



CITY OF DOVER

PLANNING TECHNICAL REVIEW COMMITTEE –AGENDA

Meeting Type: Regular Meeting
Meeting Location: Council Conference Room – City Hall, Dover NH
Meeting Date: **Thursday, June 2, 2022**
Meeting Time: **10:30 AM**

1. 10:30 AM – 11:15 AM: Site Review for Summit Land Development, (Owner: 7 West, LLC), Assessor's Map H, Lot 11, zoned Gateway, located at Durham Road, 250' north of Daley Drive. (Proposal is for construction of a 14,160 s.f. 3 story medical office building.) (Three CUP's will also appear before the Planning Board.) (P22-39)



*Civil
Site Planning
Environmental
Engineering*

133 Court Street
Portsmouth, NH
03801-4413

May11, 2022

City of Dover
Planning Board / Conservation Commission
288 Central Ave
Dover, NH 03820

**Re: Application for Site Plan Review and Conditional Use Permits
Durham Road, Dover
Tax Map H, Lot 11
Dover Project #22-38
P4952**

Dear Board and Commission Members,

On behalf of Summit Land Development, Altus Engineering, Inc. (Altus) is pleased to submit the attached Application for Site Plan Review to construct the proposed medical office building. The new medical building is depicted on parcel H-11 and at the intersection of Durham Road and Back River Road, with an additional entrance to the south-west along Durham Road. The project proposes to develop the land and construct a 14,160 square-foot 3 story office building that will provide medical offices and services for the residents of the City of Dover and surrounding area. The project also proposes the necessary parking, drainage structures, utilities, and intersection improvements that will be required for the proposed site construction.

Included in the application materials, please find the following: Five (8) copies of the full size plans and supporting materials if the **SITE PLAN APPLICATION** for the Technical Review Committee and fifteen (15) copies (1 full size plan set and 14 reduced size plan sets) of the **WETLANDS CONDITIONAL USE PERMIT APPLICATION** for the Conservation Commission.

Site Plan Application (8 copies)

1. Site Review Application and Checklists
2. Application Fees
3. Conditional Use Permit Applications
 - a. Wetlands
 - b. Parking
 - c. Gateway standards
4. Project Narrative
5. USGS Site Location Map
6. Soils
 - a. Site Specific Soils Survey Report
 - b. Site Specific Soils Survey Map

7. Aerial Photographs
8. FEMA Map
9. Traffic Assessment
10. Lighting cut sheets
11. Landscape Maintenance Plan
12. Drainage Report (3 full – 5 summaries)
 - a. Inspection and Maintenance Manual
13. Fire Engine Turning Exhibits
14. Site Plans (8 full size)

Wetlands Conditional Use Permit Application (15 copies)

1. Wetlands Conditional Use Permit Application
2. Project Narrative
3. USGS Site Location Map
4. Soils
 - a. Site Specific Soils Survey Report
 - b. Site Specific Soils Survey Map
5. Site Photographs
6. FEMA Map
7. Landscape Maintenance Plan
8. Drainage Report Summaries
 - a. Inspection and Maintenance Manual
9. Project Plans (Partial Set – 1 full size and 14 reduced)

We respectfully request to be placed on the next available agenda for both the Technical Review Committee and Conservation Commission to discuss this project. Please contact me directly if you have any questions or require any additional information.

Sincerely,

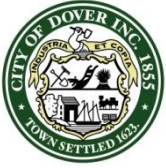
ALTUS ENGINEERING, INC.



Cory D. Belden, PE

ECopy:

Enclosure
Altus Prj: P4952



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: Summit Land Development Telephone # 603.749.2800

Address of Applicant: 340 Central Ave #202 Dover, New Hampshire

E-Mail Address: chad@summitlanddev.com

Name of Property Owner (if different from applicant): 7 West, LLC Telephone # 603.749.2800

Address of Property Owner: P.O. Box 728 Dover, NH 03821

PROPERTY INFORMATION

Address of Property: Durham Road Dover, New Hampshire

Assessor's Map # H Lot(s) # 11

Zoning District(s) G (Gateway) Overlay District(s) _____

Size of Parcel: 378,500 +/- sq. ft. 8.69 +/- ac. Property Deed: Book 4468 Page: 979

Existing Use of Property: Undeveloped

SITE PLAN INFORMATION

Describe Proposed Use: Medical office building and parking

Area of Parcel to be Developed: 214,000 SQ FT (4.9 ACRES) sq. ft.

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

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

Number of Parking Spaces: Existing 0 Proposed 210

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

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

Disposition of Parcel:

Building Setbacks:

Building Footprint 14,160 sq. ft.

Front Yard 145.9 ft.

Total Building Area 42,480 sq. ft.

Rear Yard 390.5 ft.

Paved Area 94,655 sq. ft.

Side Yard: Right 380 ft. Left 107 ft.

