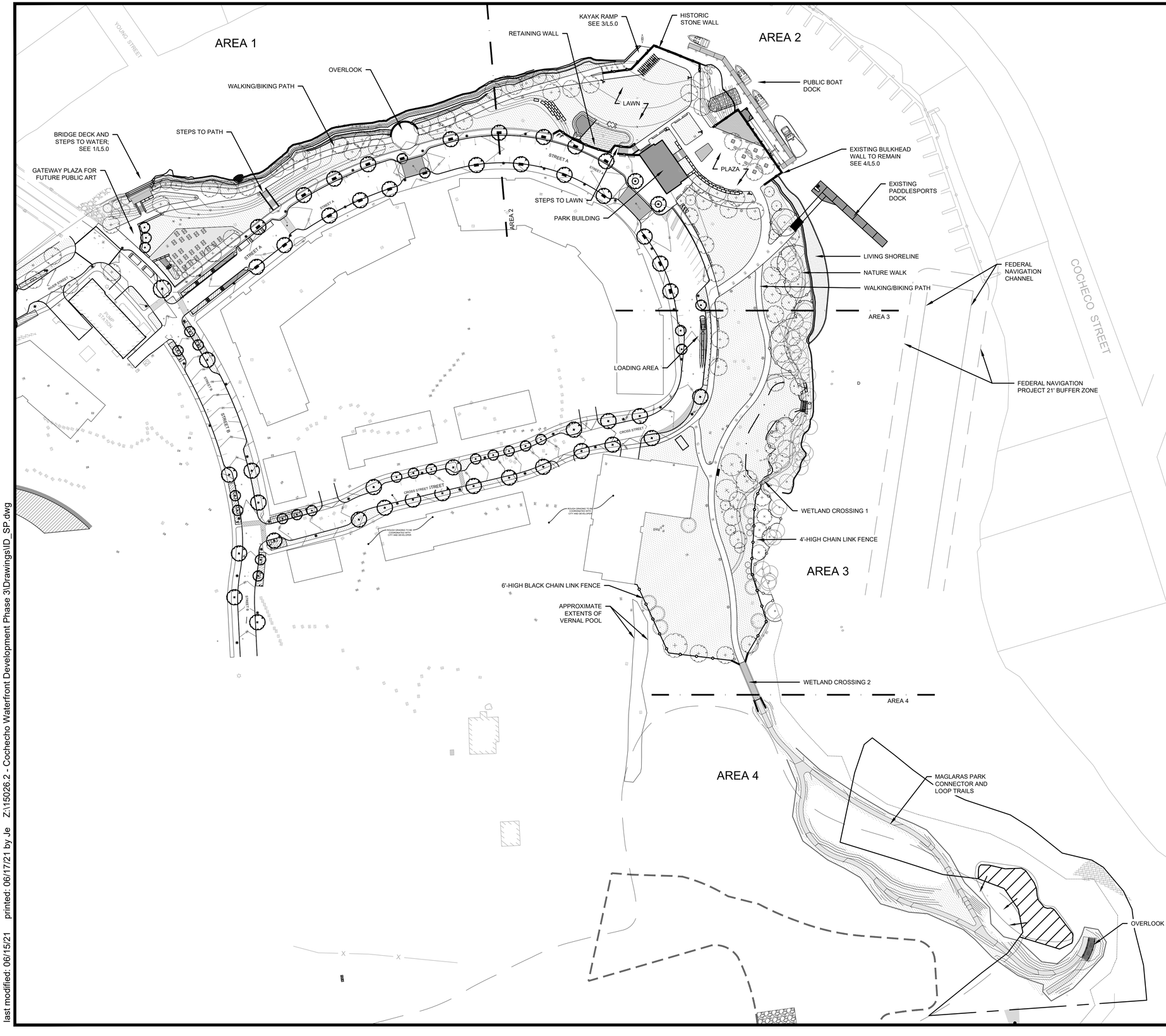
DRAFT
NOT FOR CONSTRUCTION

Project Number: 15026

Sheet : 31 of 46

Sheet Number: L- 1.1

last modified: 05/28/21 printed: 06/17/21 by Je Z:\15026.2 - Cocheco Waterfront Development Phase 3\Drawings\ID_TPP.dwg



LEGEND

- EXISTING TREE TO REMAIN, SEE TREE PROTECTION PLAN
- CRITICAL ROOT ZONE OF EXISTING TREES TO REMAIN, SEE TREE PROTECTION PLAN FOR CONSTRUCTION ACTIVITY RESTRICTIONS
- DECIDUOUS TREE, SEE PLANTNG PLAN
- WOOD DECKING
- CONCRETE UNIT PAVERS, SEE 2/L5.2
- CONCRETE PATH, SEE 1/L5.2
- PLANTED AREA, SEE PLANTING PLAN
- STONE FINES PATH, SEE 5/L5.2
- EXISTING LIGHT TO REMAIN
- STREET LIGHT TYPE 1
- WALL PACK LIGHT TYPE 2
- PARK PATH LIGHT TYPE 3
- MULTI-DIRECTIONAL LIGHT TYPE 4
- 8' BENCH
- CUSTOM CURVED BENCH
- CUSTOM STRAIGHT BENCH
- BISTRO TABLES
- BIKE RACKS
- LITTER RECEPTACLES
- GUARDRAIL
- BLACK CHAIN LINK FENCE
- HIGHEST OBSERVABLE TIDE (*HOT*)
- 100' *HOT* OFFSET
- MEAN HIGHER HIGH WATER (*MHHW*)
- MEAN HIGH WATER (*MHW*)
- MEAN LOW WATER (*MLW*)
- MEAN LOWER LOW WATER (*MLLW*)
- 100-YEAR FLOOD
- FLOODWAY
- FEDERAL NAVIGATION CHANNEL
- EXISTING PARCEL LINES
- COCHECHO RIVER MULTICOMPONENT SITE 27-ST-123
- FRESHWATER WETLANDS
- RARE PLANTS

GRAPHIC SCALE

60 0 30 60 120 240

(in feet)

1 INCH = 60 FEET

Revisions

Rev.	Date	By	Appr.	Description
1	21/05/28	JM	JRH	DRAFT Response to Wetland RFI
2	21/06/25	JM	JRH	Response to Wetland RFI

Ironwood Landscape Architecture + Planning
Newmarket, NH | Portland, ME | (603) 7316585 | www.ironwoodla.com

Date: DECEMBER 2019 | Designed By: JM | Drawn By: JM | Checked By: JRH

DOVER WATERFRONT
PERMIT SET
DOVER, NEW HAMPSHIRE

Plan Set:

Plan Title: PARK LAYOUT OVERVIEW

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: ----

Survey Provided By:
Doucet Survey, Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603) 659-6560
Fax: ----
Dated: OCTOBER 19, 2016

Registration:

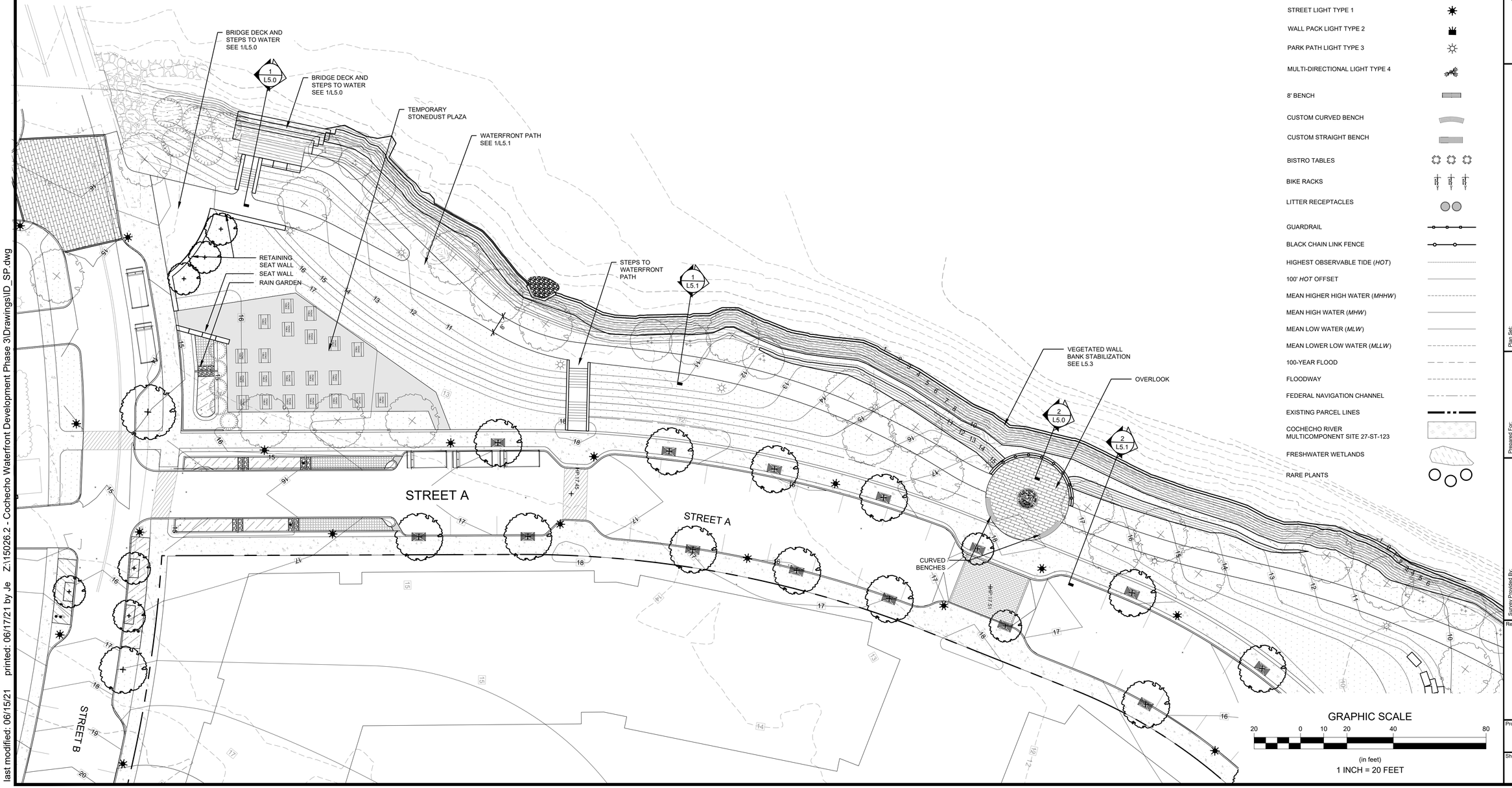
DRAFT
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Project Number: 15026

Sheet : 32 of 46

Sheet Number: L- 2.0

last modified: 06/15/21 printed: 06/17/21 by Je Z:\15026.2 - Cochecho Waterfront Development Phase 3\Drawings\ID_SP.dwg



LEGEND

- EXISTING TREE TO REMAIN, SEE TREE PROTECTION PLAN
- CRITICAL ROOT ZONE OF EXISTING TREES TO REMAIN, SEE TREE PROTECTION PLAN FOR CONSTRUCTION ACTIVITY RESTRICTIONS
- DECIDUOUS TREE, SEE PLANTNG PLAN
- WOOD DECKING
- CONCRETE UNIT PAVERS, SEE 2/L5.2
- CONCRETE PATH, SEE 1/L5.2
- PLANTED AREA, SEE PLANTING PLAN
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- FLOODWAY
- FEDERAL NAVIGATION CHANNEL
- EXISTING PARCEL LINES
- COCHECHO RIVER MULTICOMPONENT SITE 27-ST-123
- FRESHWATER WETLANDS
- RARE PLANTS

Revisions

Rev.	Date	By	Appr.	Description
2	2/05/26	JM	JRH	DRAFT Response to Wetland RFI
1	2/06/25	JM	JRH	Response to Wetland RFI

Ironwood
Landscape Architecture + Planning
Newmarket, NH | Portland, ME | 603.772.0585 | www.ironwoodla.com

Date: DECEMBER 2019 | Designed By: JM | Drawn By: JM | Checked By: JRH

Plan Set: DOVER WATERFRONT PERMIT SET
DOVER, NEW HAMPSHIRE

Plan Title: PARK LAYOUT AREA 1

Prepared For:
City of Dover
288 Central Ave
Dover, NH 03820
Phone: (603) 516-6000
Fax: ----

Survey Provided By:
Doucet Survey, Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603) 659-6560
Fax: ----
Dated: OCTOBER 19, 2016

Registration:
DRAFT
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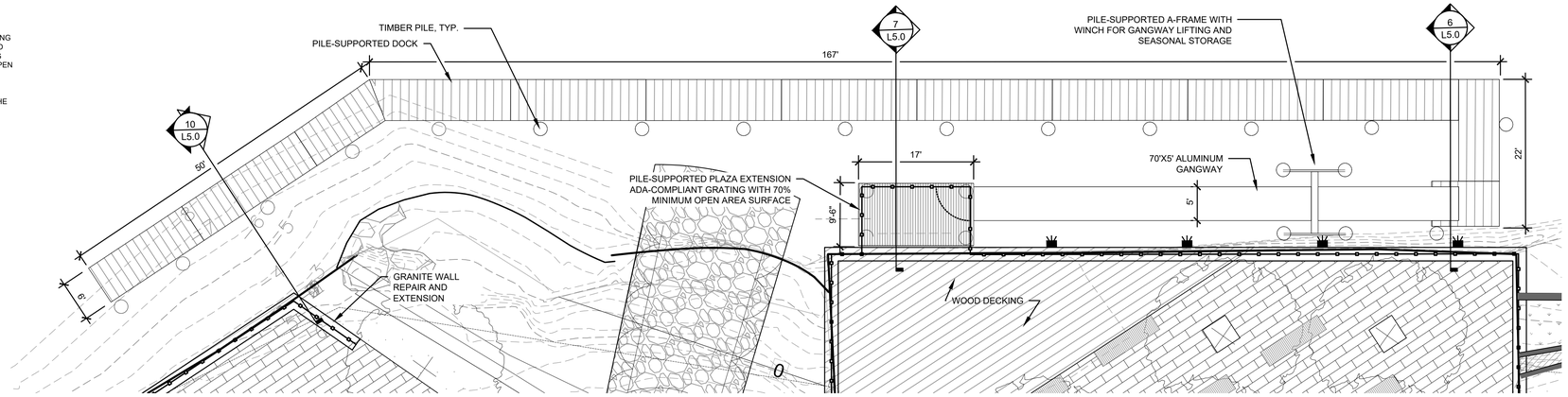
Project Number: 15026
Sheet : 33 of 46

Sheet Number: L- 2.1

last modified: 06/15/21 printed: 06/17/21 by Je Z:\15026.2 - Cochecho Waterfront Development Phase 3\Drawings\ID_SP.dwg

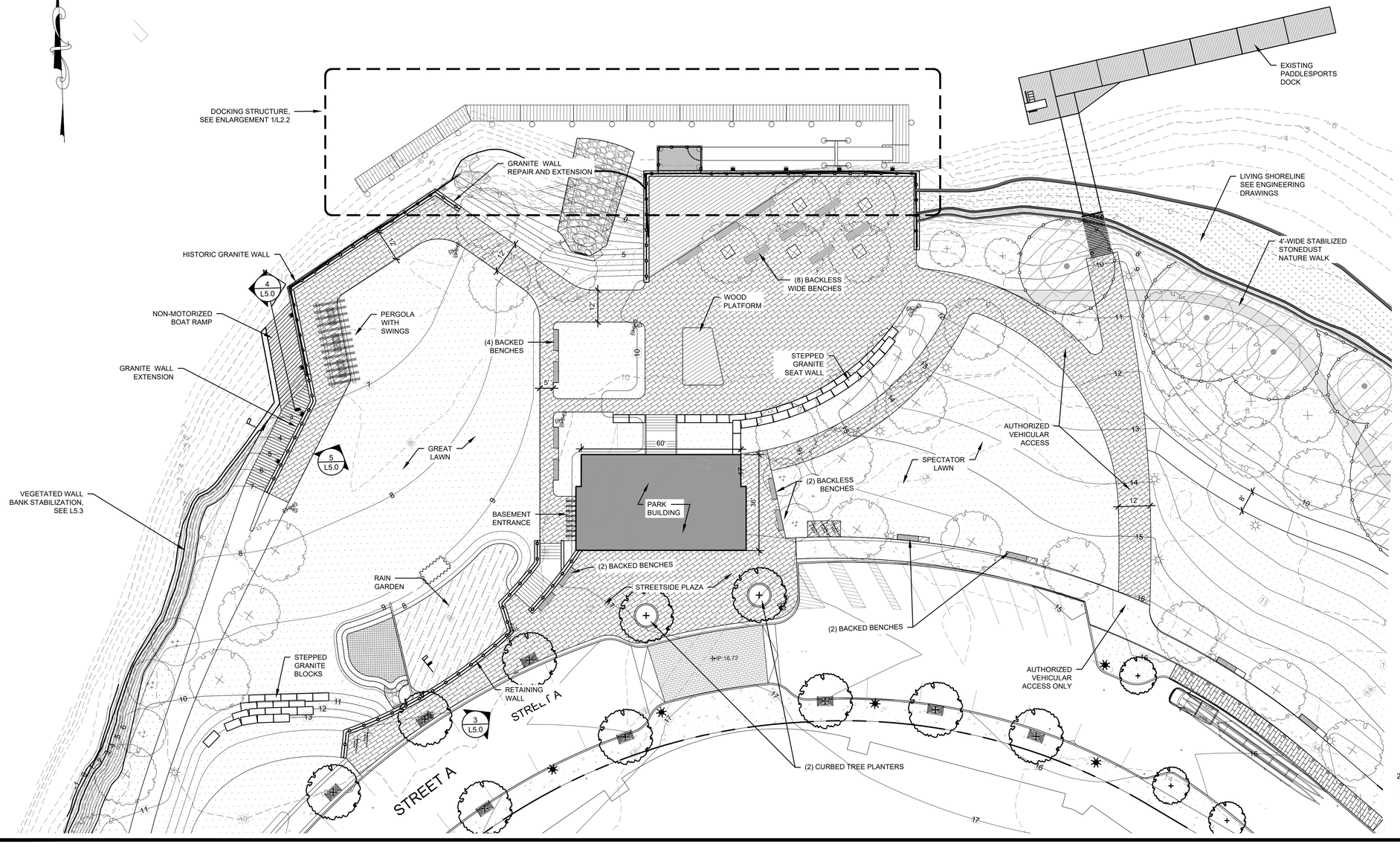
DOCK NOTES:

1. GANGWAY WILL BE ALUMINUM WITH NON-SKID DECKING
2. PILE-SUPPORTED PLAZA EXTENSION WILL BE DECKED WITH FIBER-REINFORCED POLYPROPYLENE GRATING THAT IS ADA COMPLIANT AND HAS A MINIMUM 50% OPEN FOR LIGHT PENETRATION.
3. GANGWAY AND FLOATS WILL BE REMOVED DURING WINTER MONTHS AND STORED ONSHORE.
4. THE PROPOSED PIER AND DOCK WILL BE OPEN TO THE PUBLIC.



1 DOCKING STRUCTURE ENLARGEMENT

3/16" = 1'-0"



LEGEND

- EXISTING TREE TO REMAIN, SEE TREE PROTECTION PLAN
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- COCHECHO RIVER MULTICOMPONENT SITE 27-ST-123
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- RARE PLANTS

GRAPHIC SCALE

20 0 10 20 40 80

(in feet)

1 INCH = 20 FEET

Revisions

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Ironwood Landscape Architecture + Planning
Newmarket, NH | Portland, ME | (603) 7316585 | www.ironwoodla.com

Date: DECEMBER 2019 | Designed By: JM | Drawn By: JM | Checked By: JRH

DOVER WATERFRONT
PERMIT SET
DOVER, NEW HAMPSHIRE

Plan Set:

Plan Title: PARK LAYOUT AREA 2

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: ----

Survey Provided By:
Doucet Survey, Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603) 659-6560
Fax: ----
Dated: OCTOBER 19, 2016

Registration:

DRAFT
NOT FOR CONSTRUCTION

Project Number: 15026

Sheet : 34 of 46

Sheet Number: L- 2.2

last modified: 06/15/21 printed: 06/17/21 by Je Z:\15026.2 - Cochecho Waterfront Development Phase 3\Drawings\ID_SP.dwg

LEGEND

- EXISTING TREE TO REMAIN, SEE TREE PROTECTION PLAN
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- COCHECHO RIVER MULTICOMPONENT SITE 27-ST-123
- FRESHWATER WETLANDS
- RARE PLANTS

FEDERAL NAVIGATION CHANNEL

FEDERAL NAVIGATION PROJECT 21' BUFFER ZONE

EXISTING PADDLESPORTS DOCK

LIVING SHORELINE SEE CIVIL DRAWINGS

4'-WIDE STABILIZED STONEDUST NATURE WALK

STONE BLOCKS

STONE BLOCKS AT POCKET WETLAND OUTFALL, SEE 6/L5.1

3&4 L5.0

WETLAND CROSSING 1 SEE 6/L5.1

4'-HIGH BLACK CHAIN LINK FENCE

WATERFRONT PATH; SEE 1/L5.1

LAWN

(2) BACKED BENCHES

(13) BOLLARDS

INTERPRETIVE SIGN BY OTHERS

LOADING AREA

6'-HIGH BLACK CHAIN LINK FENCE

CROSS STREET

GRAPHIC SCALE

20 0 10 20 40 80

(in feet)

1 INCH = 20 FEET

Revisions

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2	21/06/25	JM	JRH	Response to Wetland RFI

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Landscape Architecture + Planning
Newmarket, NH | Portland, ME | (603) 7316585 | www.ironwoodla.com

Date: DECEMBER 2019 | Designed By: JM | Drawn By: JM | Checked By: JRH

Plan Set: DOVER WATERFRONT PERMIT SET DOVER, NEW HAMPSHIRE

Plan Title: PARK LAYOUT AREA 3

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: ----

Survey Provided By:
Doucet Survey, Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603) 659-6560
Fax: ----
Dated: OCTOBER 19, 2016

Registration:

DRAFT
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Project Number: 15026

Sheet : 35 of 46

Sheet Number: L- 2.3

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LEGEND

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- BIKE RACKS
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- HIGHEST OBSERVABLE TIDE (*HOT*)
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- MEAN HIGHER HIGH WATER (*MHHW*)
- MEAN HIGH WATER (*MHW*)
- MEAN LOW WATER (*MLW*)
- MEAN LOWER LOW WATER (*MLLW*)
- 100-YEAR FLOOD
- FLOODWAY
- FEDERAL NAVIGATION CHANNEL
- EXISTING PARCEL LINES
- COCHECHO RIVER MULTICOMPONENT SITE 27-ST-123
- FRESHWATER WETLANDS
- RARE PLANTS

OVERLOOK PERGOLA

6'-WIDE STABILIZED STONEDUST NATURE WALK

TRAIL CONNECTION TO MAGLARAS PARK

WETLAND CROSSING 2 TO MAGLARAS PARK CONNECTOR SEE 7/L5.1

6'-WIDE STABILIZED STONEDUST NATURE WALK

GRAPHIC SCALE

20 0 10 20 40 80

(in feet)

1 INCH = 20 FEET

last modified: 06/15/21 printed: 06/17/21 by Je Z:\15026.2 - Cocheco Waterfront Development Phase 3\Drawings\ID_SP.dwg

Revisions

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Ironwood Landscape Architecture + Planning
Newmarket, NH | Portland, ME | 603.772.0585 | www.ironwoodla.com

Date: DECEMBER 2019 | Designed By: JM | Drawn By: JM | Checked By: JRH

DOVER WATERFRONT
PERMIT SET
DOVER, NEW HAMPSHIRE

Plan Set:

Plan Title: PARK LAYOUT AREA 4

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: ----

Survey Provided By:
Doucet Survey, Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603) 659-6560
Fax: ----
Dated: OCTOBER 19, 2016

Registration:

DRAFT
NOT FOR CONSTRUCTION

Project Number: 15026

Sheet : 36 of 46

Sheet Number: L-2.4

last modified: 06/17/21 printed: 06/17/21 by Je Z:\15026.2 - Cochecho Waterfront Development Phase 3\Drawings\ID_PP.dwg

LEGEND: PLANTING PLAN

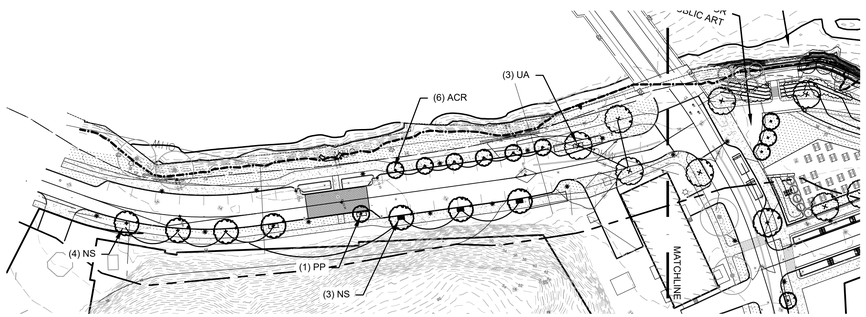
NOTE: SEE L4.4 FOR PLANT SCHEDULE AND SEED MIXES

- EXISTING TREE TO REMAIN, SEE TREE PROTECTION PLAN
- DECIDUOUS TREE
- MULTISTEM TREE
- EVERGREEN TREE
- GROUNDCOVER SHRUBS AND PERENNIALS
- TREE GRATE
- GROUNDCOVER - SEE ENLARGEMENT PLANS FOR DETAILS

(3) ARR, (3) AC, (2) ARR, (2) UA, (4) NS, (4) NS, (1) AC, (1) CO, (1) ARB, (3) AC, (3) MSS, (5) LL, (3) ARB, (2) AC, (3) LSR, (2) PP, (4) CCP, (9) UA, (3) LSR, (5) GTS, (3) CCA, (3) NS, (3) CCI, (3) ARR, (5) GT, (5) GTS, (3) CCP, (3) QA, (3) ARR, (5) JVH, (1) UA, (3) ACR, (3) ACR, (1) KP, (6) GTS, (3) COV, (2) GT, (3) QV, (3) QA, (6) ARB, (5) ACR, (3) ACR, (1) KP, (1) KP, (7) CCP, (3) SA, (3) CO, (1) PC, (4) QA, (1) LL, (3) TO, (2) COV, (3) UA, (2) CCI, (3) CCI, (1) UA, (1) COV, (3) CCI, (3) JVH, (1) PR, (3) UA, (2) CCR, (3) PR, (1) PR, (1) MA, (3) ARR

MATCHLINE, MATCHLINE, MATCHLINE

PLANT DISTURBED AREAS WITH UPLAND MEADOW SEED MIX



1 STREET TREES - RIVER STREET
1" = 60'-0"

GRAPHIC SCALE
60 0 30 60 120 240
(in feet)
1 INCH = 60 FEET

Revisions

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2	21/05/28	JM	JRH	DRAFT Response to Wetland RFI
1	21/06/25	JM	JRH	Response to Wetland RFI

Ironwood Landscape Architecture + Planning
Newmarket, NH | Portland, ME | (603) 7335585 | www.ChrisWood.com

Date: DECEMBER 2019 | Designed By: JM | Drawn By: JM | Checked By: JRH

DOVER WATERFRONT
PERMIT SET
DOVER, NEW HAMPSHIRE

Plan Set:

Plan Title: PLANTING PLAN - TREES

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: ----

Survey Provided By:
Doucet Survey, Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603) 659-6560
Fax: ----
Dated: OCTOBER 19, 2016

Registration:

DRAFT
NOT FOR CONSTRUCTION

Project Number: 15026
Sheet : 37 of 46

Sheet Number: L- 4.0

BRIDGE DECK AND STEPS TO WATER SEE 1/L5.0

BRIDGE DECK AND STEPS TO WATER SEE 1/L5.0

TEMPORARY STONEDUST PLAZA

WATERFRONT PATH SEE 1/L5.1

VEGETATED WALL SEE L5.3 FOR PLANTING

SEEDED UPLAND MEADOW

(10) RA

(6) RA

3' MOW STRIP AT EDGE OF PATH, TYP.

STEPS TO WATERFRONT PATH

RETAINING SEAT WALL

SEAT WALL

RAIN GARDEN

SEEDED UPLAND MEADOW

(6) AA

(9) MP

VEGETATED WALL BANK STABILIZATION SEE L5.3

OVERLOOK

SEEDED UPLAND MEADOW

(46) PV

CURVED BENCHES

TURF GRASS

SLOPE

GRAPHIC SCALE

20 0 10 20 40 80

(in feet)

1 INCH = 20 FEET

LEGEND: PLANTING PLAN

NOTE: SEE L4.4 FOR PLANT SCHEDULE AND SEED MIXES

- EXISTING TREE TO REMAIN, SEE TREE PROTECTION PLAN
- DECIDUOUS TREE
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- TREE GRATE
- UPLAND MEADOW
- WOODLAND MEADOW
- BIORETENTION AREA - SEE ENGINEERING DRAWINGS
- BIOENGINEERED WALL
- TURF GRASS
- LIVING SHORELINE - SEE ENGINEERING DRAWINGS

Revisions

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DOVER WATERFRONT
PERMIT SET
DOVER, NEW HAMPSHIRE

Plan Set:

Plan Title:

Prepared For:
City of Dover
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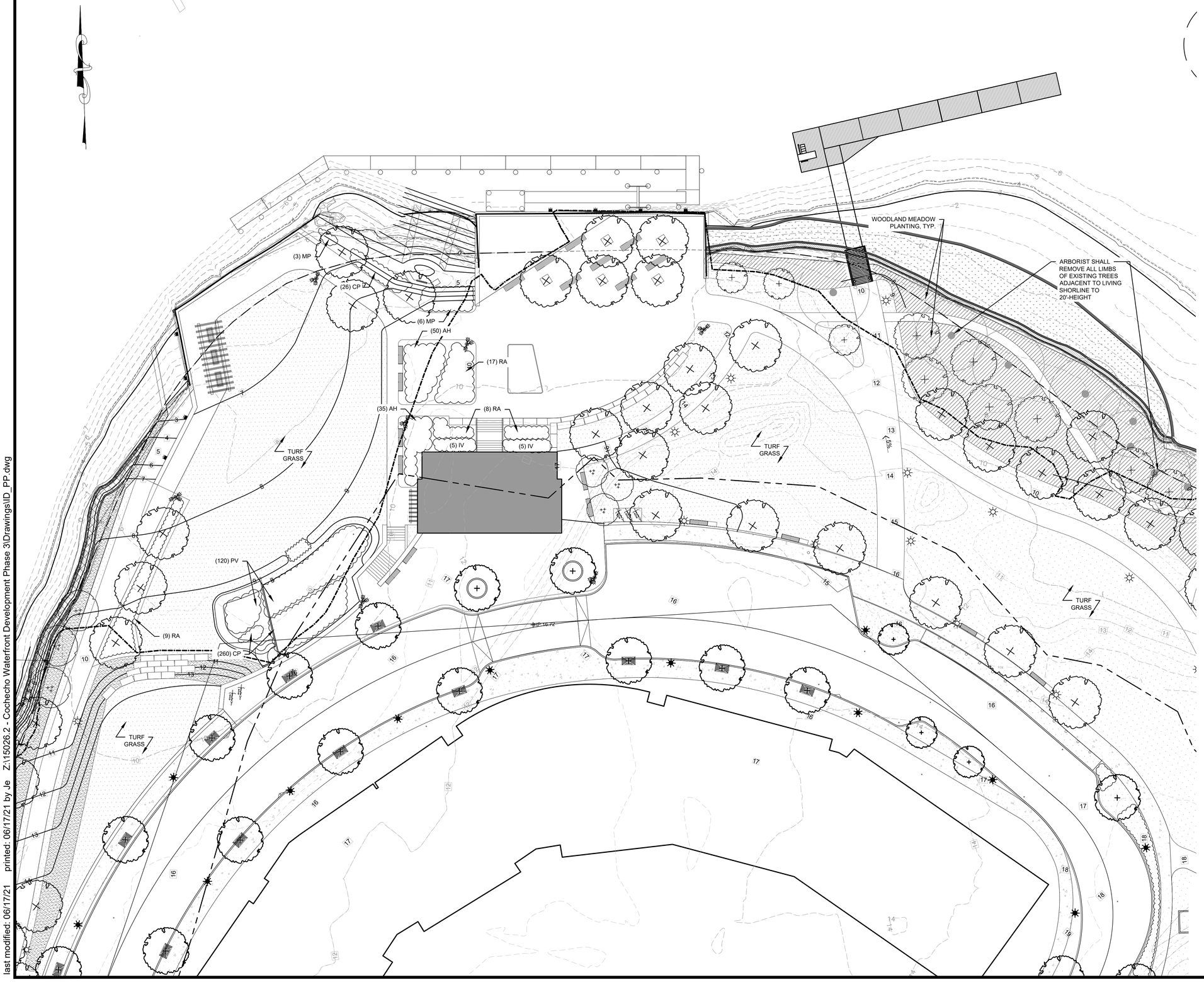
DRAFT
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Project Number: 15026

Sheet : 38 of 46

Sheet Number: L-4.1

last modified: 06/17/21 printed: 06/17/21 by Je Z:\15026.2 - Cochecho Waterfront Development Phase 3\Drawings\ID_PP.dwg



LEGEND: PLANTING PLAN

NOTE: SEE L4.4 FOR PLANT SCHEDULE AND SEED MIXES

- EXISTING TREE TO REMAIN, SEE TREE PROTECTION PLAN
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GRAPHIC SCALE

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Date: DECEMBER 2019 | Designed By: JM | Drawn By: JM | Checked By: JRH

Plan Set:
DOVER WATERFRONT
PERMIT SET
DOVER, NEW HAMPSHIRE

Plan Title:
PLANTING PLAN AREA 2

Prepared For:
City of Dover
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Dover, NH 03820
Phone: (603) 516-6000
Fax: ----

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Registration:

DRAFT
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Sheet Number: L- 4.2

last modified: 06/17/21 printed: 06/17/21 by Je Z:\15026.2 - Cocheco Waterfront Development Phase 3\Drawings\ID_PP.dwg



LEGEND: PLANTING PLAN

NOTE: SEE L4.4 FOR PLANT SCHEDULE AND SEED MIXES

- EXISTING TREE TO REMAIN, SEE TREE PROTECTION PLAN
- DECIDUOUS TREE
- MULTISTEM TREE
- EVERGREEN TREE
- GROUNDCOVER SHRUBS AND PERENNIALS
- TREE GRATE
- UPLAND MEADOW
- WOODLAND MEADOW
- BIORETENTION AREA - SEE ENGINEERING DRAWINGS
- BIOENGINEERED WALL
- TURF GRASS
- LIVING SHORELINE - SEE ENGINEERING DRAWINGS

GRAPHIC SCALE

20 0 10 20 40 80

(in feet)

1 INCH = 20 FEET

Revisions

Rev.	Date	By	Appr	Description
1	21/05/28	JM	JRH	DRAFT Response to Wetland RFI
2	21/06/25	JM	JRH	Response to Wetland RFI

Ironwood Landscape Architecture + Planning
Newmarket, NH | Portland, ME | (603) 7316585 | www.ironwoodla.com

Designed By: JM | Drawn By: JM | Checked By: JRH | Date: DECEMBER 2019

Plan Set:

DOVER WATERFRONT
PERMIT SET
DOVER, NEW HAMPSHIRE

Plan Title:

PLANTING PLAN AREA 3

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
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Survey Provided By:
Doucet Survey, Inc.
102 Kent Place
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Dated: OCTOBER 19, 2016

Registration:

DRAFT
NOT FOR CONSTRUCTION

Project Number: 15026

Sheet : 40 of 46

Sheet Number: L- 4.3

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PLANT SCHEDULE

TREES						
QTY.	*ABREV.*	*SCIENTIFIC NAME*	*COMMON NAME*	*SIZE*	*SPACING*	*REMARKS*
10	ARB	ACER RUBRUM 'BOWHALL'	BOWHALL RED MAPLE	3-3.5"	AS SHOWN	SINGLE STEM B&B
14	ARR	ACER RUBRUM 'REDPOINTE'	REDPOINTE RED MAPLE	3-3.5"	AS SHOWN	SINGLE STEM B&B
9	AC	AMELANCHIER CANADENSIS	SERVICEBERRY	7-8'	AS SHOWN	MULTI-STEM B&B
20	ACR	AMELANCHIER CANADENSIS 'ROBIN HILL'	SERVICEBERRY	2.5-3"	AS SHOWN	SINGLE STEM B&B
14	CCP	CARPINUS CAROLIANA 'PALISADES'	AMERICAN HORNBEAM	2.5-3"	AS SHOWN	SINGLE STEM B&B
6	COV	CARYA OVATA	SHAGBARK HICKORY	2.5-3"	AS SHOWN	CONTAINER
4	CO	CELTIS OCCIDENTALIS	COMMON HACKBERRY	2.5-3"	AS SHOWN	B&B
3	CCA	CERCIS CANADENSIS 'ALBA'	FIND	6'-7'	AS SHOWN	B&B
11	CCI	CRATAEGUS CRUSGALI INERMIS	THORNLESS COCKSPUR HAWTHORN	2-2.5"	AS SHOWN	SINGLE STEM B&B
7	GT	GLEDITSIA TRIACANTHOS 'HALKA'	HALKA HONEY LOCUST	2.5-3"	AS SHOWN	SINGLE STEM B&B
16	GTS	GLEDITSIA TRIACANTHOS 'SKYLINE'	SKYLINE HONEY LOCUST	3-3.5"	AS SHOWN	SINGLE STEM B&B
8	JVH	JUNIPERUS VIRGINIANA 'HILLSPIRE'	HILLSPIRE RED CEDAR	6-7'	AS SHOWN	B&B
3	KP	KOELREUTERIA PANICULATA	GOLDEN RAINTREE	2.5-3"	AS SHOWN	SINGLE STEM B&B
6	LL	LARIX LARICINA	AMERICAN LARCH	10-12'	AS SHOWN	B&B
6	LSR	LIQUIDAMBAR STYRACIFLUA 'ROTUNDILOBA'	FRUITLESS SWEETGUM	2.5-3"	AS SHOWN	B&B
1	MA	MAGNOLIA ACUMINATA	CUCUMBERTREE	2.5-3"	AS SHOWN	B&B
3	MSS	MALUS SPRING SNOW	SPRING SNOW CRABAPPLE	2-2.5"	AS SHOWN	SINGLE STEM B&B
18	NS	NYSSA SYLVATICA 'FIRESTARTER'	FRUITLESS BLACK GUM (TUPELO)	3-3.5"	AS SHOWN	CONTAINER
3	PP	PARROTIA PERSICA	PERSIAN IRONWOOD	3-3.5"	AS SHOWN	SINGLE STEM B&B
1	PC	PINUS CEMBRA	SWISS STONE PINE	7-8'	AS SHOWN	B&B
5	PR	PINUS RIGIDA	PITCH PINE	7-8'	AS SHOWN	B&B
10	QA	QUERCUS ALBA	WHITE OAK	3-3.5"	AS SHOWN	B&B
3	QV	QUERCUS VELUTINA	BLACK OAK	1.5-2"	AS SHOWN	CONTAINER
3	SA	SASSAFRASS ALBIDUM	COMMON SASSAFRASS	5-6'	AS SHOWN	B&B
3	TO	THUGA OCCIDENTALIS 'WINTERGREEN'	TECHNY ARBORVITAE	7-8'	AS SHOWN	B&B
22	UA	ULMUS AMERICANA 'PRINCETON'	PRINCETON AMERICAN ELM	3-3.5"	AS SHOWN	SINGLE STEM B&B
209	**TOTAL**					

WATERFRONT PARK SHRUBS AND GROUNDCOVER						
QTY.	*ABREV.*	*SCIENTIFIC NAME*	*COMMON NAME*	*SIZE*	*SPACING*	*REMARKS*
85	AH	AMSONIA HUBRICHTII	ARKANSAS BLUESTAR	#1	24" OC	CONTAINER
286	CP	CAREX PENSYLVANICA	PENSYLVANIA SEDGE	#1	12" OC	CONTAINER
21	IV	ILEX VERTICILLATA	WINTERBERRY	3-4'	4'-OC	B&B
38	MP	MYRICA PENSYLVANICA	BAYBERRY	#3	6'-OC	CONTAINER
166	PV	PANICUM VIRGATUM 'SHENANDOAH'	SHENANDOAH SWITCH GRASS	#3	36" OC	CONTAINER
45	RA	RHUS AROMATICA 'GRO LOW'	GRO LOW SUMAC	#3	6' OC	CONTAINER

VEGETATED WALL LIVE BRANCH LAYERING						
QTY.	*ABREV.*	*SCIENTIFIC NAME*	*COMMON NAME*	*SIZE*	*SPACING*	*REMARKS*
2389	ARG	ALNUS RUGOSA	SPECKLED ALDER	3-4'-LONG	AS SHOWN	LIVE BRANCH
2389	CS	CORNUS SERICEA	RED OSIER DOGWOOD	3-4'-LONG	AS SHOWN	LIVE BRANCH
2389	SP	SALIX PURPUREA	STREAMCO WILLOW	3-4'-LONG	AS SHOWN	LIVE BRANCH
2389	VD	VIBURNUM DENTATUM	ARROWWOOD	3-4'-LONG	AS SHOWN	LIVE BRANCH
2389	VL	VIBURNUM LENTAGO	NANNYBERRY	3-4'-LONG	AS SHOWN	LIVE BRANCH

VEGETATED WALL LANDSCAPE PLUGS						
QTY.	*ABREV.*	*SCIENTIFIC NAME*	*COMMON NAME*	*SIZE*	*SPACING*	*REMARKS*
908	PV	PANICUM VIRGATUM	SWITCHGRASS	5" DEEP PLUG	AS SHOWN	LANDSCAPE PLUG
908	SSC	SCHIZACHYRIUM SCOPSRIUM	LITTLE BLUESTEM	5" DEEP PLUG	AS SHOWN	LANDSCAPE PLUG
908	SV	SCIRPUS VALIDUS	SOFT-STEMMED BULRUSH	5" DEEP PLUG	AS SHOWN	LANDSCAPE PLUG
908	SSP	SOLIDAGO SEMPERVIRENS	SEASIDE GOLDENROD	5" DEEP PLUG	AS SHOWN	LANDSCAPE PLUG

VEGETATED WALL PLANTING POCKET						
QTY.	*ABREV.*	*SCIENTIFIC NAME*	*COMMON NAME*	*SIZE*	*SPACING*	*REMARKS*
12	AAB	ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA'	RED CHOKEBERRY	#3	48" OC	CONTAINER
12	AA	AMELANCHIER ALNIFOLIA 'REGENT'	REGENT SERVICEBERRY	#5	72" OC	CONTAINER
12	MP	MYRICA PENSYLVANICA	BAYBERRY	#3	72" OC	CONTAINER

WOODLAND MEADOW						
QTY.	*ABREV.*	*SCIENTIFIC NAME*	*COMMON NAME*	*SIZE*	*SPACING*	*REMARKS*
785	PV	PANICUM VIRGATUM	SWITCHGRASS	#1	24" oc	CONTAINER
349	CA	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	#1	36" oc	CONTAINER
349	GB	GAYLUSSACIA BACCATA	BLACK HUCKLEBERRY	#1	36" oc	CONTAINER
785	OC	OSMUNDASTRUM CINNAMOMEUM	CINNAMON FERN	#1	24" oc	CONTAINER
785	VA	VACCINIUM ANGUSTIFOLIUM	LOW BUSH BLUEBERRY	#1	24" oc	CONTAINER
785	TN	THELYPTERIS NOVEBORACENSIS	NEW YORK FERN	#1	24" oc	CONTAINER
87	AR	ALNUS RUGOSA	SPECKLED ALDER	5-6'	6' oc	BARE ROOT
87	CA	CORNUS AMOMUM	SILKY DOGWOOD	#3	6' oc	CONTAINER
87	IV	ILEX VERTICILLATA	WINTERBERRY	#3	6' oc	CONTAINER
196	MG	MYRICA GALE	SWEET GALE	#3	4' oc	CONTAINER
87	MP	MYRICA PENSYLVANICA	BAYBERRY	#3	6' oc	CONTAINER

LIVING SHORELINE						
QTY.		*SCIENTIFIC NAME*	*COMMON NAME*	*SIZE*	*SPACING*	*REMARKS*
Coir fiber logs supporting lower (Tier 1) Living Shoreline Cell						
507		SPARTINA ALTERNIFLORA	SMOOTH CORDGRASS	5" DEEP PLUG	9" OC	LANDSCAPE PLUG
Living Shoreline Lower Cell (Tier 1)						
740		SPARTINA ALTERNIFLORA	SMOOTH CORDGRASS	TURF MAT	1.4SF FLAT	CONTRACT GROWN
1397		SPARTINA PATENS	SALT MEADOW HAY	5" DEEP PLUG	9" OC	LANDSCAPE PLUG
1397		DISTICHLIS SPICATA	SPIKE GRASS	5" DEEP PLUG	9" OC	LANDSCAPE PLUG
506		BOLBOSCHOENUS ROBUSTUS	SALTMARSH BULRUSH	#1	15" OC	CONTAINER
Coir fiber logs supporting upper (Tier 2) Living Shoreline Cell						
158		SPARTINA PATENS	SALT MEADOW HAY	5" DEEP PLUG	9" OC	LANDSCAPE PLUG
158		DISTICHLIS SPICATA	SPIKE GRASS	5" DEEP PLUG	9" OC	LANDSCAPE PLUG
57		BOLBOSCHOENUS ROBUSTUS	SALTMARSH BULRUSH	#1	15" OC	CONTAINER
Living Shoreline Upper Cell (Tier 2)						
264		SAMOLUS VALERANDI SPP PARVIFLORUS	SEASIDE BROOKWEED	TRANSPLANT	SEE WETLAND SCIENTIST NARRATIVE REGARDING TRANSPLANT	
143		SCHOENOPLECTUS PUNGENS	THREE-SQUARE BULRUSH	#1	15" OC	CONTAINER
143		HIBISCUS MOSCHEUTOS	MARSH HIBUSCUS	#1	15" OC	CONTAINER
Coir Fiber Logs upgradient of Living Shoreline						
191		SCHOENOPLECTUS PUNGENS	THREE-SQUARE BULRUSH	5" DEEP PLUG	9" OC	LANDSCAPE PLUG
191		SOLIDAGO SEMPERVIRENS	SEASIDE GOLDENROD	5" DEEP PLUG	9" OC	LANDSCAPE PLUG
191		SPARTINA PECTINATA	PRAIRIE CORDGRASS	5" DEEP PLUG	9" OC	LANDSCAPE PLUG
191		PANICUM VIRGATUM	SWITCH GRASS	5" DEEP PLUG	9" OC	LANDSCAPE PLUG
191		JUNCUS GERARDII	BLACK RUSH	5" DEEP PLUG	9" OC	LANDSCAPE PLUG
Coir Fiber Logs stabilizing undercut banks						
253		PANICUM VIRGATUM	SWITCH GRASS	5" DEEP PLUG	9" OC	LANDSCAPE PLUG
253		HIBISCUS MOSCHEUTOS	MARSH HIBUSCUS	5" DEEP PLUG	9" OC	LANDSCAPE PLUG
92		IRIS VERSICOLOR	BLUE FLAG IRIS	5" DEEP PLUG	9" OC	LANDSCAPE PLUG

SEED MIXES

UPLAND MEADOW SEED MIX	
SCIENTIFIC NAME	*COMMON NAME*
ANDROPOGON GERARDII	BIG BLUESTEM
ASCLEPIAS SYRIACA	COMMON MILKWEED
ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER
ASTER UMBRELLATUS	FLAT TOPPED/UMBRELLA ASTER
CAREX SCOPARIA	BLUNT BROOM SEDGE
COREOPSIS LANCEOLATA	LANCE LEAVED COREOPSIS
ELYMUS RIPARIUS	RIVERBANK WILD RYE
ELYMUS VIRGINICUS	VIRGINIA WILD RYE
EUPATORIUM PERFOLIATUM	COMMON BONESET
FESTUCA RUBRA	RED FESCUE
PANICUM CLANDESTINUM	DEER TONGUE
PANICUM VIRGATUM	SWITCH GRASS
SOLIDAGO JUNCEA	EARLY GOLDENROD
ZIZIA AUREA	GOLDEN ALEXANDERS

BIORETENTION AREA SEED MIX	
SCIENTIFIC NAME	*COMMON NAME*
ELYMUS RIPARIUS	RIVERBANK WILD RYE
FESTUCA RUBRA	RED FESCUE
SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM
ANDROPOGON GERARDII	BIG BLUESTEM
PANICUM VIRGATUM	SWITCH GRASS
BIDENS CERNUA	NODDING BUR MARIGOLD
ELYMUS RIPARIUS	RIVERBANK WILD RYE
EUPATORIUM FISTULOSUM	JOE PYE WEED
ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER
VERBENA HASTATA	BLUE VERVAIN
JUNCUS EFFUSUS	SOFT RUSH
SCIRPUS CYPERINUS	WOOL GRASS

VEGETATED WALL SEED MIX	
SCIENTIFIC NAME	*COMMON NAME*
ELYMUS CANADENSIS	CANADA WILD RYE
FESTUCA RUBRA	RED FESCUE
ANDROPOGON GERARDII	BIG BLUESTEM
PANICUM VIRGATUM	SWITCH GRASS
JUNCUS TENUIS	PATH RUSH
SOLIDAGO SEMPERVIERNS	SEASIDE GOLDENROD

TURF GRASS MIX	
SCIENTIFIC NAME	*COMMON NAME*
FESTUCA ARUNDINACEA, 'FAWN'	TALL FESCUE
LOLIUM PERENNE 'AMAZING A+	PERENNIAL RYEGRASS
POA PRATENSIS 'VOLT'	KENTUCKY BLUEGRASS
POA PRATENSIS 'SHAMROCK'	KENTUCKY BLUEGRASS
LOLIUM MULTIFLORUM	ANNUAL RYEGRASS
TRIFOLIUM REPENS	WHITE CLOVER

GRAPHIC SCALE

20 0 10 20 40 80

(in feet)

1 INCH = 20 FEET

last modified: 06/17/21 printed: 06/17/21 by Je Z:\15026.2 - Cochecho Waterfront Development Phase 3\Drawings\ID_PP.dwg

Revisions

Rev.	Date	By	Appr	Description
1	2/05/26	JM	JRH	DRAFT Response to Wetland RFI
2	2/06/25	JM	JRH	Response to Wetland RFI

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Date: DECEMBER 2019 | Designed By: JM | Drawn By: JM | Checked By: JRH

Plan Set: DOVER WATERFRONT PERMIT SET DOVER, NEW HAMPSHIRE

Plan Title: PLANT SCHEDULES AND SEED MIXES

Prepared For:
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102 Kent Place
Newmarket, NH 03857
Phone: (603) 659-6560
Fax: ----
Dated: OCTOBER 19, 2016

Registration:

DRAFT NOT FOR CONSTRUCTION

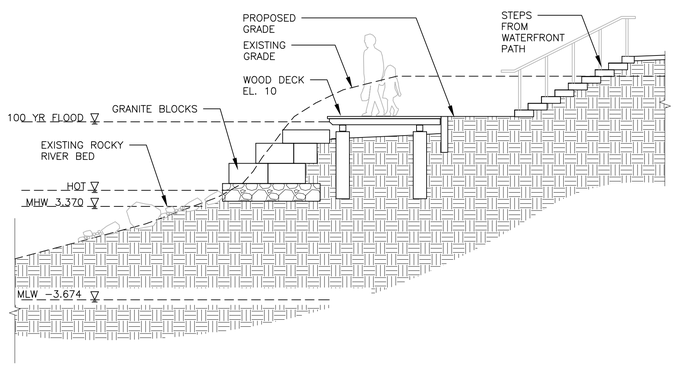
Project Number: 15026

Sheet : 41 of 46

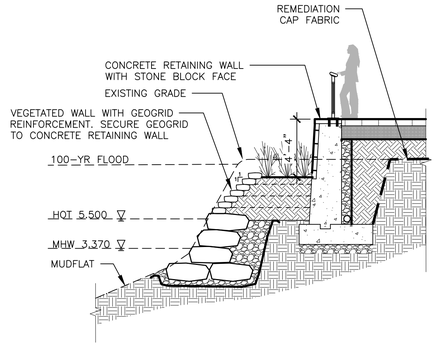
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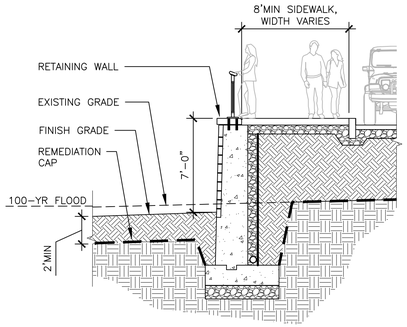
1. THE SECTIONS ON THIS PAGE ARE INTENDED TO ILLUSTRATE SPATIAL RELATIONSHIPS BETWEEN VARIOUS DESIGN ELEMENTS AND IS NOT INTENDED TO BE A CONSTRUCTION DETAIL. THE DESIGN OF ALL STRUCTURAL ELEMENTS INCLUDING RETAINING WALLS, DOCKS, PIERS, WETLAND CROSSINGS AND RAILINGS SHALL BE PERFORMED BY A PROFESSIONAL ENGINEER PRIOR TO CONSTRUCTION.



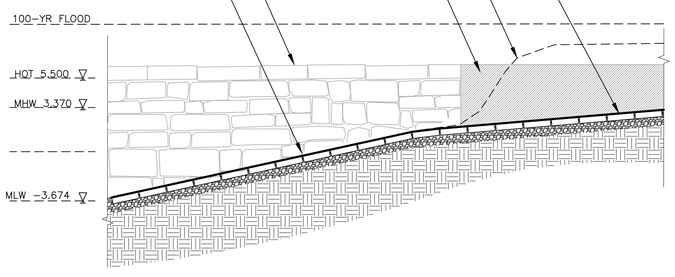
1 BRIDGE DECK SECTION
3/16" = 1'-0"



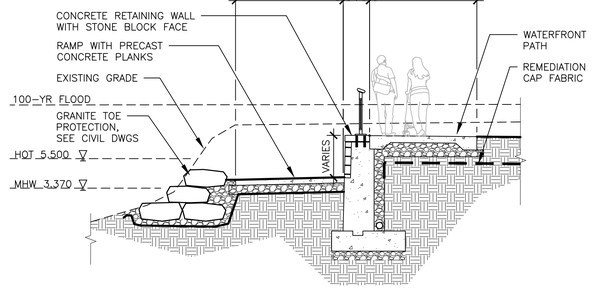
2 OVERLOOK SECTION
3/16" = 1'-0"



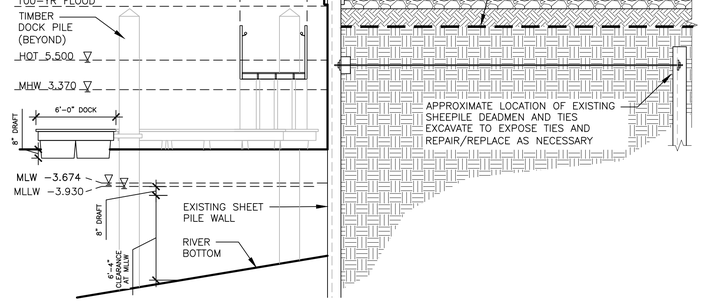
3 RETAINING WALL SECTION AT LAWN
3/16" = 1'-0"



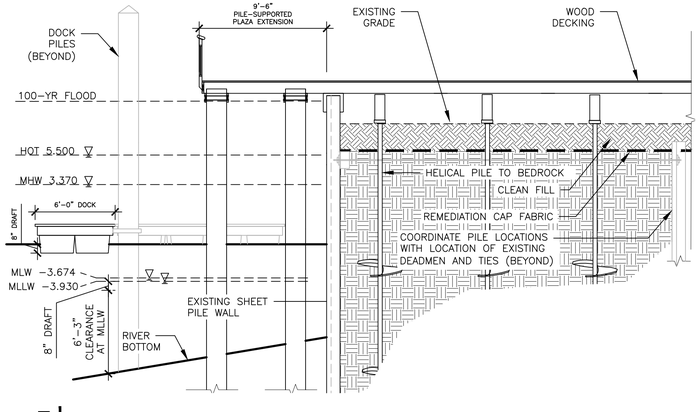
4 KAYAK RAMP LONGITUDINAL SECTION/ELEVATION
3/16" = 1'-0"



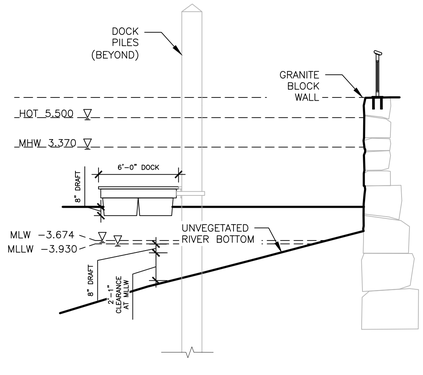
5 KAYAK RAMP CROSS SECTION
3/16" = 1'-0"



6 BULKHEAD DOCK AND PAVED PLAZA SECTION
3/16" = 1'-0"



7 BULKHEAD DOCK AND DECKED PLAZA SECTION
3/16" = 1'-0"



8 DOCK SECTION
3/16" = 1'-0"

Revisions

Rev.	Date	By	Appr.	Description
1	21/05/28	JM	JRH	DRAFT Response to Wetland RFI
2	21/06/25	JM	JRH	Response to Wetland RFI

Ironwood
Landscape Architecture + Planning
Newmarket, NH | Portland, ME | (603) 7316585 | www.ironwoodla.com

Date: DECEMBER 2019 | Designed By: JM | Drawn By: JM | Checked By: JRH

Plan Set: DOVER WATERFRONT PERMIT SET DOVER, NEW HAMPSHIRE

Plan Title: LANDSCAPE SECTIONS

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
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Survey Provided By:
Doucet Survey, Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603) 659-4560
Fax: ----
Dated: OCTOBER 19, 2016

Registration:

DRAFT
NOT FOR CONSTRUCTION

Project Number: 15026

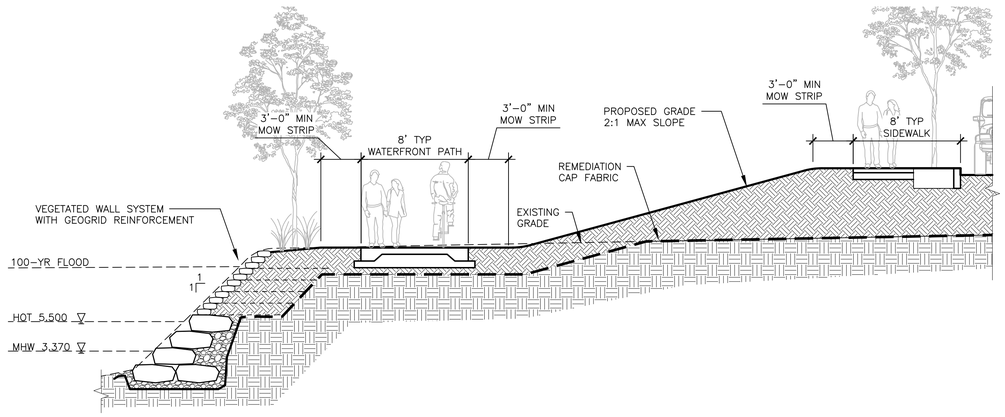
Sheet : 42 of 46

Sheet Number: L- 5.0

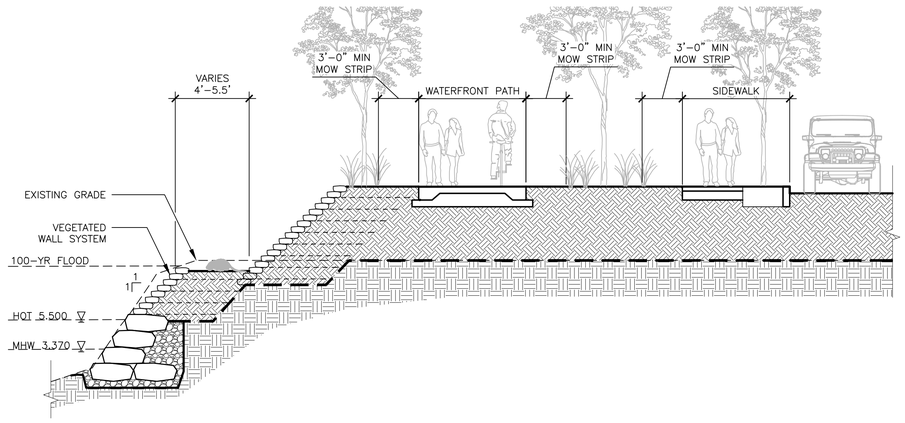
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NOTES:

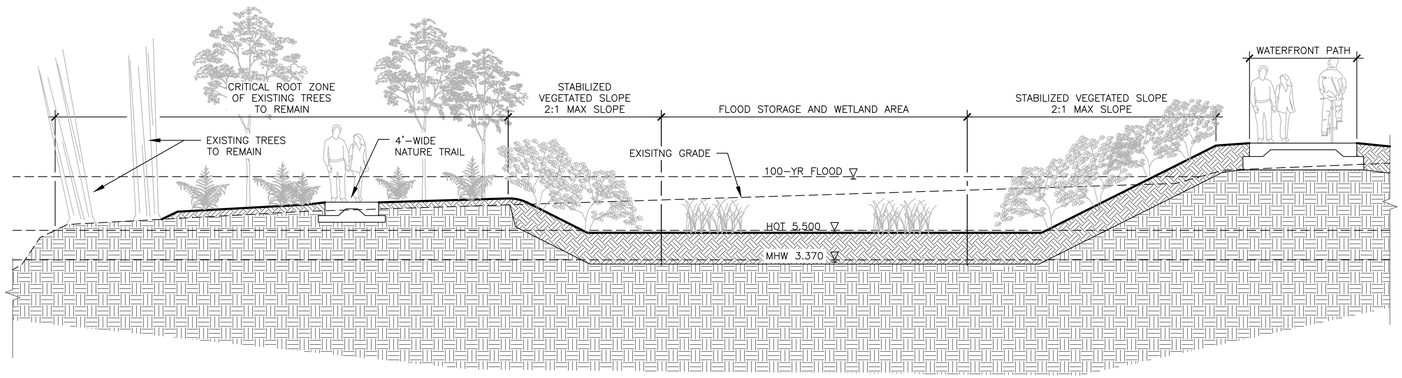
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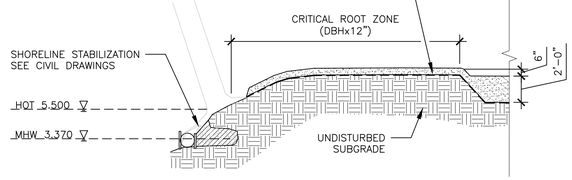
1 SHORELINE, WATERFRONT PATH, AND ROAD SECTION
3/16" = 1'-0"



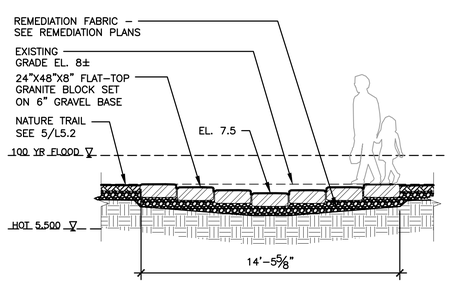
2 SECTION AT TERRACED SHORELINE, WATERFRONT PATH, AND ROAD
3/16" = 1'-0"



3 SECTION THROUGH SHORELINE AND PARK AT BIORETENTION AREA
3/16" = 1'-0"

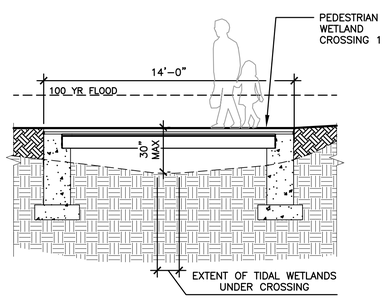


4 SPECIAL STABILIZATION AND CAP AREA AT EXISTING TREES TO REMAIN
3/16" = 1'-0"

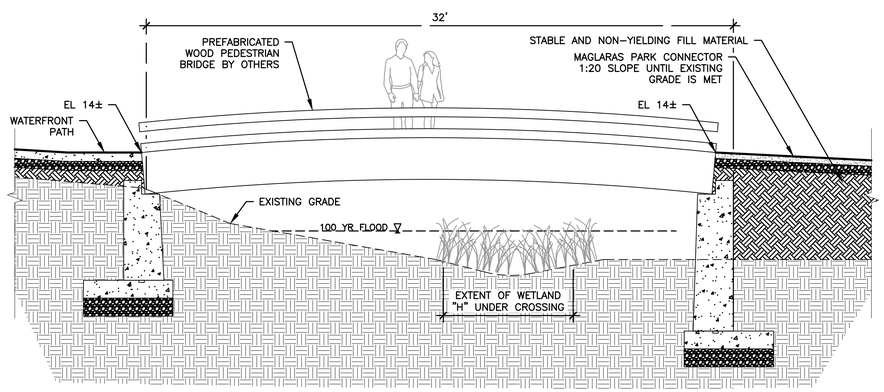


NOTE: EXCAVATION ACTIVITIES WITHIN CRITICAL ROOT ZONE OF EXISTING TREE TO REMAIN HAVE SPECIAL RESTRICTIONS; SEE TREE PROTECTION PLAN FOR MORE INFORMATION

5 STONE BLOCKS AT POCTKET WETLAND OUTFALL
1/4" = 1'-0"



6 WETLAND CROSSING 1
1/4" = 1'-0"



7 WETLAND CROSSING 2
1/4" = 1'-0"

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Revisions

Rev.	Date	By	Appr.	Description
2	10/05/28	JM	JRH	DRAFT Response to Wetland RFI
1	21/06/25	JM	JRH	Response to Wetland RFI

Ironwood
Landscape Architecture + Planning
Newmarket, NH | Portland, ME | (603) 7335555 | www.ironwoodla.com

Checked By: JRH
Drawn By: JM
Designed By: JM
Date: DECEMBER 2019

Plan Set: DOVER WATERFRONT PERMIT SET DOVER, NEW HAMPSHIRE

Plan Title: LANDSCAPE SECTIONS

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: ----

Survey Provided By:
Doucet Survey, Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603) 659-6560
Fax: ----
Dated: OCTOBER 19, 2016

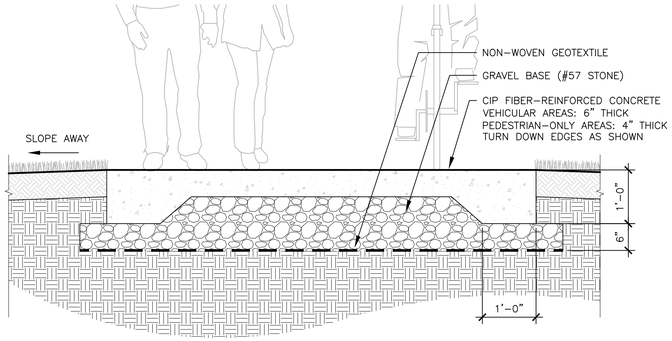
Registration:

DRAFT NOT FOR CONSTRUCTION

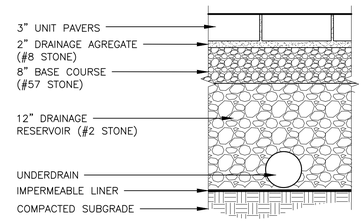
Project Number: 15026

Sheet : 43 of 46

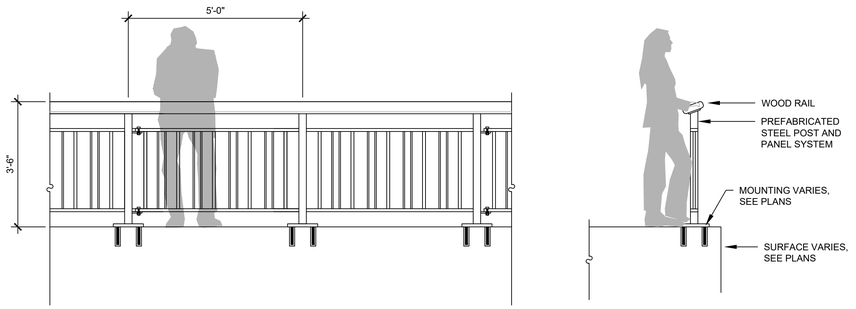
Sheet Number: L- 5.1



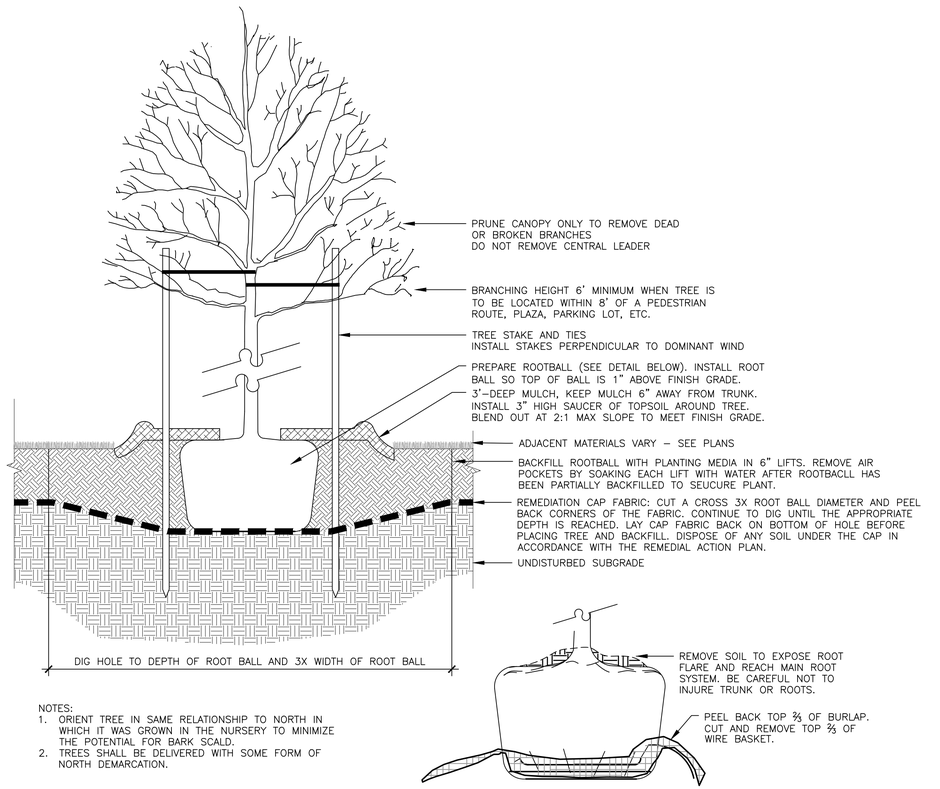
1 CONCRETE PAVING
3/4" = 1'-0"



2 PERMEABLE UNIT PAVING
1-1/2" = 1'-0"

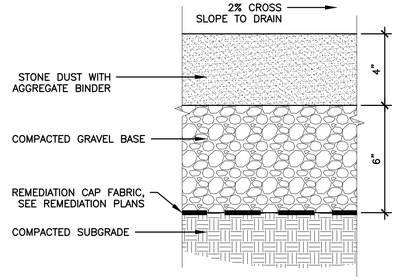


3 GUARDRAIL
1/2" = 1'-0"

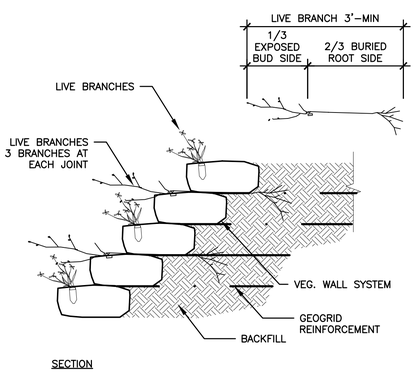


NOTES:
1. ORIENT TREE IN SAME RELATIONSHIP TO NORTH IN WHICH IT WAS GROWN IN THE NURSERY TO MINIMIZE THE POTENTIAL FOR BARK SCALD.
2. TREES SHALL BE DELIVERED WITH SOME FORM OF NORTH DEMARCATION.

4 DECIDUOUS TREE PLANTING
3/16" = 1'-0"



5 STABILIZED STONEDUST PAVING (NATURE TRAIL)
3"=1'-0"



6 LIVE BRANCH LAYERING AND PLUG PLANTING AT VEGETATED WALL
1"=1'-0"

Revisions

No.	Date	By	Appr.	Description
1	210/5/28	JM	JRH	DRAFT Response to Wetland RFI
2	210/6/25	JM	JRH	Response to Wetland RFI

Ironwood
Landscape Architecture + Planning
Newmarket, NH | Portland, ME | (603) 7316585 | www.ironwoodla.com

Checked By: JRH
Drawn By: JM
Designed By: JM
Date: DECEMBER 2019

DOVER WATERFRONT
PERMIT SET
DOVER, NEW HAMPSHIRE

Plan Set:

Plan Title: LANDSCAPE DETAILS

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: ----

Survey Provided By:
Doucet Survey, Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603) 659-6560
Fax: ----
Dated: OCTOBER 19, 2016

Registration:

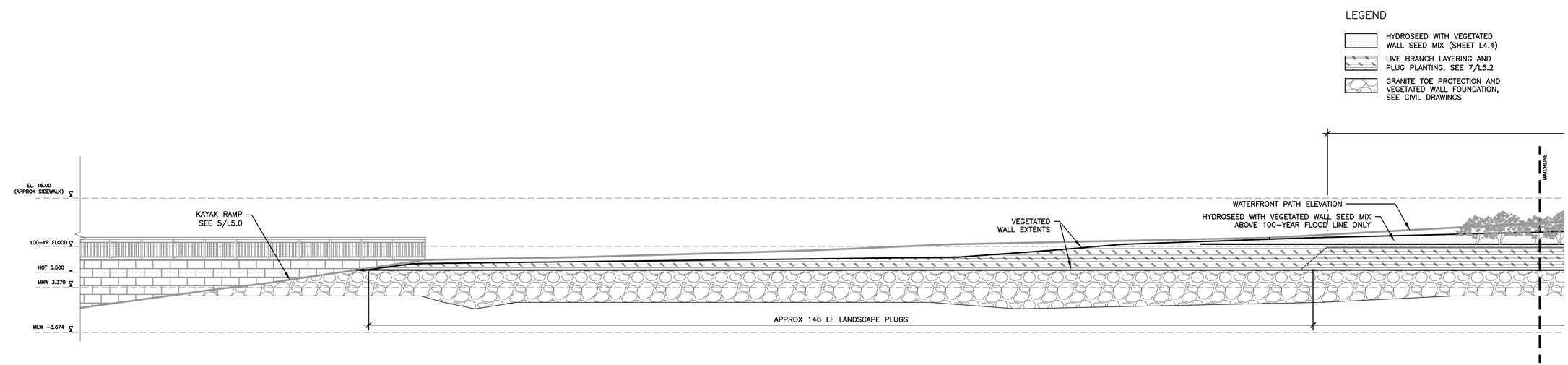
DRAFT
NOT FOR
CONSTRUCTION

Project Number: 15026

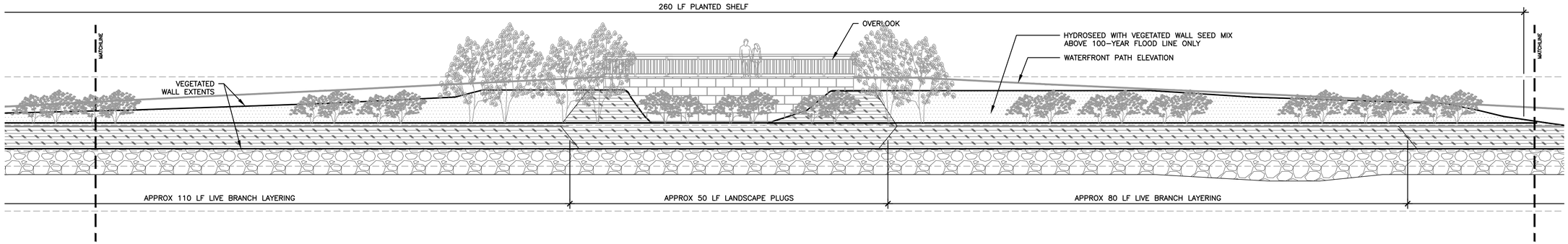
Sheet : 44 of 46

Sheet Number: L- 5.2

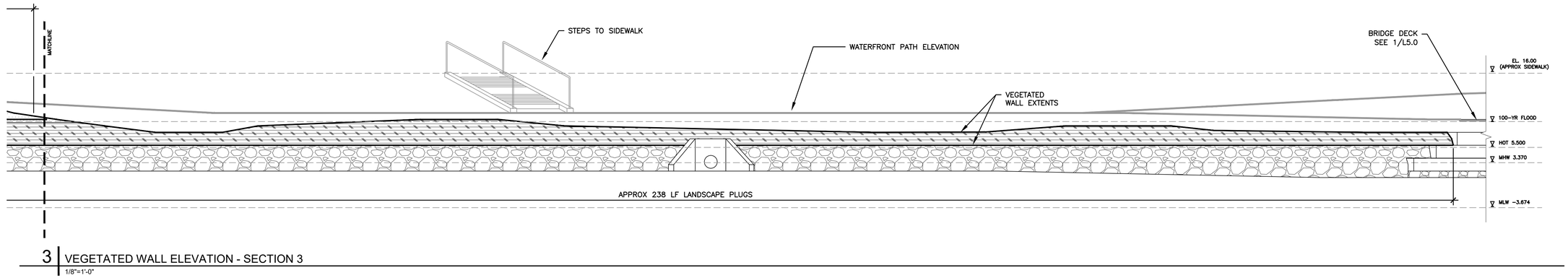
last modified: 05/24/21 printed: 06/17/21 by Je Z:\15026.2 - Cocheco Waterfront Development Phase 3\Drawings\ID_DT.dwg



1 VEGETATED WALL ELEVATION - SECTION 1
1/8"=1'-0"



2 VEGETATED WALL ELEVATION - SECTION 2
1/8"=1'-0"



3 VEGETATED WALL ELEVATION - SECTION 3
1/8"=1'-0"

Revisions

Rev.	Date	By	Appr	Description
2	21/05/28	JM	JRH	DRAFT Response to Wetland RFI
1	21/06/25	JM	JRH	Response to Wetland RFI

Ironwood
Landscape Architecture + Planning
Newmarket, NH | Portland, ME | (603) 7335555 | www.ironwoodla.com

Date: DECEMBER 2019
Designed By: JM
Drawn By: JM
Checked By: JRH

DOVER WATERFRONT
PERMIT SET
DOVER, NEW HAMPSHIRE

Plan Set:

Plan Title: VEGETATED WALL SYSTEM ELEVATIONS

Prepared For:
City of Dover
288 Central Ave
Dover, NH 03820
Phone: (603) 516-6000
Fax: ----

Survey Provided By:
Doucet Survey, Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603) 659-6560
Fax: ----
Dated: OCTOBER 19, 2016

Registration:

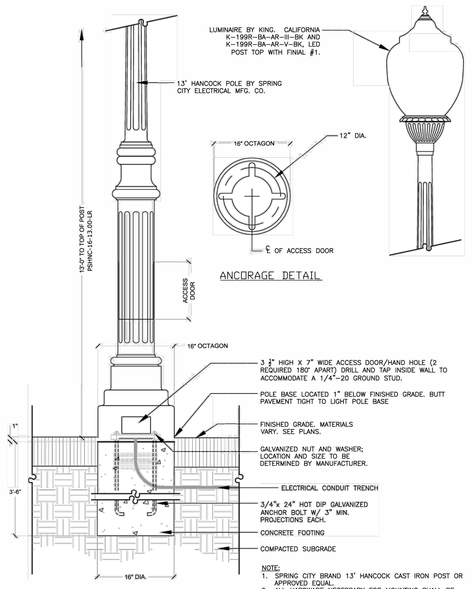
DRAFT
NOT FOR CONSTRUCTION

Project Number: 15026

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Sheet Number: L- 5.3

last modified: 05/24/21 printed: 06/17/21 by Je Z:\15026.2 - Cochecho Waterfront Development Phase 3\Drawings\ID_DT.dwg



1 | STREET LIGHT "TYPE 1"
NTS

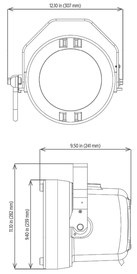
PHOENIX
DURABILITY BY DESIGN

SLX LED
Explosion-proof LED Floodlight



Explosion-proof LED floodlight rated for hazardous and wet locations
For use in chemical plants, drilling rigs, refineries and other hazardous locations
LED technology increases efficiency, eliminates maintenance and supports green initiatives

Dimensions



Specifications

Construction	Marine grade cast aluminum shell, cover and sealed fittings Threaded joints are lubricated with non-drying petrolatum
Finish	Yellow thermoset powder coat
Hardware	Zinc plated steel
Lens	¼ inch thick tempered glass
Light source	Lumileds Luxeon light emitting diodes (LED) 39W, 2540 lumens (fixture) Conformal coated modules Flood (45°) and spot (28°) optics available CCT 5400-5600K 50,000 hour rated life
Power source	120-277V, 50-60Hz Fully potted (2 per fixture) Replaceable Over-voltage, over-current and short-circuit protection
Power factor	> 0.9
Wiring	Three 90.00 inch (2286 mm) 16 gauge stranded leads Wire entrance is factory sealed
Ambient Operating Temperature	-20°C to +40°C
Mounting	Marine grade wrought aluminum harp
Weight	Fixture: 25.0 lb (11.3 kg) Packaged: 26.5 lb (12.0 kg)
Warranty	5 years

Compliances

ETL/cETL Certified to:
- UL 1598 Ordinary Locations
- UL 1598A Marine Outside Type (Saltwater)
- UL 844 Suitable for Hazardous Locations
  Class I, Division 1 Groups C & D
  Class I, Division 2 Groups A, B, C & D
  Class III, Divisions 1 & 2 Groups F & G
  Class III, Divisions 1 & 2
- CSA C22.2 No. 250.0, 94.0, 213.0, 137.0, 30.0
- Nema 4X
- T6 (85°C) Temperature Rating

Meets the requirements of the Buy American Act (BAA) and/or the American Recovery and Reinvestment Act (ARRA)

Phoenix Products Company Inc. 8777 West Port Avenue Milwaukee, WI 53224 USA
Phone: +1 414.973.3300 Toll Free: 800.438.1244 Fax: +1 414.973.3290 www.phoenixlighting.com

2 | WALL PACK "TYPE 2"
NTS



LAMP POST MANUFACTURER INFORMATION
SPRING CITY ELECTRICAL MANUFACTURING COMPANY
ONE SOUTH MAIN STREET
SPRING CITY, PA 19475
PHONE: (610) 948-4000
FAX: (610) 948-5577

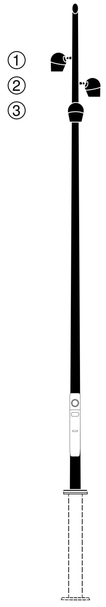
LUMINAIRE SPECIFICATIONS:
STYLE: INDUSTRY CITY
HEIGHT: 20'
WIDTH: 22" DIAMETER
MATERIAL: SPUN ALUMINUM AND CAST ALUMINUM ALLOY ANSI 356 PER A.S.T.M. B26-95
GLOBE: SMALL CLEAR GLASS WITH CAST GUARD
FINISH: PRIME PAINT THEN FINISH SHERWIN WILLIAMS ACROLON CLASSIC BLACK
LAMPING: 42W CFL PHOTOCELL ADD PHOTO SENSOR PER LIGHTING NOTE #11.
VOLTAGE: QUAD WIRED AT 120
SOCKET: MEDIUM BASE
CATALOG NO. ILMIDC-MH100/QVI/SD-GSCL-CB

CROSS ARM SPECIFICATIONS:
STYLE: UPTON
HEIGHT: 12'-0"
WIDTH: 27" FROM ℄ OF POST TO ℄ OF LUMINAIRE
MATERIAL: ALUMINUM PIPE WITH CAST ALUMINUM ORNAMENTATION
FINISH: PRIME PAINT THEN FINISH SHERWIN WILLIAMS ACROLON CLASSIC BLACK
TENON: 2" NPT PIPE NIPPLE (TO ACCEPT LUMINAIRE)
CATALOG NO.: AARUPT-1S-27-TN1.25/NPT-CB

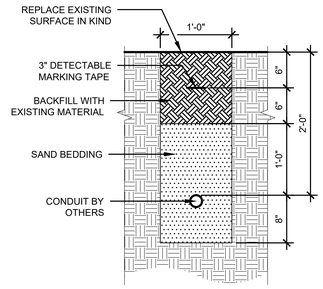
LAMP POST SPECIFICATIONS:
STYLE: ANIMATOR
HEIGHT: 12'-0"
MAX. HEIGHT 16'-0"
BASE: 13 1/2" DIAMETER
MATERIAL:
SHAFT: 4 1/2" DIA.-SMOOTH-ALUMINUM EXTRUSION - .237" WALL
BASE: CAST ALUMINUM ALLOY ANSI 356 PER A.S.T.M. B26-95
FINISH: PRIME PAINT THEN FINISH SHERWIN WILLIAMS ACROLON CLASSIC BLACK
ACCESS DOOR: LOCATED IN BASE SECURED WITH TAMP PROOF HEX SOCKET SECURITY MACHINE SCREWS
GROUND STUD PROVISIONS: DRILL AND TAP INSIDE WALL OF BASE OPPOSITE ACCESS DOOR TO ACCOMODATE A 1/4"-20 GROUND STUD (STUD SUPPLIED BY OTHERS)
ANCHOR BOLTS: (4) 3/4" DIA. X 24" LONG + 3" HOOK FULLY GALVANIZED WITH 1 GALVANIZED NUT AND 1 GALVANIZED WASHER PER BOLT)
BOLT PROJECTION: 3 REQUIRED
TENON: 4 1/2" DIA. X 2" HIGH (TOP OF SHAFT-TO ACCEPT LUMINAIRE)
CATALOG NO.: APSNM-13-12.00-S4-TN3.50/2.00-323/INW-CB

LUMINAIRE DETAIL
SCALE: 3/4" = 1'-0"

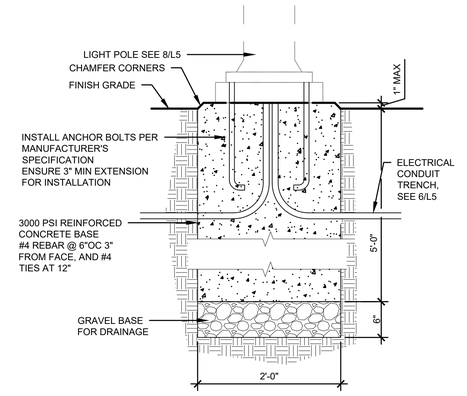
3 | PARK PATH LIGHT "TYPE 3"
NTS



4 | MULTI-DIRECTIONAL LIGHT "TYPE 4"
NTS



5 | ELECTRICAL CONDUIT
1"=1'-0"



6 | LIGHT POLE FOOTING
1"=1'-0"

Revisions

Rev.	Date	By	Appr.	Description
1	21/05/28	JM	JRH	DRAFT Response to Wetland RFI
2	21/06/25	JM	JRH	Response to Wetland RFI

Ironwood
Landscape Architecture + Planning
Newmarket, NH | Portland, ME | 603.772.6500 | ironwoodlandscape.com

Checked By: JRH
Drawn By: JM
Designed By: JM
Date: DECEMBER 2019

DOVER WATERFRONT
PERMIT SET
DOVER, NEW HAMPSHIRE

Plan Set:

Plan Title: LIGHTING CUT SHEETS

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: ----

Survey Provided By:
Doucet Survey, Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603) 659-6560
Fax: ----
Dated: OCTOBER 19, 2016

Registration:

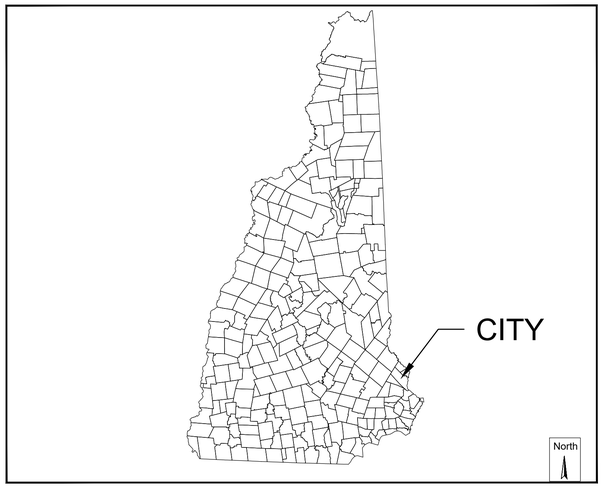
DRAFT
NOT FOR CONSTRUCTION

Project Number: 15026
Sheet : 46 of 46

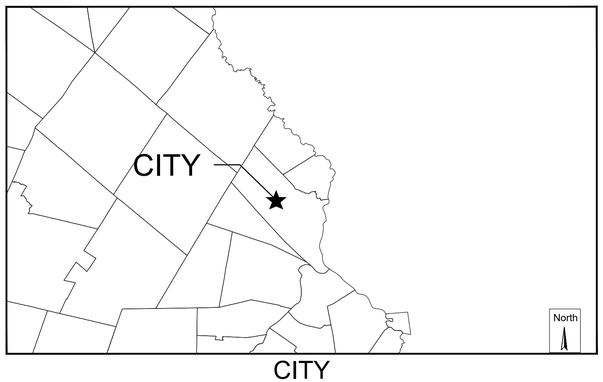
Sheet Number: L- 5.4

last modified: 05/24/21 printed: 06/17/21 by Je Z:\15026.2 - Cocheco Waterfront Development Phase 3\Drawings\ID_DT.dwg

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE
JULY 2021



NEW HAMPSHIRE
Graphic Scale
0 150000
SCALE IN FEET
1:150000



CITY
Graphic Scale
0 12000
SCALE IN FEET
1:12000



VICINITY MAP
Graphic Scale
1-inch = 1000-feet

PERMITTING SET
NOT FOR CONSTRUCTION

Sheet List Table	
Sheet Number	Sheet Title
1	COVER SHEET
2	CONSTRUCTION NOTES AND LEGEND
3	EROSION CONTROL & PHASING PLAN
3A	PHASE 1 - ESC & SITE PREPARATION
3B	PHASE 2 - ESC & SITE PREPARATION
3C	PHASE 3 - ESC & SITE PREPARATION
4	OVERALL LAYOUT PLAN
5	SITE PLAN 1
6	SITE PLAN 2
7	SITE PLAN 3
8	SITE PLAN 4
9	SITE PLAN 5
10	GRADING AND DRAINAGE 1
11	GRADING AND DRAINAGE 2
12	GRADING AND DRAINAGE 3
13	GRADING AND DRAINAGE 4
14	GRADING AND DRAINAGE 5
15	STREET A PROFILE
16	STREET B PROFILE
17	STREET C PROFILE
18	ROADWAY CONSTRUCTION DETAILS
19	STORMWATER MANAGEMENT DETAILS
20	WETLAND PROFILE & DETAILS
21	UTILITY PLAN
22	SEWER PROFILES
23	UTILITY DETAILS
24	BANK STABILIZATION (1)
25	BANK STABILIZATION (2)
26	BANK STABILZIATION SECTIONS
L-1.0 - L-1.1	TREE PROTECTIONS PLANS
L2.0	PARK LAYOUT OVERVIEW
L-2.1	PARK LAYOUT AREA 1
L-2.2	PARK LAYOUT AREA 2
L-2.3	PARK LAYOUT AREA 3
L-2.4	PARK LAYOUT AREA 4
L-4.0	PLANTING PLAN - TREES
L-4.1	PLANTING PLAN AREA 1
L-4.2	PLANTING PLAN AREA 2
L-4.3	PLANTING PLAN AREA 3
L-4.4	PLANTING SCHEDULES AND SEED MIXES
L-5.0 - L-5.1	LANDSCAPE SECTIONS
L-5.2	LANDSCAPE DETAILS
L-5.3	VEGETATED WALL SECTIONS AND ELEVATIONS
L-5.4	LIGHTING CUT SHEETS

Plan Set:
DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
(603) 516-6000

Prepared By:
Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com

Headquarters
90 Route 6A
Sandwich, MA 02563
(508) 833-6600 voice
(508) 833-3150 fax

294 Washington Street Suite 801
Boston, MA 02108
(857) 263-8193 voice
(617) 574-4799 fax

55 Dorrance Street, Suite 200
Providence, RI 02906
(401) 272-1717 voice
(401) 439-8368 fax

113 R2 Water Street
Exeter, NH 03833
(603) 658-1660

Landscape Design By:
Ironwood
Landscape Architecture + Planning

Registration:
DRAFT
NOT FOR CONSTRUCTION

Revisions

Rev.	Date	By	Appr.	Description
1	---	---	---	---
2	---	---	---	---
3	---	---	---	---
4	---	---	---	---
5	---	---	---	---
6	---	---	---	---
7	---	---	---	---

Project Number: 15157
Sheet Number: 1 of 46
Drawing Number: C - 1

last modified: 06/25/21 printed: 10/27/21 by kf I:\Projects\2015\15157 Union Studio Dover NH Waterfront\Drawings\15157 CV.dwg

SURVEY NOTES:

1. THE TOPOGRAPHY AND EXISTING SITE DETAIL DEPICTED HEREON WAS PERFORMED BY DOUCET SURVEY, INC. DURING SEPTEMBER, 2016, APRIL, MAY AND JUN 2017 USING A TRIMBLE S6 TOTAL STATION AND A TRIMBLE R8 SURVEY GRADE GPS WITH A TRIMBLE TSC3 DATA COLLECTOR AND A SOKKIA B21 AUTO LEVEL TRAVERSE ADJUSTMENT BASED ON LEASE SQUARE ANALYSIS.

GENERAL CONSTRUCTION NOTES:

1. ALL SITE WORK TO COMPLETE THIS PROJECT AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
2. IMMEDIATELY CONTACT AND COORDINATE WITH THE ENGINEER AND OWNER IF ANY DEVIATION OR ALTERATION OF THE WORK PROPOSED ON THESE DRAWINGS IS REQUIRED.
3. UTILIZE ALL PRECAUTIONS AND MEASURES TO ENSURE THE SAFETY OF THE PUBLIC, ALL PERSONNEL AND PROPERTY DURING CONSTRUCTION IN ACCORDANCE WITH OSHA STANDARDS, INCLUDING THE INSTALLATION OF TEMPORARY FENCING BARRICADES, SAFETY LIGHTING, CONES, POLICE DETAIL AND/OR FLAGMEN AS DETERMINED NECESSARY BY THE CITY OF DOVER. THE CONTRACTOR IS RESPONSIBLE FOR THE COST OF POLICE DETAIL AND FOR COORDINATING WITH THE LOCAL OR STATE POLICE DEPARTMENT FOR ALL REQUIRED POLICE DETAIL.
4. MAKE ALL NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN ALL NECESSARY CONSTRUCTION PERMITS, PAY ALL FEES INCLUDING POLICE DETAILS AND POST ALL BONDS, IF NECESSARY, ASSOCIATED WITH THE SAME, AND COORDINATE WITH THE OWNER AND THE ENGINEER.
5. ALL EXISTING CONDITIONS SHOWN ARE APPROXIMATE AND ARE BASED ON THE BEST INFORMATION AVAILABLE. PRIOR TO THE START CONSTRUCTION VERIFY THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. IF ANY CONFLICTS ARE DISCOVERED, NOTIFY THE OWNER AND THE ENGINEER PRIOR TO INSTALLING ANY PORTION OF THE SITE WORK WHICH WOULD BE AFFECTED.
6. THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS INDICATED ON THE DRAWINGS ARE BASED ON RECORDS OF VARIOUS UTILITY COMPANIES, AND WHEREVER POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES IN THE FIELD PRIOR TO THE START OF CONSTRUCTION. CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY IN THE CITY, AND "DIGSAFE" (1-888-344-7233) AT LEAST THREE BUSINESS DAYS PRIOR TO ANY EXCAVATION WORK IN PREPARATION FOR THE EXACT FIELD LOCATION OF UTILITIES. THE CONTRACTOR MUST RESOLVE CONFLICTS BETWEEN THE PROPOSED UTILITIES AND FIELD-LOCATED UTILITIES AND REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED, INCOMPLETELY OR INACCURATELY SHOWN. THE CONTRACTOR MUST MAINTAIN ACCURATE RECORDS OF THE LOCATION AND ELEVATION OF ALL WORK INSTALLED AND EXISTING UTILITIES FOUND DURING CONSTRUCTION FOR THE PREPARATION OF THE AS-BUILT PLAN.
7. COORDINATE AND MAKE ALL CONNECTION ARRANGEMENTS WITH UTILITY COMPANIES, AS REQUIRED.
8. COORDINATE ALL TRENCHING WORK WITHIN ROADWAYS WITH THE PROPER LOCAL & STATE AGENCY. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCH SAFETY INCLUDING ANY LOCAL AND/OR STATE PERMITS REQUIRED FOR THE TRENCH WORK. IF THIS WORK IS REQUIRED TO OCCUR OUTSIDE THE AGREED UPON HOURS OF OPERATION FOR THE FACILITY, THE CONTRACTOR MUST PLAN ACCORDINGLY.
9. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH AND MAINTAIN ALL CONTROL POINTS AND BENCHMARKS DURING CONSTRUCTION INCLUDING BENCHMARK LOCATIONS AND ELEVATIONS AT CRITICAL AREAS. COORDINATE WITH THE ENGINEER OR SURVEYOR FOR THE LOCATION OF ALL CONTROL POINTS AND BENCHMARKS.
10. SITE LAYOUT SURVEY REQUIRED FOR CONSTRUCTION MUST BE PROVIDED BY THE CONTRACTOR AND PERFORMED BY A NEW HAMPSHIRE REGISTERED PROFESSIONAL LAND SURVEYOR. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE SURVEYOR FOR ALL SITE SURVEY WORK.
11. MAINTAIN ALL GRADE STAKES SET BY THE SURVEYOR. GRADE STAKES ARE TO REMAIN UNTIL A FINAL INSPECTION OF THE ITEM HAS BEEN COMPLETED BY THE ENGINEER. RE-STAKING OF PREVIOUSLY SURVEYED SITE FEATURES IS THE RESPONSIBILITY (INCLUDING COST) OF THE CONTRACTOR.
12. UNLESS OTHERWISE INDICATED ON THE DRAWINGS AND/OR IN THE SPECIFICATIONS, ALL SITE CONSTRUCTION MATERIALS AND METHODOLOGIES ARE TO CONFORM TO THE MOST RECENT VERSION OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
13. PROVIDE ALL CONSTRUCTION SERVICE IN ACCORDANCE WITH APPLICABLE LAWS AND REGULATIONS REGARDING NOISE, VIBRATION, DUST, SEDIMENTATION CONTAINMENT, AND TRENCH WORK.
14. COLLECT SOLID WASTES AND STORE IN A SECURED DUMPSTER. THE DUMPSTER MUST MEET ALL LOCAL AND STATE SOLID WASTE MANAGEMENT REGULATIONS.
15. RESTORE ALL SURFACES EQUAL TO THEIR ORIGINAL CONDITION AFTER CONSTRUCTION IS COMPLETE PER SPECIFICATIONS. LEAVE ALL AREAS NOT DISTURBED BY CONSTRUCTION IN THEIR NATURAL STATE. TAKE CARE TO PREVENT DAMAGE TO SHRUBS, TREES, OTHER LANDSCAPING AND/OR NATURAL FEATURES. WHEREAS THE PLANS DO NOT SHOW ALL LANDSCAPE FEATURES, EXISTING CONDITIONS MUST BE VERIFIED BY THE CONTRACTOR IN ADVANCE OF THE WORK.
16. CONSTRUCT ALL WHEELCHAIR RAMPS IN ACCORDANCE WITH STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, NH DOT AND CONSTRUCTION. CONSTRUCT RAMPS WITH AN 8% MAX. SLOPE AND 2% CROSS SLOPE.
17. REGULARLY INSPECT THE PERIMETER OF THE PROPERTY TO CLEAN UP AND REMOVE LOOSE CONSTRUCTION DEBRIS BEFORE IT LEAVES THE SITE. PROMPTLY REMOVE ALL DEMOLITION DEBRIS FROM THE SITE TO AN APPROVED DUMP SITE.
18. ALL TRUCKS LEAVING THE SITE MUST BE COVERED.
19. DO NOT WASH ANY CONCRETE TRUCKS ONSITE. REMOVE BY HAND ANY CEMENT OR CONCRETE DEBRIS LEFT IN THE DISTURBED AREA.
20. BURIAL OF ANY STUMPS, SOLID DEBRIS, AND/OR STONES/BOULDERS ONSITE IS PROHIBITED. DO NOT USE ROAD SALT OR OTHER DE-ICING CHEMICALS ON THE ACCESS ROADWAY.
21. AT THE END OF CONSTRUCTION, REMOVE ALL CONSTRUCTION DEBRIS AND SURPLUS MATERIALS FROM THE SITE. PERFORM A THOROUGH INSPECTION OF THE WORK PERIMETER. COLLECT AND REMOVE ALL MATERIALS AND BLOWN OR WATER CARRIED DEBRIS FROM THE SITE.
22. THIS PROJECT MUST MEET THE REQUIREMENTS AND INTENT OF RSA 430:51-57 AND AGR 3800 RELATIVE TO INVASIVE SPECIES. NO PLANTS PROPOSED FOR USE IN THE PROJECT ARE IDENTIFIED AS INVASIVE SPECIES IN THE STATE OF NH IN AGR 3800. THE PROJECT HAS BEEN DESIGNED TO AVOID THE INTRODUCTION OR PROPAGATION OF INVASIVE SPECIES ON THE SITE, INCLUDING THROUGH MONITORING OF THE SITE FOLLOWING CONSTRUCTION.

GENERAL DEMOLITION NOTES:

THIS PLAN SET DOES NOT INCLUDE DETAILS & SPECIFICATIONS FOR ALL DEMOLITION WORK REQUIRED WITHIN THE PROPOSED CONSTRUCTION LIMITS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE OWNERS AND PROJECT ENGINEERS INVOLVED WITH THE PROPOSED NEW CONSTRUCTION TO DEVELOP A SUITABLE DEMOLITION PLAN, WHICH WILL ALLOW THE FACILITIES TO REMAIN IN OPERATION DURING THE ENTIRETY OF CONSTRUCTION.

1. UNLESS OTHERWISE NOTED, THE CONTRACTOR IS RESPONSIBLE FOR THE RELOCATION, DEMOLITION, REMOVAL AND DISPOSAL, IN A LOCATION APPROVED BY ALL GOVERNING AUTHORITIES, OF ALL EXISTING SITE ELEMENTS AND STRUCTURES INCLUDING, BUT NOT LIMITED TO, BUILDINGS, ROADWAYS, PARKING AREAS, BITUMINOUS CONCRETE, CEMENT CONCRETE, GRAVEL, CURBS, WALKWAYS, SIDEWALKS, BERMS, FENCES, POSTS, PLANTING BEDS, TREES, SHRUBS, UTILITIES, DRAINAGE STRUCTURES AND ALL OTHER STRUCTURES SHOWN AND NOT SHOWN WITHIN CONSTRUCTION LIMITS, AND WHERE NEEDED, TO ALLOW FOR NEW CONSTRUCTION. ALL FACILITIES TO BE REMOVED ARE TO BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACTED FILL MATERIAL PER SPECIFICATIONS.
2. REMOVE ALL DEBRIS FROM THE SITE AND DISPOSE OF THE DEBRIS IN A PROPER AND LEGAL MANNER.
3. OBTAIN ALL PERMITS REQUIRED FOR DEMOLITION AND DISPOSAL.
4. COORDINATE WITH RESPECTIVE UTILITY COMPANIES PRIOR TO THE REMOVAL AND/OR RELOCATION OF UTILITIES. COORDINATE WITH THE UTILITY COMPANIES CONCERNING PORTIONS OF THE WORK WHICH MAY BE PERFORMED BY THE UTILITY COMPANY AND ANY FEES WHICH ARE TO BE PAID TO THE UTILITY COMPANY FOR THEIR SERVICES. THE CONTRACTOR IS RESPONSIBLE FOR PAYING ALL FEES AND CHARGES.
5. REFER TO UTILITY PLANS AND SPECIFICATIONS FOR ALL WORK WHICH REQUIRES UTILITIES TO BE REMOVED, RELOCATE OR ABANDONED AND LEFT IN PLACE.
6. PROVIDE NOTICE TO ALL UTILITY COMPANIES REGARDING DESTRUCTION AND REMOVAL OF ALL SERVICE LINES AND CAP ALL UTILITY LINES, AS REQUIRED, BEFORE PROCEEDING WITH THE WORK.
7. MAINTAIN CONTINUOUS ACCESS AND OPERATION FOR SURROUNDING FACILITIES, AS DEEMED BY THE OWNER, AT ALL TIMES DURING DEMOLITION OF THE EXISTING FACILITIES.
8. PRIOR TO DEMOLITION OCCURRING, ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED.

BASIC CONSTRUCTION SEQUENCE:

THE FOLLOWING CONSTRUCTION SEQUENCE IS TO BE USED AS A GENERAL GUIDELINE. COORDINATE WITH THE OWNER, ENGINEERS, AND LANDSCAPE ARCHITECTS AND SUBMIT A PROPOSED CONSTRUCTION SEQUENCE FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. SEE SHEETS C3A, C3B, AND C3C FOR DETAIL. COORDINATE SOIL MANAGEMENT CAPPING REQUEST WITH DES & ENV. ENG.

1. SURVEY AND STAKE THE PROPOSED LIMIT OF DISTURBANCE AND LIMIT OF SEDIMENTATION BARRIERS.
2. PLACE SEDIMENTATION BARRIERS (STRAWBALES, SILT SOCK, SILT FENCE, ETC.) AS INDICATED ON DRAWINGS AND STAKED OUT IN THE FIELD. UNDER NO CIRCUMSTANCES IS THE LIMIT OF WORK TO EXTEND BEYOND THE SEDIMENTATION BARRIERS/LIMIT OF DISTURBANCE AS INDICATED ON DRAWINGS AS APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL SERVICES (DES).
3. INSTALL TEMPORARY CONSTRUCTION ENTRANCES IN LOCATIONS INDICATED ON DRAWINGS. NO OTHER ENTRANCES ARE TO BE USED TO GAIN ACCESS TO THE SITE BY ANY CONSTRUCTION OR DELIVERY VEHICLES.
4. BEGIN CLEARING THE SITE AS REQUIRED.
5. SURVEY AND STAKE CENTERLINE OF THE PROPOSED ROADS, STORMWATER MANAGEMENT AREAS, AND DRAINAGE LINES.
6. EXCAVATE AND ROUGH GRADE THE PROPOSED STORMWATER MANAGEMENT AREAS AND ANY ADDITIONAL TEMPORARY BASINS NECESSARY TO CONTROL SITE RUNOFF AND SEDIMENTS. TEMPORARILY SEEDED PERMANENT STORMWATER MANAGEMENT AREAS. COMPLETE PERMANENT STORMWATER MANAGEMENT AREA SEEDING AND PLANTING AFTER THE CONTRIBUTING AREA TO THE BASIN HAS REACHED A MINIMUM OF 85% STABILIZATION AND IS NO LONGER REQUIRED AS A CONSTRUCTION SEDIMENTATION BASIN.
7. BEGIN CLEARING AND GRUBBING THE AREAS OF ROADWAYS AND STORMWATER MANAGEMENT AREAS. TOPSOIL IS TO BE STRIPPED FROM THE AREA OF THE PROPOSED ROADWAYS AND STORMWATER MANAGEMENT AREAS AND STOCKPILED IN APPROVED LOCATIONS. TOPSOIL STOCKPILES MUST BE PROTECTED BY A SEDIMENT BARRIER.
8. INSTALL TEMPORARY CONVEYANCE DEVICES (SWALES, CHECK DAMS, PIPES, ETC.) AS NECESSARY TO CONVEY RUNOFF TO TREATMENT AREAS.
9. BEGIN ROUGH GRADING AREAS FOR ROADS, PARKING AND BUILDINGS. BRING ROUGH GRADING TO PROPER ELEVATIONS AS SOON AS PRACTICABLE. COORDINATE WORK TO MINIMIZE TIME SOILS ARE UN-STABILIZED.
10. BEGIN UTILITY CONSTRUCTION. THE CONTRACTOR IS FREE TO INSTALL THE UTILITIES IN THE SEQUENCE HE/SHE CHOOSES, IMMEDIATELY REPAIR, REPLACE AND STABILIZE ANY EROSION CONTROL DEVICES DISTURBED DURING THE UNDERGROUND UTILITY CONSTRUCTION. MODIFY TEMPORARY CONVEYANCE DEVICES, AS NECESSARY, TO CONVEY RUNOFF TO TREATMENT AREAS.
11. INSTALL DRAINAGE PIPES, DRAINAGE MANHOLES, CATCH BASINS, AND UNDERGROUND DRAINAGE STRUCTURES. BEGIN WORK AT THE STORMWATER MANAGEMENT AREAS AND PROGRESS UP-GRADIENT. PROTECT DISCHARGE OUTLETS WITH RIP-RAP APRONS. THE STORMWATER MANAGEMENT AREA(S) AND DRAINAGE NETWORK ARE TO BE PROTECTED FROM SEDIMENTATION UNTIL ALL UN-STABILIZED AREAS ARE STABILIZED WITH STONE SUB-BASE OR VEGETATION. INSTALL SEDIMENT BARRIERS AT ALL POINTS OF ENTRY INTO THE DRAINAGE NETWORK. TAKE PARTICULAR CARE TO PROTECT THE UNDERGROUND STRUCTURES FROM SEDIMENT.
12. PERMANENTLY SEED ALL DISTURBED AREAS OUTSIDE OF THE AREA TO BE PAVED.
13. UPON COMPLETION OF UNDERGROUND UTILITIES INSTALLATION, PLACE COMPACTED GRAVEL FOUNDATION AND ROUGH GRADE THE ROADWAYS/PARKING AREAS IN ACCORDANCE WITH THE SITE PLANS AND IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL REGULATIONS AS SOON AS POSSIBLE.
14. BEGIN ROAD AND PARKING CONSTRUCTION PER SITE PLANS AND IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL REGULATIONS. ROADS AND PARKING AREAS ARE NOT TO BE PAVED UNTIL THE ENTIRE PERMANENT DRAINAGE SYSTEM HAS BEEN INSTALLED AND ALL PIPE CONNECTIONS COMPLETE.
15. FINISH PERMANENT STABILIZATION. SWEEP THE ROADWAY TO REMOVE ALL SEDIMENTS. REPAIR DRAINAGE OUTLETS AND BASINS AS REQUIRED. CLEAN AND FLUSH THE DRAINAGE STRUCTURES AND PIPES AT THE END OF CONSTRUCTION AND REMOVE ALL ACCUMULATED SEDIMENTS IN THE STORMWATER MANAGEMENT AREAS. CONTRACTOR MUST INSPECT THE DRAINAGE NETWORK AND REPAIR ANY DAMAGE IMMEDIATELY.
16. COMPLETE ALL REMAINING PLANTING AND SEEDING.
17. ENGINEER TO APPROVE THE REMOVAL OF ALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES FOLLOWING VEGETATIVE ESTABLISHMENT OF ALL DISTURBED AREAS AND DETERMINE WHEN THE CONTRIBUTING AREA HAS REACHED A MINIMUM OF 85% STABILIZATION.

GENERAL GRADING AND DRAINAGE NOTES:

1. ALL CUT AND FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
2. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.
3. PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.
4. ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
5. PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS. IMMEDIATELY NOTIFY THE ENGINEER IF POSITIVE DRAINAGE CANNOT BE PROVIDED.
6. UNLESS INDICATED OTHERWISE ON THE DRAWINGS OR DETAIL, A MINIMUM CONCRETE FOUNDATION REVEAL OF 8" TO BE PROVIDED AT ALL BUILDING CORNERS. NOTIFY THE ENGINEER AND ARCHITECT IF ANY DEVIATION OR ALTERATION OF FOUNDATION REVEAL IS REQUIRED.
7. REFER TO ARCHITECTURAL PLAN AND SPECIFICATIONS FOR EARTHWORK AND COMPACTION REQUIREMENTS FOR ALL SLABS AND BUILDING FOUNDATIONS.
8. PROPOSED ELEVATIONS ARE SHOWN TO FINISH PAVEMENT OR GRADE UNLESS NOTED OTHERWISE.
9. ALL EARTHWORK AND SITE PREPARATION MUST BE DONE IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF ANY SUBSURFACE INVESTIGATION OR GEOTECHNICAL REPORTS PREPARED FOR THIS SITE.
10. ALL DRAINAGE STRUCTURES AND PIPES MUST BE CONNECTED TO THE DRAINAGE SYSTEM PRIOR TO THE INSTALLATION OF ANY PAVEMENT. PAVING WILL NOT BE ALLOWED IF THE DRAINAGE SYSTEM FOR THE PROPOSED PAVED AREA IS NOT COMPLETELY AND PROPERLY INSTALLED. THIS INCLUDES THE STABILIZATION OF ALL DISTURBED AREAS CONTRIBUTING TO THE DRAINAGE SYSTEMS AND ANY STORMWATER BASIN FLOORS AND SIDE SLOPES

DEWATERING:

1. HIGH WATER TABLE IS ANTICIPATED. IF THE WATER TABLE IS ENCOUNTERED DURING EXCAVATION, TEMPORARILY LOWER THE WATER TABLE AS INDICATED IN THE SPECIFICATIONS.
2. PRIOR TO ANY DEWATERING, THE DEWATERING PLAN MUST BE APPROVED BY THE ENGINEER.
3. IF DEWATERING IS NECESSARY DURING CONSTRUCTION, IMPLEMENT THE PROPER ESC MEASURES ON SITE TO PREVENT EROSION OR SEDIMENT RUNOFF. THESE MEASURES CAN INCLUDE DEWATERING BAGS, TEMPORARY STRAWBALES, SILT FENCES, SILT SOCKS AND/OR OTHER APPROVED DEVICES AS INDICATED IN THE DETAILS. SEE PHASING PLANS C3A, C3B, AND C3C.

STORMWATER FACILITY OPERATION & MAINTENANCE:

THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER INSPECTION AND MAINTENANCE OF ALL STORMWATER MANAGEMENT FACILITIES AS OUTLINED BELOW UNTIL SUCH TIME THAT THE ROADWAYS AND ASSOCIATED UTILITIES ARE ACCEPTED BY THE OWNER AND THE ENGINEER.

1. INSPECT AND RESTORE/CLEAN ALL FACILITIES (INLETS, MANHOLES, INFILTRATION BASINS, ETC.) OF SEDIMENT AND DEBRIS PRIOR TO THE OWNER'S ACCEPTANCE.
2. REMOVE AND DISPOSE ALL SEDIMENT AND DEBRIS TO A PRE-APPROVED LOCATION AS APPROVED BY THE CITY.
3. REFER TO THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR ADDITIONAL INFORMATION PERTAINING TO STORMWATER FACILITY OPERATION AND MAINTENANCE REQUIREMENTS. MAINTAIN A WORKING COPY OF THE SWPPP ON SITE AT ALL TIMES.
4. INSPECT AFTER EVERY MAJOR RAINFALL EVENT FOR THE ENTIRE DURATION OF THE CONSTRUCTION PROJECT AND THE FIRST 3 MONTHS AFTER CONSTRUCTION TO ENSURE PROPER STABILIZATION AND CONSTRUCTION.
5. SPECIFIC ANNUAL MAINTENANCE REQUIRED AS FOLLOWS:
   - A. DRAINAGE STRUCTURES (INLETS, MANHOLES & CATCHBASINS): ALL DRAINAGE STRUCTURES WILL BE INSPECTED ANNUALLY TO MONITOR FOR PROPER OPERATION, COLLECTION OF LITTER OR TRASH, AND STRUCTURAL DETERIORATION. THE BASINS WILL BE CLEANED OF SEDIMENT (INCLUDING SUMPS) AS NECESSARY, AND REPAIRED WHEN REQUIRED.
   - B. RIP-RAP SLOPE PROTECTION: INSPECT ANNUALLY AND REPAIR AS NECESSARY.
   - C. SEDIMENT FOREBAY: INSPECT ANNUALLY TO ENSURE PROPER FUNCTIONING. REMOVE SEDIMENT BUILD-UP ON THE FLOOR OF THE FOREBAY AND PROPERLY DISPOSE OF ONCE EVERY FIVE TO SEVEN YEARS, OR MORE OFTEN AS NECESSARY TO LIMIT SEDIMENT BUILDUP TO LESS THAN 50 PERCENT OF THE DESIGN VOLUME.
   - D. BIORETENTION SYSTEMS AND RAINGARDENS: INSPECT TWICE ANNUALLY FOR THE FIRST YEAR OF OPERATION AND ANNUALLY AFTER THE FIRST YEAR, AND AFTER STORM EVENTS GREATER THAN OR EQUAL TO THE 1-YEAR, 24-HOUR PRECIPITATION EVENT. GENERAL MAINTENANCE OF BIORETENTION SYSTEMS FALLS UNDER LANDSCAPING PRACTICES. MONITOR THE PLANTING SOIL BED FOR PROPER PH, EROSION, AND AERATION. REPLACE MULCH BI-ANNUALLY, AND REMOVE AND REPLACE ILL-ESTABLISHED, DEAD OR SEVERELY DISEASED PLANTS ANNUALLY. REMOVE SEDIMENT BUILD-UP FROM THE PEA GRAVEL DIAPHRAGM AS NEEDED, AND REPLACE THE DIAPHRAGM WHEN NECESSARY.
   - E. ROUTINE MAINTENANCE: OTHER ROUTINE MAINTENANCE INCLUDES THE REMOVAL OF TRASH AND LITTER FROM PAVED AND PERIMETER AREAS, AND ANNUAL STREET AND PARKING LOT SWEEPING AFTER THE SPRING THAW TO AVOID EXCESSIVE ACCUMULATION OF SEDIMENT IN THE DRAINAGE SYSTEM. INSPECT THE PIPES DRAINING THE PROJECT ANNUALLY FOR PROPER FLOW.

NOTE: OPERATION AND MAINTENANCE CHECKLIST AVAILABLE UPON REQUEST

WATER & SEWER INSTALLATION NOTES

1. INSTALL SEWER AND WATER MAINS ACCORDING TO THE FOLLOWING GUIDELINES TO PREVENT FREEZING OF THE MAIN OR SEWER:

UTILITY TYPE	MIN. COVER OVER TOP OF PIPE	MIN. HORIZONTAL DIST. TO DRAIN STRUCTURE
SANITARY FORCE MAIN	5'	3'
GRAVITY SEWER	4'	2'
WATER MAIN	5'	2'

2. INSULATE SANITARY FORCE MAINS, WATER MAINS, HYDRANT PIPING AND DEAD END WATER LINES S WHERE SOIL COVER OR HORIZONTAL SEPARATION TO PRECAST STRUCTURES IS LESS THAN THE DISTANCE SPECIFIED ABOVE AND/OR WHERE SHOWN ON PLANS.
3. INSULATION: 2" THICK POLYURETHANE INSULATION WITH PVC JACKET PLACED AROUND PIPE OR DESIGNER APPROVED EQUAL.
4. WATER AND SEWER SEPARATION IS TYPICALLY 10-FEET MINIMUM HORIZONTAL AND 18-INCHES VERTICAL WITH SEWER MAINS BELOW THE WATER MAINS (SEE DETAIL). IF SITE CONDITIONS REQUIRE LESS, THEN INSTALL UTILITIES AS INDICATED ON DETAILS.

WATER SYSTEM INSTALLATION NOTES:

1. CONSTRUCT THE WATER MAIN AND ITS APPURTENANCE IN ACCORDANCE WITH THE LOCAL WATER DEPARTMENT'S STANDARDS AND SPECIFICATIONS AND PAY FOR ALL ASSOCIATED FEES AS REQUIRED BY THE WATER DEPARTMENT.
2. ALL PROPOSED WATER MAIN 4-INCHES AND GREATER IN DIAMETER ARE DUCTILE IRON CLASS 52. ONLY USE HDPE 3408 OR AS INDICATED ON DRAWINGS OR AS APPROVED BY THE ENGINEER.
3. SUPPLY TWO COPIES OF SWORN CERTIFICATES TO PROVE THAT ALL PIPES AND FITTINGS ARE INSPECTED AND TESTED AS REQUIRED BY THE STANDARD SPECIFICATIONS TO WHICH THE MATERIAL IS MANUFACTURED.
4. GATE VALVES: MUELLER (A 2360 SERIES), CLOW (AWWA STANDARD C509 SERIES), AMERICAN DARLING (RESILIENT WEDGE) OR APPROVED EQUAL.
5. PROVIDE GATE VALVES ON ALL HYDRANT BRANCHES AND WATER MAIN. THE GATE VALVE TO TURN TO THE RIGHT TO OPEN (CLOCKWISE). ALL BOLTS AND NUTS MUST BE RUST PROOF STEEL.
6. CLEAR ALL NEWLY INSTALLED WATER SYSTEM COMPONENTS OF ALL FOREIGN MATERIALS SUCH AS DIRT AND MISCELLANEOUS DEBRIS PRIOR TO SYSTEM TESTING . NO TESTING IS ALLOWED WITHOUT REMOVAL OF ALL FOREIGN MATERIALS.
7. CONTRACTOR IS RESPONSIBLE FOR CONDUCTING A PRESSURE TEST AND DISINFECTION TEST OF ALL WATER MAINS. THE TESTS MUST WITNESSED BY THE APPROVED INSPECTOR OR THE ENGINEER. THE CONTRACTOR MUST PROVIDE A MINIMUM OF 48-HOUR ADVANCE NOTICE TO THE LOCAL WATER DEPARTMENT PRIOR TO THE PRESSURE AND DISINFECTION TESTS. THE CONTRACTOR MUST PROVIDE ALL NECESSARY EQUIPMENT AND CHEMICALS TO PROPERLY CONDUCT THE TESTS.
8. INSTALL AND REMOVE ALL NECESSARY BLOWOFFS REQUIRED FOR THIS PROJECT AT NO EXTRA COST TO THE OWNER.
9. COLLECT ALL BACTERIOLOGICAL SAMPLES AND PAY FOR ALL RELATED LABORATORY FEES.
10. MAINTAIN UP-TO-DATE AS-BUILT DRAWINGS AND NOTES INDICATING THE HORIZONTAL AND VERTICAL LOCATION WITH TWO TIES OF ALL SYSTEM COMPONENTS INSTALLED. AS-BUILT DRAWINGS AND NOTES WILL BE UTILIZED BY THE ENGINEER FOR THE PREPARATION OF RECORD PLANS.

SEWER SYSTEM OPERATION & MAINTENANCE:

1. CLEAN ALL NEWLY INSTALLED FACILITIES, INCLUDING SEWER COLLECTION SYSTEM OF ALL FOREIGN MATERIALS SUCH AS DIRT AND MISCELLANEOUS DEBRIS PRIOR TO SYSTEM TESTING. TESTING MUST BE WITNESSED AND INSPECTED BY THE ENGINEER. NO TESTING IS ALLOWED WITHOUT REMOVAL OF ALL FOREIGN MATERIALS.
2. CONDUCT A LEAKAGE TEST OF ALL SEWER MAINS. TEST MUST BE WITNESSED BY THE ENGINEER. THE CONTRACTOR MUST PROVIDE THE ENGINEER WITH A MINIMUM OF 48-HOURS ADVANCE NOTICE TO THE TIME OF THE PRESSURE TEST.
3. TEST SEWER PIPES FOR LEAKAGE WITH THE FOLLOWING PROCEDURE. INTRODUCE LOW PRESSURE AIR INTO THE SEAL LINE (WITH PNEUMATIC PLUGS) UNTIL THE INTERNAL AIR PRESSUREREACHES 4 psi GREATER THAN THE AVERAGE BACK PRESSURE OF ANY GROUNDWATER THAT MAY BE OVER THE PIPE. ALLOW AT LEAST 2 MINUTES FOR AIR PRESSURE TO STABILIZE. AFTER THE STABILIZATION PERIOD (3.5 psi MINIMUM PRESSURE IN THE PIPE), THE PORTION OF PIPE TESTED IS ACCEPTABLE IF THE TIME REQUIRED IN MINUTES FOR THE PRESSURE TO DECREASE FROM 3.5 TO 3 psi IS NOT LESS THAN 1.90 TIMES THE LENGTH OF PIPE BEING TESTED.
4. VACUUM TEST ALL SEWER MANHOLES. TESTS MUST BE WITNESSED BY THE ENGINEER UNLESS THE SEASONAL GROUNDWATER LEVEL IS MORE THAN 10 FEET FROM THE BOTTOM OF THE MANHOLE.
5. MANDREL TEST ALL SEWER MAINS AFTER 30 DAYS. TESTS MUST BE WITNESSED BY A CITY REPRESENTATIVE OR THE ENGINEER.

EROSION & SEDIMENT CONTROL NOTES:

1. PRIOR TO THE START OF CONSTRUCTION A NOTICE OF INTENT (NOI) MUST BE FILED WITH EPA. REFER TO THE STORMWATER AND POLLUTION PREVENTION PLAN (SWPPP) REGARDING ALL EROSION CONTROL MATTERS. MAINTAIN A WORKING COPY OF THE SWPPP ONSITE AT ALL TIMES. FOLLOW THE SWPPP PROTOCOL FOR SITE MAINTENANCE, INSPECTIONS AND PROPER DOCUMENTATION UNTIL THE SITE HAS BEEN ACCEPTED BY THE OWNER AT THE COMPLETION OF THE PROJECT THE CONTRACTOR OR OWNER MUST FILE A NOTICE OF TERMINATION WITH EPA. IN ACCORDANCE WITH EPA REGULATIONS, THE COMPLETED SWPPP MUST INCLUDE ALL OF THE SITE EROSION CONTROL DOCUMENTATION, WEEKLY EROSION INSPECTION REPORTS COMPLETED BY THE DESIGNATED SITE PERSONNEL, AND ANY OTHER PERTINENT SITE DOCUMENTATION MUST BE RETAINED FOR A MINIMUM OF 3 YEARS FROM THE DATE OF TERMINATION.
2. DESIGNATE THE SITE CONSTRUCTION FOREMAN AS THE ON-SITE PERSONNEL RESPONSIBLE FOR THE DAILY INSPECTION AND MAINTENANCE OF ALL SEDIMENT AND EROSION CONTROLS AND IMPLEMENTATION OF ALL NECESSARY MEASURES TO CONTROL EROSION AND PREVENT SEDIMENT FROM LEAVING THE SITE.
3. INSTALL ALL EROSION AND SEDIMENT CONTROL (ESC) MEASURES AS INDICATED ON DRAWINGS IN CONSULTATION WITH THE CONSERVATION AGENT, AND ENGINEER BEFORE ANY CONSTRUCTION ACTIVITIES BEGIN. INSTALL TURBIDITY CURTAIN PRIOR TO CONDUCTING ANY WORK ALONG THE SHORELINE. INSPECT, MAINTAIN REPAIR AND REPLACE EROSION CONTROL MEASURES, AS NECESSARY, DURING THE ENTIRE CONSTRUCTION PERIOD OF THE PROJECT. THE SITE PERIMETER EROSION CONTROLS ARE THE DESIGNATED LIMIT OF WORK. INFORM ALL PERSONNEL WORKING ON THE PROJECT SITE THAT NO CONSTRUCTION ACTIVITY IS TO OCCUR BEYOND THE LIMIT OF WORK AT ANY TIME THROUGHOUT THE CONSTRUCTION PERIOD. SEE SHEET C3 FOR DETAIL.
4. MAINTAIN A MINIMUM SURPLUS OF 100 FEET OF EROSION CONTROL BARRIER (SILT FENCE, STRAWBALE, &/OR SILT SOCK) ONSITE AT ALL TIMES.
5. PROTECT THE ADJACENT RESOURCE AREAS FROM SEDIMENTATION DURING PROJECT CONSTRUCTION UNTIL ACCEPTANCE BY THE OWNER & IN CONFORMANCE WITH THE ORDER OF CONDITIONS.
6. PROVIDE CONSTRUCTION EXITS AS INDICATED ON DRAWINGS TO SHED DIRT FROM CONSTRUCTION VEHICLE TIRES. CLEAN AND/OR REPLACE THE CRUSHED STONE PAD, AS NECESSARY, TO MAINTAIN ITS EFFECTIVENESS.
7. KEEP THE LIMIT OF CLEARING, GRADING AND DISTURBANCES TO A MINIMUM WITHIN THE PROPOSED AREA OF CONSTRUCTION. PHASE THE SITE WORK IN A MANNER TO MINIMIZE ARE

GENERAL NOTES:

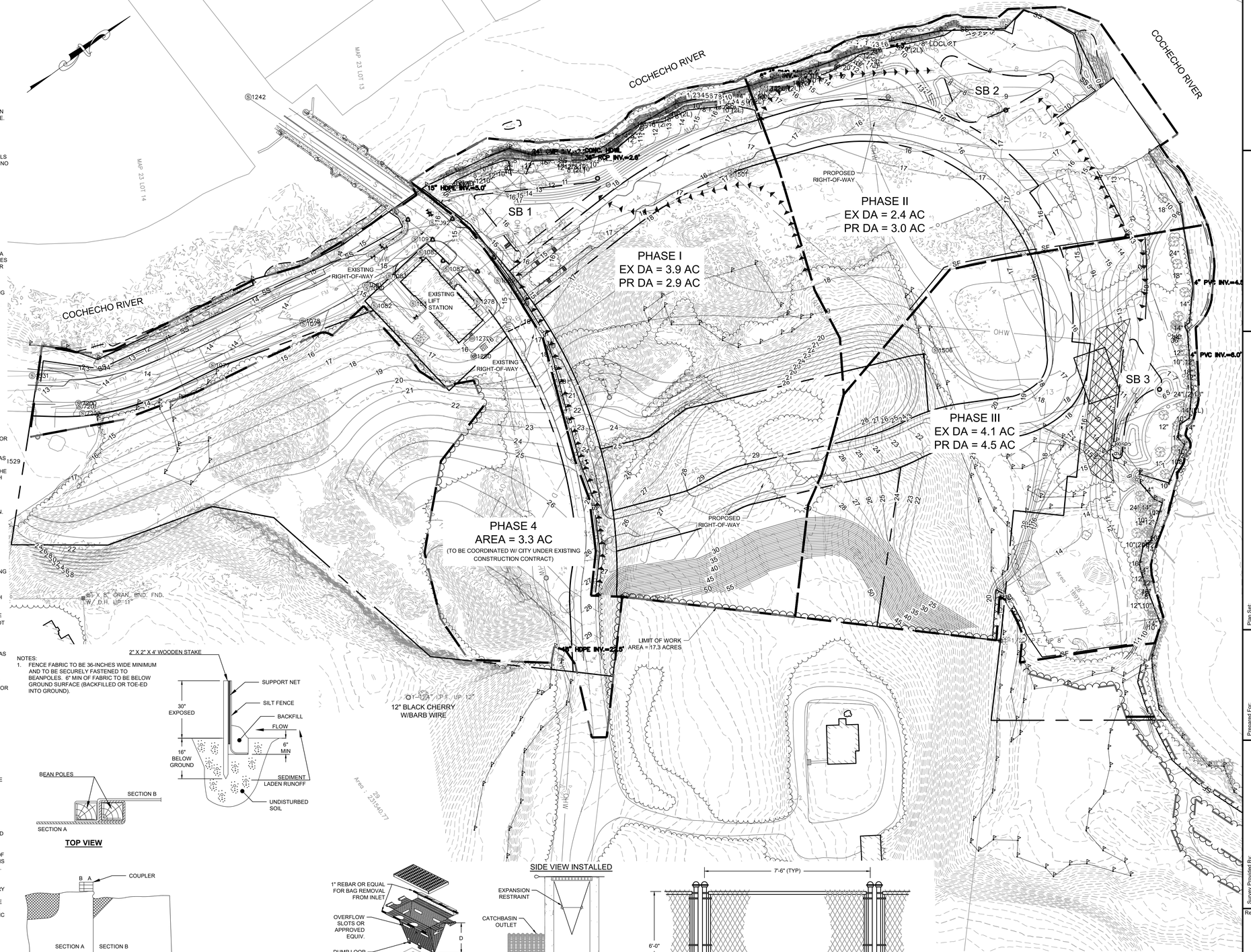
1. ALL EARTH WORK AND EXCAVATION SHALL BE IN COMPLIANCE WITH NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES PERMITS, INCLUDING THE ALTERATION OF TERRAIN AND WETLANDS PERMITS, AND THE APPROVED REMEDIAL ACTION PLAN.
2. COORDINATE UTILITY DEMOLITION AND CONFLICTS WITH THE CITY OF DOVER. MAINTAIN CONTINUOUS SERVICE TO ABUTTERS AS REQUIRED.
3. WORK ALONG SHORELINE SHALL BE COMPLETED AT LOW TIDE, TO THE MAXIMUM EXTENT PRACTICABLE. SHALL INSTALL ALL EROSION CONTROL DEVICES, TEMPORARY COFFERDAMS, AND TEMPORARY STORMWATER MANAGEMENT BASINS PRIOR TO ANY MAJOR CLEARING ALONG SHORELINE
4. ALL DISTURBED SURFACES SHALL BE TEMPORARILY STABILIZED BEFORE TRANSITIONING TO NEXT PHASE OF CLEARING AND BANK STABILIZATION.

EROSION & SEDIMENT CONTROL NOTES:

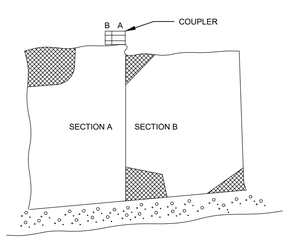
1. DESIGNATE THE SITE CONSTRUCTION FOREMAN AS THE ON-SITE PERSONNEL RESPONSIBLE FOR THE DAILY INSPECTION AND MAINTENANCE OF ALL SEDIMENT AND EROSION CONTROLS AND IMPLEMENTATION OF ALL NECESSARY MEASURES TO CONTROL EROSION AND PREVENT SEDIMENT FROM LEAVING THE SITE.
2. INSTALL ALL EROSION AND SEDIMENT CONTROL (ESC) MEASURES AS INDICATED ON DRAWINGS IN CONSULTATION WITH THE CONSERVATION AGENT, AND ENGINEER BEFORE ANY CONSTRUCTION ACTIVITIES BEGIN. INSTALL TURBIDITY CURTAIN PRIOR TO CONDUCTING ANY WORK ALONG THE SHORELINE. INSPECT, MAINTAIN REPAIR AND REPLACE EROSION CONTROL MEASURES, AS NECESSARY, DURING THE ENTIRE CONSTRUCTION PERIOD OF THE PROJECT. THE SITE PERIMETER EROSION CONTROLS ARE THE DESIGNATED LIMIT OF WORK. INFORM ALL PERSONNEL WORKING ON THE PROJECT SITE THAT NO CONSTRUCTION ACTIVITY IS TO OCCUR BEYOND THE LIMIT OF WORK AT ANY TIME THROUGHOUT THE CONSTRUCTION PERIOD.
3. MAINTAIN A MINIMUM SURPLUS OF 200 FEET OF EROSION CONTROL BARRIER (SILT FENCE, STRAWBALE, &/OR SILT SOCK) ONSITE AT ALL TIMES.
4. PROTECT THE ADJACENT RESOURCE AREAS FROM SEDIMENTATION DURING PROJECT CONSTRUCTION UNTIL ACCEPTANCE BY THE OWNER & IN CONFORMANCE WITH THE ORDER OF CONDITIONS.
5. PROVIDE CONSTRUCTION EXITS AS INDICATED ON DRAWINGS TO SHED DIRT FROM CONSTRUCTION VEHICLE TIRES. CLEAN AND/OR REPLACE THE CRUSHED STONE PAD, AS NECESSARY, TO MAINTAIN ITS EFFECTIVENESS.
6. KEEP THE LIMIT OF CLEARING, GRADING AND DISTURBANCES TO A MINIMUM WITHIN THE PROPOSED AREA OF CONSTRUCTION. PHASE THE SITE WORK IN A MANNER TO MINIMIZE AREAS OF EXPOSED SOIL. IF TREES ARE TO BE CUT ON THE ENTIRE SITE, CLEAR AND GRUB ONLY THOSE AREAS WHICH ARE ACTIVELY UNDER CONSTRUCTION. PROPERLY INSTALL THE SEDIMENTATION CONTROLS PRIOR TO BEGINNING ANY LAND CLEARING ACTIVITY AND/OR OTHER CONSTRUCTION RELATED WORK.
7. MONITOR LOCAL WEATHER REPORTS DURING CONSTRUCTION AND PRIOR TO SCHEDULING EARTHMOVING OR OTHER CONSTRUCTION ACTIVITIES WHICH LEAVE LARGE DISTURBED AREAS UNSTABILIZED. IF INCLEMENT WEATHER IS PREDICTED, USE BEST PROFESSIONAL JUDGEMENT AND GOOD CONSTRUCTION PRACTICES WHEN SCHEDULING CONSTRUCTION ACTIVITIES AND ENSURE THE NECESSARY EROSION CONTROL DEVICES ARE INSTALLED AND FUNCTIONING PROPERLY TO MINIMIZE EROSION FROM ANY IMPENDING WEATHER EVENTS.
8. INSPECT EROSION AND SEDIMENT CONTROL DEVICES AND STABILIZED SLOPES ON A WEEKLY BASIS AND AFTER EACH RAINFALL EVENT OF 0.50 INCH OR GREATER. REPAIR IDENTIFIED PROBLEMS WITHIN 24 HOURS TO ENSURE EROSION AND SEDIMENT CONTROLS ARE IN GOOD WORKING ORDER. RESET OR REPLACE MATERIALS AS REQUIRED.
9. SURROUND THE PERIMETER OF SOIL STOCKPILES WITH SILT SOCK, SILT FENCE, STRAWBALES, OR A COMBINATION OF SILT FENCE WITH STRAWBALE, AS DETERMINED NECESSARY.
10. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    a. BASE COURSE GRAVEL HAS BEEN INSTALLED IN AREAS TO BE PAVED.
    b. A MINIMUM OF 85 PERCENT VEGETATED GROWTH HAS BEEN ESTABLISHED.
    c. A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED.
    d. EROSION CONTROL BLANKET HAS BEEN PROPERLY INSTALLED.
12. DISTURBED AREAS AND SLOPES, NOT AT FINAL GRADE, MUST NOT BE LEFT UNATTENDED OR EXPOSED FOR EXCESSIVE PERIODS OF TIME SUCH AS THE INACTIVE WINTER SEASON. PROVIDE APPROPRIATE STABILIZATION PRACTICES ON ALL DISTURBED AREAS AS SOON AS POSSIBLE BUT NOT MORE THAN 45 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA WAS INITIATED. REINFORCE TEMPORARY AREAS HAVING A SLOPE GREATER THAN 4:1 WITH EROSION BLANKETS OR APPROVED EQUAL UNTIL THE SITE IS PROPERLY STABILIZED. TEMPORARY SWALES MAY ALSO BE REQUIRED IF DETERMINED NECESSARY IN THE FIELD BY THE ENGINEER. VEGETATED AREAS SHALL BE TEMPORARILY STABILIZED IN ACCORDANCE WITH THE PLANTING PLAN.
13. ALL ROADWAYS, PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINAL GRADES. CUT AND FILL SLOPES SHALL BE STABILIZED BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADES. VEGETATED AREAS SHALL BE STABILIZED IN ACCORDANCE WITH THE PLANTING PLAN.
14. ALL AREAS SHALL BE STABILIZED PRIOR TO WINTER AS FOLLOWS:
    a. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKET ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH NETTING ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKET OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
    b. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
    c. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.
15. INSTALL A SILT SACK OR APPROVED EQUIVALENT IN EACH EXISTING CATCHBASIN RECEIVING RUNOFF FROM THE SITE. UPON THE INSTALLATION OF EACH CATCH BASIN, INSTALL A SILT SACK OR APPROVED EQUIVALENT. INSPECT SILT SACKS, AFTER EACH SIGNIFICANT STORM EVENT AND REMOVE AND EMPTY AS NEEDED FOR THE DURATION OF THE CONSTRUCTION PERIOD.
16. TEMPORARY WATER DIVERSIONS AND/OR SEDIMENTATION BASINS MAY BE CONSTRUCTED ON AN AS-NEEDED BASIS OR AS IDENTIFIED IN THE SWPPP DURING CONSTRUCTION TO AID IN THE CAPTURE OF SITE RUNOFF AND SEDIMENT UNTIL AREAS ARE STABILIZED. THESE CONTROLS SHALL BE INSTALLED PRIOR TO THE START OF EARTH DISTURBANCE. IT WILL BE THE RESPONSIBILITY OF THE SITE CONTRACTOR, IN CONSULTATION WITH THE ENGINEER, TO SIZE AND CREATE THESE BASINS IN APPROPRIATE LOCATIONS.
17. ALL DITCHES OR SWALES SHALL BE STABILIZED PRIOR TO DIRECTING STORMWATER RUNOFF TO THEM.
18. CONTAIN ALL SEDIMENT ONSITE. SWEEP ALL EXITS FROM THE SITE AS NECESSARY INCLUDING ANY SEDIMENT TRACKING. SWEEP PAVED AREAS AS NEEDED TO REMOVE SEDIMENT AND POTENTIAL POLLUTANTS ACCUMULATED DURING SITE CONSTRUCTION.
19. REMOVE ACCUMULATED SEDIMENT FROM ALL TEMPORARY PRACTICES AND DISPOSE OF IN A PRE-APPROVED LOCATION.
20. CONTROL DUST BY WATERING OR OTHER APPROVED METHODS AS NECESSARY, OR AS DIRECTED BY THE ENGINEER.
21. PROVIDE ON SITE OR MAKE READILY AVAILABLE THE NECESSARY EQUIPMENT AND SITE PERSONNEL DURING CONSTRUCTION HOURS FOR THE DURATION OF THE PROJECT TO ENSURE ALL EROSION AND SEDIMENTATION CONTROL DEVICES ARE PROPERLY MAINTAINED AND REPAIRED IN A TIMELY AND RESPONSIBLE MANNER. IF SITE WORK IS SUSPENDED DURING THE WINTER MONTHS THE CONTRACTOR MUST CONTINUE TO PROVIDE PERSONNEL AND EQUIPMENT EITHER ON SITE OR READILY AVAILABLE TO PROPERLY MAINTAIN AND REPAIR ALL EROSION AND SEDIMENTATION CONTROL DEVICES IN A TIMELY AND RESPONSIBLE MANNER.
22. THE CONTRACTOR IS RESPONSIBLE FOR THE INSPECTION AND MAINTENANCE DURING CONSTRUCTION OF ALL STORMWATER FACILITIES INSTALLED OR AFFECTED BY THE PROJECT. REMOVE SEDIMENT OR DEBRIS COLLECTED WITHIN THESE FACILITIES FROM THE PROJECT WORK PRIOR TO THE OWNER'S ACCEPTANCE.
23. PRIOR TO THE INSTALLATION OF FILTER FABRIC AND MEDIA WITHIN THE BIORETENTION AREAS, REMOVE AND PROPERLY DISPOSE OF SEDIMENT ACCUMULATED IN ANY PARTIALLY CONSTRUCTED OR TEMPORARY BIORETENTION/DRAINAGE AREA USED FOR SEDIMENT CONTROL DURING CONSTRUCTION. PROVIDE A SURFACE ELEVATION AT A MINIMUM 1-FOOT ABOVE THE BOTTOM OF MEDIA ELEVATION AS SHOWN IN THE BIORETENTION SCHEDULE FOR PARTIALLY CONSTRUCTED BIORETENTION AREAS. THIS ALLOWS FOR AN OVER-DIG OF THE COLLECTED SEDIMENT FROM WITHIN THE BIORETENTION AREA PRIOR TO MEDIA/FABRIC INSTALLATION

GENERAL GRADING AND DRAINAGE NOTES:

1. ALL CUT AND FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
2. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.
3. PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.
4. ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
5. PROPOSED ELEVATIONS ARE SHOWN TO FINISH PAVEMENT OR GRADE UNLESS NOTED OTHERWISE.
6. ALL EARTHWORK AND SITE PREPARATION MUST BE DONE IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF ANY SUBSURFACE INVESTIGATION OR GEOTECHNICAL REPORTS PREPARED FOR THIS SITE.
7. ALL DRAINAGE STRUCTURES AND PIPES MUST BE CONNECTED TO THE DRAINAGE SYSTEM PRIOR TO THE INSTALLATION OF ANY PAVEMENT. PAVING WILL NOT BE ALLOWED IF THE DRAINAGE SYSTEM FOR THE PROPOSED PAVED AREA IS NOT COMPLETELY AND PROPERLY INSTALLED. THIS INCLUDES THE STABILIZATION OF ALL DISTURBED AREAS CONTRIBUTING TO THE DRAINAGE SYSTEMS AND ANY STORMWATER BASIN FLOORS AND SIDE SLOPES

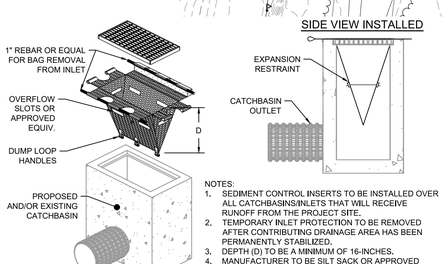


TOP VIEW



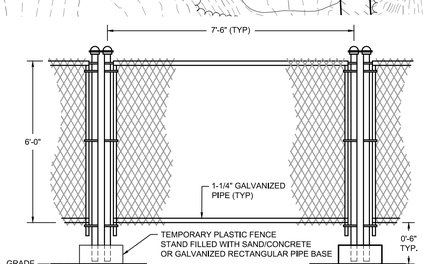
JOINING SECTIONS OF FENCE

EROSION/SILTATION CONTROL FENCE
NOT TO SCALE



NOTES:
1. SEDIMENT CONTROL INSERTS TO BE INSTALLED OVER ALL CATCHBASINS/INLETS THAT WILL RECEIVE RUNOFF FROM THE PROJECT SITE.
2. TEMPORARY INLET PROTECTION TO BE REMOVED AFTER CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED.
3. DEPTH (D) TO BE A MINIMUM OF 16-INCHES.
4. MANUFACTURER TO BE SILT SACK OR APPROVED EQUIVALENT.

TEMPORARY CATCHBASIN INSERT WITH INLET PROTECTION
NOT TO SCALE



TEMPORARY CONSTRUCTION FENCE
NOT TO SCALE

PERMITTING SET
NOT FOR CONSTRUCTION

GRAPHIC SCALE
60 0 30 60 120 240
(in feet)
1 INCH = 60 FEET

Revisions

Rev.	Date	By	Appr.	Description
1	---	---	---	---
2	---	---	---	---
3	---	---	---	---

Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com
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508-833-6600 voice
508-833-3150 fax

Checked By: RAG
Drawn By: CKS
Designed By: CKS
Date: JULY 2021

Plan Set:
Plan Title: EROSION CONTROL & PHASING PLAN

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
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Fax: —

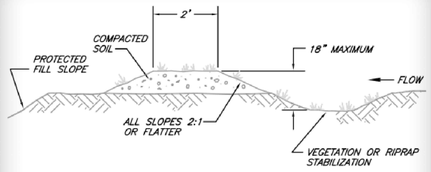
Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-6560
Fax: —
Dated: OCTOBER 19, 2016

Registration:

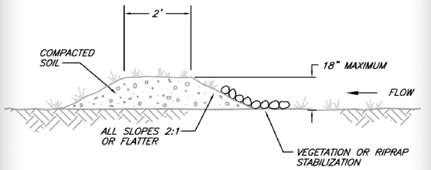
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NOT FOR CONSTRUCTION

Project Number: 15157
Sheet : 3 of 46
Sheet Number: C - 3

last modified: 10/26/21 printed: 10/27/21 by kf I:\Projects\2015\15157 Union Studio Dover NH Waterfront\Drawings\15157 ESC.dwg



TYPICAL FILL DIVERSION

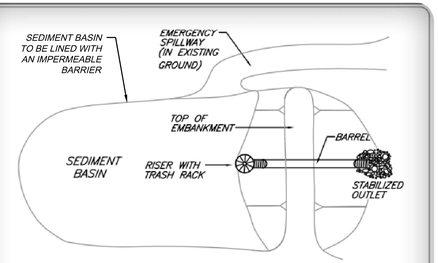


TYPICAL TEMPORARY DIVERSION DIKE

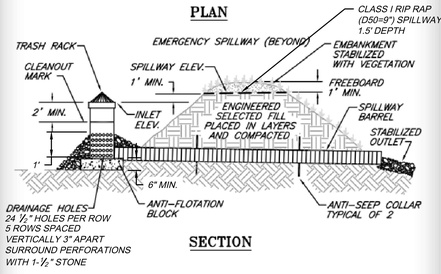
NOTES:
1. THE CHANNEL BEHIND THE DIKE SHALL HAVE POSITIVE GRADE TO A STABILIZED OUTLET.
2. THE DIKE SHALL BE ADEQUATELY COMPACTED TO PREVENT FAILURE.
3. THE DIKE SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT SEEDING OR RIPRAP.

TEMPORARY DIVERSION

ADAPTED FROM J. McCULLAH 1994



PLAN



SECTION

NOTES:
1. THE TEMPORARY SEDIMENT BASIN, DESIGNED BY A QUALIFIED PROFESSIONAL, IS REQUIRED FOR DISTURBED AREAS GREATER THAN 5 ACRES WITHIN A DRAINAGE AREA LESS THAN 100 ACRES.
2. THE SEDIMENT BASIN WILL BE REMOVED WITHIN 3 YEARS.

TYPICAL SEDIMENT BASIN

ADAPTED FROM J. McCULLAH 1994

SEDIMENT BASIN NOTES:

1. MATERIAL EXCAVATED DURING SEDIMENT BASIN CONSTRUCTION SHOULD BE DISPOSED OF IN ACCORDANCE WITH THE APPROVED REMEDIAL ACTION PLAN AND ALL RELATED REQUIREMENTS. COORDINATE WITH THE CITY & ENVIRONMENTAL ENGINEER.

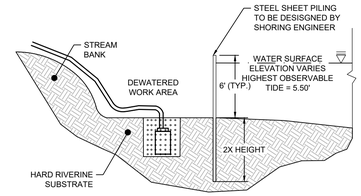
PERMITTING SET
NOT FOR CONSTRUCTION

GRAPHIC SCALE

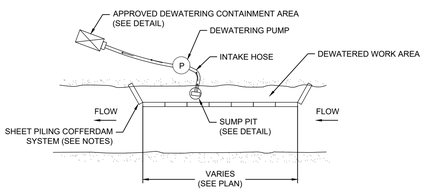
30 0 15 30 60 120

(in feet)

1 INCH = 30 FEET



PORTABLE COFFERDAM INSTALLATION DETAIL

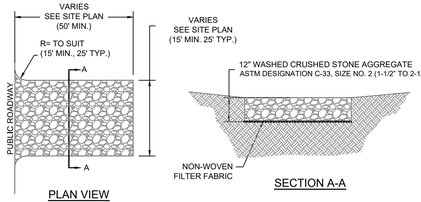


DEWATERING PUMPING PLAN

NOTES:
1. THE COFFERDAM SYSTEM TO BE INSTALLED ACCORDING TO THE SHORING ENGINEERS DESIGN & RECOMMENDATIONS, BEGINNING AT THE MOST UPSTREAM LOCATION.
2. ALL DEWATERING CONTAINMENT AREAS AND EROSION/SEDIMENT CONTROL DEVICES TO BE INSTALLED PRIOR TO ANY COFFERDAM INSTALLATION AND ACCORDING TO THE CONSTRUCTION PLANS AND DETAILS.
3. ALL EXCAVATED SEDIMENTS OR DEBRIS TO BE DISPOSED OF IN AN APPROVED STOCK PILE AREA AND PROTECTED WITH EROSION/SEDIMENT CONTROL BARRIERS.
4. EROSIONS/SEDIMENT CONTROL DEVICES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED IN ACCORDANCE WITH THE SPECIFICATIONS.

SHEET PILING COFFERDAM DETAIL

NOT TO SCALE



PLAN VIEW — SECTION A-A

NOTE:
1. STONE CONSTRUCTION ENTRANCE(S) TO REMAIN UNTIL INSTALLATION OF PAVEMENT SUB-BASE IS TO BEGIN.
2. SEE SITE PLAN FOR LOCATION & ACTUAL DIMENSIONS

STONE CONSTRUCTION ENTRANCE DETAIL

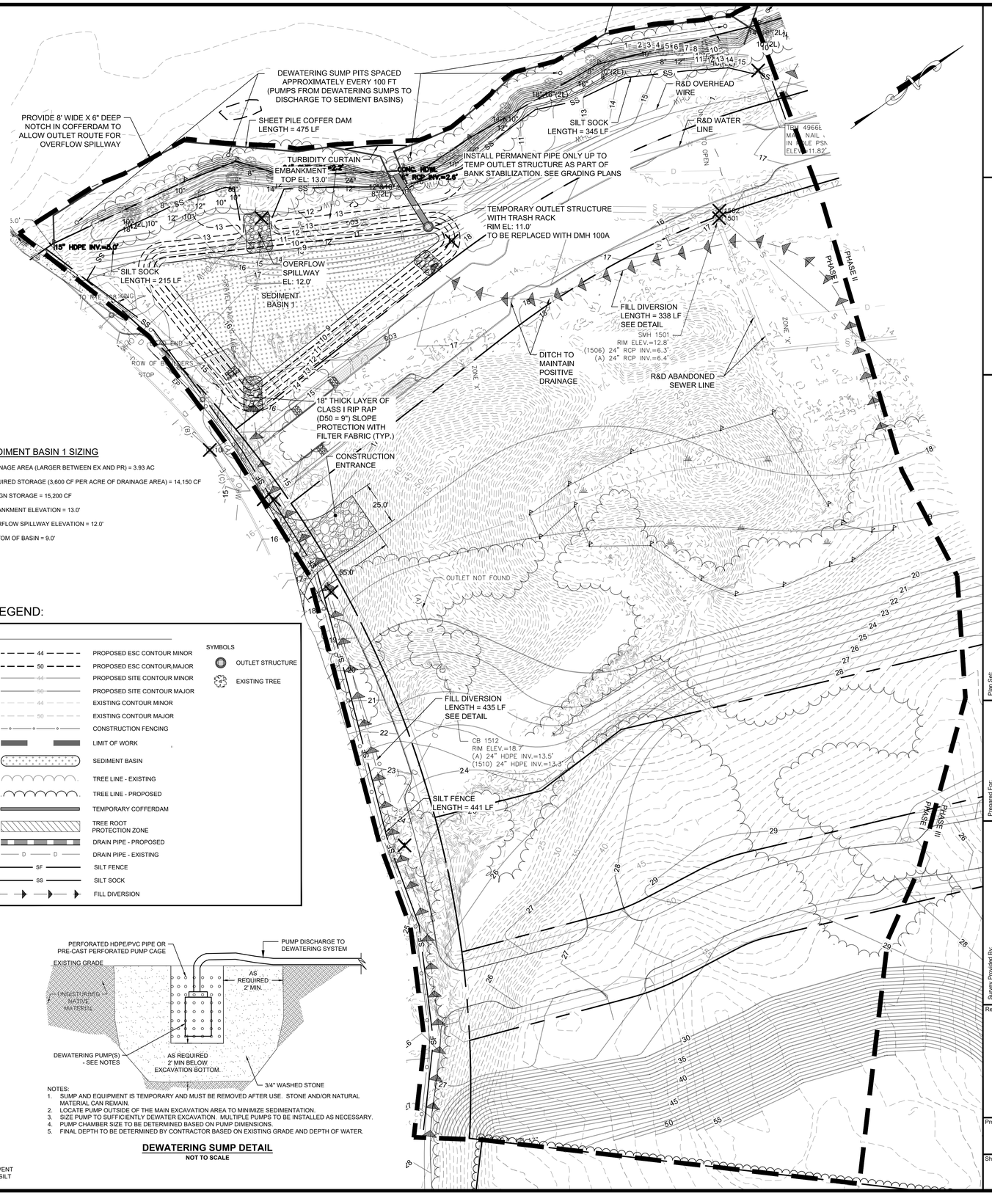
NOT TO SCALE

EROSION AND SEDIMENT CONTROL (ESC) PHASE I CONSTRUCTION SEQUENCE

1. SURVEY AND STAKE THE PROPOSED LIMIT OF DISTURBANCE AND LIMIT OF SEDIMENTATION BARRIERS.
2. PLACE SEDIMENTATION BARRIERS (DIVERSION DIKES, SILT SOCK, SILT FENCE) AS INDICATED ON DRAWINGS AND STAKED OUT IN THE FIELD. UNDER NO CIRCUMSTANCES IS THE LIMIT OF WORK TO EXTEND BEYOND THE SEDIMENTATION BARRIERSLIMIT OF DISTURBANCE AS INDICATED ON DRAWINGS AS APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL SERVICES (DES).
3. INSTALL TEMPORARY CONSTRUCTION ENTRANCES IN LOCATIONS INDICATED ON DRAWINGS. NO OTHER ENTRANCES ARE TO BE USED TO GAIN ACCESS TO THE SITE BY ANY CONSTRUCTION OR DELIVERY VEHICLES.
4. BEGIN CLEARING ONLY THE AREAS REQUIRED TO CONSTRUCT TEMPORARY SEDIMENT CONTROL MEASURES. CLEAR THE SITE AS REQUIRED FOR TEMPORARY SEDIMENT BASINS. LIMIT SITE CLEARING AS TO MINIMIZE DISTURBED SURFACES AND POSSIBLE UNTREATED DISCHARGE DURING RUNOFF PRODUCING EVENTS.
5. INSTALL TEMPORARY STORMWATER MANAGEMENT SEDIMENT BASIN 1. INSTALL RIP RAP OVERFLOW SPILLWAY, STABILIZED INFLOW CHANNELS, AND TEMPORARY RISER AND BARREL AS SHOWN ON PLAN AND DETAIL. TEMPORARY SEDIMENT BASIN TO BE LINED WITH IMPERMEABLE BARRIER.
6. INSTALL SHEET PILING COFFER DAM PER CONTRACTOR'S SUBMITTAL TO LIMITS AS SHOWN ON PLAN.
7. INSTALL TEMPORARY FILL DIVERSION DIKE TO DIRECT RUNOFF TO TEMPORARY SEDIMENT BASIN 1.
8. INSTALL FLOATING SEDIMENT CURTAIN AROUND OUTFALL LOCATION AS SHOWN.
9. BEGIN CLEARING LARGE VEGETATION (3' OR GREATER IN HEIGHT) ALONG RIVER BANK TO ALLOW FOR ACCESS TO CONSTRUCT DRAINAGE OUTFALL 1, DMH 100A, DMH 100, AND CONNECTING PIPE. INSTALL PLUNGE POOL/RIP RAP AT OUTFALL. SEQUENCE WORK FOR INSTALLATION DURING LOW TIDE.
10. CONNECT SEDIMENT BASIN 1 OUTLET PIPE TO DMH 100A AS SHOWN ON PLAN.
11. REMOVE REMAINING STUMPS AND OTHER VEGETATION ALONG BANK TO ALLOW FOR ACCESS DURING BANK STABILIZATION CONSTRUCTION
12. EXCAVATE BANK TO SUBGRADE AND INSTALL FABRIC CAP AS SPECIFICED ON THE DRAWINGS AND DETAILS.
13. INSTALL BANK STABILIZATION AND PERMANENTLY STABILIZE BANK. REFER TO BANK STABILIZATION PLANS FOR INSTALLATION STEPS AND DETAILS.
**PHASE II TO BEGIN AT THE COMPLETION OF PHASE I BANK STABILIZATION WORK AND WITH ENGINEER APPROVAL.*
14. CLEAR AND GRUB REMAINING AREA IN PHASE I. ROUGH GRADE TO THE MAXIMUM EXTENT PRACTICABLE WHILST MAINTAINING TEMPORARY STORMWATER CONTROLS AND WITHOUT DISTURBANCE INTO PHASE II.
15. UPON COMPLETION OF SITE ROUGH GRADING, TEMPORARILY STABILIZE ANY AREA TO REMAIN IDLE FOR 14 DAYS OR LONGER.
16. INSTALL UTILITIES, REMAINING PERMANENT STORM DRAINAGE NETWORK, BASE PAVING AND SIDEWALKS. UPON COMPLETION OF BASE PAVING, TEMPORARILY STABILIZE ALL UPGRADIENT AREAS. FLUSH DRAINAGE SYSTEM OF ANY ACCUMULATED SEDIMENT.
17. CONVERT TEMPORARY SEDIMENT BASINS TO PERMANENT STORMWATER MANAGEMENT CONTROL PRACTICES
18. REMOVE SHEET PILING COFFER DAM.
19. INSTALL BIOSWALES AND TREE TRENCH MEDIA.
20. FINAL PAVING TO BE COMPLETED FOLLOWING PERMANENT DEVELOPMENT PROPOSAL AS DIRECTED BY CITY OF DOVER.

DEWATERING:

1. HIGH WATER TABLE IS ANTICIPATED. IF THE WATER TABLE IS ENCOUNTERED DURING EXCAVATION, TEMPORARILY LOWER THE WATER TABLE AS INDICATED IN THE SPECIFICATIONS.
2. PRIOR TO ANY DEWATERING, THE DEWATERING PLAN MUST BE APPROVED BY THE ENGINEER.
3. IF DEWATERING IS NECESSARY DURING CONSTRUCTION, IMPLEMENT THE PROPER ESC MEASURES ON SITE TO PREVENT EROSION OR SEDIMENT RUNOFF. THESE MEASURES CAN INCLUDE DEWATERING BAGS, TEMPORARY STRAWBALES, SILT FENCES, SILT SOCKS AND/OR OTHER APPROVED DEVICES AS INDICATED IN THE DETAILS.



SEDIMENT BASIN 1 SIZING

DRAINAGE AREA (LARGER BETWEEN EX AND PR) = 3.93 AC

REQUIRED STORAGE (3,600 CF PER ACRE OF DRAINAGE AREA) = 14,150 CF

DESIGN STORAGE = 15,200 CF

EMBANKMENT ELEVATION = 13.0'

OVERFLOW SPILLWAY ELEVATION = 12.0'

BOTTOM OF BASIN = 9.0'

LEGEND:

44	PROPOSED ESC CONTOUR MINOR
50	PROPOSED ESC CONTOUR,MAJOR
44	PROPOSED SITE CONTOUR MINOR
50	PROPOSED SITE CONTOUR MAJOR
44	EXISTING CONTOUR MINOR
50	EXISTING CONTOUR MAJOR
	CONSTRUCTION FENCING
	LIMIT OF WORK
	SEDIMENT BASIN
	TREE LINE - EXISTING
	TREE LINE - PROPOSED
	TEMPORARY COFFERDAM
	TREE ROOT PROTECTION ZONE
	DRAIN PIPE - PROPOSED
D	DRAIN PIPE - EXISTING
SF	SILT FENCE
SS	SILT SOCK
	FILL DIVERSION

SYMBOLS
- OUTLET STRUCTURE
- EXISTING TREE

NOTES:
1. SUMP AND EQUIPMENT IS TEMPORARY AND MUST BE REMOVED AFTER USE. STONE AND/OR NATURAL MATERIAL CAN REMAIN.
2. LOCATE PUMP OUTSIDE OF THE MAIN EXCAVATION AREA TO MINIMIZE SEDIMENTATION.
3. SIZE PUMP TO SUFFICIENTLY DEWATER EXCAVATION. MULTIPLE PUMPS TO BE INSTALLED AS NECESSARY.
4. PUMP CHAMBER SIZE TO BE DETERMINED BASED ON PUMP DIMENSIONS.
5. FINAL DEPTH TO BE DETERMINED BY CONTRACTOR BASED ON EXISTING GRADE AND DEPTH OF WATER.

DEWATERING SUMP DETAIL

NOT TO SCALE

Revisions

Rev.	Date	By	Appr.	Description

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Sustainable Environmental Solutions
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Checked By: RAG
Drawn By: CSS
Designed By: CSS
Date: JULY 2021

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Plan Title: PHASE 1 - ESC & SITE PREPARATION

Plan Set:

Prepared For:
City of Dover
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Fax: —

Survey Provided By:
Doucet Survey Inc.
102 Kent Place
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Phone: (603)-659-6560
Fax: —
Dated: OCTOBER 19, 2016

Registration:

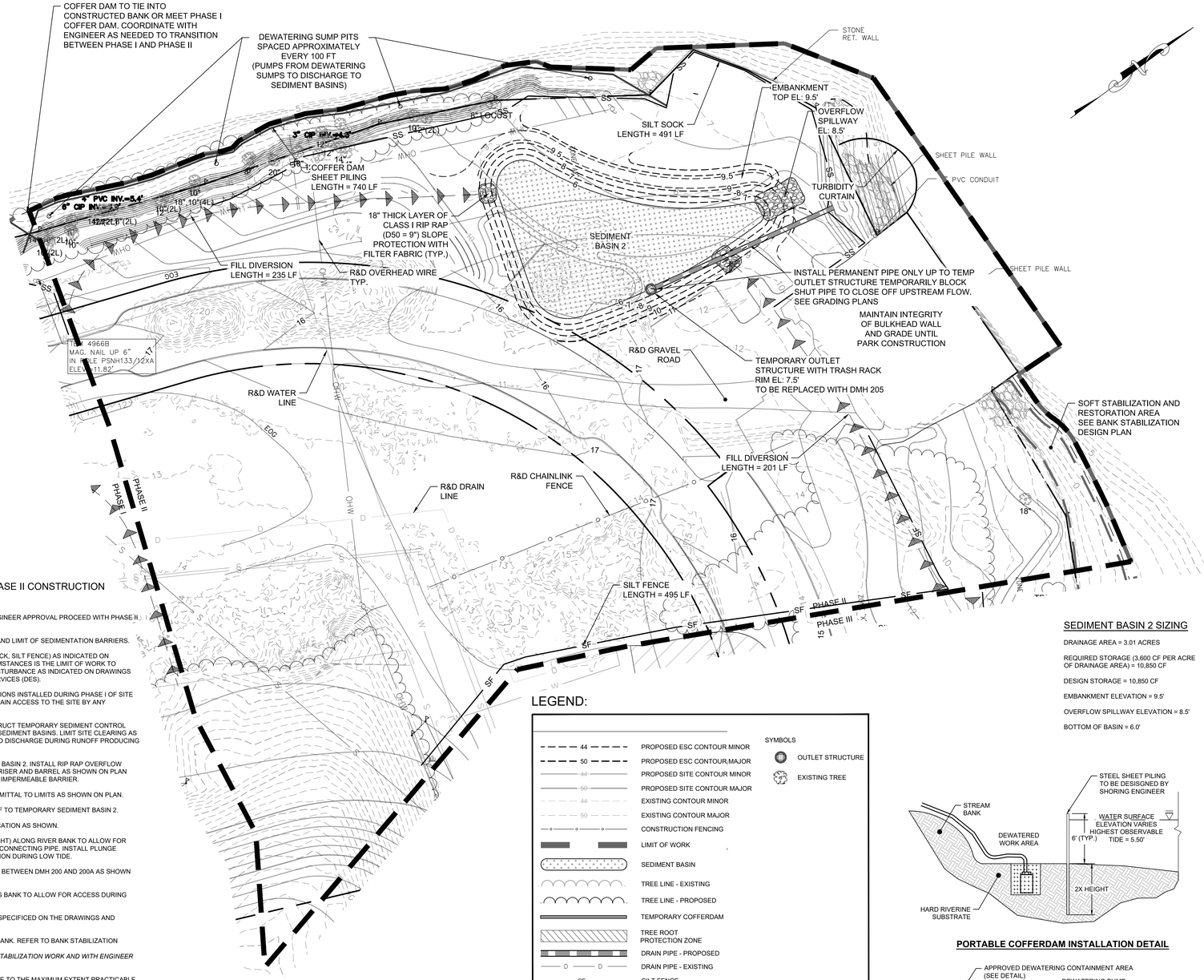
DRAFT
NOT FOR CONSTRUCTION

Project Number: 15157

Sheet : 3A of 46

Sheet Number: C - 3A

last modified: 10/26/21 printed: 10/27/21 by kf I:\Projects\2015\15157 Union Studio Dover NH Waterfront\Drawings\15157 ESC.dwg



EROSION AND SEDIMENT CONTROL (ESC) PHASE II CONSTRUCTION SEQUENCE

UPON COMPLETION OF PHASE I BANK STABILIZATION AND WITH ENGINEER APPROVAL PROCEED WITH PHASE II AS FOLLOWS:

1. SURVEY AND STAKE THE PROPOSED LIMIT OF DISTURBANCE AND LIMIT OF SEDIMENTATION BARRIERS.
2. PLACE SEDIMENTATION BARRIERS (DIVERSION DIKES, SILT SOCK, SILT FENCE) AS INDICATED ON DRAWINGS AND STAKED OUT IN THE FIELD. UNDER NO CIRCUMSTANCES IS THE LIMIT OF WORK TO EXTEND BEYOND THE SEDIMENTATION BARRIERS/LIMIT OF DISTURBANCE AS INDICATED ON DRAWINGS AS APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL SERVICES (DES).
3. MAINTAIN TEMPORARY CONSTRUCTION ENTRANCES IN LOCATIONS INSTALLED DURING PHASE I OF SITE PREPARATION. NO OTHER ENTRANCES ARE TO BE USED TO GAIN ACCESS TO THE SITE BY ANY CONSTRUCTION OR DELIVERY VEHICLES.
4. BEGIN CLEARING THE ONLY THE AREAS REQUIRED TO CONSTRUCT TEMPORARY SEDIMENT CONTROL MEASURES. CLEAR THE SITE AS REQUIRED FOR TEMPORARY SEDIMENT BASINS. LIMIT SITE CLEARING AS TO PREVENT DISTURBED SURFACE AND POSSIBLE UNTREATED DISCHARGE DURING RUNOFF PRODUCING EVENTS.
5. INSTALL TEMPORARY STORMWATER MANAGEMENT SEDIMENT BASIN 2. INSTALL RIP RAP OVERFLOW SPILLWAY, STABILIZED INFLOW CHANNELS, AND TEMPORARY RISER AND BARREL AS SHOWN ON PLAN AND DETAIL. TEMPORARY SEDIMENT BASIN TO BE LINED WITH IMPERMEABLE BARRIER.
6. INSTALL SHEET PILING COFFER DAM PER CONTRACTOR'S SUBMITTAL TO LIMITS AS SHOWN ON PLAN.
7. INSTALL TEMPORARY FILL DIVERSION DIKE TO DIRECT RUNOFF TO TEMPORARY SEDIMENT BASIN 2.
8. INSTALL FLOATING SEDIMENT CURTAIN AROUND OUTFALL LOCATION AS SHOWN.
9. BEGIN CLEARING LARGE VEGETATION (3' OR GREATER IN HEIGHT) ALONG RIVER BANK TO ALLOW FOR ACCESS TO CONSTRUCT DRAINAGE OUTFALL 2, DMH 205 AND CONNECTING PIPE. INSTALL PLUNGE POOL/RIP RAP AT OUTFALL. SEQUENCE WORK FOR INSTALLATION DURING LOW TIDE.
10. CONNECT SEDIMENT BASIN 2 OUTLET PIPE TO DRAINAGE PIPE BETWEEN DMH 200 AND 200A AS SHOWN ON PLAN.
11. REMOVE REMAINING STUMPS AND OTHER VEGETATION ALONG BANK TO ALLOW FOR ACCESS DURING BANK STABILIZATION CONSTRUCTION
12. EXCAVATE BANK TO SUBGRADE AND INSTALL FABRIC CAP AS SPECIFICED ON THE DRAWINGS AND DETAILS.
13. INSTALL BANK STABILIZATION AND PERMANENTLY STABILIZE BANK. REFER TO BANK STABILIZATION PLANS FOR INSTALLATION STEPS AND DETAILS.
    **PHASE III TO BEGIN AT THE COMPLETION OF PHASE II BANK STABILIZATION WORK AND WITH ENGINEER APPROVAL.*
14. CLEAR AND GRUB REMAINING AREA IN PHASE II. ROUGH GRADE TO THE MAXIMUM EXTENT PRACTICABLE WHILST MAINTAINING TEMPORARY STORMWATER CONTROLS AND WITHOUT DISTURBANCE INTO PHASE III.
15. UPON COMPLETION OF SITE ROUGH GRADING, TEMPORARILY STABILIZE ANY AREA TO REMAIN IDLE FOR 14 DAYS OR LONGER.
16. INSTALL UTILITIES, REMAINING PERMANENT STORM DRAINAGE NETWORK, BASE PAVING AND SIDEWALKS. UPON COMPLETION OF BASE PAVING, TEMPORARILY STABILIZE ALL UPGRADIENT AREAS. FLUSH DRAINAGE SYSTEM OF ANY ACCUMULATED SEDIMENT.
17. CONVERT TEMPORARY SEDIMENT BASINS TO PERMANENT STORMWATER MANAGEMENT CONTROL PRACTICES.
18. REMOVE SHEET PILING COFFER DAM.
19. INSTALL BIOSWALES AND TREE TRENCH MEDIA.
20. FINAL PAVING TO BE COMPLETED FOLLOWING PERMANENT DEVELOPMENT PROPOSAL AS DIRECTED BY CITY OF DOVER.

PERMITTING SET
NOT FOR CONSTRUCTION

GRAPHIC SCALE

30 0 15 30 60 120

(in feet)

1 INCH = 30 FEET

DEWATERING:

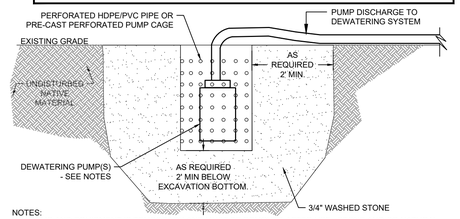
1. HIGH WATER TABLE IS ANTICIPATED. IF THE WATER TABLE IS ENCOUNTERED DURING EXCAVATION, TEMPORARILY LOWER THE WATER TABLE AS INDICATED IN THE SPECIFICATIONS.
2. PRIOR TO ANY DEWATERING, THE DEWATERING PLAN MUST BE APPROVED BY THE ENGINEER.
3. IF DEWATERING IS NECESSARY DURING CONSTRUCTION, IMPLEMENT THE PROPER ESC MEASURES ON SITE TO PREVENT EROSION OR SEDIMENT RUNOFF. THESE MEASURES CAN INCLUDE DEWATERING BAGS, TEMPORARY STRAWBALES, SILT FENCES, SILT SOCKS AND/OR OTHER APPROVED DEVICES AS INDICATED IN THE DETAILS.

LEGEND:

44	PROPOSED ESC CONTOUR MINOR
50	PROPOSED ESC CONTOUR,MAJOR
44	PROPOSED SITE CONTOUR MINOR
50	PROPOSED SITE CONTOUR MAJOR
44	EXISTING CONTOUR MINOR
50	EXISTING CONTOUR MAJOR
	CONSTRUCTION FENCING
	LIMIT OF WORK
	SEDIMENT BASIN
	TREE LINE - EXISTING
	TREE LINE - PROPOSED
	TEMPORARY COFFERDAM
	TREE ROOT PROTECTION ZONE
	DRAIN PIPE - PROPOSED
D D	DRAIN PIPE - EXISTING
SF	SILT FENCE
SS	SILT SOCK
	FILL DIVERSION

SYMBOLS

	OUTLET STRUCTURE
	EXISTING TREE



NOTES:
1. SUMP AND EQUIPMENT IS TEMPORARY AND MUST BE REMOVED AFTER USE. STONE AND/OR NATURAL MATERIAL CAN REMAIN.
2. LOCATE PUMP OUTSIDE OF THE MAIN EXCAVATION AREA TO MINIMIZE SEDIMENTATION.
3. SIZE PUMP TO SUFFICIENTLY DEWATER EXCAVATION. MULTIPLE PUMPS TO BE INSTALLED AS NECESSARY.
4. PUMP CHAMBER SIZE TO BE DETERMINED BASED ON PUMP DIMENSIONS.
5. FINAL DEPTH TO BE DETERMINED BY CONTRACTOR BASED ON EXISTING GRADE AND DEPTH OF WATER.

DEWATERING SUMP DETAIL
NOT TO SCALE

SEDIMENT BASIN 2 SIZING

DRAINAGE AREA = 3.01 ACRES

REQUIRED STORAGE (3,600 CF PER ACRE OF DRAINAGE AREA) = 10,850 CF

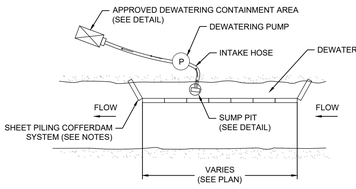
DESIGN STORAGE = 10,850 CF

EMBANKMENT ELEVATION = 9.5'

OVERFLOW SPILLWAY ELEVATION = 8.5'

BOTTOM OF BASIN = 6.0'

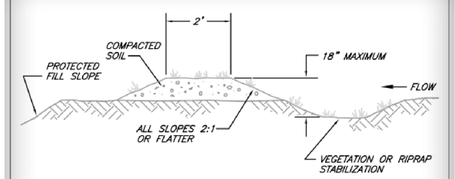
PORTABLE COFFERDAM INSTALLATION DETAIL



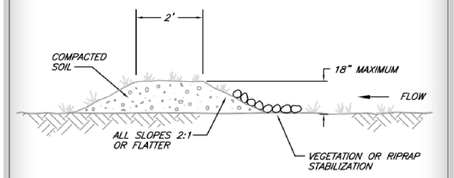
DEWATERING PUMPING PLAN

NOTES:
1. THE COFFERDAM SYSTEM TO BE INSTALLED ACCORDING TO THE SHORING ENGINEERS DESIGN & RECOMMENDATIONS, BEGINNING AT THE MOST UPSTREAM LOCATION.
2. ALL DEWATERING CONTAINMENT AREAS AND EROSION/SEDIMENT CONTROL DEVICES TO BE INSTALLED PRIOR TO ANY COFFERDAM INSTALLATION AND ACCORDING TO THE CONSTRUCTION PLANS AND DETAILS.
3. ALL EXCAVATED SEDIMENTS OR DEBRIS TO BE DISPOSED OF IN AN APPROVED STOCK PILE AREA AND PROTECTED WITH EROSION/SEDIMENT CONTROL BARRIERS.
4. EROSIONS/SEDIMENT CONTROL DEVICES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED IN ACCORDANCE WITH THE SPECIFICATIONS.

SHEET PILING COFFERDAM DETAIL
NOT TO SCALE



TYPICAL FILL DIVERSION

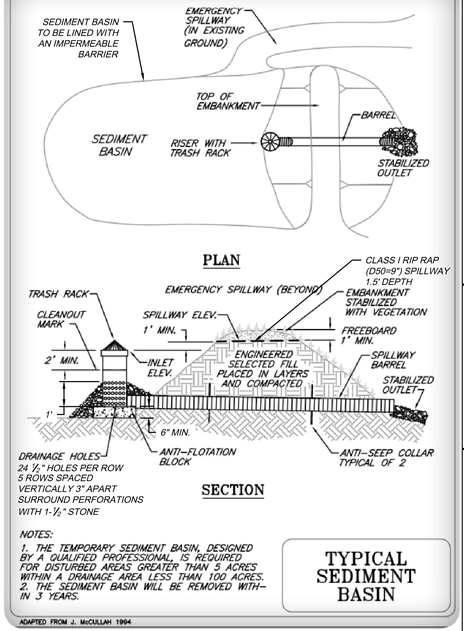


TYPICAL TEMPORARY DIVERSION DIKE

NOTES:
1. THE CHANNEL BEHIND THE DIKE SHALL HAVE POSITIVE GRADE TO A STABILIZED OUTLET.
2. THE DIKE SHALL BE ADEQUATELY COMPACTED TO PREVENT FAILURE.
3. THE DIKE SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT SEEDING OR RIPRAP.

TEMPORARY DIVERSION

ADAPTED FROM J. McCULLAH 1994



NOTES:
1. THE TEMPORARY SEDIMENT BASIN, DESIGNED BY A QUALIFIED PROFESSIONAL, IS REQUIRED FOR DISTURBED AREAS GREATER THAN 5 ACRES WITHIN A DRAINAGE AREA LESS THAN 100 ACRES.
2. THE SEDIMENT BASIN WILL BE REMOVED WITHIN 3 YEARS.

TYPICAL SEDIMENT BASIN

ADAPTED FROM J. McCULLAH 1994

SEDIMENT BASIN NOTES:

1. MATERIAL EXCAVATED DURING SEDIMENT BASIN CONSTRUCTION SHOULD BE DISPOSED OF IN ACCORDANCE WITH THE APPROVED REMEDIAL ACTION PLAN AND ALL RELATED REQUIREMENTS. COORDINATE WITH THE CITY & ENVIRONMENTAL ENGINEER.

Revisions

Rev.	Date	By	Appr.	Description
1	----	----	----	----
2	----	----	----	----
3	----	----	----	----
4	----	----	----	----
5	----	----	----	----
6	----	----	----	----

Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com
90 Route 6A
Sandwich, MA 02563
508-833-6600 voice
508-833-3150 fax

Drawn By: CMS
Designed By: CMS
Checked By: RAG
Date: JULY 2021

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Plan Set:
Plan Title: PHASE 2 - ESC & SITE PREPARATION

Prepared For:
City of Dover
288 Central Ave
Dover, NH 03820
Phone: (603) 516-6000
Fax: ----

Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-6560
Fax: ----
Dated: OCTOBER 19, 2016

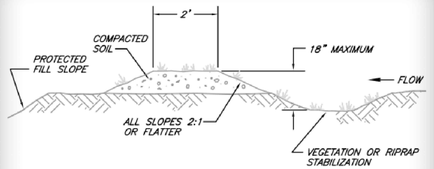
Registration:

DRAFT
NOT FOR CONSTRUCTION

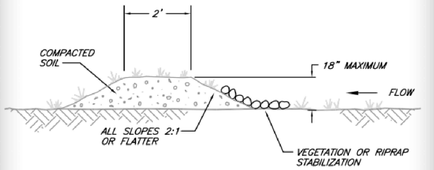
Project Number: 15157
Sheet : 3B of 46

Sheet Number: C - 3B

last modified: 10/26/21 printed: 10/27/21 by kf I:\Projects\2015\15157 Union Studio Dover NH Waterfront\Drawings\15157 ESC.dwg



TYPICAL FILL DIVERSION

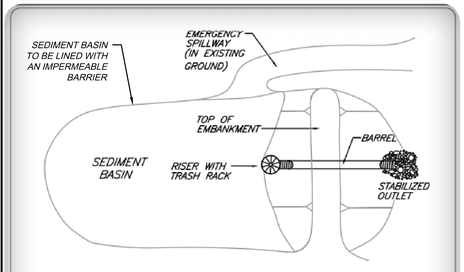


TYPICAL TEMPORARY DIVERSION DIKE

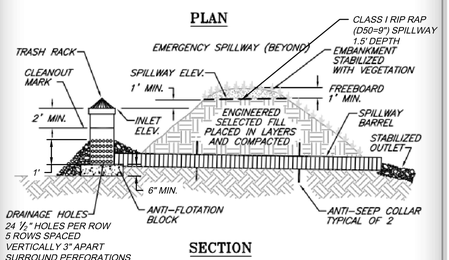
NOTES:
1. THE CHANNEL BEHIND THE DIKE SHALL HAVE POSITIVE GRADE TO A STABILIZED OUTLET.
2. THE DIKE SHALL BE ADEQUATELY COMPACTED TO PREVENT FAILURE.
3. THE DIKE SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT SEEDING OR RIPRAP.

TEMPORARY DIVERSION

ADAPTED FROM J. McCULLAH 1994



PLAN



SECTION

NOTES:
1. THE TEMPORARY SEDIMENT BASIN, DESIGNED BY A QUALIFIED PROFESSIONAL IS REQUIRED FOR DISTURBED AREAS GREATER THAN 5 ACRES WITHIN A DRAINAGE AREA LESS THAN 100 ACRES.
2. THE SEDIMENT BASIN WILL BE REMOVED WITHIN 3 YEARS.

TYPICAL SEDIMENT BASIN

ADAPTED FROM J. McCULLAH 1994

SEDIMENT BASIN NOTES:

1. MATERIAL EXCAVATED DURING SEDIMENT BASIN CONSTRUCTION SHOULD BE DISPOSED OF IN ACCORDANCE WITH THE APPROVED REMEDIAL ACTION PLAN AND ALL RELATED REQUIREMENTS. COORDINATE WITH THE CITY & ENVIRONMENTAL ENGINEER.

LEGEND:

44	PROPOSED ESC CONTOUR MINOR
50	PROPOSED ESC CONTOUR,MAJOR
44	PROPOSED SITE CONTOUR MINOR
50	PROPOSED SITE CONTOUR MAJOR
44	EXISTING CONTOUR MINOR
50	EXISTING CONTOUR MAJOR
	CONSTRUCTION FENCING
	LIMIT OF WORK
	SEDIMENT BASIN
	TREE LINE - EXISTING
	TREE LINE - PROPOSED
	TEMPORARY COFFERDAM
	TREE ROOT PROTECTION ZONE
	DRAIN PIPE - PROPOSED
D D	DRAIN PIPE - EXISTING
SF	SILT FENCE
SS	SILT SOCK
	FILL DIVERSION

SYMBOLS

	OUTLET STRUCTURE
	EXISTING TREE
	EROSION CONTROL BLANKET

EROSION AND SEDIMENT CONTROL (ESC) PHASE III CONSTRUCTION SEQUENCE

UPON COMPLETION OF PHASE II BANK STABILIZATION WORK AND WITH ENGINEER APPROVAL PROCEED WITH PHASE III AS FOLLOWS:

1. SURVEY AND STAKE THE PROPOSED LIMIT OF DISTURBANCE AND LIMIT OF SEDIMENTATION BARRIERS.
2. PLACE SEDIMENTATION BARRIERS (DIVERSION DIKES, SILT SOCK, SILT FENCE) AS INDICATED ON DRAWINGS AND STAKED OUT IN THE FIELD. UNDER NO CIRCUMSTANCES IS THE LIMIT OF WORK TO EXTEND BEYOND THE SEDIMENTATION BARRIERS/LIMIT OF DISTURBANCE AS INDICATED ON DRAWINGS AS APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL SERVICES (DES).
3. MAINTAIN TEMPORARY CONSTRUCTION ENTRANCES IN LOCATIONS INSTALLED DURING PHASE I OF SITE PREPARATION. NO OTHER ENTRANCES ARE TO BE USED TO GAIN ACCESS TO THE SITE BY ANY CONSTRUCTION OR DELIVERY VEHICLES.
4. BEGIN CLEARING ONLY THE AREAS REQUIRED TO CONSTRUCT TEMPORARY SEDIMENT CONTROL MEASURES. CLEAR THE SITE AS REQUIRED FOR TEMPORARY SEDIMENT BASINS. LIMIT SITE CLEARING AS TO PREVENT DISTURBED SURFACE AND POSSIBLE UNTREATED DISCHARGE DURING RUNOFF PRODUCING EVENTS.
5. INSTALL TEMPORARY SEDIMENT BASIN 3. INSTALL RIP RAP OVERFLOW SPILLWAY, STABILIZED INFLOW CHANNELS, AND TEMPORARY RISER BARREL AS SHOWN ON PLAN AND DETAIL. TEMPORARY SEDIMENT BASIN TO BE LINED WITH IMPERMEABLE BARRIER.
6. INSTALL MUSCLE WALL COFFER DAM PER MANUFACTURER'S REQUIREMENTS TO LIMITS AS SHOWN ON PLAN.
7. INSTALL TEMPORARY FILL DIVERSION DIKE TO DIRECT RUNOFF TO TEMPORARY SEDIMENT BASIN 3.
8. INSTALL FLOATING SEDIMENT CURTAIN AROUND OUTFALL LOCATION AS SHOWN.
9. BEGIN CLEARING LARGE VEGETATION (3' OR GREATER IN HEIGHT) ALONG RIVER BANK TO ALLOW FOR ACCESS TO CONSTRUCT TEMPORARY DRAINAGE OUTFALL AND OVERFLOW SPILLWAY. INSTALL PLUNGE POOL/RIP RAP AT PIPE OUTFALL. SEQUENCE WORK FOR INSTALLATION DURING LOW TIDE.
10. CONNECT TEMPORARY SEDIMENT BASIN 3 OUTLET PIPE TO DRAINAGE PIPE SHOWN ON PLAN.
11. REMOVE REMAINING STUMPS AND OTHER VEGETATION ALONG BANK TO ALLOW FOR ACCESS DURING BANK STABILIZATION CONSTRUCTION
12. EXCAVATE BANK TO SUBGRADE AND INSTALL FABRIC CAP AS SPECIFICED ON THE DRAWINGS AND DETAILS.
13. INSTALL BANK STABILIZATION AND PERMMANENTLY STABLIZE BANK. REFER TO BANK STABILIZATION PLANS FOR INSTALLATION STEPS AND DETAILS.
14. CLEAR AND GRUB REMAINING AREA IN PHASE III. ROUGH GRADE TO THE MAXIMUM EXTENT PRACTICABLE WHILST MAINTAINING TEMPORARY STORMWATER CONTROLS.
15. UPON COMPLETION OF SITE ROUGH GRADING, TEMPORARILY STABILIZE ANY AREA TO REMAIN IDLE FOR 14 DAYS OR LONGER.
16. INSTALL UTILITIES, REMAINING PERMANENT STORM DRAINAGE NETWORK, BASE PAVING AND SIDEWALKS. UPON COMPLETION OF BASE PAVING, TEMPORARILY STABILIZE ALL UPGRADIENT AREAS. FLUSH DRAINAGE SYSTEM OF ANY ACCUMULATED SEDIMENT.
17. CONVERT TEMPORARY SEDIMENT BASINS TO PERMANENT STORMWATER MANAGEMENT CONTROL PRACTICES.
18. INSTALL BIOSWALES AND TREE TRENCH MEDIA.
19. FINAL PAVING TO BE COMPLETED FOLLOWING PERMANENT DEVELOPMENT PROPOSAL AS DIRECTED BY CITY OF DOVER.

SEDIMENT BASIN 3 SIZING

DRAINAGE AREA = 4.51 AC

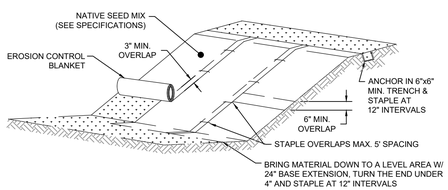
REQUIRED STORAGE (3,600 CF PER ACRE OF DRAINAGE AREA) = 16,250 CF

DESIGN STORAGE = 16,250 CF

EMBANKMENT ELEVATION = 9.0'

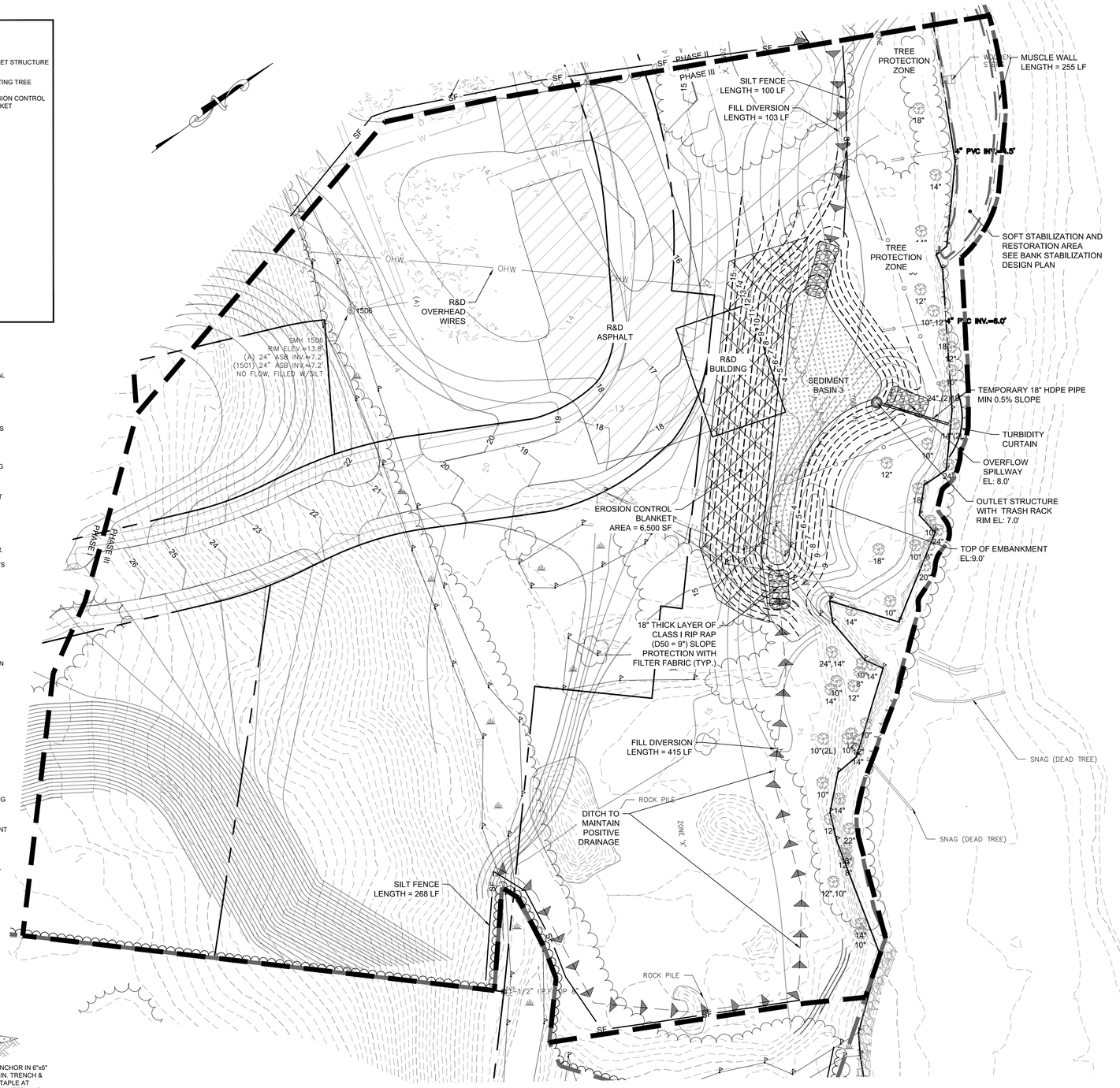
OVERFLOW SPILLWAY ELEVATION = 8.0'

BOTTOM OF BASIN = 4.0'



NOTES:
1. EROSION CONTROL BLANKET TO BE ALL NATURAL MATERIAL SUITABLE FOR TEMPORARY STABILIZATION - NORTH AMERICAN GREEN BIONET S150BN OR APPROVED EQUIVALENT.
2. SLOPE SURFACE SHALL BE SMOOTH BEFORE PLACEMENT FOR PROPER SOIL CONTACT.
3. STAPLING PATTERN AS PER MANUFACTURER'S RECOMMENDATIONS.
4. DO NOT STRETCH BLANKETS/MATTINGS TIGHT. ALLOW THE ROLLS TO MOLD TO ANY IRREGULARITIES.
5. FOR SLOPES LESS THAN 3H:1V, ROLLS MAY BE PLACED IN HORIZONTAL STRIPS.
6. LIME, FERTILIZE AND SEED BEFORE INSTALLATION. PLANTING OF SHRUBS, TREES, ETC. SHOULD OCCUR AFTER INSTALLATION.

EROSION CONTROL BLANKET
NOT TO SCALE



PERMITTING SET
NOT FOR CONSTRUCTION

GRAPHIC SCALE

30 0 15 30 60 120

(in feet)
1 INCH = 30 FEET

Revisions					
Rev.	Date	By	Appr.	Description

Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com
90 Route 6A
Sandwich, MA 02563
508-833-6600 voice
508-833-3150 fax

Drawn By: CKS | Checked By: RAG | Designed By: CKS | Date: JULY 2021

Plan Set:

Plan Title: PHASE 3 - ESC & SITE PREPARATION

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: —

Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-4560
Fax: —
Dated: OCTOBER 19, 2016

Registration:

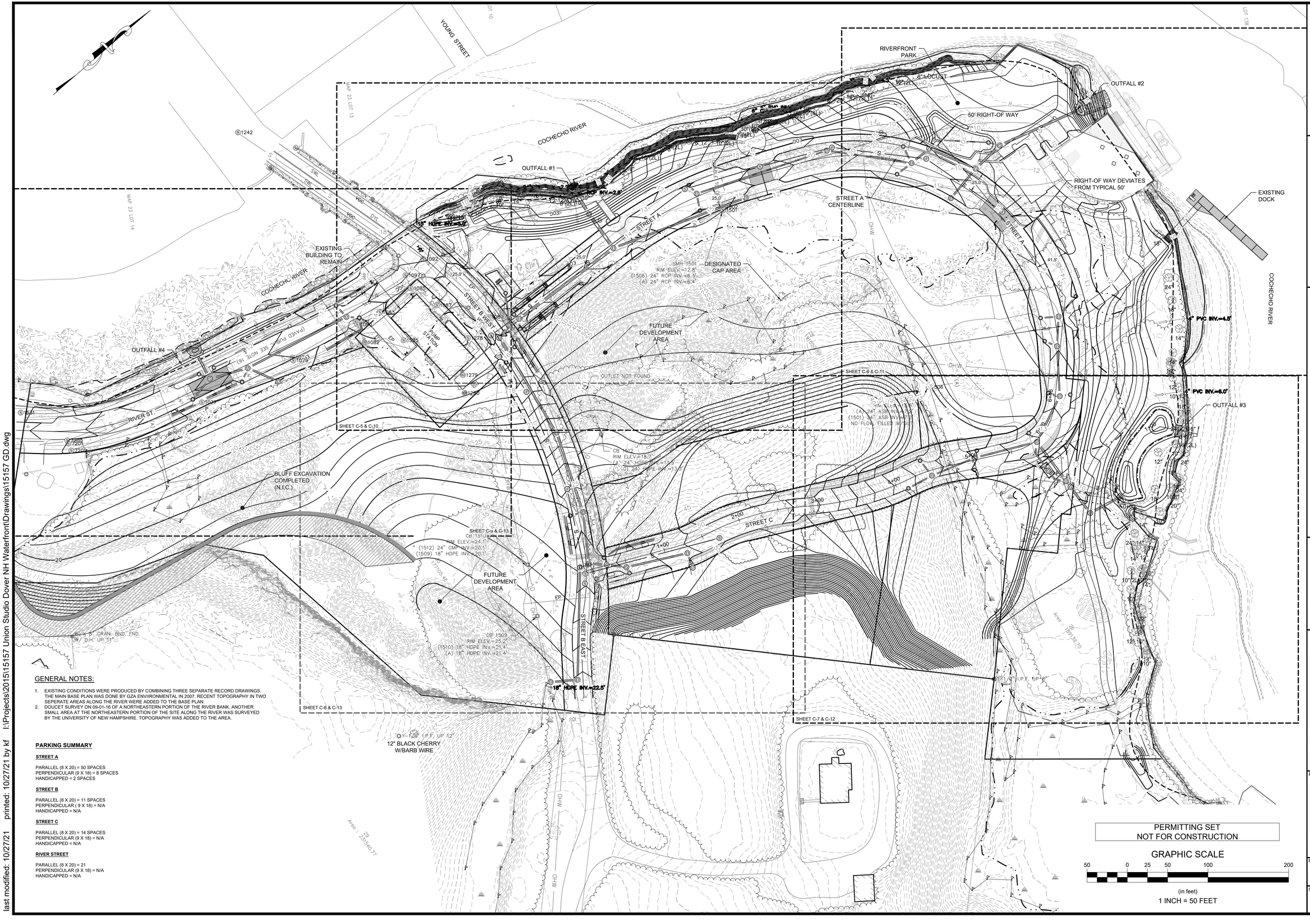
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Project Number: 15157

Sheet : 3C of 46

Sheet Number: C - 3C

last modified: 10/26/21 printed: 10/27/21 by kf I:\Projects\2015\15157 Union Studio Dover NH Waterfront\Drawings\15157 ESC.dwg



GENERAL NOTES:

1. EXISTING CONDITIONS WERE PRODUCED BY COMBINING THREE SEPARATE RECORD DRAWINGS. THE MAIN BASE PLAN WAS DONE BY GZA ENVIRONMENTAL IN 2007. RECENT TOPOGRAPHY IN TWO SEPERATE AREAS ALONG THE RIVER WERE ADDED TO THE BASE PLAN.
2. DOUCET SURVEY ON 09-01-16 OF A NORTHEASTERN PORTION OF THE RIVER BANK. ANOTHER SMALL AREA AT THE NORTHEASTERN PORTION OF THE SITE ALONG THE RIVER WAS SURVEYED BY THE UNIVERSITY OF NEW HAMPSHIRE. TOPOGRAPHY WAS ADDED TO THE AREA.

PARKING SUMMARY

STREET A

PARALLEL (8 X 20) = 50 SPACES
PERPENDICULAR (9 X 18) = 8 SPACES
HANDICAPPED = 2 SPACES

STREET B

PARALLEL (8 X 20) = 11 SPACES
PERPENDICULAR (9 X 18) = N/A
HANDICAPPED = N/A

STREET C

PARALLEL (8 X 20) = 14 SPACES
PERPENDICULAR (9 X 18) = N/A
HANDICAPPED = N/A

RIVER STREET

PARALLEL (8 X 20) = 21
PERPENDICULAR (9 X 18) = N/A
HANDICAPPED = N/A

PERMITTING SET
NOT FOR CONSTRUCTION

GRAPHIC SCALE

50 0 25 50 100 200

(in feet)
1 INCH = 50 FEET

Revisions

Rev.	Date	By	Appr.	Description
1	---	---	---	---
2	---	---	---	---
3	---	---	---	---
4	---	---	---	---

Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com
90 Route 64
Sandwich, MA 02563
508-833-6600 voice
508-833-3150 fax

Checked By: RAG | Drawn By: CBS | Designed By: CBS | Date: JULY 2021

Plan Set:

Plan Title: OVERALL LAYOUT PLAN

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: —

Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-6560
Fax: —
Dated: OCTOBER 19, 2016

Registration:

DRAFT
NOT FOR CONSTRUCTION

Project Number: 15157

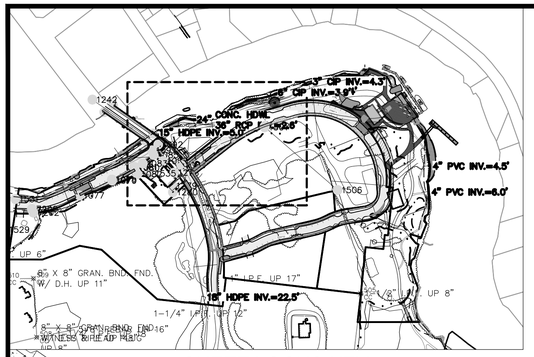
Sheet : 4 of 46

Sheet Number: C - 4

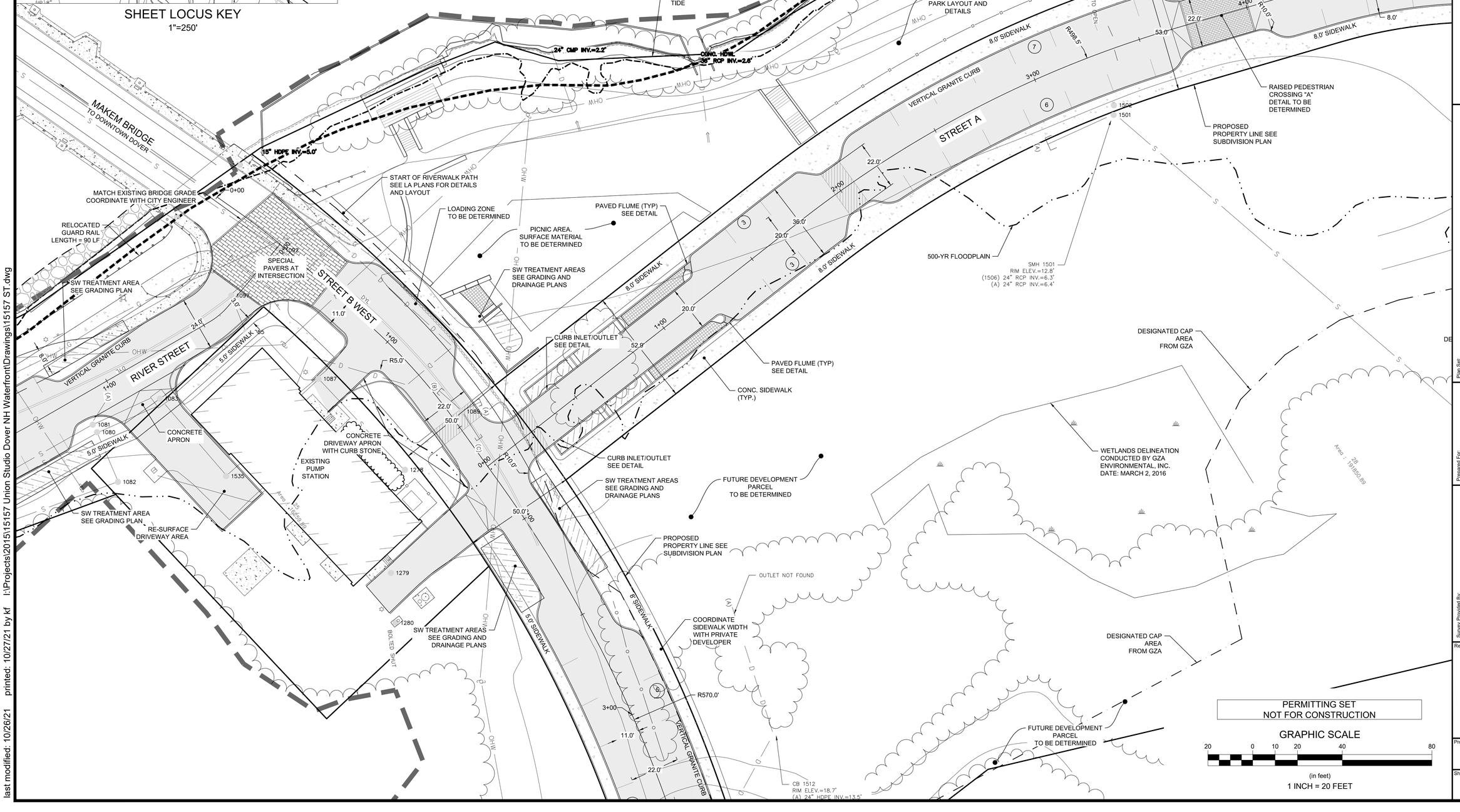
last modified: 10/27/21 printed: 10/27/21 by kf I:\Projects\2015\15157 Union Studio Dover NH Waterfront\Drawings\15157 GD.dwg

GENERAL NOTES:

1. ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED
2. SEE L.A. PLANS FOR PARK LAYOUT AND DETAILS
3. SEE L.A. PLANS FOR STREET TREE LOCATIONS
4. CURB CUT LOCATIONS AND DETAILS FOR PRIVATE DEVELOPMENT ARE IN PROGRESS. COORDINATE WITH CITY AND DEVELOPER.



SHEET LOCUS KEY
1"=250'



PERMITTING SET
NOT FOR CONSTRUCTION

GRAPHIC SCALE
20 0 10 20 40 80
(in feet)
1 INCH = 20 FEET

Revisions

Rev.	Date	By	Appr.	Description

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Sustainable Environmental Solutions
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508-833-6600 voice
508-833-3150 fax

Checked By: RAG
Drawn By: CBS
Designed By: CBS
Date: JULY 2021

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

SITE PLAN 1

Plan Set:
Plan Title:

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: —

Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-6560
Fax: —
Dated: OCTOBER 19, 2016

Registration:

DRAFT
NOT FOR CONSTRUCTION

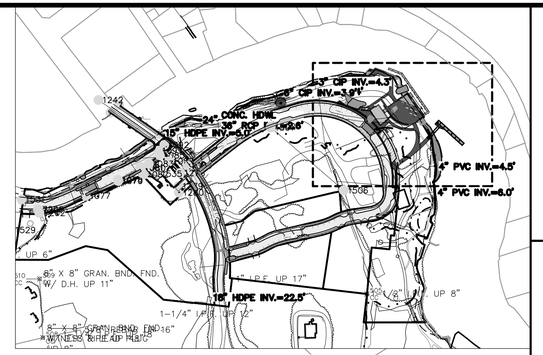
Project Number: 15157
Sheet : 5 of 46

Sheet Number: C - 5

last modified: 10/26/21 printed: 10/27/21 by kf I:\Projects\2015\15157 Union Studio Dover NH Waterfront\Drawings\15157 ST.dwg

GENERAL NOTES:

1. ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED
2. SEE L.A. PLANS FOR PARK LAYOUT AND DETAILS
3. SEE L.A. PLANS FOR STREET TREE LOCATIONS
4. CURB CUT LOCATIONS AND DETAILS FOR PRIVATE DEVELOPMENT ARE IN PROGRESS. COORDINATE WITH CITY AND DEVELOPER.



SHEET LOCUS KEY
1"=250'

COCHECHO RIVER

3" CIP INV.=4.3'

EXISTING GRANITE BLOCK WALL

GRANITE BLOCKS SEE LANDSCAPE PLANS

SEE LA PLANS FOR PARK LAYOUT AND DETAILS

SW TREATMENT AREAS SEE GRADING AND DRAINAGE PLANS

EXISTING SHEET PILE WALL

FUTURE BUILDING TBD

SEE LA PLANS FOR DECK LAYOUT AND DETAILS

SEE LA PLANS FOR PLAZA AND DETAILS

COCHECHO RIVER

STREET A

R250.5'

5+00

6+00

7+00

8.0'

36.0'

20.0'

R10.0'

8.0' SIDEWALK

22.0'

15.0'

53.0'

R238.5'

38.9'

VERTICAL GRANITE CURB

HANDICAPPED PARKING SEE DETAIL

RAISED PEDESTRIAN CROSSING "B" DETAIL TO BE DETERMINED

EXISTING PADDLESPORTS DOCK

100 YEAR FLOOD PLAIN

FUTURE DEVELOPMENT PARCEL

500-YR FLOODPLAIN

LIMIT OF WORK

DESIGNATED CAP AREA FROM GZA

PROPOSED PROPERTY LINE SEE SUBDIVISION PLAN

WETLANDS DELINEATION CONDUCTED BY GZA ENVIRONMENTAL, INC. DATE: MARCH 2, 2016

LOADING ZONE SIGNAGE AND STRIPING TBD

CONC. SIDEWALK (TYP.)

SEE LA PLANS FOR PARK LAYOUT AND DETAILS

6' PERMEABLE PAVERS

8.0' SIDEWALK

4" PVC INV.=4.5'

PERMITTING SET
NOT FOR CONSTRUCTION

GRAPHIC SCALE
20 0 10 20 40 80
(in feet)
1 INCH = 20 FEET

last modified: 10/26/21 printed: 10/27/21 by kf I:\Projects\2015\15157 Union Studio Dover NH Waterfront\Drawings\15157 ST.dwg

Revisions

Rev.	Date	By	Appr.	Description
1	---	---	---	---
2	---	---	---	---
3	---	---	---	---
4	---	---	---	---
5	---	---	---	---

Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com
90 Route 6A
Sandwich, MA 02563
508-833-6600 voice
508-833-3150 fax

Checked By: RAG
Drawn By: CSS
Designed By: CSS
Date: JULY 2021

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

SITE PLAN 2

Plan Set:
Plan Title:

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: —

Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-6560
Fax: —
Dated: OCTOBER 19, 2016

Registration:

DRAFT
NOT FOR CONSTRUCTION

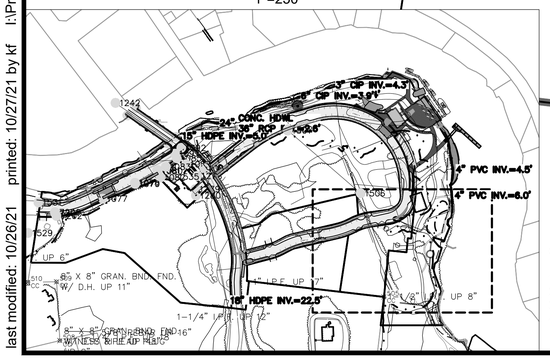
Project Number: 15157
Sheet : 6 of 46

Sheet Number:
C - 6

last modified: 10/26/21 printed: 10/27/21 by kf I:\Projects\2015\15157 Union Studio Dover NH Waterfront\Drawings\15157 ST.dwg

OHW
OHW
OHW
OHW
OHW
PAVERS
32.1'
51.0'
1506
SMH 1506
RIM ELEV.=13.8'
(A) 24" ASB INV.=7.2'
(1501) 24" ASB INV.=7.2'
NO FLOW, FILLED W/SILT.
4" PVC INV.=8.0'
PROPOSED
PROPERTY LINE SEE
SUBDIVISION PLAN
FUTURE ACCESS.
COORDINATE WITH
PRIVATE DEVELOPER
(TYP.)
SEE LA PLANS FOR
PARK LAYOUT AND
DETAILS
6+46
9+61
6+00
22.0'
5.0'
31.3'
50.0'
R65.0'
5.0'
POCKET POND
3.0' BUFFER WITH
PAVERS
5.0'
5.0' SIDEWALK
VERTICAL GRANITE CURB
3.0'
6
5+00
STREET C
4+00
24.0'
22.0'
3+00
20.0'
5.0' SIDEWALK
5.0' GRASS STRIP
RIGHT OF
WAY
SIDEWALK
PROPOSED
WALKING PATH
MEAN HIGH WATER LINE
MEAN LOW WATER LINE
COCHECHO RIVER
DESIGNATED CAP
AREA
FROM GZA
PROPOSED
PROPERTY LINE SEE
SUBDIVISION PLAN
WETLAND DELINEATION
CONDUCTED BY GZA
ENVIRONMENTAL, INC.
DATE: MARCH 2, 2016
WETLAND IMPACTS
PERMITTING UNDER
WETLANDS PERMIT
206-03428
Area : 28 - 1691327.0
CHAIN LINK FENCE
SEE LA PLANS
EXISTING
VERNAL POOL
1-1/4" I.P.F. UP 8"
LIMIT OF WORK
TO MAGLARAS PARK
CONNECTOR TRAIL
SEE LANDSCAPE PLANS FOR
LAYOUT AND DETAILS

SHEET LOCUS KEY
1"=250'



GENERAL NOTES:

1. ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED
2. SEE L.A. PLANS FOR PARK LAYOUT AND DETAILS
3. SEE L.A. PLANS FOR STREET TREE LOCATIONS
4. CURB CUT LOCATIONS AND DETAILS FOR PRIVATE DEVELOPMENT ARE IN PROGRESS. COORDINATE WITH CITY AND DEVELOPER.

PERMITTING SET
NOT FOR CONSTRUCTION

GRAPHIC SCALE

20 0 10 20 40 80

(in feet)
1 INCH = 20 FEET

Revisions

Rev.	Date	By	Appr.	Description
	---	---	---	---
	---	---	---	---
	---	---	---	---
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Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com
90 Route 64
Sandwich, MA 02563
508-833-6600 voice
508-833-3150 fax

Checked By: RdG
Drawn By: CKS
Designed By: CKS
Date: JULY 2021

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

SITE PLAN 3

Plan Set:
Plan Title:

Prepared For:
City of Dover
288 Central Ave
Dover, NH 03820
Phone: (603) 516-6000
Fax: —

Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-6560
Fax: —
Dated: OCTOBER 19, 2016

Registration:

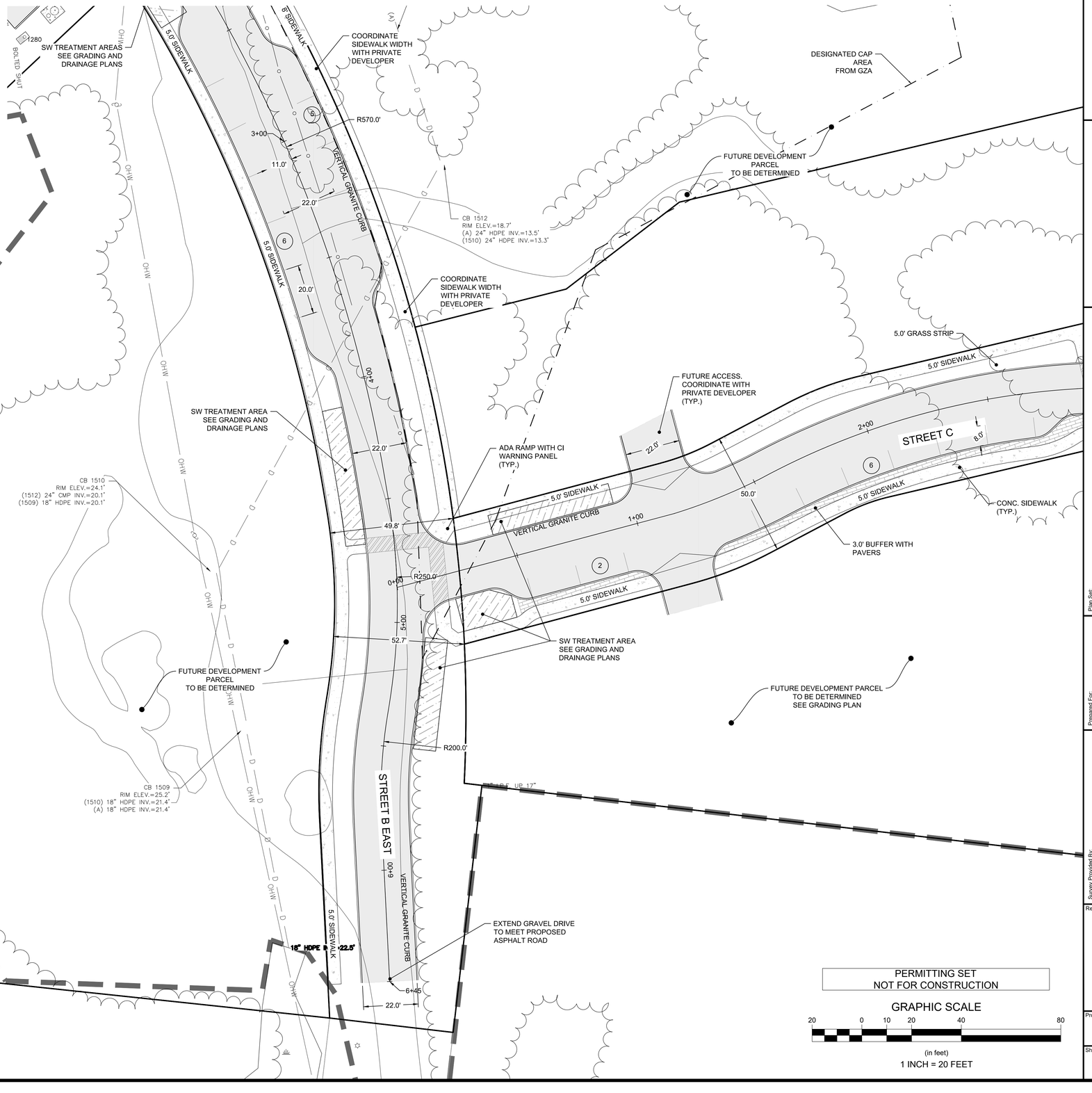
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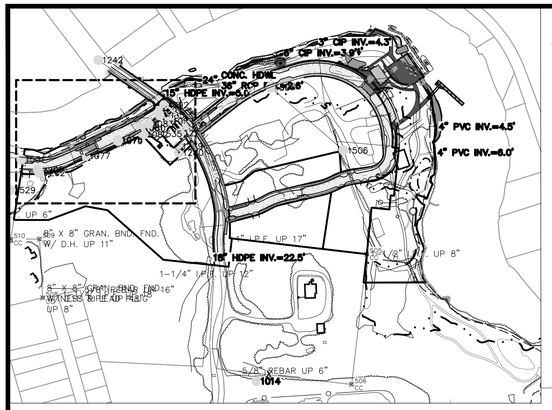
Project Number: 15157
Sheet : 7 of 46

Sheet Number:
C - 7

GENERAL NOTES:

1. ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED
2. SEE L.A. PLANS FOR PARK LAYOUT AND DETAILS
3. SEE L.A. PLANS FOR STREET TREE LOCATIONS
4. CURB CUT LOCATIONS AND DETAILS FOR PRIVATE DEVELOPMENT ARE IN PROGRESS. COORDINATE WITH CITY AND DEVELOPER.


SW TREATMENT AREAS SEE GRADING AND DRAINAGE PLANS
8' SIDEWALK
5.0' SIDEWALK
COORDINATE SIDEWALK WIDTH WITH PRIVATE DEVELOPER
DESIGNATED CAP AREA FROM GZA
R570.0'
3+00
11.0'
22.0'
VERTICAL GRANITE CURB
FUTURE DEVELOPMENT PARCEL TO BE DETERMINED
CB 1512
RIM ELEV.=18.7'
(A) 24" HDPE INV.=13.5'
(1510) 24" HDPE INV.=13.3'
20.0'
COORDINATE SIDEWALK WIDTH WITH PRIVATE DEVELOPER
5.0' GRASS STRIP
FUTURE ACCESS. COORIDINATE WITH PRIVATE DEVELOPER (TYP.)
4+00
SW TREATMENT AREA SEE GRADING AND DRAINAGE PLANS
ADA RAMP WITH CI WARNING PANEL (TYP.)
2+00
STREET C
8.0'
22.0'
CB 1510
RIM ELEV.=24.1'
(1512) 24" CMP INV.=20.1'
(1509) 18" HDPE INV.=20.1'
LIMIT OF WORK
Area : 30,177,105.46 sf
49.8'
50.0'
1+00
CONC. SIDEWALK (TYP.)
3.0' BUFFER WITH PAVERS
0+00
R250.0'
52.7'
SW TREATMENT AREA SEE GRADING AND DRAINAGE PLANS
FUTURE DEVELOPMENT PARCEL TO BE DETERMINED
FUTURE DEVELOPMENT PARCEL TO BE DETERMINED SEE GRADING PLAN
R200.0'
CB 1509
RIM ELEV.=25.2'
(1510) 18" HDPE INV.=21.4'
(A) 18" HDPE INV.=21.4'
STREET B EAST
00+9
VERTICAL GRANITE CURB
5.0' SIDEWALK
18" HDPE INV.=22.5'
EXTEND GRAVEL DRIVE TO MEET PROPOSED ASPHALT ROAD
6+45
22.0'
OHW
D
BOLTED SHUT
1280
1242
1510
1529
1506
1507
1508
1509
1512
1513
1514
1515
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1569



SHEET LOCUS KEY
1"=250'

GENERAL NOTES:

1. ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED
2. SEE L.A. PLANS FOR PARK LAYOUT AND DETAILS
3. SEE L.A. PLANS FOR STREET TREE LOCATIONS
4. CURB CUT LOCATIONS AND DETAILS FOR PRIVATE DEVELOPMENT ARE IN PROGRESS. COORDINATE WITH CITY AND DEVELOPER.

MAKEM BRIDGE
TO DOWNTOWN DOVER

MATCH EXISTING BRIDGE GRADE
COORDINATE WITH CITY ENGINEER

0+00

RELOCATED
GUARD RAIL
LENGTH = 90 LF

COCHECHO RIVER

SW TREATMENT AREA
SEE GRADING PLAN

CONC. SIDEWALK
(TYP.)

EXISTING EDGE OF
PAVEMENT

VERTICAL GRANITE CURB

RIVER STREET

1+00

5.0' SIDEWALK

100 YEAR
FLOOD PLAIN

HIGHEST
OBSERVABLE
TIDE

PAVED FLUME (TYP.)
SEE DETAIL

8.0' SIDEWALK

36.0'

2+00

CONCRETE
APRON

SW TREATMENT AREA
SEE GRADING PLAN

RE-SURFACE
DRIVEWAY AREA

LIMIT OF WORK

EXISTING
PATH

CONNECT TO EXISTING SIDEWALK
LOCATION TO BE DETERMINED
COORDINATE WITH CITY ENGINEER

8.0' SIDEWALK

28.0'

4+00

RAISED CROSSWALK
CROSSING (C)
DETAIL TO BE
DETERMINED

SW TREATMENT AREA
SEE GRADING PLAN

CONNECT TO EXISTING RIVER STREET
LOCATION TO BE DETERMINED
COORDINATE WITH CITY ENGINEER

5+62

EXISTING EDGE OF
PAVEMENT

5+00

RIVER STREET

5.0' SIDEWALK

PROPERTY LINE SEE
SUBDIVISION PLAN

WETLAND DELINEATION
CONDUCTED BY GZA
ENVIRONMENTAL, INC.
DATE: MARCH 2, 2016
WETLAND IMPACTS
PERMITTING UNDER
WETLANDS PERMIT
206-03428

500-YR FLOODPLAIN

FUTURE DEVELOPMENT
PARCEL
TO BE DETERMINED

MAP 23 LOT 15

PERMITTING SET
NOT FOR CONSTRUCTION

GRAPHIC SCALE

20 0 10 20 40 80

(in feet)

1 INCH = 20 FEET

Revisions

Rev.	Date	By	Appr.	Description

Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com
90 Route 64
Sandwich, MA 02563
508-833-6600 voice
508-833-3150 fax

Designed By: CMS
Drawn By: CMS
Checked By: RAG
Date: JULY 2021

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Plan Set:

SITE PLAN 5

Plan Title:

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: —

Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-4560
Fax: —
Dated: OCTOBER 19, 2016

Registration:

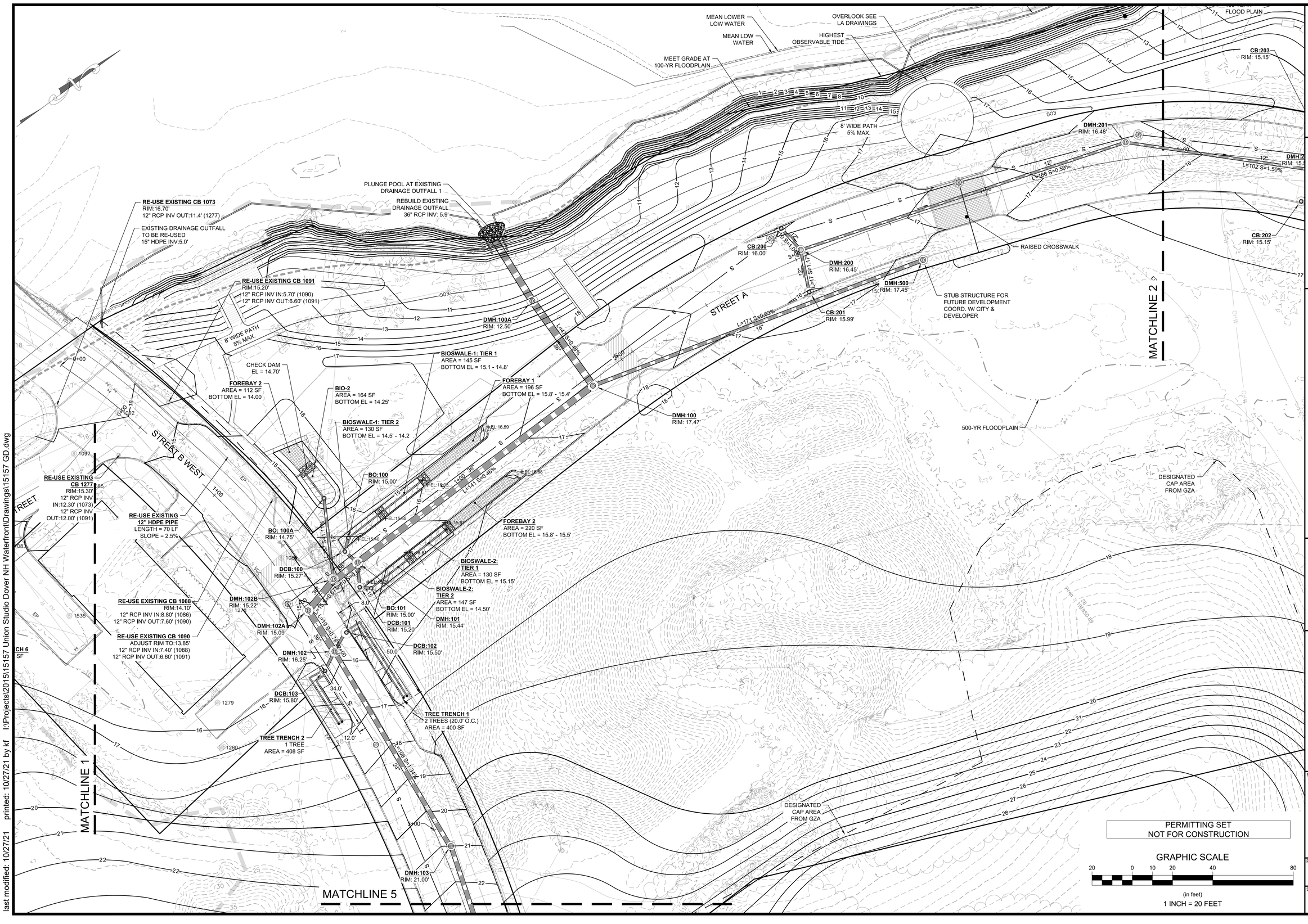
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Project Number: 15157

Sheet : 9 of 46

Sheet Number: C - 9

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Revisions

Rev.	Date	By	Appr.	Description
1	10/8	GSC	RAC	RESPONSE TO NHDES AOT RFI

Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com
90 Route 6A
Sandwich, MA 02563
508-833-6600 voice
508-833-3150 fax

Checked By: RAC
Drawn By: GSC
Designed By: GSC
Date: JULY 2021

Plan Set: DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Plan Title: GRADING AND DRAINAGE 1

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: —

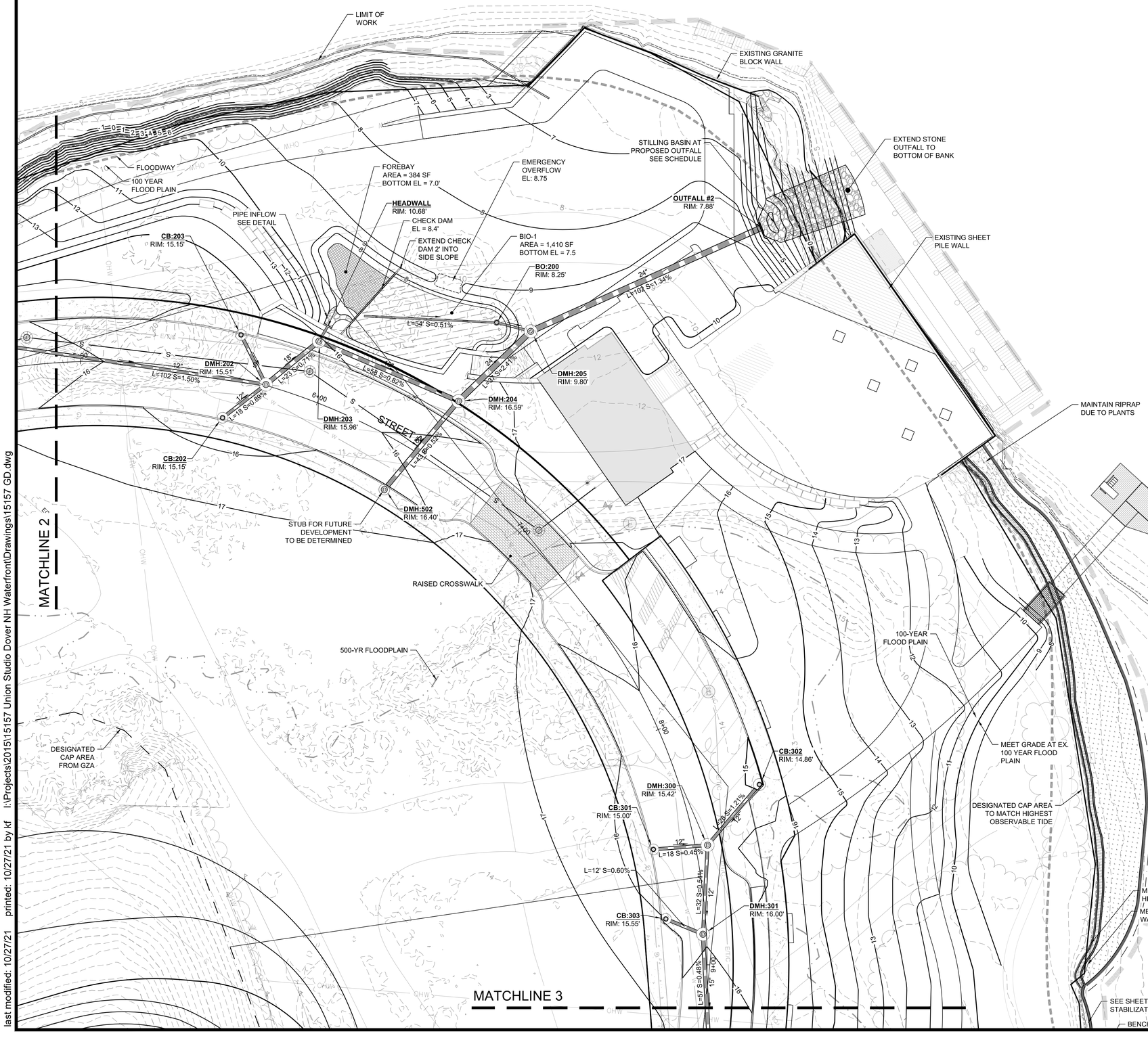
Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-6560
Fax: —
Dated: OCTOBER 19, 2016

Registration:

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NOT FOR CONSTRUCTION

Project Number:	Sheet :
15157	10 of 46

Sheet Number:
C - 10



STRUCTURE SCHEDULE OUTFALL 2			
NAME	TYPE	RIM	INVERTS
BO:200	24" DIA. NYLOPLAST DRAIN BASIN	8.25	6" INV IN = 4.85 FROM 8" INV OUT = 4.75 TO DMH:205
CB:200	Cylindrical Structure Slab Top Rectangular Frame	16.00	12" INV OUT = 13.50 TO DMH:200
CB:201	Cylindrical Structure Slab Top Rectangular Frame	15.99	12" INV OUT = 13.50 TO DMH:200
CB:202	Cylindrical Structure Slab Top Rectangular Frame	15.15	12" INV OUT = 9.20 TO DMH:202
CB:203	48" PRECAST CATCH BASIN	15.15	12" INV OUT = 9.50 TO DMH:202
DMH:200	Cylindrical Structure Slab Top Circular Frame	16.45	12" INV IN = 13.25 FROM CB:201 12" INV IN = 13.35 FROM CB:200 12" INV OUT = 13.20 TO DMH:201
DMH:201	Cylindrical Structure Slab Top Circular Frame	16.48	12" INV IN = 12.20 FROM DMH:200 12" INV OUT = 11.50 TO DMH:202
DMH:202	Cylindrical Structure Slab Top Circular Frame	15.51	12" INV IN = 9.00 FROM CB:202 12" INV IN = 9.25 FROM CB:203 12" INV IN = 9.90 FROM DMH:201 18" INV OUT = 9.00 TO DMH:203
DMH:203	Cylindrical Structure Slab Top Circular Frame	15.96	18" INV IN = 8.80 FROM DMH:202 8" INV OUT = 8.80 TO HEADWALL 18" INV OUT = 9.40 TO DMH:204
DMH:204	Cylindrical Structure Slab Top Circular Frame	16.59	18" INV IN = 8.90 FROM DMH:203 18" INV IN = 6.15 FROM DMH:502 24" INV OUT = 6.00 TO DMH:205
DMH:205	60" PRECAST DRAIN MANHOLE	9.80	24" INV IN = 5.00 FROM DMH:204 8" INV IN = 4.74 FROM BO:200 24" INV OUT = 4.40 TO OUTFALL #2
DMH:502	48" PRECAST DRAIN MANHOLE	16.40	18" INV OUT = 6.40 TO DMH:204
HEADWALL	CONCRETE RECTANGULAR HEADWALL	10.68	8" INV IN = 8.75 FROM DMH:203
OUTFALL #2	CONCRETE RECTANGULAR HEADWALL	7.88	24" INV IN = 3.00 FROM DMH:205

PIPE SCHEDULE OUTFALL 2					
FROM	TO	SIZE	LENGTH	SLOPE	
CLEANOUT	BO:200	6"	54.72'	0.51%	Corrugated HDPE Pipe
BO:200	DMH:205	8"	14.48'	0.10%	Corrugated HDPE Pipe
CB:200	DMH:200	12"	14.42'	1.04%	Corrugated HDPE Pipe
CB:201	DMH:200	12"	21.31'	1.17%	Corrugated HDPE Pipe
CB:202	DMH:202	12"	22.54'	0.89%	Corrugated HDPE Pipe
CB:203	DMH:202	12"	22.91'	1.09%	Corrugated HDPE Pipe
DMH:200	DMH:201	12"	170.01'	0.59%	Corrugated HDPE Pipe
DMH:201	DMH:202	12"	106.33'	1.50%	Corrugated HDPE Pipe
DMH:202	DMH:203	18"	28.26'	0.71%	Corrugated HDPE Pipe
DMH:203	HEADWALL	8"	7.25'	0.69%	Corrugated HDPE Pipe
DMH:203	DMH:204	18"	60.72'	0.82%	Corrugated HDPE Pipe
DMH:204	DMH:205	24"	41.49'	2.41%	Corrugated HDPE Pipe
DMH:205	OUTFALL #2	24"	104.47'	1.34%	Corrugated HDPE Pipe
DMH:502	DMH:204	18"	47.69'	0.52%	Corrugated HDPE Pipe

PERMITTING SET
NOT FOR CONSTRUCTION

GRAPHIC SCALE
20 0 10 20 40 80
(in feet)
1 INCH = 20 FEET

Revisions

Rev.	Date	By	Appr.	Description
1	12/19	JMP	RAC	RESPONSE TO NHDES AOT RFI
2	4/20	GSC	RAC	RESPONSE TO NHDES AOT RFI
3	6/15	GSC	RAC	RESPONSE TO NHDES AOT RFI
4	10/8	GSC	RAC	RESPONSE TO NHDES AOT RFI

Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com
90 Route 6A
Sandwich, MA 02563
508-833-6600 voice
508-833-3150 fax

Checked By: RAC
Drawn By: GSC
Designed By: GSC
Date: JULY 2021

Plan Set:
DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Plan Title:
GRADING AND DRAINAGE 2

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: —

Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-4560
Fax: —
Dated: OCTOBER 19, 2016

Registration:
DRAFT
NOT FOR CONSTRUCTION

Project Number: 15157
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Sheet Number: C - 11

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MATCHLINE 3

MATCHLINE 4

SEE SHEET C-19 FOR BANK STABILIZATION TREATMENT

BENCHES SEE L.A. PLAN

POCKET WETLAND OVERFLOW EL = 7.25'

LOW MARSH AREA 6"-18" DEPTH BELOW PERMANENT POOL

HIGH MARSH AREA 6" DEPTH BELOW PERMANENT POOL

POCKET WETLAND
PERMANENT POOL EL = 7.25'
SURFACE AREA = 3,370 SF

SEE POCKET WETLAND PROFILE SHEET C-20

PIPE INFLOW SEE DETAIL

LIMIT OF WORK

DESIGNATED CAP AREA FROM GZA

CB:305
RIM: 16.42'

CB:306
RIM: 16.23'

DMH:302
RIM: 16.60'

CB:311
RIM: 17.92'

DMH:303
RIM: 20.00'

CB:307
RIM: 19.52'

DMH:305
RIM: 18.10'

CB:308
RIM: 22.81'

STREET C

CB:310
RIM: 20.00'

WATER QUALITY INLET (WQI)
SEE DETAIL

DMH:304
RIM: 21.44'

CB:309
RIM: 22.91'

DMH:307
RIM: 17.28'

DMH:308
RIM: 16.00'

DMH:309
RIM: 10.71'

OUTFALL 3
RIM: 10.11'

PROPOSED PROPERTY LINE

ROUGH GRADING TO BE COORDINATED WITH CITY AND DEVELOPER

2:1 SLOPES MAX WITH STABILIZED SLOPES

SEE L.A. PLANS

EXISTING PROPERTY LINE

1/2" I.P.F. UP 0.5'

SEE L.A. PLANS

SEE SHEET L2.4

PERMITTING SET
NOT FOR CONSTRUCTION

GRAPHIC SCALE

20 0 10 20 40 80

(in feet)

1 INCH = 20 FEET

PIPE SCHEDULE OUTFALL 3					
FROM	TO	SIZE	LENGTH	SLOPE	
WQI	DMH:307	12"	13.97'	0.36%	Corrugated HDPE Pipe
DMH: 305	WQI	12"	5.53'	0.90%	Corrugated HDPE Pipe
WQI	DMH: 307	12"	17.01'	0.29%	Corrugated HDPE Pipe
CB:301	DMH:300	12"	22.44'	0.45%	Corrugated HDPE Pipe
CB:302	DMH:300	12"	32.93'	1.21%	Corrugated HDPE Pipe
CB:303	DMH:301	12"	16.58'	0.60%	Corrugated HDPE Pipe
CB:305	DMH:302	12"	14.52'	1.52%	Corrugated HDPE Pipe
CB:306	DMH:302	12"	13.11'	1.53%	Corrugated HDPE Pipe
CB:307	DMH:303	12"	8.97'	2.23%	Corrugated HDPE Pipe
CB:308	DMH:304	12"	23.57'	1.27%	Corrugated HDPE Pipe
CB:309	DMH:304	12"	33.08'	0.91%	Corrugated HDPE Pipe
CB:310	DMH:303	12"	15.21'	1.97%	Corrugated HDPE Pipe
CB:311	DMH:305	12"	14.80'	1.35%	Corrugated HDPE Pipe
DMH:300	DMH:301	12"	36.86'	0.54%	Corrugated HDPE Pipe
DMH:301	DMH:302	15"	62.04'	0.48%	Corrugated HDPE Pipe
DMH:302	DMH:305	18"	63.45'	0.47%	Corrugated HDPE Pipe
DMH:303	DMH:305	15"	79.06'	1.58%	Corrugated HDPE Pipe
DMH:304	DMH:303	12"	58.06'	2.58%	Corrugated HDPE Pipe
DMH:305	WQI	12"	13.97'	0.36%	Corrugated HDPE Pipe
DMH:305	DMH:307	24"	60.29'	0.50%	Corrugated HDPE Pipe
DMH:307	DMH:308	24"	9.54'	0.46%	Corrugated HDPE Pipe
DMH:308	DMH:309	24"	40.46'	0.46%	Corrugated HDPE Pipe
DMH:309	OUTFALL 3	24"	39.14'	0.50%	Corrugated HDPE Pipe

STRUCTURE SCHEDULE OUTFALL 3			
NAME	TYPE	RIM	INVERTS
CB:301	Cylindrical Structure Slab Top Rectangular Frame	15.00	12" INV OUT = 10.60 TO DMH:300
CB:302	Cylindrical Structure Slab Top Rectangular Frame	14.86	12" INV OUT = 10.00 TO DMH:300
CB:303	Cylindrical Structure Slab Top Rectangular Frame	15.55	12" INV OUT = 9.80 TO DMH:301
CB:305	Cylindrical Structure Slab Top Rectangular Frame	16.42	12" INV OUT = 12.42 TO DMH:302
CB:306	Cylindrical Structure Slab Top Rectangular Frame	16.23	12" INV OUT = 9.80 TO DMH:302
CB:307	Cylindrical Structure Slab Top Rectangular Frame	19.52	12" INV OUT = 14.15 TO DMH:303
CB:308	Cylindrical Structure Slab Top Rectangular Frame	22.81	12" INV OUT = 17.50 TO DMH:304
CB:309	Cylindrical Structure Slab Top Rectangular Frame	22.91	12" INV OUT = 17.50 TO DMH:304
CB:310	Cylindrical Structure Slab Top Rectangular Frame	20.00	12" INV OUT = 15.30 TO DMH:303
CB:311	Cylindrical Structure Slab Top Circular Frame	17.92	12" INV OUT = 10.20 TO DMH:305
DMH:300	Cylindrical Structure Slab Top Circular Frame	15.42	12" INV IN = 9.60 FROM CB:302 12" INV IN = 10.50 FROM CB:301 12" INV OUT = 10.50 TO DMH:301
DMH:301	60" PRECAST DRAIN MANHOLE	16.00	12" INV IN = 9.70 FROM CB:303 12" INV IN = 10.30 FROM DMH:300 15" INV OUT = 10.05 TO DMH:302
DMH:302	60" PRECAST DRAIN MANHOLE	16.60	12" INV IN = 12.20 FROM CB:305 12" INV IN = 9.60 FROM CB:306 15" INV IN = 9.75 FROM DMH:301 18" INV OUT = 9.50 TO DMH:305
DMH:303	Cylindrical Structure Slab Top Circular Frame	20.00	12" INV IN = 12.00 FROM DMH:304 12" INV IN = 13.95 FROM CB:307 12" INV IN = 15.00 FROM CB:310 15" INV OUT = 11.00 TO DMH:305
DMH:304	60" PRECAST DRAIN MANHOLE	21.44	12" INV IN = 17.20 FROM CB:308 12" INV IN = 17.20 FROM CB:309 12" INV OUT = 13.50 TO DMH:303
DMH:305	Cylindrical Structure Slab Top Circular Frame	18.10	15" INV IN = 9.75 FROM DMH:303 18" INV IN = 9.20 FROM DMH:302 12" INV IN = 10.00 FROM CB:311 12" INV OUT = 8.15 TO WQI 24" INV OUT = 8.70 TO DMH:307
DMH:307	Cylindrical Structure Slab Top Circular Frame	17.28	24" INV IN = 8.40 FROM DMH:305 12" INV IN = 7.95 FROM 24" INV OUT = 7.95 TO DMH:308
DMH:308	60" PRECAST DRAIN MANHOLE	16.00	24" INV IN = 7.91 FROM DMH:307 24" INV OUT = 7.91 TO DMH:309
DMH:309	Cylindrical Structure Slab Top Circular Frame	10.71	24" INV IN = 7.72 FROM DMH:308 24" INV OUT = 7.65 TO OUTFALL 3
OUTFALL 3	CONCRETE RECTANGULAR HEADWALL	10.11	24" INV IN = 7.45 FROM DMH:309
WQI	Cylindrical Structure Slab Top Circular Frame	17.70	12" INV IN = 8.05 FROM DMH 305 12" INV OUT = 8.05 FROM DMH 307

Revisions

Rev.	Date	By	Appr.	Description
1	12/19	JMP	RAC	RESPONSE TO NHDES AOT RFI

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Sustainable Environmental Solutions
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90 Route 6A
Sandwich, MA 02563
508-833-6600 voice
508-833-3150 fax

Checked By: RAC
Drawn By: CKS
Designed By: CKS
Date: JULY 2021

Plan Set: DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Plan Title: GRADING AND DRAINAGE 3

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: —

Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-6560
Fax: —
Dated: OCTOBER 19, 2016

Registration:

DRAFT
NOT FOR CONSTRUCTION

Project Number: 15157

Sheet : 12 of 46

Sheet Number: C - 12

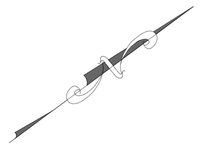
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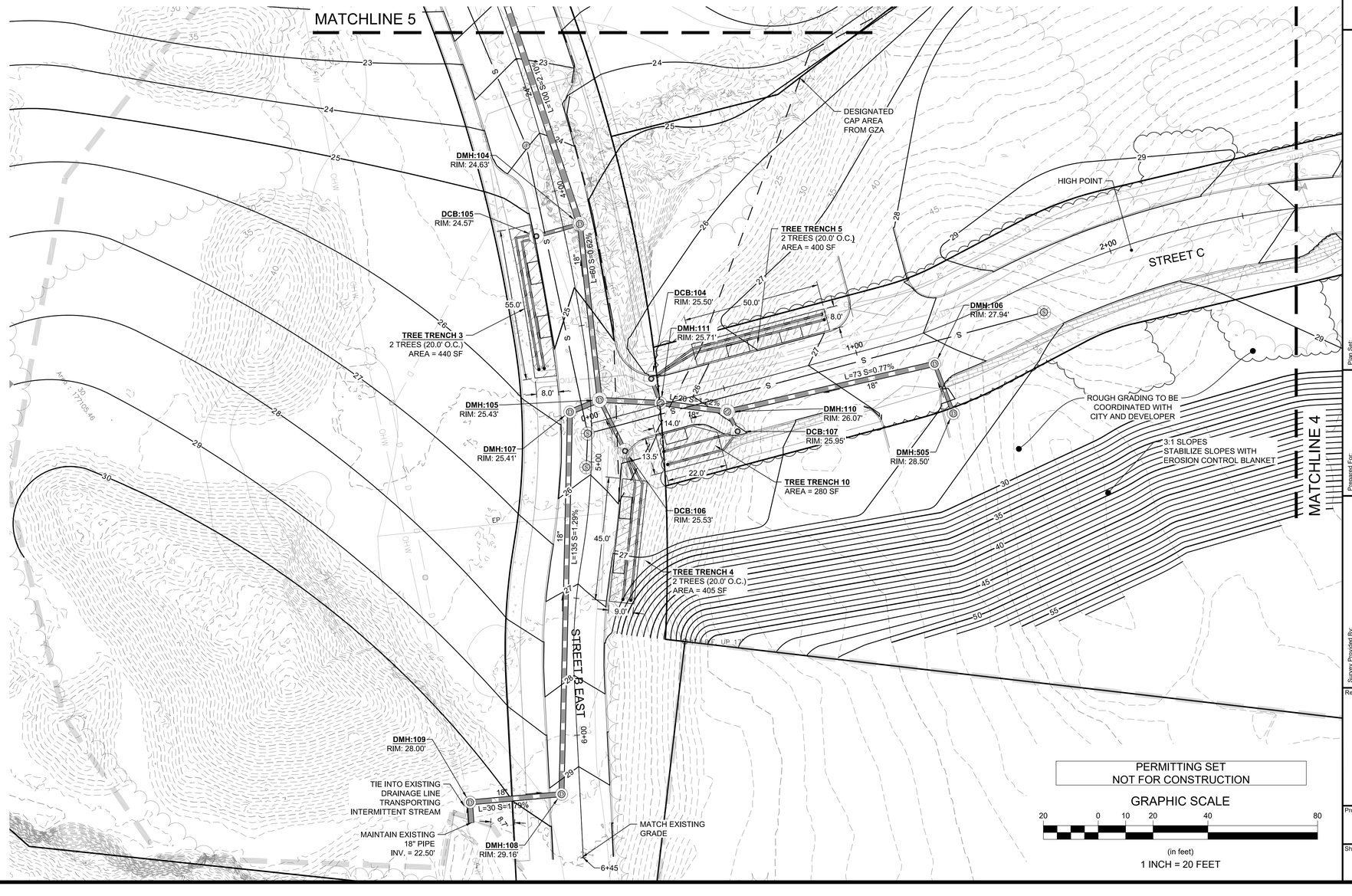
STRUCTURE SCHEDULE OUTFALL 1			
NAME	TYPE	RIM	INVERTS
BO: 100A	24" DIA. NYLOPLAST DRAIN BASIN	14.75	6" INV IN = 10.55 FROM 12" INV OUT = 10.45 TO DMH:102B
BO:100	24" DIA. NYLOPLAST DRAIN BASIN	15.00	6" INV IN = 12.00 FROM 12" INV OUT = 12.00 TO DCB:100
BO:101	24" DIA. NYLOPLAST DRAIN BASIN	15.00	6" INV IN = 12.00 FROM 12" INV OUT = 11.90 TO DCB:101
DCB:100	Cylindrical Structure Slab Top Rectangular Frame	15.27	12" INV IN = 11.90 FROM BO:100 12" INV OUT = 11.90 TO DMH:101
DCB:101	Cylindrical Structure Slab Top Rectangular Frame	15.20	12" INV IN = 11.80 FROM BO:101 12" INV OUT = 11.40 TO DMH:101
DCB:102	Cylindrical Structure Slab Top Rectangular Frame	15.50	6" INV IN = 10.00 FROM 12" INV OUT = 9.90 TO DMH:102 6" INV OUT = 12.70 TO
DCB:103	Cylindrical Structure Slab Top Rectangular Frame	15.80	6" INV IN = 10.30 FROM 12" INV OUT = 8.40 TO DMH:102 6" INV OUT = 13.00 TO
DCB:104	60" PRECAST DIVERSION CATCH BASIN	25.50	6" INV IN = 20.00 FROM 12" INV OUT = 19.90 TO DMH:111 6" INV OUT = 22.60 TO
DCB:105	Cylindrical Structure Slab Top Rectangular Frame	24.57	6" INV IN = 19.10 FROM 12" INV OUT = 19.00 TO DMH:104 6" INV OUT = 21.80 TO
DCB:106	Cylindrical Structure Slab Top Rectangular Frame	25.53	6" INV IN = 20.00 FROM 12" INV OUT = 19.90 TO DMH:105 6" INV OUT = 22.70 TO
DCB:107	60" PRECAST DIVERSION CATCH BASIN	25.95	6" INV IN = 20.50 FROM 6" INV OUT = 23.10 TO 12" INV OUT = 20.40 TO DMH:110
DMH:100	Cylindrical Structure Slab Top Circular Frame	17.47	36" INV IN = 7.30 FROM DMH:101 18" INV IN = 6.40 FROM DMH:500 36" INV OUT = 6.30 TO DMH:100A
DMH:100A	Cylindrical Structure Slab Top Circular Frame	12.50	36" INV IN = 6.05 FROM DMH:100 36" INV OUT = 6.05 TO OUTFALL #1
DMH:101	Cylindrical Structure Slab Top Circular Frame	15.44	12" INV IN = 11.80 FROM DCB:100 12" INV IN = 11.20 FROM DCB:101 36" INV IN = 7.95 FROM DMH:102B 36" INV OUT = 7.95 TO DMH:100
DMH:102	60" PRECAST DRAIN MANHOLE	16.25	12" INV IN = 8.30 FROM DCB:103 24" INV IN = 12.30 FROM DMH:103 12" INV IN = 9.70 FROM DCB:102 36" INV OUT = 8.30 TO DMH:102A
DMH:102A	Cylindrical Structure Slab Top Circular Frame	15.09	36" INV IN = 8.15 FROM DMH:102 36" INV OUT = 8.15 TO DMH:102B
DMH:102B	Cylindrical Structure Slab Top Circular Frame	15.22	36" INV IN = 8.05 FROM DMH:102A 12" INV IN = 10.00 FROM BO: 100A 36" INV OUT = 8.05 TO DMH:101
DMH:103	Cylindrical Structure Slab Top Circular Frame	21.00	24" INV IN = 15.30 FROM DMH:104 24" INV OUT = 13.80 TO DMH:102
DMH:104	Cylindrical Structure Slab Top Circular Frame	24.63	18" INV IN = 17.50 FROM DMH:105 12" INV IN = 18.90 FROM DCB:105 24" INV OUT = 17.40 TO DMH:103
DMH:105	Cylindrical Structure Slab Top Circular Frame	25.43	18" INV IN = 18.75 FROM DMH:111 18" INV IN = 18.20 FROM DMH:107 12" INV IN = 19.75 FROM DCB:106 18" INV OUT = 17.90 TO DMH:104
DMH:106	Cylindrical Structure Slab Top Circular Frame	27.94	12" INV IN = 21.55 FROM DMH:505 18" INV OUT = 21.00 TO DMH:110
DMH:107	Cylindrical Structure Slab Top Circular Frame	25.41	18" INV IN = 19.80 FROM DMH:108 18" INV OUT = 19.70 TO DMH:105
DMH:108	Cylindrical Structure Slab Top Circular Frame	29.16	18" INV IN = 21.70 FROM DMH:109 18" INV OUT = 21.60 TO DMH:107
DMH:109	Cylindrical Structure Slab Top Circular Frame	28.00	18" INV IN = 22.40 FROM 18" INV OUT = 22.30 TO DMH:108
DMH:110	Cylindrical Structure Slab Top Circular Frame	26.07	12" INV IN = 20.30 FROM DCB:107 18" INV IN = 20.40 FROM DMH:106 18" INV OUT = 20.30 TO DMH:111
DMH:111	48" PRECAST DRAIN MANHOLE	25.71	18" INV IN = 20.00 FROM DMH:110 12" INV IN = 19.75 FROM DCB:104 18" INV OUT = 18.90 TO DMH:105
DMH:500	48" PRECAST DRAIN MANHOLE	17.45	18" INV OUT = 7.50 TO DMH:100
DMH:505	Cylindrical Structure Slab Top Circular Frame	28.50	12" INV OUT = 21.70 TO DMH:106
OUTFALL #1	CONCRETE RECTANGULAR HEADWALL	9.61	36" INV IN = 5.90 FROM DMH:100A

PIPE SCHEDULE OUTFALL 1					
FROM	TO	SIZE	LENGTH	SLOPE	
TT: 5	TT: 5	6"	48.70'	0.07%	PVC Pipe
CLEAN OUT	BO: 100A	6"	15.41'	0.52%	PVC Pipe
TT: 10	DCB:107	6"	8.35'	0.00%	PVC Pipe
TT: 10	TT: 10	6"	21.25'	0.00%	PVC Pipe
TT: 5	DCB:104	6"	18.67'	0.00%	PVC Pipe
TT: 5	TT: 5	6"	48.70'	0.07%	PVC Pipe
TT: 5	TT: 5	6"	49.07'	0.00%	PVC Pipe
TT: 1	TT: 1	6"	41.68'	0.00%	PVC Pipe
TT: 2	TT: 2	6"	23.88'	0.00%	PVC Pipe
TT: 4	TT: 4	6"	42.70'	0.00%	PVC Pipe
TT: 4	DCB:106	6"	12.28'	0.00%	PVC Pipe
TT: 4	TT: 4	6"	42.70'	0.00%	PVC Pipe
TT: 3	TT: 3	6"	47.14'	0.00%	PVC Pipe
CLEAN OUT	BO:100	6"	46.53'	0.00%	Corrugated HDPE Pipe
CLEAN OUT	BO:101	6"	47.46'	0.50%	Corrugated HDPE Pipe

PIPE SCHEDULE OUTFALL 1					
FROM	TO	SIZE	LENGTH	SLOPE	
EX INLET	DMH:109	18"	5.42'	1.84%	Corrugated HDPE Pipe
TT: 3	DCB:105	6"	7.35'	0.00%	PVC Pipe
TT: 2	DCB:103	6"	8.00'	0.00%	PVC Pipe
TT: 1	DCB:102	6"	8.76'	0.00%	PVC Pipe
BO: 100A	DMH:102B	12"	40.49'	1.11%	Corrugated HDPE Pipe
BO:100	DCB:100	12"	6.96'	1.44%	Corrugated HDPE Pipe
BO:101	DCB:101	12"	5.62'	1.78%	Corrugated HDPE Pipe
DCB:100	DMH:101	12"	8.31'	1.20%	Corrugated HDPE Pipe
DCB:101	DMH:101	12"	12.29'	1.63%	Corrugated HDPE Pipe
DCB:102	TT: 1	6"	5.09'	0.00%	PVC Pipe
DCB:102	DMH:102	12"	11.16'	1.79%	Corrugated HDPE Pipe
DCB:103	TT: 2	6"	6.24'	0.00%	PVC Pipe
DCB:103	DMH:102	12"	8.40'	1.19%	Corrugated HDPE Pipe
DCB:104	DMH:111	12"	9.42'	1.59%	Corrugated HDPE Pipe
DCB:104	TT: 5	6"	18.13'	0.00%	PVC Pipe

PIPE SCHEDULE OUTFALL 1					
FROM	TO	SIZE	LENGTH	SLOPE	
DCB:105	TT: 3	6"	4.96'	0.00%	PVC Pipe
DCB:105	DMH:104	12"	16.49'	0.61%	Corrugated HDPE Pipe
DCB:106	TT: 4	6"	13.55'	0.00%	PVC Pipe
DCB:106	DMH:105	12"	20.79'	0.72%	Corrugated HDPE Pipe
DCB:107	DMH:110	12"	8.12'	1.23%	Corrugated HDPE Pipe
DCB:107	TT: 10	6"	27.98'	0.00%	PVC Pipe
DMH:100	DMH:100A	36"	51.77'	0.48%	Corrugated HDPE Pipe
DMH:100A	OUTFALL #1	36"	35.08'	0.43%	Corrugated HDPE Pipe
DMH:101	DMH:100	36"	141.34'	0.46%	HDPE Pipe
DMH:102	DMH:102A	36"	19.18'	0.78%	HDPE Pipe
DMH:102A	DMH:102B	36"	14.83'	0.67%	HDPE Pipe
DMH:102B	DMH:101	36"	14.39'	0.69%	HDPE Pipe
DMH:103	DMH:102	24"	112.19'	1.34%	HDPE Pipe
DMH:104	DMH:103	24"	99.95'	2.10%	HDPE Pipe
DMH:105	DMH:104	18"	64.56'	0.62%	Corrugated HDPE Pipe





Revisions				
Rev.	Date	By	Appr.	Description
1	12/19	JMP	RAC	RESPONSE TO NHDES AOT RFI

Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com
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Sandwich, MA 02563
508-833-6600 voice
508-833-3150 fax

Checked By: RAC
Drawn By: CKS
Designed By: CKS
Date: JULY 2021

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Plan Set:

Plan Title: GRADING AND DRAINAGE 4

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: —

Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)659-4560
Fax: —
Dated: OCTOBER 19, 2016

Registration:

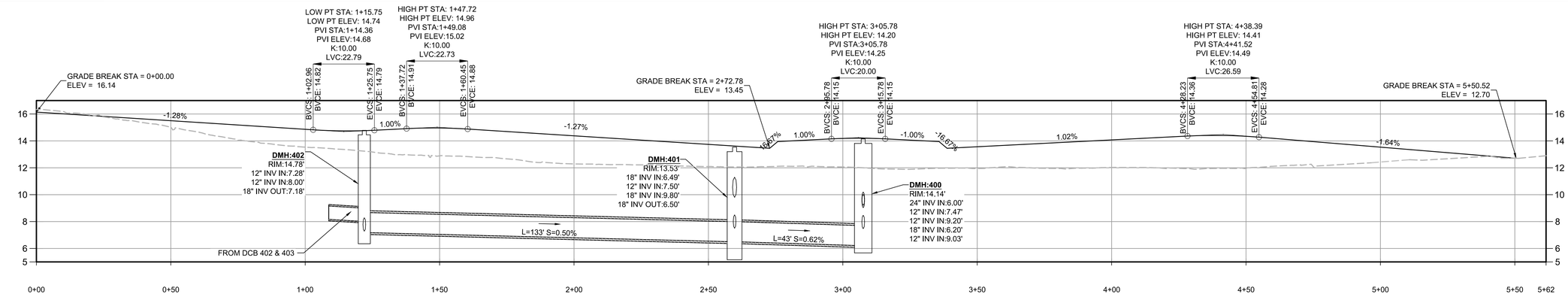
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Project Number: 15157

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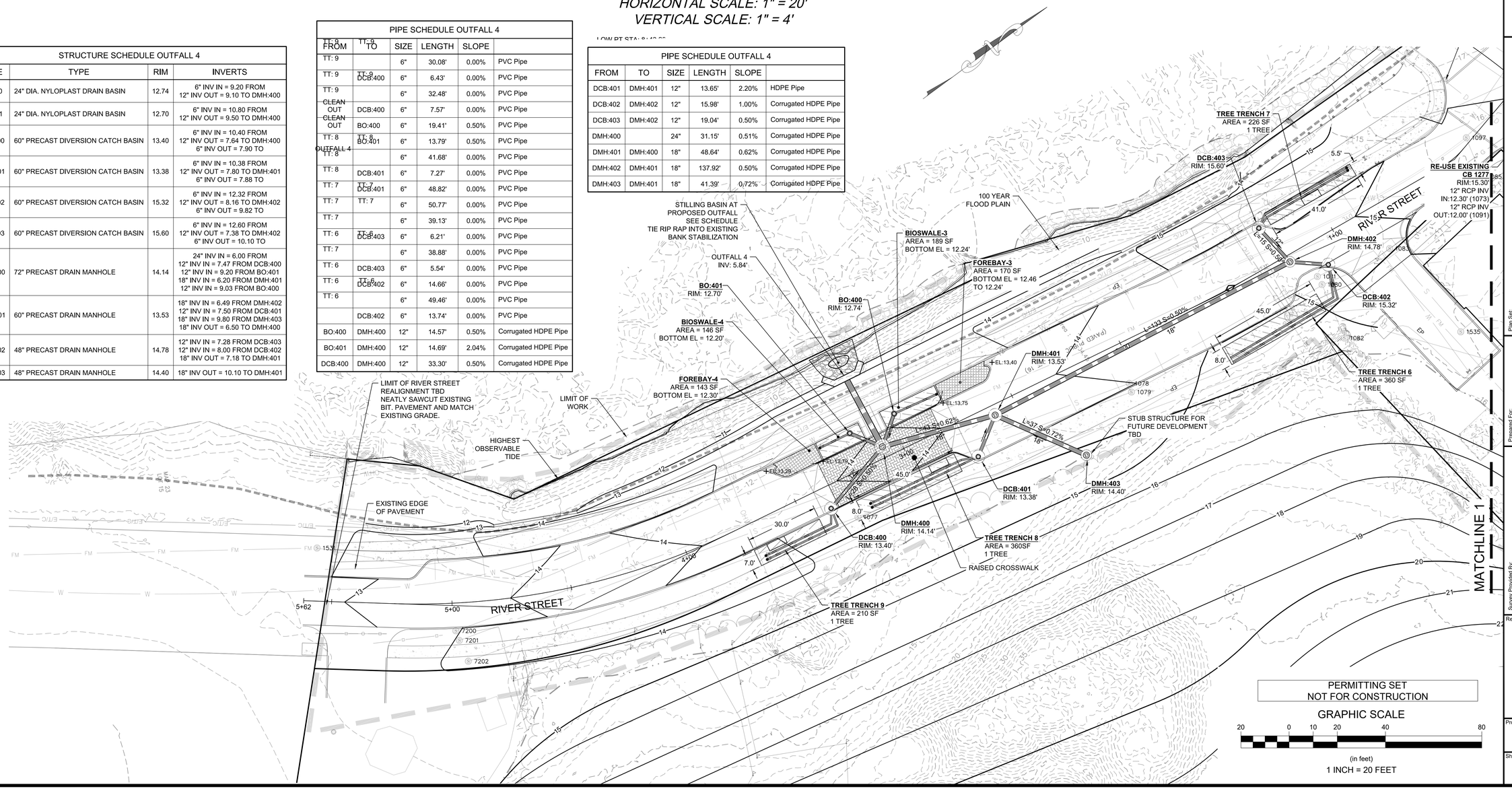


RIVER STREET PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

STRUCTURE SCHEDULE OUTFALL 4			
NAME	TYPE	RIM	INVERTS
BO:400	24" DIA. NYLOPLAST DRAIN BASIN	12.74	6" INV IN = 9.20 FROM 12" INV OUT = 9.10 TO DMH:400
BO:401	24" DIA. NYLOPLAST DRAIN BASIN	12.70	6" INV IN = 10.80 FROM 12" INV OUT = 9.50 TO DMH:400
DCB:400	60" PRECAST DIVERSION CATCH BASIN	13.40	6" INV IN = 10.40 FROM 12" INV OUT = 7.64 TO DMH:400 6" INV OUT = 7.90 TO
DCB:401	60" PRECAST DIVERSION CATCH BASIN	13.38	6" INV IN = 10.38 FROM 12" INV OUT = 7.80 TO DMH:401 6" INV OUT = 7.88 TO
DCB:402	60" PRECAST DIVERSION CATCH BASIN	15.32	6" INV IN = 12.32 FROM 12" INV OUT = 8.16 TO DMH:402 6" INV OUT = 9.82 TO
DCB:403	60" PRECAST DIVERSION CATCH BASIN	15.60	6" INV IN = 12.60 FROM 12" INV OUT = 7.38 TO DMH:402 6" INV OUT = 10.10 TO
DMH:400	72" PRECAST DRAIN MANHOLE	14.14	24" INV IN = 6.00 FROM 12" INV IN = 7.47 FROM DCB:400 12" INV IN = 9.20 FROM BO:401 18" INV IN = 6.20 FROM DMH:401 12" INV IN = 9.03 FROM BO:400
DMH:401	60" PRECAST DRAIN MANHOLE	13.53	18" INV IN = 6.49 FROM DMH:402 12" INV IN = 7.50 FROM DCB:401 18" INV IN = 9.80 FROM DMH:403 18" INV OUT = 6.50 TO DMH:400
DMH:402	48" PRECAST DRAIN MANHOLE	14.78	12" INV IN = 7.28 FROM DCB:403 12" INV IN = 8.00 FROM DCB:402 18" INV OUT = 7.18 TO DMH:401
DMH:403	48" PRECAST DRAIN MANHOLE	14.40	18" INV OUT = 10.10 TO DMH:401

PIPE SCHEDULE OUTFALL 4					
FROM	TO	SIZE	LENGTH	SLOPE	
TT: 9	TT: 9	6"	30.08'	0.00%	PVC Pipe
TT: 9	DCB:400	6"	6.43'	0.00%	PVC Pipe
TT: 9	CLEAN OUT	6"	32.48'	0.00%	PVC Pipe
CLEAN OUT	DCB:400	6"	7.57'	0.00%	PVC Pipe
CLEAN OUT	BO:400	6"	19.41'	0.50%	PVC Pipe
TT: 8	TT: 8	6"	13.79'	0.50%	PVC Pipe
OUTFALL 4	BO:401	6"	41.68'	0.00%	PVC Pipe
TT: 8	DCB:401	6"	7.27'	0.00%	PVC Pipe
TT: 7	TT: 7	6"	48.82'	0.00%	PVC Pipe
TT: 7	DCB:401	6"	50.77'	0.00%	PVC Pipe
TT: 7	TT: 6	6"	39.13'	0.00%	PVC Pipe
TT: 6	DCB:403	6"	6.21'	0.00%	PVC Pipe
TT: 7	TT: 6	6"	38.88'	0.00%	PVC Pipe
TT: 6	DCB:403	6"	5.54'	0.00%	PVC Pipe
TT: 6	TT: 6	6"	14.66'	0.00%	PVC Pipe
TT: 6	DCB:402	6"	49.46'	0.00%	PVC Pipe
	DCB:402	6"	13.74'	0.00%	PVC Pipe
BO:400	DMH:400	12"	14.57'	0.50%	Corrugated HDPE Pipe
BO:401	DMH:400	12"	14.69'	2.04%	Corrugated HDPE Pipe
DCB:400	DMH:400	12"	33.30'	0.50%	Corrugated HDPE Pipe

PIPE SCHEDULE OUTFALL 4					
FROM	TO	SIZE	LENGTH	SLOPE	
DCB:401	DMH:401	12"	13.65'	2.20%	HDPE Pipe
DCB:402	DMH:402	12"	15.98'	1.00%	Corrugated HDPE Pipe
DCB:403	DMH:402	12"	19.04'	0.50%	Corrugated HDPE Pipe
DMH:400		24"	31.15'	0.51%	Corrugated HDPE Pipe
DMH:401	DMH:400	18"	48.64'	0.62%	Corrugated HDPE Pipe
DMH:402	DMH:401	18"	137.92'	0.50%	Corrugated HDPE Pipe
DMH:403	DMH:401	18"	41.39'	0.72%	Corrugated HDPE Pipe



PERMITTING SET
NOT FOR CONSTRUCTION

GRAPHIC SCALE
20 0 10 20 40 80
(in feet)
1 INCH = 20 FEET

Revisions

Rev.	Date	By	Appr.	Description
1	10/8	GSC	RAC	RESPONSE TO NHDES AOT RFI

Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com
90 Route 6A
Sandwich, MA 02563
508-833-6600 voice
508-833-3150 fax

Checked By: RAC
Drawn By: GSC
Designed By: GSC
Date: JULY 2021

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Plan Set:

GRADING AND DRAINAGE 5

Plan Title:

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: —

Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-6560
Fax: —
Dated: OCTOBER 19, 2016

Registration:

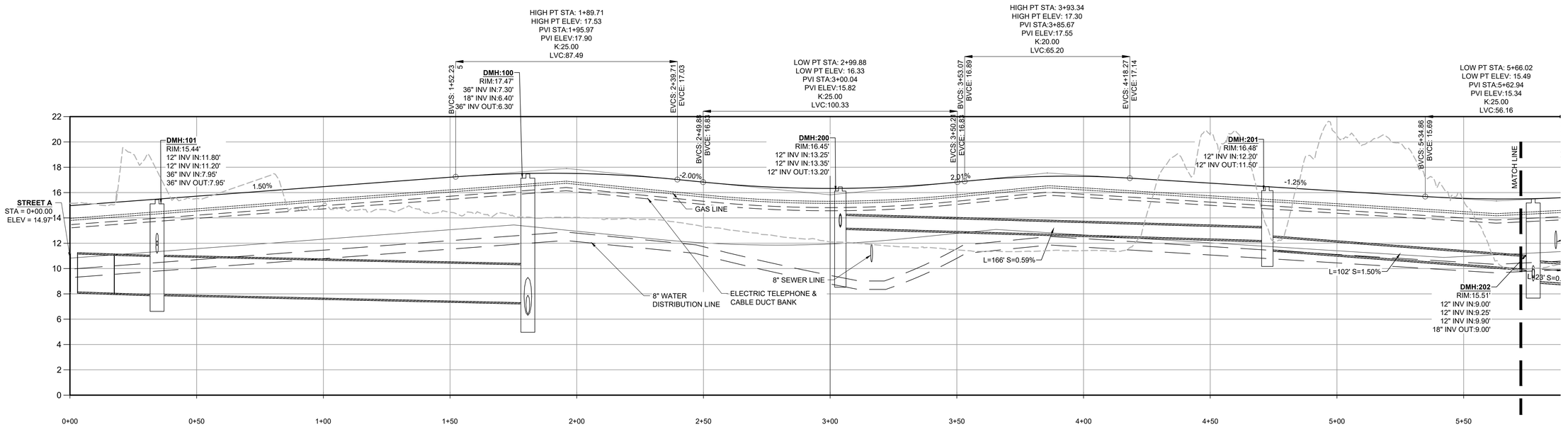
DRAFT
NOT FOR CONSTRUCTION

Project Number: 15157

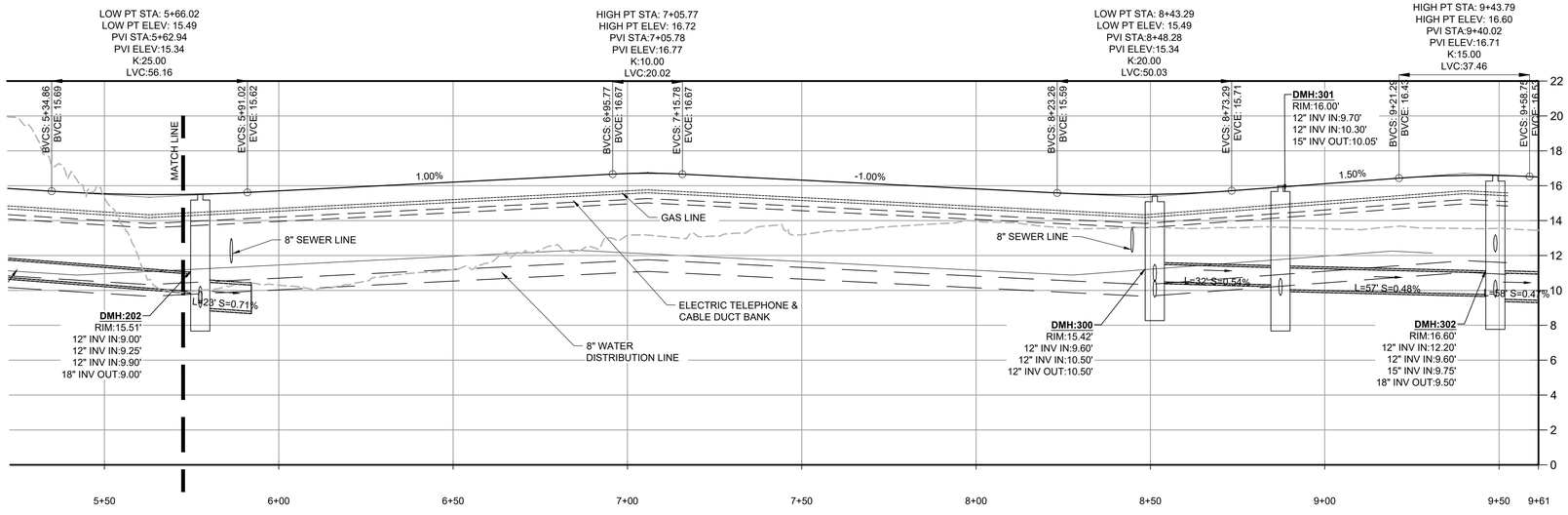
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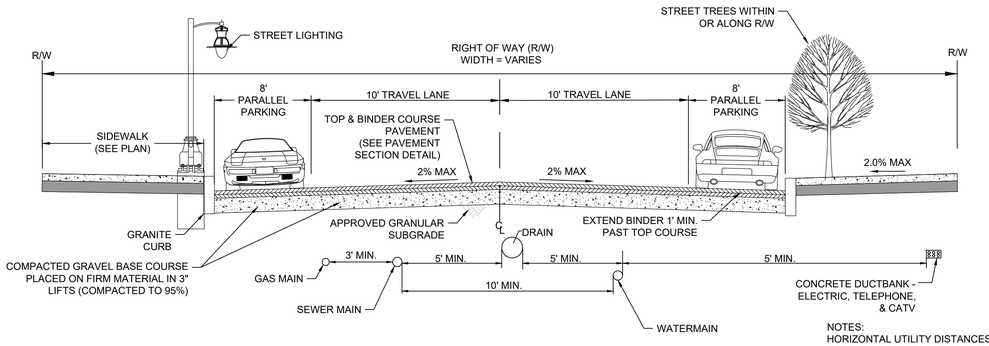
Sheet Number: C - 14

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STREET A PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'





TYPICAL 2-LANE "STREET A" CROSS SECTION
CROWNED-OPEN SECTION
NOT TO SCALE

NOTES:
HORIZONTAL UTILITY DISTANCES ARE SHOWN FOR MINIMUM SEPARATIONS, SEE SITE PLAN FOR ACTUAL LOCATIONS. SEE TYPICAL DETAILS FOR EACH SEPARATE MINIMUM UTILITY DEPTH.

STREET A PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

PERMITTING SET
NOT FOR CONSTRUCTION

GRAPHIC SCALE
20 0 10 20 40 80
(in feet)
1 INCH = 20 FEET

Revisions

Rev.	Date	By	Appr.	Description
1	12/19	JMP	RAC	RESPONSE TO NHDES AOT RFI

Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com
90 Route 6A
Sandwich, MA 02563
508-833-6600 voice
508-833-3150 fax

Checked By: RAC
Drawn By: CSS
Designed By: CSS
Date: JULY 2021

Plan Set:
DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Plan Title:
STREET A PROFILE

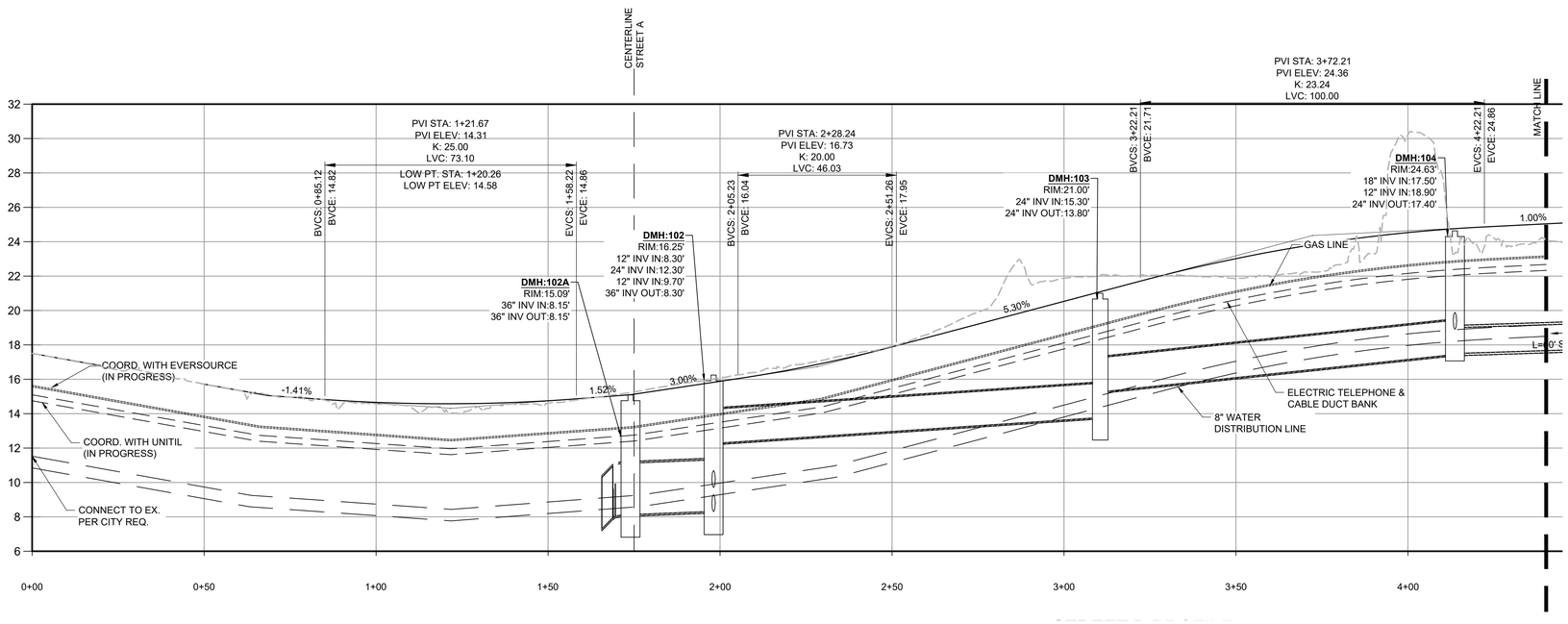
Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: —

Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-4560
Fax: —
Dated: OCTOBER 19, 2016

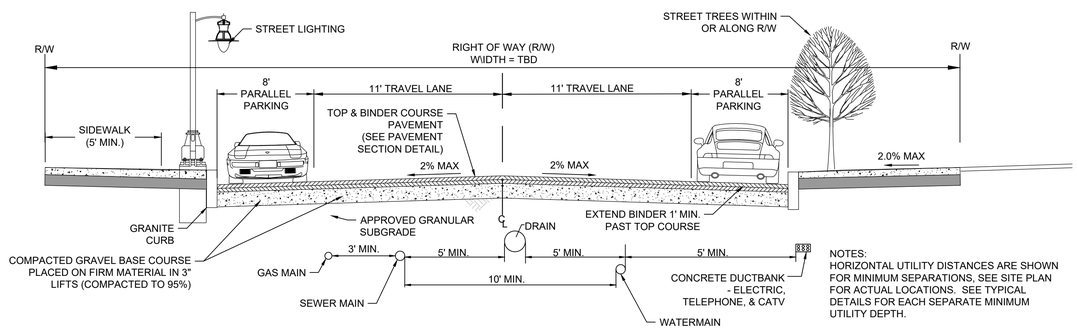
Registration:
DRAFT
NOT FOR CONSTRUCTION

Project Number: 15157
Sheet: 15 of 46
Sheet Number: C - 15

last modified: 10/27/21 printed: 10/27/21 by kf I:\Projects\2015\15157 Union Studio Dover NH Waterfront\Drawings\15157 GD.dwg

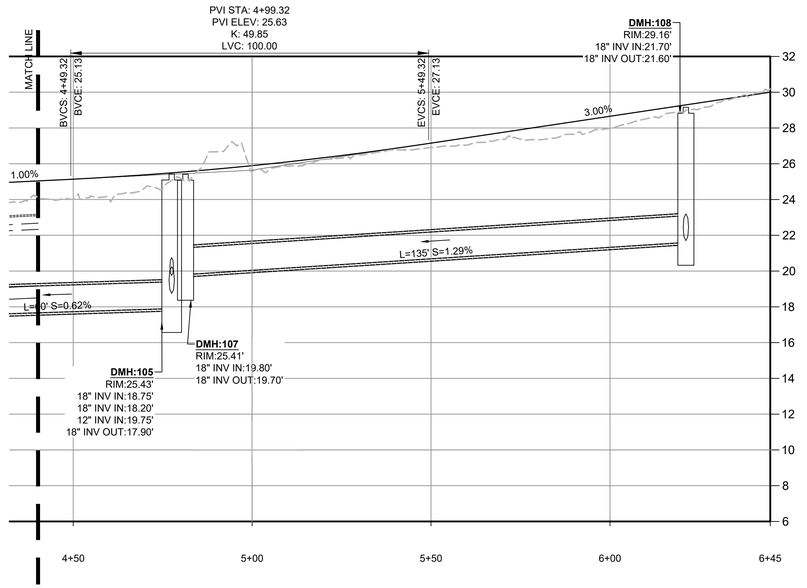


STREET B PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'



NOTES:
HORIZONTAL UTILITY DISTANCES ARE SHOWN FOR MINIMUM SEPARATIONS, SEE SITE PLAN FOR ACTUAL LOCATIONS. SEE TYPICAL DETAILS FOR EACH SEPARATE MINIMUM UTILITY DEPTH.

TYPICAL 2-LANE "STREET B " CROSS SECTION
CROWNED-OPEN SECTION
NOT TO SCALE



STREET B PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

PERMITTING SET
NOT FOR CONSTRUCTION

GRAPHIC SCALE
20 0 10 20 40 80
(in feet)
1 INCH = 20 FEET

Revisions

Rev.	Date	By	Appr.	Description
1	12/19	JMP	RAC	RESPONSE TO NHDES AOT RFI

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www.horsleywitten.com
90 Route 6A
Sandwich, MA 02563
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Drawn By: CMS
Designed By: CMS
Date: JULY 2021
Checked By: RAC

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Plan Set:

STREET B PROFILE

Plan Title:

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: —

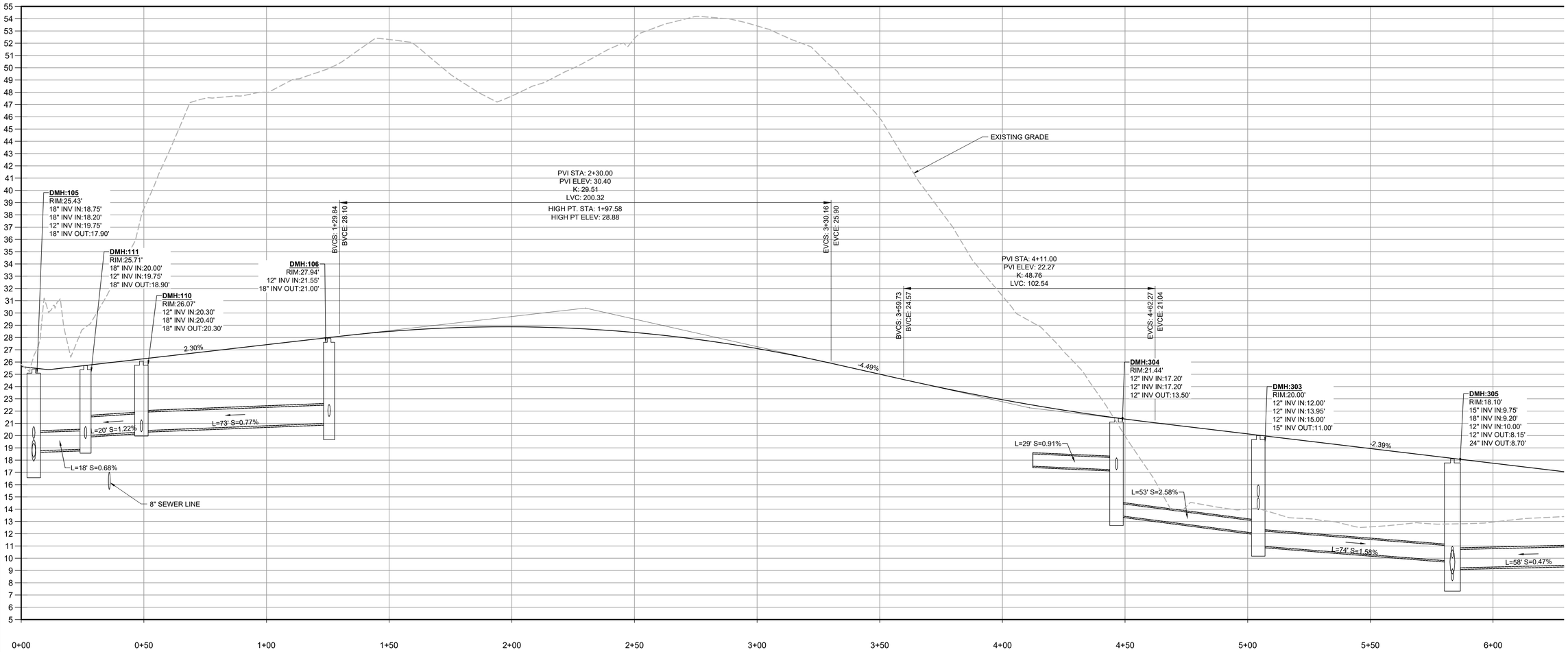
Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-4560
Fax: —
Dated: OCTOBER 19, 2016

Registration:

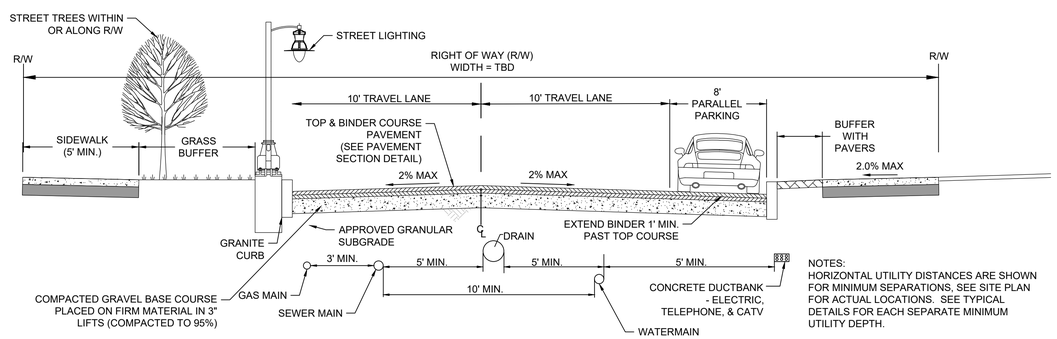
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Project Number: 15157
Sheet: 16 of 46
Sheet Number: C - 16

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POCKET WETLAND PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'



NOTES:
HORIZONTAL UTILITY DISTANCES ARE SHOWN FOR MINIMUM SEPARATIONS, SEE SITE PLAN FOR ACTUAL LOCATIONS. SEE TYPICAL DETAILS FOR EACH SEPARATE MINIMUM UTILITY DEPTH.

TYPICAL 2-LANE "STREET C" CROSS SECTION
CROWNED-OPEN SECTION
NOT TO SCALE

PERMITTING SET
NOT FOR CONSTRUCTION

GRAPHIC SCALE
20 0 10 20 40 80
(in feet)
1 INCH = 20 FEET

Revisions

Rev.	Date	By	Appr.	Description
1	12/19	JMP	RAC	RESPONSE TO NHDES AOT RFI

Horsley Witten Group, Inc.
Sustainable Environmental Solutions
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90 Route 6A
Sandwich, MA 02563
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Checked By: RAC
Drawn By: CSS
Designed By: CSS
Date: JULY 2021

Plan Set:
DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Plan Title:
CROSS STREET PROFILE

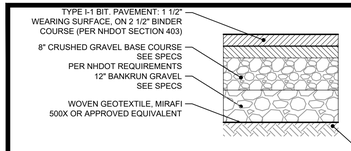
Prepared For:
City of Dover
288 Central Ave.
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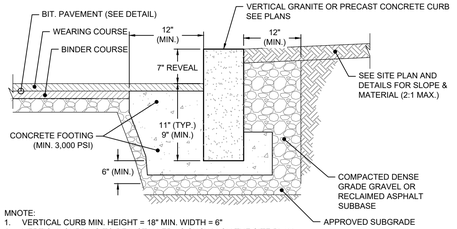
Project Number: 15157
Sheet : 17 of 46
Sheet Number: C - 17

last modified: 10/27/21 printed: 10/27/21 by kf I:\Projects\2015\15157 Union Studio Dover NH Waterfront\Drawings\15157 GD.dwg



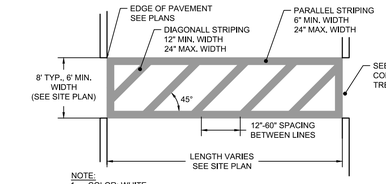
GENERAL NOTES:
1. SUB-GRADE (EXISTING MATERIAL) SHALL CONSIST OF INERT MATERIAL THAT IS HARD, DURABLE STONE AND/OR COARSE SAND, FREE FROM LOAM AND CLAY TO A DEPTH NOT LESS THAN 4-FT BELOW THE FINISH PAVEMENT SURFACE. EXCAVATE SANDY-LOAM AND/OR LOAMY-SAND TOPSOIL MATERIAL FROM ALL PAVED AREAS PRIOR TO SUB-BASE INSTALLATION.
2. PLACE SUB-BASE IN MAXIMUM 8" LIFTS (COMPACTED TO 95%).
3. COMPACT SUB-GRADE FILL TO 95% COMPACTION.
4. SEE SITE LAYOUT PLAN FOR PAVEMENT WIDTH AND LOCATION.
5. SEE GRADING PLANS FOR PAVEMENT SLOPE AND CROSS SLOPE.
6. SWEEP CLEAN THE EXISTING BINDER COURSE SURFACE PRIOR TO INSTALLING THE WEARING COURSE BY A STREET SWEEPING MACHINE . APPLY A TACK COAT PER SPECIFICATIONS.

TYPICAL BITUMINOUS PAVEMENT
NOT TO SCALE



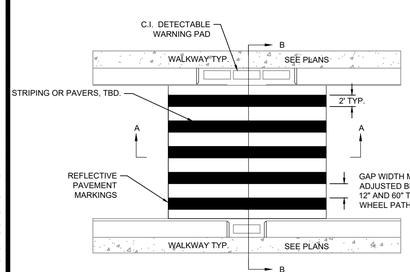
MNOTE:
1. VERTICAL CURB MIN. HEIGHT = 18" MIN. WIDTH = 6"
2. VERTICAL CURBING TO BE INSTALLED AS SHOWN ON THE SITE PLAN.
3. PROVIDE CURB EXPANSION JOINTS AT 5'-0" TO 6'-0" O.C.
4. CONCRETE CURB - PROVIDE 1" CHAMFER OF EDGE ALONG PAVEMENT SIDE FACE FOR CONCRETE CURB.
5. CONCRETE CURB - TO HAVE A MINIMUM CONCRETE STRENGTH OF 4,000 PSI
6. CEMENT MORTAR JOINTS & INSTALL PREFORMED (1/2") EXPANSION JOINT WHERE REQUIRED.

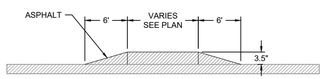
TYPICAL VERTICAL CURB
NOT TO SCALE



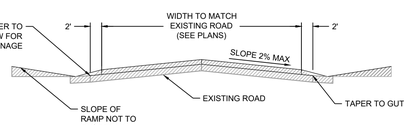
NOTE:
1. COLOR: WHITE
2. ALL PAINT SHALL BE NON-SKID.
3. CROSSWALK STRIPING SHOULD BE SPACED SO THAT LINES ARE NOT IN WHEEL PATHS,
4. SPACING SHOULD NOT EXCEED 2.5 TIMES THE WIDTH OF THE LINE,
5. ALL OTHER ROAD OR PARKING STRIPING TO BE 6" SOLID WHITE PAINTED LINES, UNLESS NOTED OTHERWISE

TYPICAL PAINTED CROSSWALK STRIPING
NOT TO SCALE



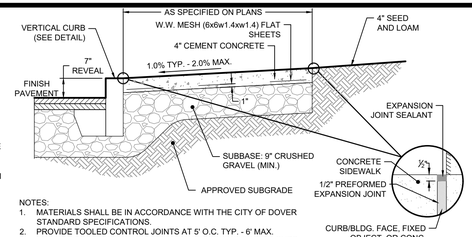


SECTION A-A



SECTION B-B

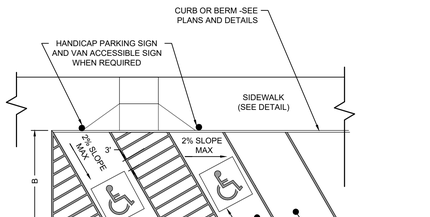
RAISED SPEED TABLE CROSSWALK
NOT TO SCALE



NOTES:
1. MATERIALS SHALL BE IN ACCORDANCE WITH THE CITY OF DOVER STANDARD SPECIFICATIONS.
2. PROVIDE TOOLED CONTROL JOINTS AT 5' O.C. TYP. - 6' MAX.
3. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.
4. CEMENT CONCRETE: 3,000 PSI-TYPE II
5. DETECTABLE WARNING STRIPS SHALL BE CAST IRON.
6. SUBBASE: COMPACTED TO 95%.

CONCRETE SIDEWALK DETAIL
NOT TO SCALE

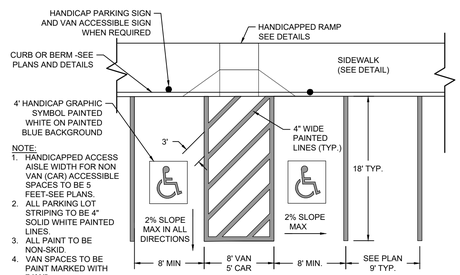
EXPANSION JOINT DETAIL



DIMENSION CHART										
A	9.24'	9.24'	9.24'	9.24'	9.24'	9.24'	9.24'	9.24'	9.24'	9.24'
B	18'	18'	18'	19'	19'	19'	20'	20'	20'	
C	8'	8'	8'	8'	8'	8'	8'	8'	8'	
D	3'	4"	5"	3'	4"	5"	3'	4"	5"	
E	39'	40'	41'	41'	42'	43'	43'	44'	45'	
F	9.24'	9.24'	9.24'	9.24'	9.24'	9.24'	9.24'	9.24'	9.24'	
G	8'	8'	8'	8'	8'	8'	8'	8'	8'	
H	10.39'	10.39'	10.39'	10.97'	10.97'	10.97'	11.55'	11.55'	11.55'	
J	6.35'	5.78'	5.20'	5.78'	5.20'	4.62'	5.20'	4.63'	4.05'	

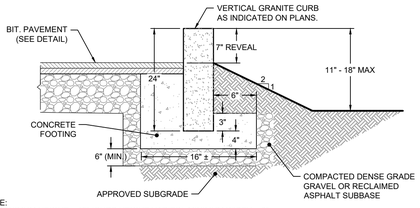
NOTES:
1. ALL DIMENSIONS ARE TO CENTERLINE OF STRIPE UNLESS OTHERWISE NOTED
2. ACCESS AISLES SHOULD BE PLACED ON THE PASSENGER SIDE OF A VAN SPACE
3. SEE SITE PLAN FOR TOTAL LAYOUT
4. HANDICAPPED ACCESS AISLE WIDTH FOR NON VAN (CAR) ACCESSIBLE SPACES TO BE 5 FEET-SEE PLANS,
5. ALL PARKING LOT STRIPING TO BE 4" SOLID WHITE PAINTED LINES.
6. ALL PAINT TO BE NON-SKID,
7. VAN SPACES TO BE PAINT MARKED WITH "VAN"

60 ° VAN ACCESSIBLE PARKING SPACE STRIPING
NOT TO SCALE



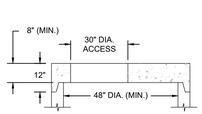
NOTE:
1. HANDICAPPED ACCESS AISLE WIDTH FOR NON VAN (CAR) ACCESSIBLE SPACES TO BE 5 FEET-SEE PLANS.
2. ALL PARKING LOT STRIPING TO BE 4" SOLID WHITE PAINTED LINES.
3. ALL PAINT TO BE NON-SKID.
4. VAN SPACES TO BE PAINT MARKED WITH "VAN".

HANDICAPPED & STANDARD PARKING SPACES DETAIL
NOT TO SCALE



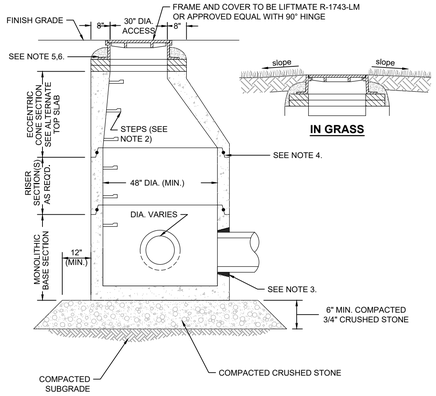
NOTE:
1. MINIMUM HEIGHT = 18" (CURB HEIGHT VARIES), MINIMUM WIDTH = 6"
2. INSTALL IN LOCATIONS AS INDICATED ON PLAN AND DETAILS.
3. CURB SECTIONS TO A MINIMUM OF 7' IN LENGTH.
4. CEMENT MORTAR JOINTS & INSTALL PREFORMED (1/2") EXPANSION JOINT WHERE REQUIRED.
5. SET CURB IN CONCRETE FOOTING AS INDICATED.
6. GRANITE CURB AT ALL BIOSWALES WILL BE TYPE VA-4.

VERTICAL CURB SET IN CONCRETE
NOT TO SCALE



ALTERNATE TOP SLAB

NOTES:
1. ALL SECTIONS TO BE DESIGNED FOR H-20 LOADING.
2. COPOLYMER MANHOLE STEPS TO BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
3. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS TO BE PREFORMED BUTYL RUBBER.
5. DRAIN MANHOLE FRAME AND COVER TO BE SET IN FULL 12" MORTAR BED. ADJUST TO GRADE WITH PRECAST CONCRETE RISER OR BRICK.
6. DO NOT PLACE MORTAR BED AROUND STRUCTURE UNTIL IT IS AT THE REQUIRED FINISH ELEVATION AND ALIGNMENT.



IN GRASS

NOTES:
1. ALL SECTIONS TO BE DESIGNED FOR H-20 LOADING.
2. COPOLYMER MANHOLE STEPS TO BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
3. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS TO BE PREFORMED BUTYL RUBBER.
5. DRAIN MANHOLE FRAME AND COVER TO BE SET IN FULL 12" MORTAR BED. ADJUST TO GRADE WITH PRECAST CONCRETE RISER OR BRICK.
6. DO NOT PLACE MORTAR BED AROUND STRUCTURE UNTIL IT IS AT THE REQUIRED FINISH ELEVATION AND ALIGNMENT.

PRECAST DRAIN MANHOLE (DMH)
NOT TO SCALE

NOTES:
1. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR TO EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH A FOUNDATION OF CLASS I OR II MATERIAL AS DEFINED IN ASTM D2321, "STANDARD PRACTICE FOR INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS," LATEST EDITION; AS AN ALTERNATIVE AND AT THE DISCRETION OF THE ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A WOVEN GEOTEXTILE FABRIC.

2. BEDDING, HAUNCHING AND INITIAL BACKFILL: SUITABLE MATERIAL TO CONSIST OF CLEAN, HARD, PARTICLES OF GRAVEL MEETING THE FOLLOWING:
SIEVE SIZE% PASSING
3/8" 85-95
NO. 4 5-15
NO. 8 0-2
MATERIAL TO BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.

MINIMUM BEDDING THICKNESS TO BE 4" (100mm) FOR 4"-24" (100-600mm) AND 42"-48"(1050-1200mm) CORRUGATED POLYETHYLENE PIPE (CPEP); 6" (150mm) FOR 30"-36" (750-900mm) CPEP.

3 MINIMUM TRENCH WIDTHS TO BE AS FOLLOWS:

NOMINAL Ø in (mm)	MIN. RECOMMENDED TRENCH WIDTH, in (mm)
8 (200) 10	25 (630)
(250) 12	28 (710)
(300) 15	31 (790)
(375) 18	34 (860)
(450)	39 (990)

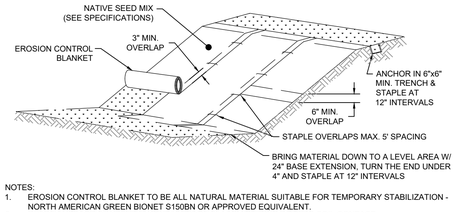
DETAIL PROVIDED BY ADVANCED DRAINAGE SYSTEMS, INC.

4. MINIMUM COVER: THERE SHALL BE A THREE FOOT MINIMUM COVER OVER ALL PIPES. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TAKEN FROM THE TOP OF PIPE TO THE GROUND SURFACE.

SURFACE LIVE LOADING CONDITION	MINIMUM RECOMMENDED * COVER, in (mm)
CONSTRUCTION	48 (1220)

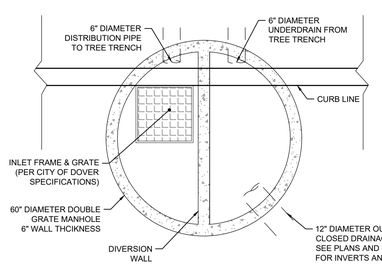
* TOP OF PIPE TO BOTTOM OF BITUMINOUS PAVEMENT
THE MINIMUM COVER FOR A HDPE PIPE IS 1'-0" FOR H-20 TRAFFIC LOADS IF INSTALLED IN ACCORDANCE WITH AASHTO SECTION 30. THIS IS BASED ON EMPIRICAL CALCULATION OF LOAD RESPONSE, MANUFACTURER'S TESTING AND FIELD EXPERIENCE WITH THE PIPE. AASHTO SPECIFICATIONS SECTION 18.4.1.5 DEFINES THE MINIMUM COVER AS "D/8 BUT NOT LESS THAN 12 INCHES". THIS COVER IS MEASURED FROM THE PIPE OD TO THE TOP OF A RIGID (CONCRETE) PAVEMENT OR THE BOTTOM OF A FLEXIBLE (BITUMINOUS) PAVEMENT. BOTH AASHTO AND ASTM, AS WELL AS MOST MANUFACTURERS, REQUIRE ADDITIONAL (TEMPORARY COVER, MOUNDED OVER THE PIPE AND REMOVED FOR FINAL GRADING AND PAVING, IS SUFFICIENT FOR LARGE CONSTRUCTION VEHICLE LOADS.

TYPICAL DRAINAGE PIPE TRENCH DETAIL
NOT TO SCALE

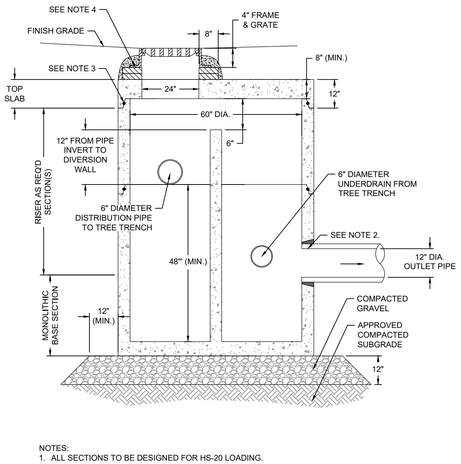


NOTES:
1. EROSION CONTROL BLANKET TO BE ALL NATURAL MATERIAL SUITABLE FOR TEMPORARY STABILIZATION - NORTH AMERICAN GREEN BIONET S150BN OR APPROVED EQUIVALENT.
2. SLOPE SURFACE SHALL BE SMOOTH BEFORE PLACEMENT FOR PROPER SOIL CONTACT.
3. STAPLING PATTERN AS PER MANUFACTURER'S RECOMMENDATIONS.
4. DO NOT STRETCH BLANKETS/MATTINGS TIGHT. ALLOW THE ROLLS TO MOLD TO ANY IRREGULARITIES.
5. FOR SLOPES LESS THAN 3H:1V, ROLLS MAY BE PLACED IN HORIZONTAL STRIPS.
6. LIME, FERTILIZE AND SEED BEFORE INSTALLATION. PLANTING OF SHRUBS, TREES, ETC. SHOULD OCCUR AFTER INSTALLATION.

EROSION CONTROL BLANKET DETAIL
NOT TO SCALE

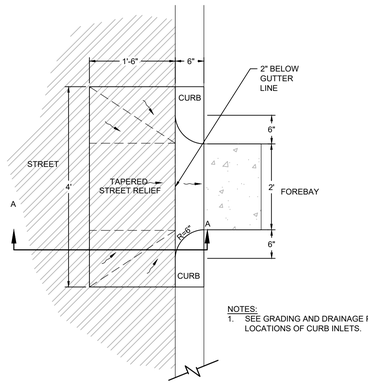


PLAN



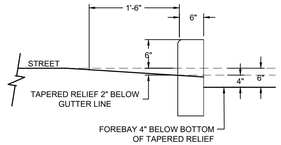
NOTES:
1. ALL SECTIONS TO BE DESIGNED FOR HS-20 LOADING.
2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS TO BE PREFORMED BUTYL RUBBER.
4. CATCH BASIN FRAME AND GRATE TO BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM).
5. FRAME AND COVER TO CONFORM TO NEW HAMPSHIRE DEPATMENT OF TRANSPORTATION STANDARDS.
6. HOOD TO BE "SNOUT" OR APPROVED EQUIVALENT.

PRECAST DIVERSION CATCH BASIN (DCB)
NOT TO SCALE



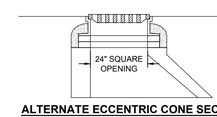
NOTES:
1. SEE GRADING AND DRAINAGE PLANS FOR LOCATIONS OF CURB INLETS.

PLAN

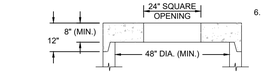


SECTION A-A

CURB INLET/OUTLET
NOT TO SCALE

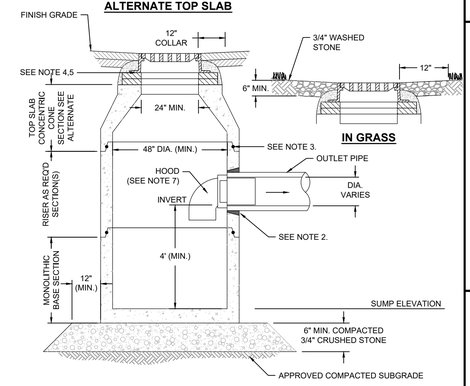


ALTERNATE ECCENTRIC CONE SECTION



ALTERNATE TOP SLAB

NOTES:
1. ALL SECTIONS TO BE DESIGNED FOR H-20 LOADING.
2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS TO BE PREFORMED BUTYL RUBBER.
4. CATCH BASIN FRAME AND GRATE TO BE SET IN FULL 12" WIDE MORTAR BED. ADJUST TO GRADE WITH PRECAST CONCRETE RISER OR BRICK.
5. DO NOT PLACE MORTAR BED AROUND STRUCTURE UNTIL IT IS AT THE REQUIRED FINISH ELEVATION AND ALIGNMENT.
6. HDPE PIPE HOOD TO BE 90° BEND FASTENED TO PIPE WITH SEALANT. BEND TO HAVE 1 INCH PURGE HOLE DRILLED INTO TOP OF ELBOW.

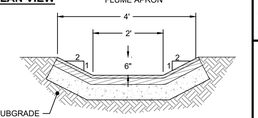


IN GRASS

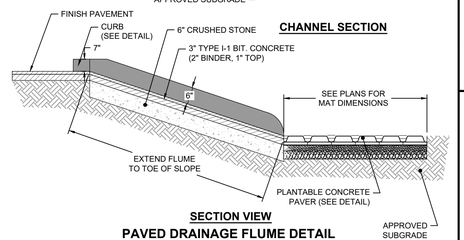
PRECAST CONCRETE CATCH BASIN (CB) WITH HOOD
NOT TO SCALE

NOTES:
1. THE INVERT OF THE PLANTABLE CONCRETE PAVER SECTION TO BE AT THE SAME GRADE (FLUSH) OR LOWER WITH THE BOTTOM OF THE PAVED APRON.
2. THE WIDTH OF THE END OF THE APRON SHALL BE EQUAL TO THE BOTTOM WIDTH OF THE RECEIVING CHANNEL. MAXIMUM TAPER TO RECEIVING CHANNEL 5:1.
3. THE GEOTEXTILE FILTER FABRIC TO BE MIRAFI 140N OR EQUIVALENT

PLAN VIEW



CHANNEL SECTION



SECTION VIEW

PAVED DRAINAGE FLUME DETAIL
NOT TO SCALE

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Revisions

Rev.	Date	By	Appr.	Description

Checked By: RGE
Drawn By: CRS
Designed By: CRS
Date: JULY 2021

Prepared For:
City of Dover
288 Central Ave.
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Phone: (603) 516-6000
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Survey Provided By:
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102 Kent Place
Newmarket, NH 03857
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Fax: —
Dated: OCTOBER 19, 2016

Registration:

DRAFT NOT FOR CONSTRUCTION

Project Number: 15157
Sheet : 18 of 46
Sheet Number: C - 18

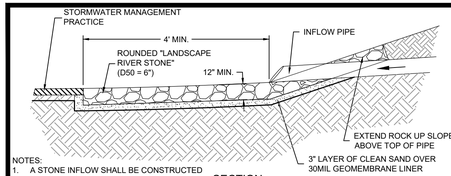
Plan Set:

Plan Title: ROADWAY CONSTRUCTION DETAILS

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

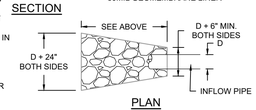
PERMITTING SET
NOT FOR CONSTRUCTION

last modified: 10/25/21 printed: 10/27/21 by kf I:\Projects\2015\15157 Union Studio Dover NH Waterfront\Drawings\15157 DE.dwg



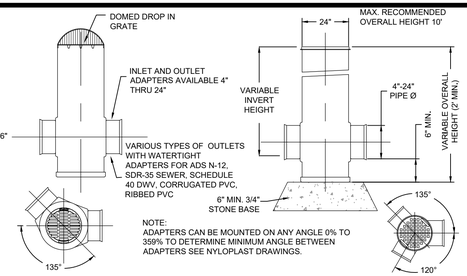
NOTES:
1. A STONE INFLOW SHALL BE CONSTRUCTED AT THE END OF ALL DRAIN PIPES THAT DISCHARGE INTO THE WETLAND SEDIMENT FOREBAY AREA(S).
2. ROCK SHALL SURROUND THE INFLOW PIPE IN THE PER THE DIMENSIONS SHOWN.
3. BACKFILL SHALL COMPLETELY COVER GEOMEMBRANE LINER.
4. GEOMEMBRANE LINER SHALL BE TOE-ED INTO THE SUBGRADE MATERIAL AND UPPER SLOPE (3" MIN.).

SECTION



PLAN

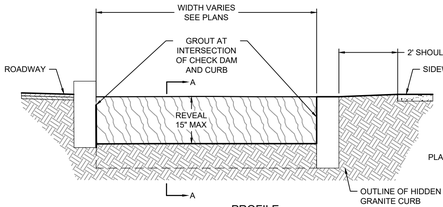
PIPE INFLOW DETAIL
NOT TO SCALE



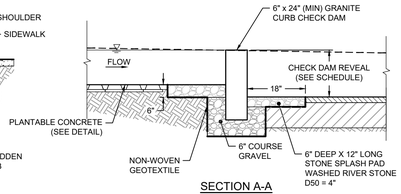
NOTE:
ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0% TO 359% TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE NYLOPLAST DRAWINGS.

OVERFLOW OUTLET DETAIL
NOT TO SCALE

BY "NYLOPLAST" OR APPROVED EQUIVALENT



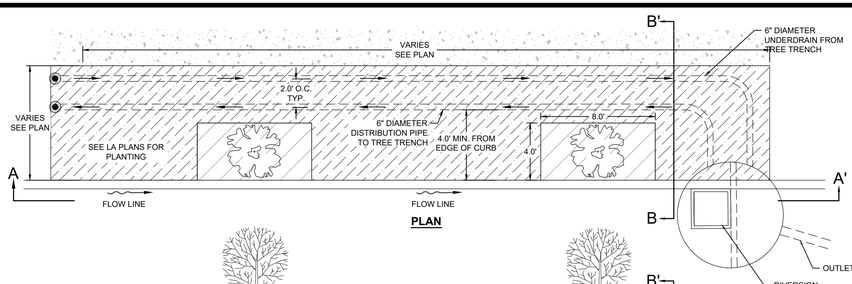
PROFILE



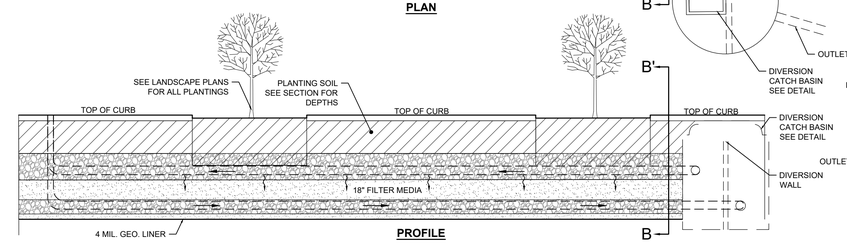
SECTION A-A

NOTES:
1. KEY GRANITE INTO THE SIDE SLOPES AND EXTEND INTO THE ABUTMENTS UNTIL THEY ARE ADJACENT TO THE EDGE OF SIDEWALK OR PAVEMENT TO PREVENT FLOW FROM OUT FLANKING THE CHECK DAM.

ROADSIDE BIOSWALE CHECKDAM
NOT TO SCALE



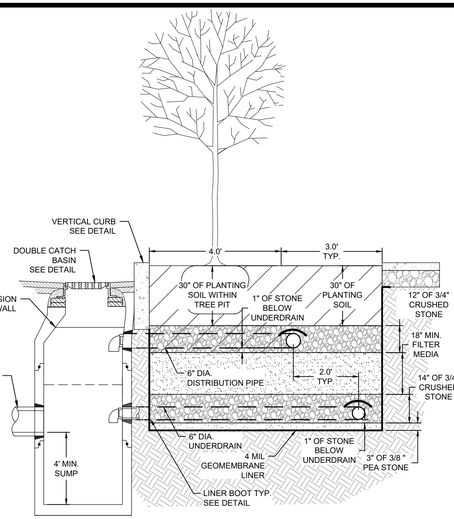
PLAN



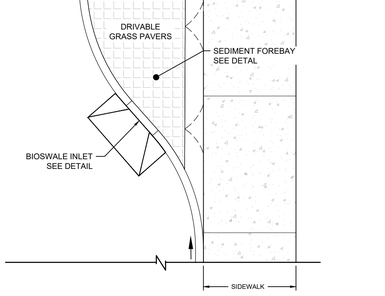
PROFILE

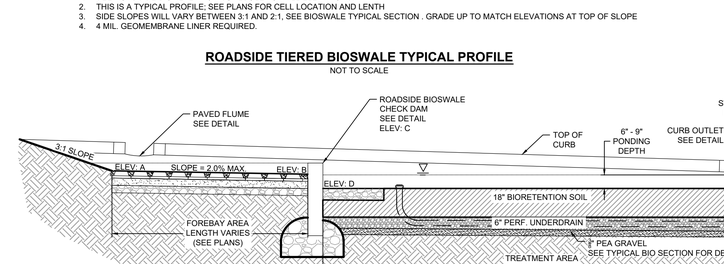
TREE TRENCH SCHEDULE														
BMP	Inlet (Catch Basin Rim)	Top of Curb Elev.	Bottom of Curb Elev.	Outlet Elev. 12" Pipe	6" Distribution Pipe Inv. Elev.	Diversion Wall Inv. Elev.	6" Perf. Underdrain Inv. Elev.	(D) Depth of Filter Media (in)	Filter Media Inv. Elev.	Length (ft) "B"	Tree Pit Width (ft) "C"	Length of Pipe (ft)	Bottom System Elev.	Depth of System (ft)	Minimum Surface Elevation
TT 1	15.50	16.08	14.58	9.90	12.67	14.00	10.00	18	11.08	50.0	8.0	48.0	9.50	6.7	16.00
TT 2	15.80	16.38	14.88	10.20	12.97	14.25	10.30	18	11.38	34.0	12.0	32.0	9.80	6.7	16.30
TT 3	24.60	25.18	23.68	19.00	21.77	23.00	19.10	18	20.18	55.0	8.0	53.0	18.60	6.7	25.10
TT 4	25.53	26.11	24.61	19.93	22.70	24.00	20.03	18	21.11	45.0	9.0	43.0	19.53	6.7	26.03
TT 5	25.45	26.03	24.53	19.85	22.62	23.60	19.95	18	21.03	50.0	8.0	48.0	19.45	6.7	26.80
TT 6	14.60	15.18	13.68	9.00	11.77	12.97	9.10	18	10.18	45.0	8.0	43.0	8.60	6.7	15.10
TT 7	14.50	15.08	13.58	8.90	11.67	12.67	9.00	18	10.08	41.0	5.5	39.0	8.50	6.7	15.00
TT8	13.37	13.95	12.45	7.77	10.54	11.84	7.87	18	8.95	45.0	8.0	43.0	7.37	6.7	13.87
TT9	13.40	13.98	12.48	7.80	10.57	11.85	7.90	18	8.98	30.0	7.0	28.0	7.40	6.7	13.90
TT10	25.97	26.55	25.05	20.37	23.14	24.10	20.47	18	21.55	22.0	13.5	20.0	19.97	6.7	26.47

TREE TRENCH TYPICAL DETAIL AND SCHEDULE
NOT TO SCALE



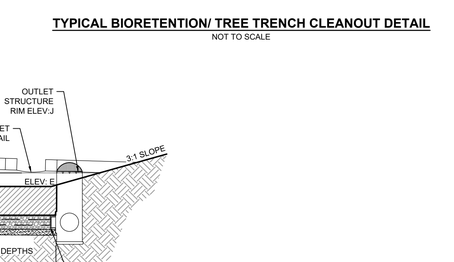
SECTION B-B'

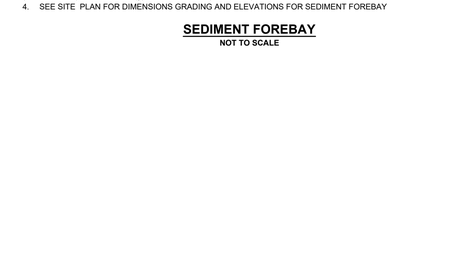




NOTES:
1. SEE ROADSIDE BIORETENTION SCHEDULE FOR ALL ELEVATIONS.
2. THIS IS A TYPICAL PROFILE; SEE PLANS FOR CELL LOCATION AND LENTH
3. SIDE SLOPES WILL VARY BETWEEN 3:1 AND 2:1, SEE BIOSWALE TYPICAL SECTION . GRADE UP TO MATCH ELEVATIONS AT TOP OF SLOPE
4. 4 MIL. GEOMEMBRANE LINER REQUIRED.

TYPICAL BIORETENTION/ TREE TRENCH CLEANOUT DETAIL
NOT TO SCALE





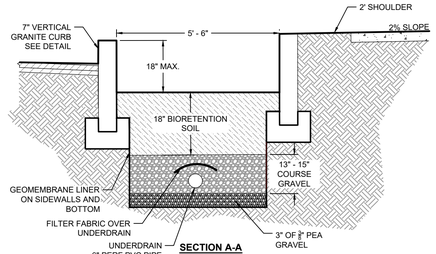
NOTES:
1. SEE SPECIFICATIONS FOR PLANTABLE/PERMEABLE PAVER REQUIREMENTS.
2. INSTALL PLANTABLE/PERMEABLE PAVER SYSTEM PER MANUFACTURERS REQUIREMENTS.
3. SHAPE FOREBAY AS REQUIRED WITH MIN. 6" SIDE SLOPE DEPTH.
4. SEE SITE PLAN FOR DIMENSIONS GRADING AND ELEVATIONS FOR SEDIMENT FOREBAY

SEDIMENT FOREBAY
NOT TO SCALE

ROADSIDE TIERED BIOSWALE TYPICAL PROFILE
NOT TO SCALE

NOTES:
1. SEE ROADSIDE BIORETENTION SCHEDULE FOR ALL ELEVATIONS.
2. THIS IS A TYPICAL PROFILE; SEE PLANS FOR CELL LOCATION AND LENTH
3. SIDE SLOPES WILL VARY BETWEEN 3:1 AND 2:1, SEE BIOSWALE TYPICAL SECTION . GRADE UP TO MATCH ELEVATIONS AT TOP OF SLOPE
4. ROADSIDE BIORETENTIONS 1 & 2 HAVE TWO TIERED SYSTEMS, WHICH ELEVATION C2 & D2 CORRESPOND TO THE SECOND TIERS CHECK DAM AND BIO SURFACE ELEVATION, RESPECTIVELY.
5. 4 MIL. GEOMEMBRANE LINER REQUIRED.

ROADSIDE LIENAR BIOSWALE TYPICAL PROFILE
NOT TO SCALE



NOTES:
1. LONGITUDINAL SLOPE OF BIOSWALE MATCHES ROAD: FLAT AS POSSIBLE, 3% MAXIMUM.
2. LONGITUDINAL AND CROSS SLOPE OF SOIL WITHIN BIOSWALE: NONE, FLAT AS POSSIBLE.
3. SEE BIORETENTION SOIL AND PLANTING REQUIREMENTS.
4. INSTALL WASHED PEA GRAVEL OR RIVER ROCK TO TRANSITION FROM SPLASH PAD TO TOPSOIL.
5. SEE LANDSCAPE PLANS FOR PLANTING DETAILS.
6. GEOMEMBRANE LINER TO BE 4 MIL THICK MATERIAL. SEE SPECS.

ROADSIDE BIOSWALE
NOT TO SCALE

ROADISDE BIOSWALE SCHDULE																									
	CURB				FOREBAY					CHECK DAM		BIORETENTION													
BMP No.	Proposed Grade At Inlet (ft)	Taper Inlet (ft)	Proposed Grade At Outlet (ft)	Taper Outlet EL (ft)	Surface Area (sf)	Length (ft)	Invert (ELEV: A) (ELEV: B)	Forebay Slope	Top of Check Dam (ELEV: C)	Check Dam Reveal (in)		Bio Surface Area (sf)	Bio Length (ft)	Bio Slope	Invert (ELEV: D) (ELEV: E)	Top of Check Dam (ELEV: F)	Check Dam Reveal (in)		Bio Surface Area Tier-2 (sf)	Bio Length (ft)	Bio Slope	Invert (ELEV: G) (ELEV: H)	Outlet Structure Rim El. (ft) J	Curb Outlet Overflow El. (ft)	Underdrain Invert (ft) K	Bottom El. (ft)
BS-1	16.60	16.52	15.40	15.32	196	37	15.77	1.00%	16.06	Front	8.0	145	26.5	1%	15.23	15.63	Front	8.0	130.0	25.0	1%	14.80	15.05	15.40	12.05	11.80
							15.40			Back	10.0				14.97		Back	10.0				14.55				
BS-2	16.60	16.52	15.30	15.22	210	42	15.77	1.00%	16.01	Front	8.0	130	23.6	1%	15.18	15.61	Front	8.0	147.0	26.9	1%	14.78	15.01	15.30	12.44	12.19
							15.35			Back	10.0				14.94		Back	10.0				14.51				
BS-3	13.40	13.32	13.40	N/A	165	22	12.42	1.00%	12.87	Front	8.0	189	25	0%	12.20	NA	Front	NA	NA	NA	NA	NA	12.70	NA	9.70	9.45
							12.20			Back	8.0				12.20		Back	NA								
BS-4	13.29	13.21	13.29	N/A	139	18	12.31	1.00%	12.79	Front	8.0	146	19.5	0%	12.13	Na	Front	NA	NA	NA	NA	NA	12.63	NA	9.63	9.38
							12.13			Back	8.0				12.13		Back	NA								

MATERIAL SPECIFICATIONS

1. **BIORETENTION SOIL**

A. 50% TO 55% BY VOLUME SAND THAT IS CERTIFIED BY ITS PRODUCER AS MEETING THE REQUIREMENTS FOR ASTM C-33 CONCRETE SAND, 20% TO 30% BY VOLUME OF LOAMY SAND TOPSOIL WITH 15% TO 25% FINES PASSING THE NUMBER 200 SIEVE, AND 20% TO 30% BY VOLUME MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH WITH LESS THAN 5% PASSING THE NUMBER 200 SIEVE.

B. ORGANIC MATTER: 3%
WELL AGED (6-12 MONTHS), WELL AERATED, LEAF COMPOST OR APPROVED EQUIVALENT

C. PROVIDE A SOIL TEST OF THE BIORETENTION SOIL FOR CONFORMANCE TO THE FOLLOWING CRITERIA:
- PH RANGE: 5.2-7.0.
- MAGNESIUM: MINIMUM 32 PPM.
- PHOSPHOROUS (P2O5): NOT TO EXCEED 69 PPM.
- POTASSIUM (K2O): MINIMUM 78 PPM.
- SOLUBLE SALTS: NOT TO EXCEED 500 PPM.

IF THE SOIL PH IS NOT WITHIN THE ACCEPTABLE RANGE, AMEND WITH LIME TO RAISE THE PH OR WITH IRON SULFATE TO LOWER THE PH, AS NECESSARY. ALL TESTING SHOULD BE PERFORMED BY THE SAME TESTING FACILITY TO MAINTAIN CONSISTENT RESULTS. SUBMIT THE SOIL SAMPLE RESULTS TO THE ENGINEER REVIEW AND APPROVAL PRIOR TO DELIVERY TO THE PROJECT SITE.

D. VOLUME OF FILTER MEDIA BASED ON 110% OF PLAN VOLUME TO ACCOUNT FOR SETTLING OR COMPACTION.

E. DO NOT MIX, DUMP OR STORE ANY OTHER MATERIALS OR SUBSTANCES THAT MAY B E HARMFUL TO PLANT GROWTH OR PROVE A HINDRANCE TO THE PLANTING MAINTENANCE OR OPERATIONS WITHIN THE BIORETENTION AREA.

PERMITTING SET
NOT FOR CONSTRUCTION

Revisions

Rev.	Date	By	Appr.	Description

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Sustainable Environmental Solutions
www.horsleywitten.com
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Checked By: RAG
Drawn By: CSS
Designed By: CSS
Date: JULY 2021

Plan Set:
Plan Title: STORMWATER MANAGEMENT DETAILS

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Prepared For:
City of Dover
288 Central Ave.
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Phone: (603) 516-6000
Fax: —

Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-4560
Fax: —
Dated: OCTOBER 19, 2016

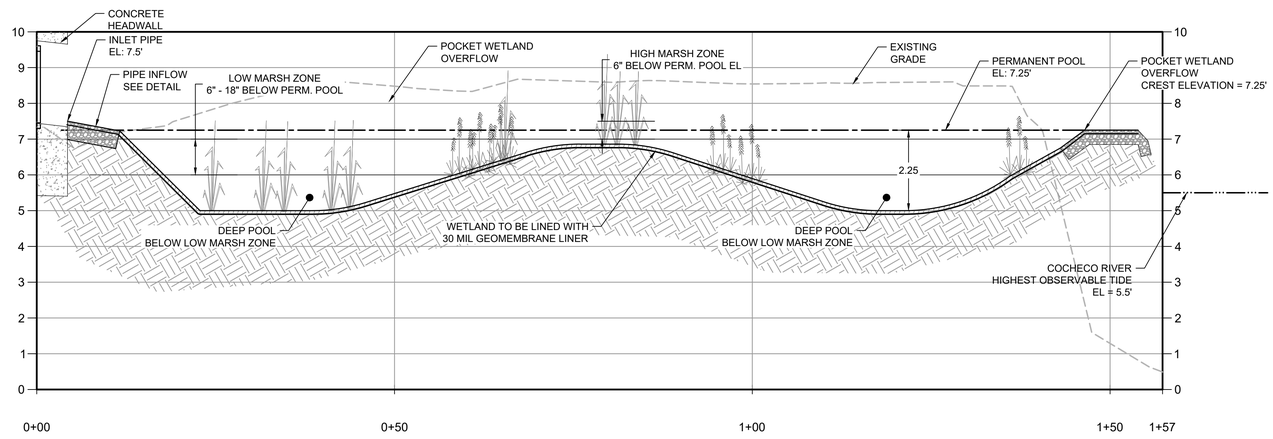
Registration:

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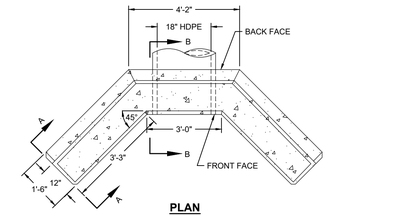
Project Number: 15157
Sheet : 19 of 46

Sheet Number: C - 19

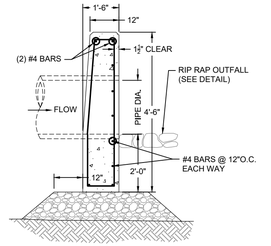
last modified: 10/25/21 printed: 10/27/21 by kf I:\Projects\2015\15157 Union Studio Dover NH Waterfront\Drawings\15157 DE.dwg



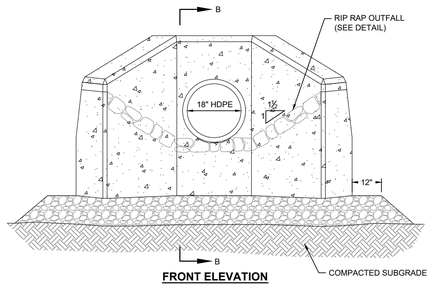
POCKET WETLAND PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'



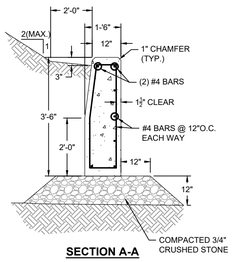
PLAN



SECTION B-B



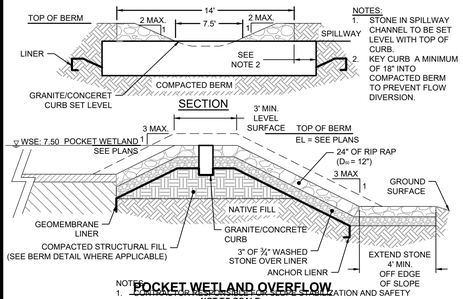
FRONT ELEVATION



SECTION A-A

NOTES:
1. CONCRETE TO BE COMPRESSIVE STRENGTH 4000 PSI AIR ENTRAINED TYPE II CEMENT.

CONCRETE HEADWALL (HW) WITH WINGWALLS
NOT TO SCALE

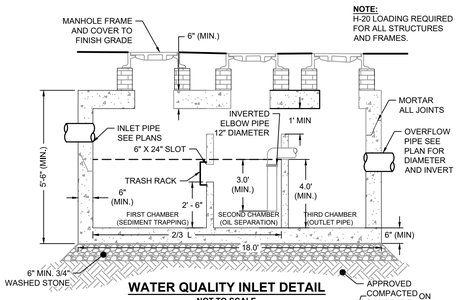


SECTION

NOTES:
1. STONE IN SPILLWAY CHANNEL TO BE SET LEVEL WITH TOP OF CURB. KEY CURB A MINIMUM OF 18" INTO COMPACTED BERM TO PREVENT FLOW DIVERSION.

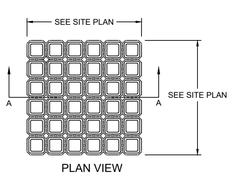
NOTES:
1. CONTRACTOR RESPONSIBLE FOR EROSION STABILIZATION AND SAFETY MEASURES DURING CONSTRUCTION. SIDE SLOPES TO BE 3:1 MAXIMUM SLOPE.

POCKET WETLAND OVERFLOW
NOT TO SCALE

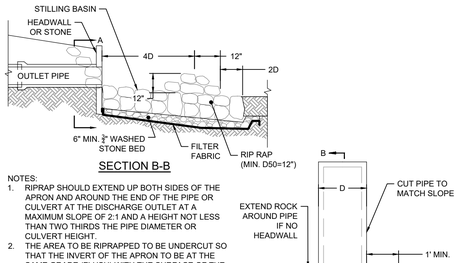


NOTE:
H-20 LOADING REQUIRED FOR ALL STRUCTURES AND FRAMES.

WATER QUALITY INLET DETAIL
NOT TO SCALE

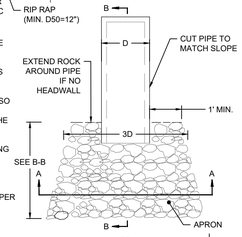


PLAN VIEW



SECTION B-B

NOTES:
1. RIPRAP SHOULD EXTEND UP BOTH SIDES OF THE APRON AND AROUND THE END OF THE PIPE OR CULVERT AT THE DISCHARGE OUTLET AT A MAXIMUM SLOPE OF 2:1 AND A HEIGHT NOT LESS THAN TWO THIRDS THE PIPE DIAMETER OR CULVERT HEIGHT.
2. THE AREA TO BE RIPRAPPED TO BE UNDERCUT SO THAT THE INVERT OF THE APRON TO BE AT THE SAME GRADE (FLUSH) WITH THE SURFACE OF THE RECEIVING CHANNEL.
3. THE WIDTH OF THE END OF THE APRON TO BE EQUAL TO THE BOTTOM WIDTH OF THE RECEIVING CHANNEL MAXIMUM TAPER TO RECEIVING CHANNEL 5:1
4. ALL SUBGRADE FOR STRUCTURE TO BE COMPACTED TO 95% OR GREATER.
5. HORIZONTAL ALIGNMENT OF THE APRON TO BE PER THE SITE PLAN.
6. ANY DISTURBED AREA FROM END OF APRON TO RECEIVING CHANNEL MUST BE STABILIZED.



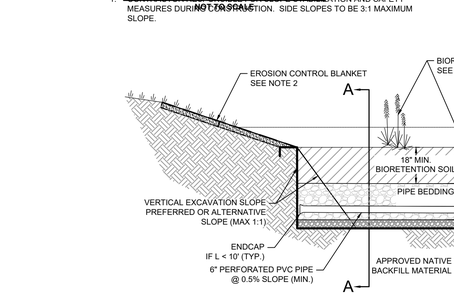
PLAN

SECTION A-A

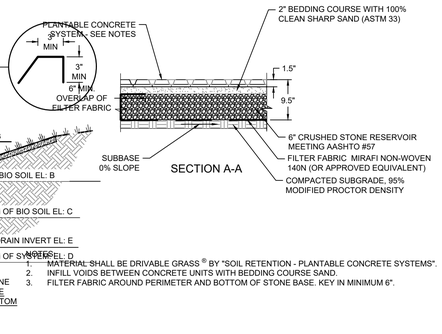
OUTFALL STILLING BASIN DETAIL
NOT TO SCALE

STILLING BASIN SCHEDULE

OUTLET NO.	PIPE DIA. (D) (FT)	LENGTH (4D) (FT)	MIN DEPTH (H) (FT)	WIDTH (3D) (FT)	MIN D50 STONE SIZE (IN)
1	3.0	12.0	2.0	9	12
2	2.0	8.0	3.0	6	12
4	2.0	8.0	2.0	6	12



BIORETENTION FACILITY DETAIL
NOT TO SCALE

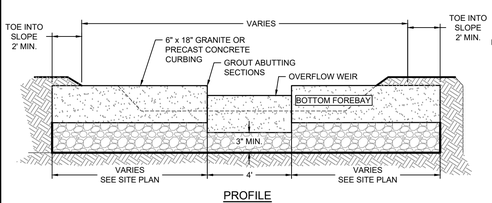


SECTION A-A

NOTES:
1. MATERIAL SHALL BE DRIVABLE GRASS © BY "SOIL RETENTION - PLANTABLE CONCRETE SYSTEMS".
2. INFILL VOIDS BETWEEN CONCRETE UNITS WITH BEDDING COURSE SAND.
3. FILTER FABRIC AROUND PERIMETER AND BOTTOM OF STONE BASE. KEY IN MINIMUM 6".

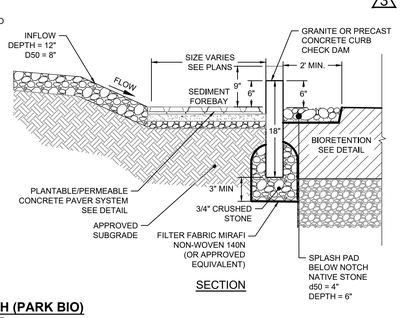
PLANTABLE CONCRETE PAVER DETAIL
NOT TO SCALE

3



PROFILE

NOTE:
1. KEY GRANITE CURBING INTO THE FOREBAY BANKS AND EXTEND INTO THE ABUTMENTS A MINIMUM OF 2' TO PREVENT FLOW FROM DIVERTING THE CHECK DAM.
2. GROUT ABUTTING SECTIONS OF GRANITE CURBING.
3. INSTALL PLANTABLE/PERMEABLE PAVER SYSTEM PER DETAILS AND NOTES.
4. SEE SITE PLAN FOR DIMENSIONS GRADING AND ELEVATIONS FOR SEDIMENT FOREBAY



SECTION

CHECKDAM W/ NOTCH (PARK BIO)
NOT TO SCALE

BIORETENTION SCHEDULE:

	ELEV. A					ELEV. B		ELEV. C		ELEV. D					ELEV. E	ELEV. F	ELEV. G
No.	Overflow Inlet Rim (ft)	Ponding Depth (ft)	Bottom of Bio Area (ft)[1]	Overflow Inlet Type & #	Depth Mulch (ft)	Top of Bio Soil (ft)	Bio Soil Depth (ft)	Bottom Bio Soil (ft)	Depth Course Gravel + Pea Gravel	Bottom of System (ft)	Min. Underdrain Stone cover (in.)	Underdrain Pipe Size (in)	Underdrain Distal Inv (ft)	Length Underdrain (ft)	Slope Underdrain (ft/ft)	Underdrain Pipe Invert (ft)	Outlet Invert (ft)[2]	Bottom of Underdrain (ft)
BIO 1	8.25	0.75	7.50	BIO OVERFLOW	0.00	7.50	1.50	6.00	1.25	4.75	4.00	6.00	5.13	55	0.005	4.85	4.75	4.48
BIO 2	14.75	0.50	14.25	BIO OVERFLOW	0.00	14.25	1.50	12.75	1.25	11.50	4.00	6.00	10.63	15	0.005	10.55	10.45	10.30

Notes:
[1] Bottom elevation = Surface of shredded organic layer (see detail)
[2] See pipe schedule for outlet pipe size

PERMITTING SET
NOT FOR CONSTRUCTION

Revisions

Rev.	Date	By	Appr	Description
3	12/19	JMP	RAC	RESPONSE TO NHDES AOT RFI
2	6/15	GSG	RAC	RESPONSE TO NHDES AOT RFI
1				

Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com
90 Route 6A
Sandwich, MA 02563
508-833-6600 voice
508-833-3150 fax

Designed By: GSG
Drawn By: GSG
Checked By: RAC
Date: JULY 2021

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

WETLAND PROFILE & DETAILS

Plan Set:
Plan Title:

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: —

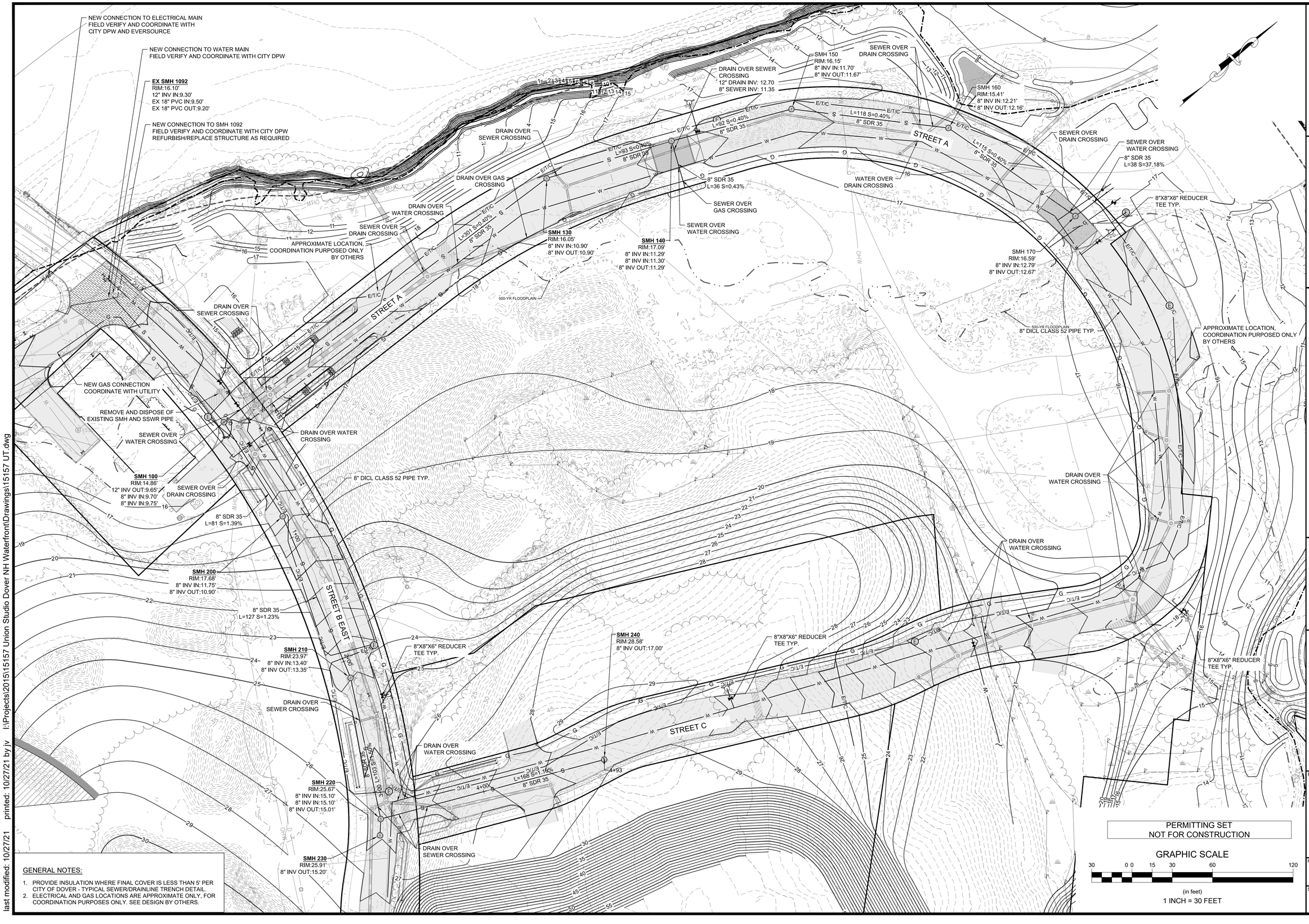
Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-6560
Fax: —
Dated: OCTOBER 19, 2016

Registration:

DRAFT
NOT FOR CONSTRUCTION

Project Number: 15157
Sheet : 20 of 46
Sheet Number: C - 20

last modified: 10/27/21 printed: 10/27/21 by kf I:\Projects\2015\15157 Union Studio Dover NH Waterfront\Drawings\15157 GD.dwg



GENERAL NOTES:

1. PROVIDE INSULATION WHERE FINAL COVER IS LESS THAN 5' PER CITY OF DOVER - TYPICAL SEWER/DRAINLINE TRENCH DETAIL.
2. ELECTRICAL AND GAS LOCATIONS ARE APPROXIMATE ONLY, FOR COORDINATION PURPOSES ONLY. SEE DESIGN BY OTHERS.

PERMITTING SET
NOT FOR CONSTRUCTION

GRAPHIC SCALE

30 0 0 15 30 60 120

(in feet)

1 INCH = 30 FEET

Revisions

Rev.	Date	By	Appr.	Description
1	---	---	---	---
2	---	---	---	---
3	---	---	---	---
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5	---	---	---	---
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8	---	---	---	---

Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com
90 Route 6A
Sandwich, MA 02563
508-833-6600 voice
508-833-3150 fax

Checked By: PdG
Drawn By: CBS
Designed By: CBS
Date: JULY 2021

Plan Set: DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Plan Title: UTILITY PLAN

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: —

Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-4560
Fax: —
Dated: OCTOBER 19, 2016

Registration:

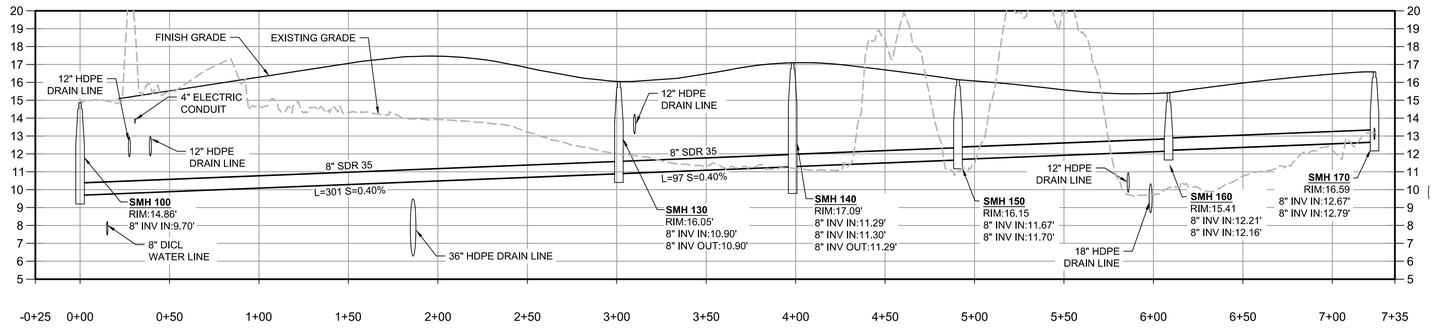
DRAFT
NOT FOR CONSTRUCTION

Project Number: 15157

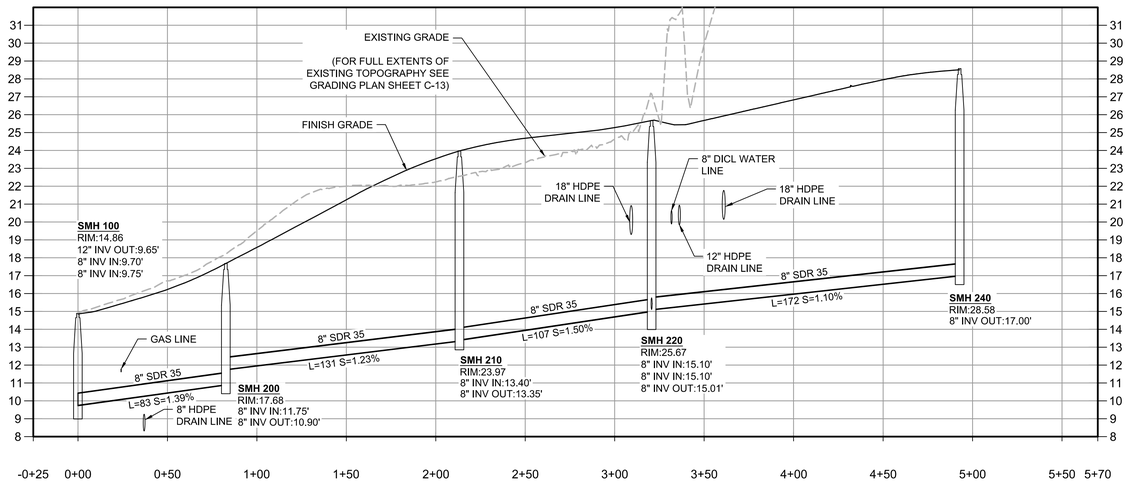
Sheet : 21 of 46

Sheet Number: C - 21

last modified: 10/27/21 printed: 10/27/21 by jv I:\Projects\2015\15157 Union Studio Dover NH Waterfront\Drawings\15157 UT.dwg



LOWER STREET A SSWR PROFILE
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'



STREET B-CROSS STREET SSWR PROFILE
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'

PERMITTING SET
NOT FOR CONSTRUCTION

Revisions

Rev.	Date	By	Appr.	Description
1	---	---	---	---
2	---	---	---	---
3	---	---	---	---
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5	---	---	---	---
6	---	---	---	---
7	---	---	---	---
8	---	---	---	---

Horsley Witten Group, Inc.
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90 Route 6A
Sandwich, MA 02563
508-833-6600 voice
508-833-3150 fax

Checked By: RAG
Drawn By: CSS
Designed By: CSS
Date: JULY 2021

Plan Set: DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Plan Title: SEWER PROFILES

Prepared For:
City of Dover
288 Central Ave
Dover, NH 03820
Phone: (603) 516-6000
Fax: ---

Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-4560
Fax: ---
Dated: OCTOBER 19, 2016

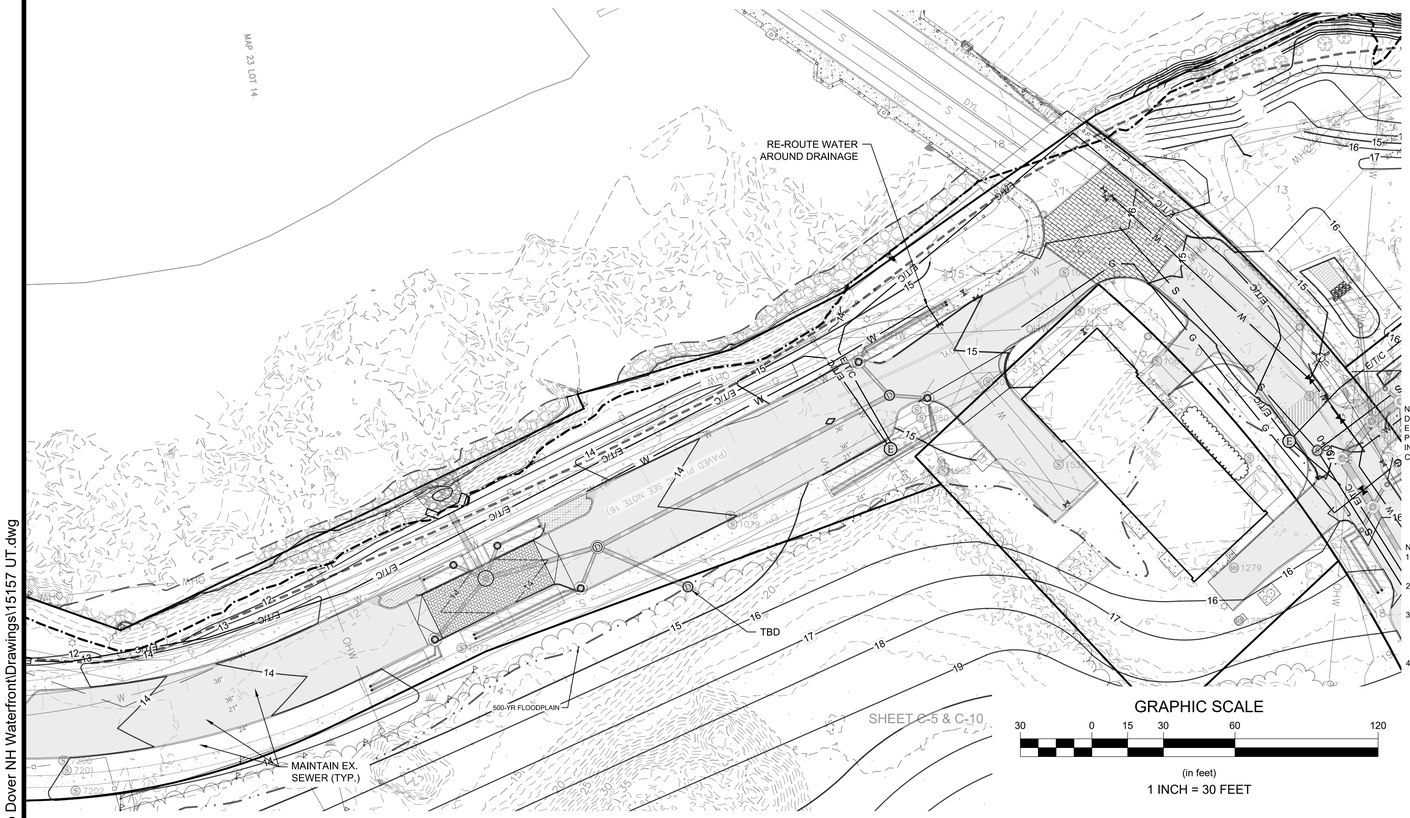
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NOT FOR CONSTRUCTION

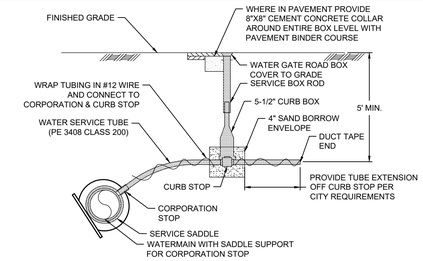
Project Number: 15157
Sheet : 22 of 46
Sheet Number: C - 22

last modified: 10/26/21 printed: 10/27/21 by jv I:\Projects\2015\15157 Union Studio Dover NH Waterfront\Drawings\15157 UT.dwg

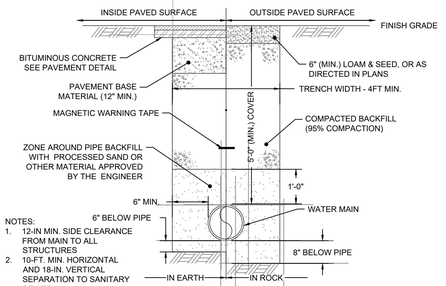
PERMITTING SET
NOT FOR CONSTRUCTION



GRAPHIC SCALE
30 0 15 30 60 120
(in feet)
1 INCH = 30 FEET

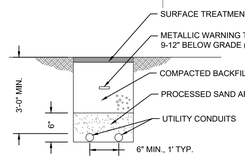


WATER CONNECTION DETAIL
NOT TO SCALE



NOTES:
1. 12-IN MIN. SIDE CLEARANCE FROM MAIN TO ALL STRUCTURES
2. 10-FT. MIN. HORIZONTAL AND 18-IN. VERTICAL SEPARATION TO SANITARY SEWER.

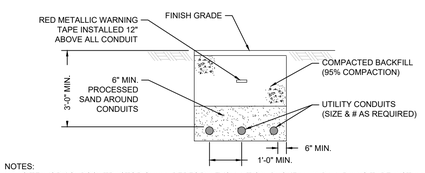
WATER TRENCH DETAIL
NOT TO SCALE



NOTE:
DETAIL IS FOR SECONDARY ELECTRICAL SERVICE. PRIMARY SERVICE SHALL BE INSTALLED PER ELECTRICAL COMPANY STANDARDS.

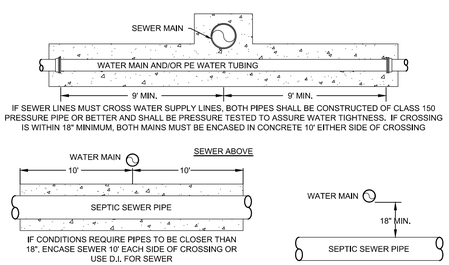
NOTES:
1. SITE WORK SUBCONTRACTOR SHALL PERFORM EXCAVATION, AND BACKFILL FOR ALL CONDUIT INSTALLATIONS. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUITS, PULLWIRES, HANDHOLES, AND WARNING TAPE AS REQUIRED FOR ELECTRICAL WORK.
2. UTILITY CONDUITS SHALL INCLUDE A COMBINATION OF ONE, TWO, OR ALL OF (1) FOR TELEPHONE, (1) FOR ELECTRICAL, AND (1) FOR CABLE TELEVISION, (1) COMMUNICATION, (1) FOR OTHER AS SHOWN IN THE SITE PLAN.
3. TRENCH COMPACTED BACKFILL:
   BENEATH PAVEMENT: BACKFILL SHALL BE ROADBASE AND COMPACTED TO PAVEMENT SUBBASE REQUIREMENTS-SEE DETAIL.
   OUTSIDE PAVEMENT: GRAVEL BORROW TYPE B (3" MINUS) COMPACTED IN MAXIMUM 8 INCH LIFTS TO TO 95% COMPACTION.
4. UTILITY SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE UTILITY COMPANY STANDARDS THAT MAY BE MORE STRINGENT THAN THIS DETAIL.

TYPICAL UTILITY TRENCH DETAIL
NOT TO SCALE



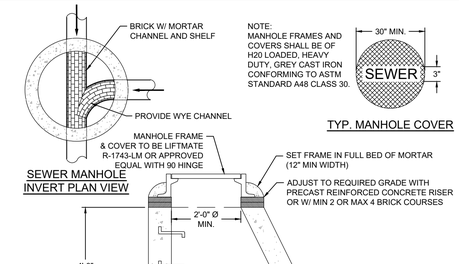
NOTES:
1. SITE WORK SUBCONTRACTOR SHALL PERFORM EXCAVATION, BACKFILL AND WARNING TAPE INSTALLATION FOR ALL UTILITY TRENCH WORK. ELECTRICAL SUBCONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUITS, PULLWIRES, AND HANDHOLES AS REQUIRED FOR ELECTRICAL WORK.
2. UTILITY CONDUITS SHALL INCLUDE A COMBINATION OF ONE, TWO, OR ALL OF (1) FOR TELEPHONE, (1) FOR ELECTRICAL, AND (1) FOR CABLE TELEVISION, (1) FOR OTHER AS SHOWN IN THE SITE PLAN.
3. TRENCH BACKFILL MUST BE COMPACTED IN MAXIMUM 8 INCH LIFTS. BENEATH PAVEMENT BACKFILL SHALL BE ROADBASE, OUTSIDE PAVEMENT GRAVEL BORROW TYPE B (3" MINUS).
5. UTILITY SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE UTILITY COMPANY STANDARDS THAT MAY BE MORE STRINGENT THAN THIS DETAIL.

TYPICAL UTILITY TRENCH DETAIL
NOT TO SCALE

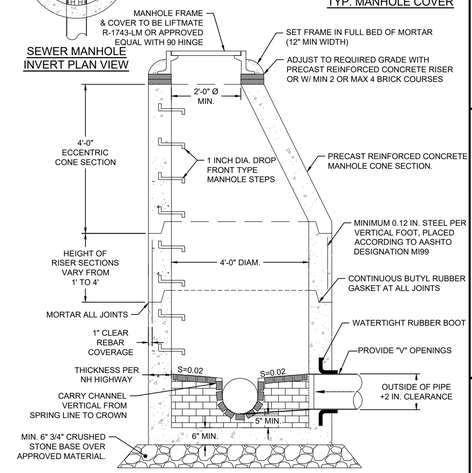


IF SEWER LINES MUST CROSS WATER SUPPLY LINES, BOTH PIPES SHALL BE CONSTRUCTED OF CLASS 150 PRESSURE PIPE OR BETTER AND SHALL BE PRESSURE TESTED TO ASSURE WATER TIGHTNESS. IF CROSSING IS WITHIN 18" MINIMUM, BOTH MAINS MUST BE ENCASED IN CONCRETE 10' EITHER SIDE OF CROSSING

WATER SERVICE / SEWER CROSSING DETAIL
NOT TO SCALE

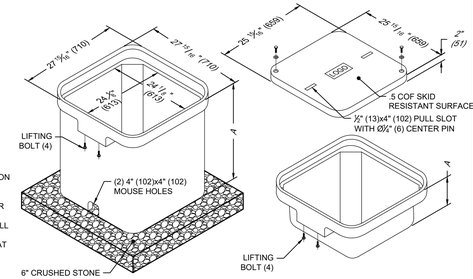


TYP. MANHOLE COVER



SEWER MANHOLE INVERT PLAN VIEW

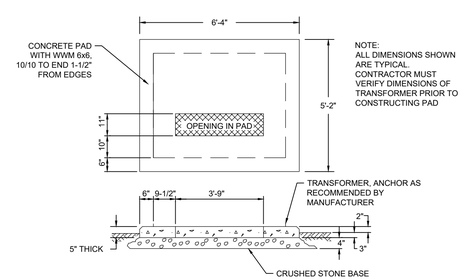
PRECAST CONCRETE SEWER MANHOLE (SMH)
NOT TO SCALE



NOTES:
1. SITE WORK SUBCONTRACTOR SHALL PERFORM EXCAVATION, AND BACKFILL FOR ALL GAS LINE INSTALLATIONS. GAS SERVICE PROVIDER SHALL FURNISH AND INSTALL GAS LINES AND WARNING TAPE AS REQUIRED.
2. GAS SERVICE LINE SHALL BE SIZED BY GAS PROVIDER.
4. TRENCH BACKFILL:
   BENEATH PAVEMENT: BACKFILL SHALL BE ROADBASE AND COMPACTED TO PAVEMENT SUBBASE REQUIREMENTS-SEE DETAIL.
   OUTSIDE PAVEMENT: GRAVEL BORROW TYPE B (3" MINUS) COMPACTED IN MAXIMUM 8 INCH LIFTS TO TO 95% COMPACTION.
5. GAS LINES SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL GAS PROVIDER STANDARDS THAT MAY BE MORE STRINGENT THAN THIS DETAIL.

TYPICAL GAS SERVICE TRENCH DETAIL
NOT TO SCALE

SITE LIGHTING HANDHOLE DETAIL
NOT TO SCALE



TRANSFORMER PAD DETAIL
NOT TO SCALE

GENERAL UTILITY NOTES:
1. COORDINATE THE LOCATIONS OF ALL NEW UTILITY CONNECTIONS WITH THE CITY OF DOVER DEPARTMENT OF PUBLIC WORKS AND THE APPLICABLE UTILITY COMPANIES.

Revisions

Rev.	Date	By	Appr.	Description
1	---	---	---	---
2	---	---	---	---
3	---	---	---	---
4	---	---	---	---
5	---	---	---	---
6	---	---	---	---
7	---	---	---	---

Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com
90 Route 6A
Sandwich, MA 02563
508-833-6600 voice
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Checked By: PAG
Drawn By: CSS
Designed By: CSS
Date: JULY 2021

Prepared For:
City of Dover
288 Central Ave.
Dover, NH 03820
Phone: (603) 516-6000
Fax: —

Survey Provided By:
Doucet Survey Inc.
102 Kent Place
Newmarket, NH 03857
Phone: (603)-659-4560
Fax: —
Dated: OCTOBER 19, 2016

Registration:
DRAFT NOT FOR CONSTRUCTION

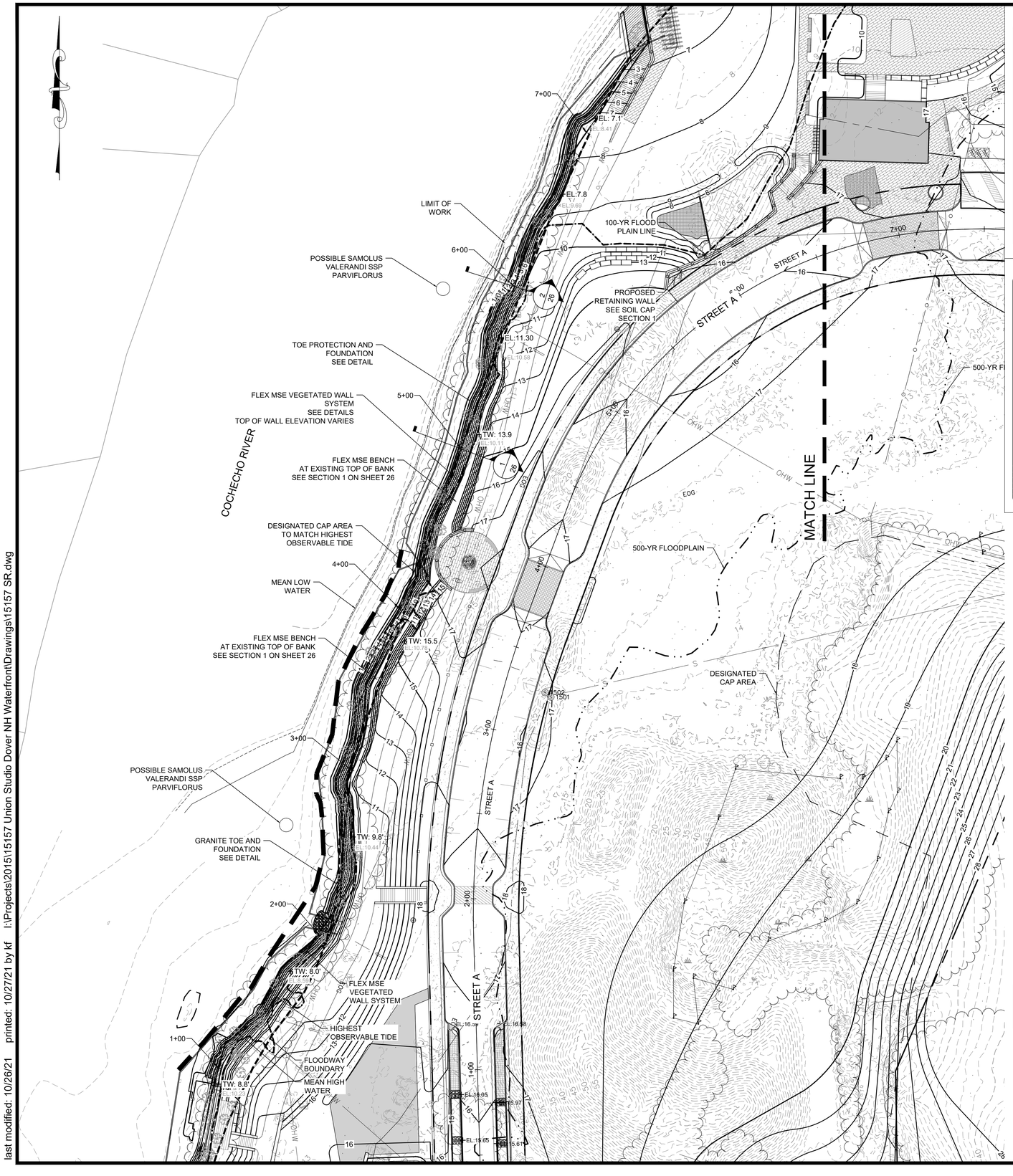
Project Number: 15157
Sheet : 23 of 46
Sheet Number: C - 23

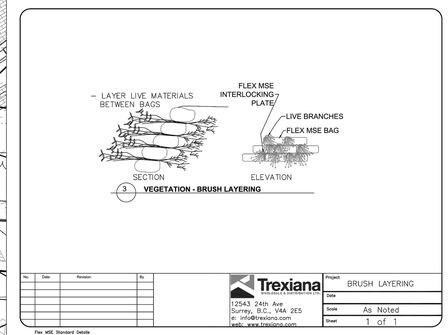
Plan Set:
Plan Title:

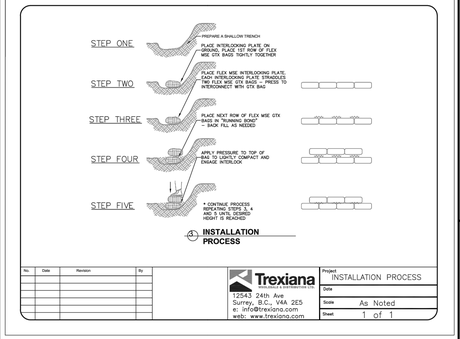
DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

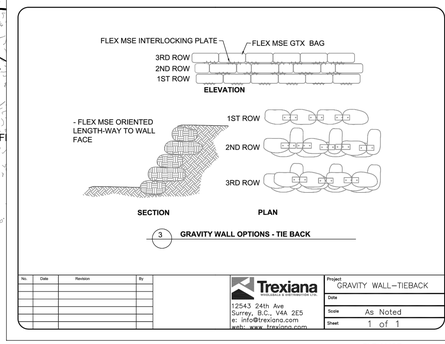
UTILITY DETAILS

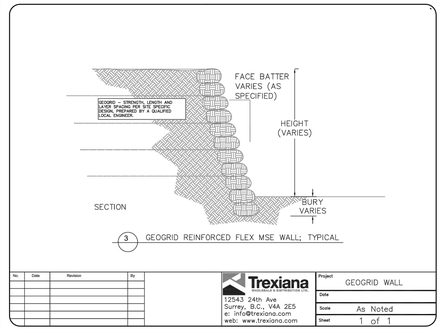
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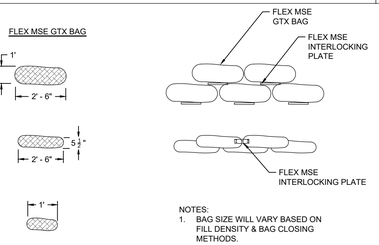




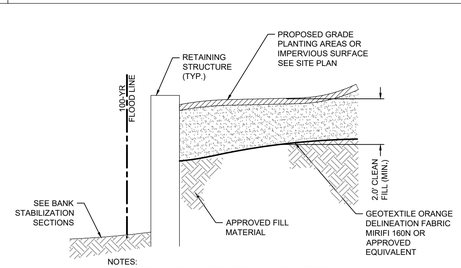




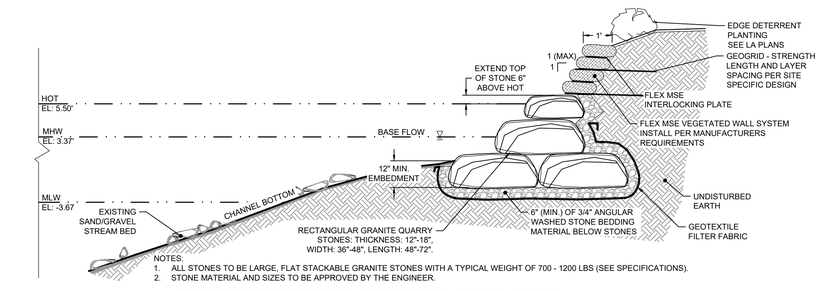




INTERLOCKING PLATE DETAIL
NOT TO SCALE



SOIL CAP TYPICAL SECTION 1
NOT TO SCALE



GRANITE TOE PROTECTION & FOUNDATION TYPICAL DETAIL
NOT TO SCALE

NOTE:
1. FLEX MSE OR APPROVED EQUAL - DESIGN AND INSTALLATION PER MANUFACTURERS REQUIREMENTS AND WITH STRUCTURAL ENGINEER APPROVAL.
2. VEGETATED WALL SYSTEM TYPICAL DETAIL ARE PROVEDED

PERMITTING SET
NOT FOR CONSTRUCTION

GRAPHIC SCALE

30 0 15 30 60 120

(in feet)
1 INCH = 30 FEET

Revisions

Rev.	Date	By	Appr.	Description

Horsley Witten Group, Inc.
Sustainable Environmental Solutions
www.horsleywitten.com
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Checked By: RAG
Drawn By: CES
Designed By: CES
Date: JULY 2021

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Plan Set:

Plan Title: BANK STABILIZATION (1)

Prepared For:
City of Dover
288 Central Ave
Dover, NH 03820
Phone: (603) 516-6000
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Survey Provided By:
Doucet Survey Inc.
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Newmarket, NH 03857
Phone: (603)-659-6560
Fax: —
Dated: OCTOBER 19, 2016

Registration:

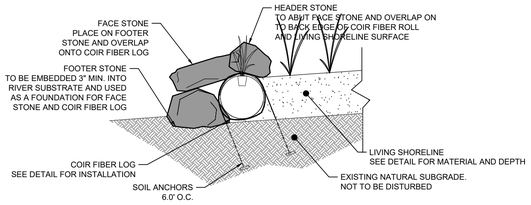
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Project Number: 15157

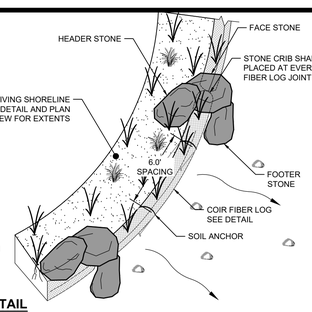
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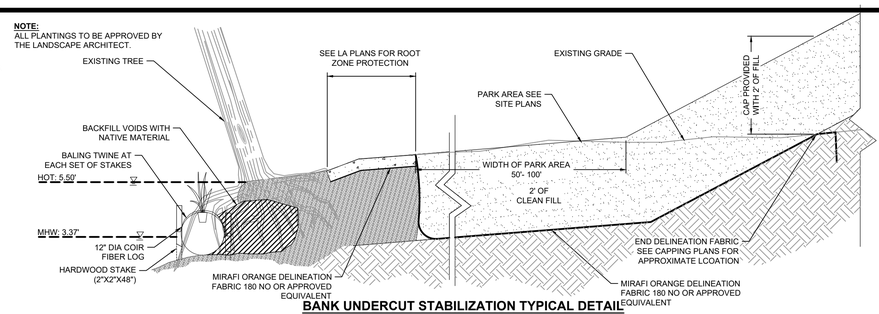


NOTES:
1. STONES SHOULD BE FLAT IN NATURE WITH MINIMUM DIMENSIONS OF 36"(L) X 18"(W) X 8"(H)
2. SEE PLAN FOR APPROXIMATE LOCATION OF REINFORCEMENT. STONE CRIB TO BE PLACED ON BOTH TIERS OF LIVING SHORELINE IN SIMILAR PLACEMENT.
3. CRIB STRUCTURE TO BE PLACED AT JOINTS OF COIR LOGS (20' O.C. MIN.) OR AS DIRECTED BY THE ENGINEER TO AVOID ANY DISPLACEMENT BY FLUCTUATING TIDES AND TO PROTECT COIR FROM MIGRATING ICE FLOWS DURING COLDER MONTHS.

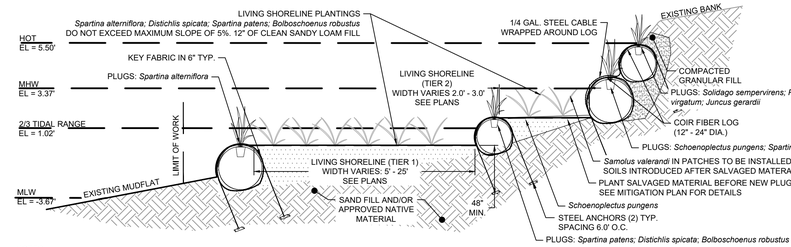


LIVING SHORELINE REINFORCEMENT DETAIL
NOT TO SCALE

NOTE:
ALL PLANTINGS TO BE APPROVED BY THE LANDSCAPE ARCHITECT.

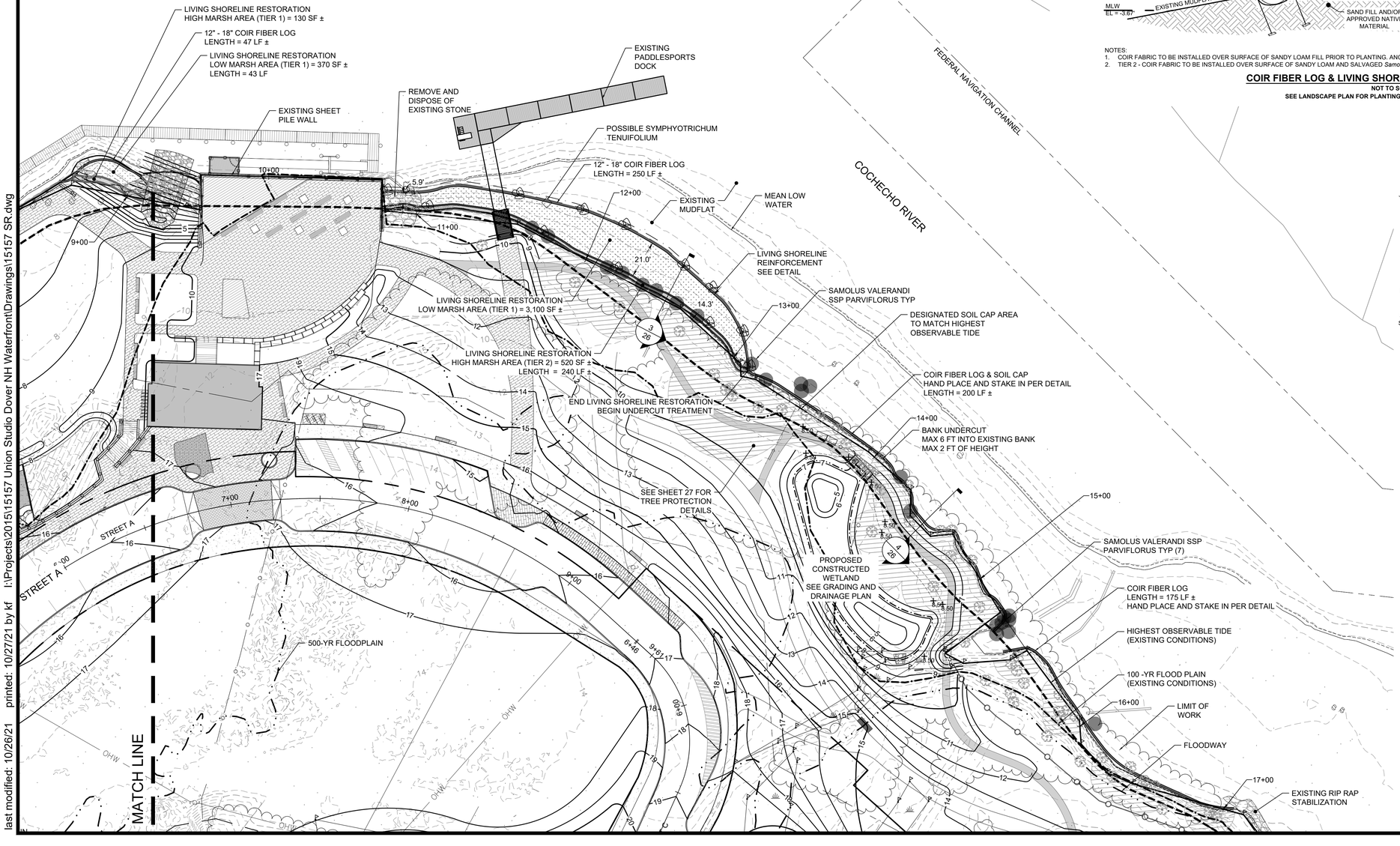


BANK UNDERCUT STABILIZATION TYPICAL DETAIL
NOT TO SCALE

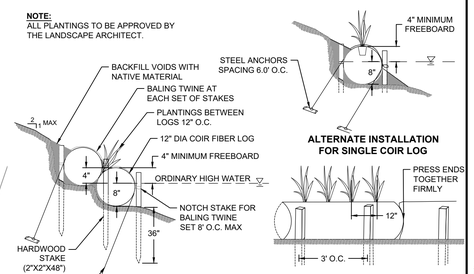


NOTES:
1. COIR FABRIC TO BE INSTALLED OVER SURFACE OF SANDY LOAM FILL PRIOR TO PLANTING. ANCHOR WITH STAKES IN GRID PATTERN AT 12" MINIMUM SPACING.
2. TIER 2 - COIR FABRIC TO BE INSTALLED OVER SURFACE OF SANDY LOAM AND SALVAGED *Samolus* PLANTS UNDER THE SUPERVISION AND DIRECTION OF THE ON-SITE STAFF.

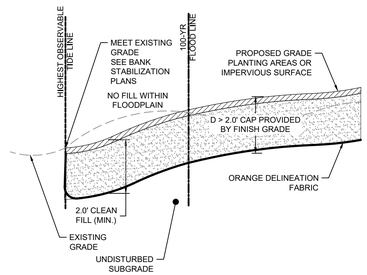
COIR FIBER LOG & LIVING SHORELINE STABILIZATION DETAIL
NOT TO SCALE
SEE LANDSCAPE PLAN FOR PLANTING DETAILS, SPACING, AND DETAILS



NOTE:
ALL PLANTINGS TO BE APPROVED BY THE LANDSCAPE ARCHITECT.



COIR FIBER LOG STABILIZATION DETAIL
NOT TO SCALE



SOIL CAP TYPICAL SECTION 2
NOT TO SCALE

PERMITTING SET
NOT FOR CONSTRUCTION

GRAPHIC SCALE
30 0 15 30 60 120
(in feet)
1 INCH = 30 FEET

Revisions

Rev.	Date	By	Appr.	Description

Horsley Witten Group, Inc.
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Checked By: RAG
Drawn By: CSS
Designed By: CSS
Date: JULY 2021

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Plan Set:

Plan Title: BANK STABILIZATION (2)

Prepared For:
City of Dover
288 Central Ave
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Survey Provided By:
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Fax: —
Dated: OCTOBER 19, 2016

Registration:

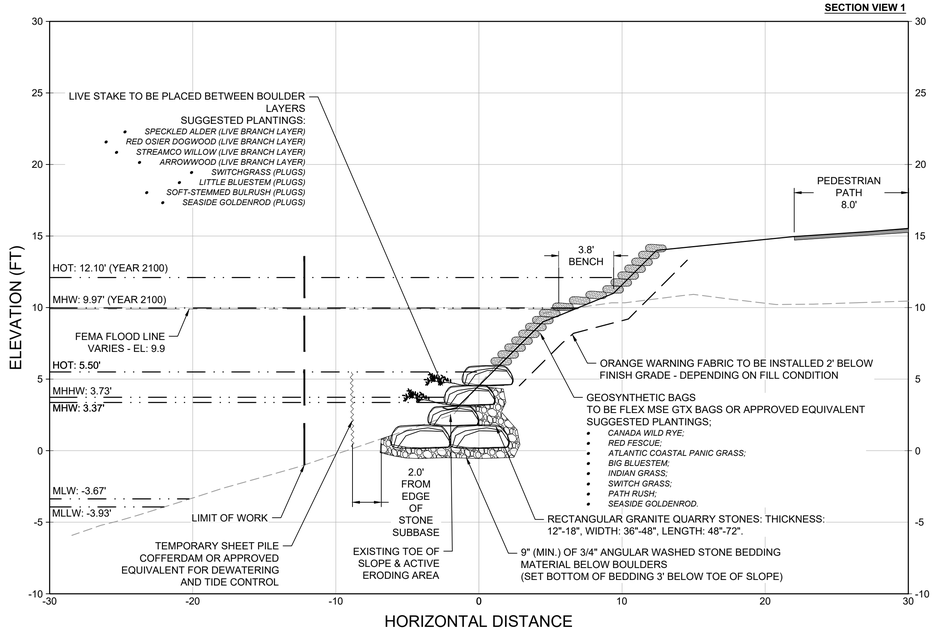
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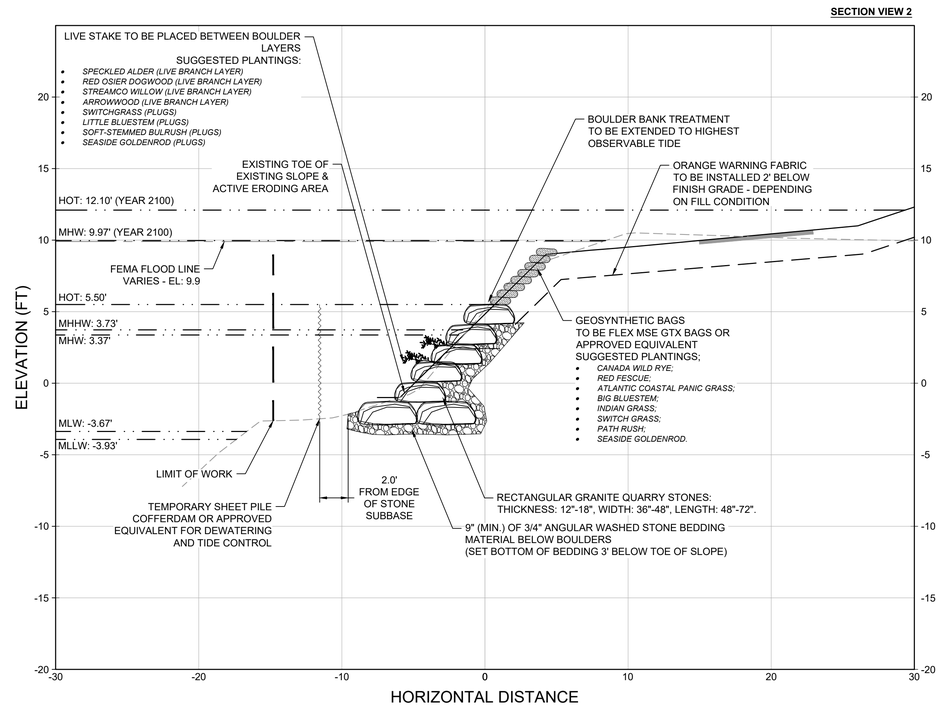
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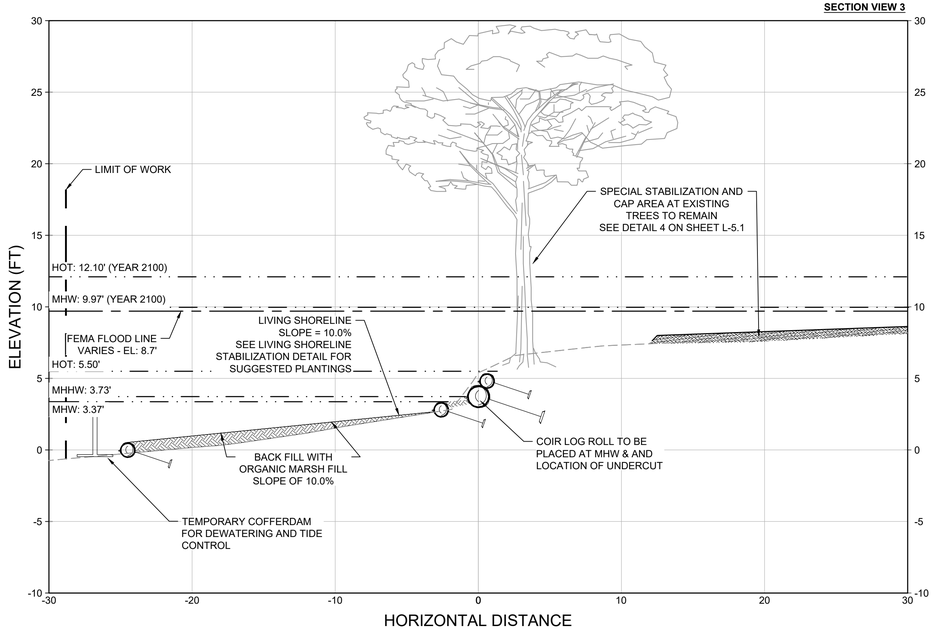
TOP OF BANK ALIGNMENT STA. 5+00.00
SCALE: 1" = 5'



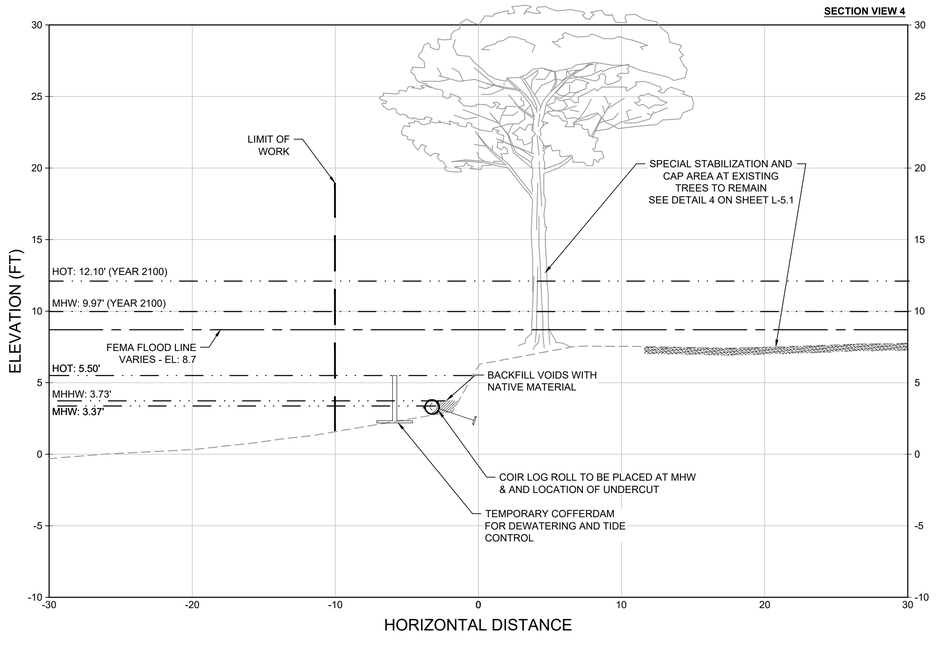
TOP OF BANK ALIGNMENT STA. 6+00.00
SCALE: 1" = 5'



TOP OF BANK ALIGNMENT STA. 12+50.00
SCALE: 1" = 5'



TOP OF BANK ALIGNMENT STA. 14+50.00
SCALE: 1" = 5'



Revisions

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Checked By: RB
Drawn By: GKS
Designed By: GKS
Date: APRIL 2019

DOVER WATERFRONT
75% PERMITTING PLANS
DOVER, NEW HAMPSHIRE

Plan Set:

Plan Title: BANK STABILIZATION CROSS SECTIONS

Prepared For:
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288 Central Ave
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Phone: (603) 516-6000
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Survey Provided By:
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Fax: —
Dated: OCTOBER 19, 2016

Registration:

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