City Water? ☒ Yes ☐ No How far is city water from the property? 158.4'City Sewer? ☒ Yes ☐ No How far is city sewer from the property? 405'**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 INFORMATIONType of Building to be Built: Medical Office BuildingHeight of Building: 3 Stories Finished Floor Elevation: 68.0 basement
81.0 First Floor

Number of Seats (where applicable) _____

Estimated value of construction: NA Refuse removal: Public/Private (circle one)**WAIVER REQUESTS**Site Review Regulations section(s) to be waived: Section 152-14(A.3.b) - Stormwater management for new developmentJustification for waiver request(s) (*attach additional sheets as needed*):See attached Waiver Request

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) Kevin McEneaney-McEneaney Survey Ass
Address 24 Chestnut Street, Dover, NH 03820 Telephone #: 603-742-0911
Professional License #: NH License #661 E-mail address: msa@surveynh.com

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) Cory Belden - Altus Engineering
Address 133 Court St, Portsmouth, NH 03801 Telephone #: 603-433-2335
Professional License #: NH License #14239 E-mail address: cbelden@altus-eng.com

ARCHITECT INFORMATION

Name of Architect and Company (Licensed in N.H.) Market Square Architects
Address 104 Congress St, Portsmouth, NH 03801 Telephone #: 603-501-0202
cobrien@marketsquarearchitects.com
Professional License #: _____ E-mail address: _____

LANDSCAPE ARCHITECT INFORMATION

Name of Landscape Architect and Company (Licensed in N.H.) Jeffrey Hyland
Ironwood Design Group
Address 55 Main St #129, Newmarket, NH 03857 Telephone #: 603-772-0590
Professional License #: _____ E-mail address: jhyland@fewood.com

SOIL SCIENTIST INFORMATION

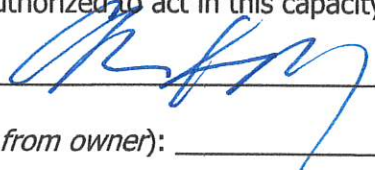
Name of Soil Scientist and Company (Licensed in N.H.) Bruce Gilday - BAG Land Consultants
Address 43 Rockingham St, Concord, NH 03301 Telephone #: 603-228-5775
Wetlands = #088
Professional License #: Soils = # 012 E-mail address: bagilday@comcast.net

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.

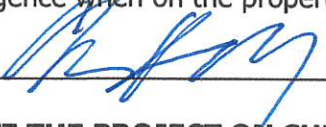
Signature of Property Owner:  Date: 5/11/22

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

Signature of Agent: _____ Date: _____

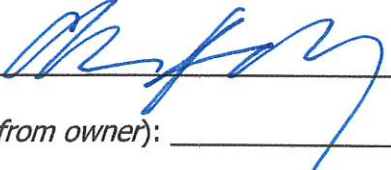
AUTHORIZATION TO ENTER SUBJECT PROPERTY

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: 5/11/22

AUTHORIZATION TO COMPLETE THE PROJECT ON SUBJECT PROPERTY

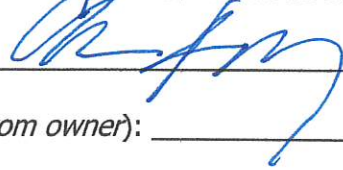
I, and my successors, hereby the City of Dover or its assigns to enter my property for the purpose of completing the site work as required by the approved plan should the letter or credit or other surety be called. It is understood that these individuals must use all reasonable care, courtesy, and diligence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

Signature of Property Owner:  Date: 5/11/22

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: 5/11/22

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

***CITY OF DOVER SITE REVIEW
LIST OF ABUTTERS***

Pursuant to RSA 676:4, the State Law of New Hampshire, the City of Dover is required to notify the applicant, abutters (including holders of conservation easements), and any professional whose seal is on the plan, of the public hearing by certified mail, return receipt requested. Staff will provide the abutter information, while the applicant must provide accurate contact information for the owner, applicant and professional agents representing the project.

Owner:

TAX MAP	LOT #	PROPERTY OWNER	MAILING ADDRESS

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

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)
 - ☐ New construction \$.15 sq. ft. x # 42,480 sq. ft. = \$ 6,372
 - ☐ Additions (new floor space) \$.10 per sq. ft. x # _____ sq. ft. = \$ _____
- ☐ MOTEL/HOTEL \$35.00 x # _____ per lodging unit = \$ _____
- ☐ CHANGE OF USE Application fee \$200.00 + (not to exceed \$5,000)
 - ☐ Existing floor spaces \$.10 per sq. ft. x # _____ sq. ft. = \$ _____
- ☒ CONDITIONAL USE PERMIT Application fee \$200.00 x # 3 per Application = \$ 600
- ☐ GRAVEL PIT/ EXCAVATIONS
 - ☐ Application fee \$50.00 = \$ _____
 - ☐ 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 # 112,500 sq. ft. = \$ 8,075

SUBTOTAL PLAN REVIEW FEE (A) = \$ 15,047

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
 - ☐ Certified letters fee # 6 of x \$8.00 = \$ 48
- ☐ Certified letters fee: # of abutters 8 X \$8.00 = \$ 64
- ☐ 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 2 x \$10.00 = \$ 20

C. Foster's newspaper public notice fee \$100.00 x # 1 applications = \$ 100

SUBTOTAL NOTICE FEE (B & C) = \$ 232

TOTAL INVOICE AMOUNT (A, B & C) = \$ 15,279

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: Summit Land Development File Number: 22-38

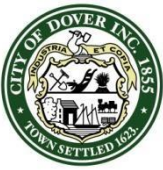
PROJECT TITLE: 7 West Commercial Development

PROPERTY LOCATION: Durham Road Tax Map: H Lot: 11

	Where/How Provided	Reviewed
1. Completed and signed Application form	Application complete and signed	
2. Plan Review Fees are provided	Confirmed receipt by City	
3. Electronic copy of the engineered/surveyed plan layout	CAD file to be provided upon approval	
4. Electronic copy of supplementary materials and application	Electronic Copy of full application	
5. Traffic Impact Assessment and Analysis (Standard or Advanced)	Traffic Memo Provided	
6. Waiver requests to the Site Plan Review Regulations, with written justification	Waivers Request provided	
7. Conditional Use Permit applications	Three CUP Applications	
8. A colored rendering of the streetscape that will be created along the existing public right-of-way	Colored renderings of Building provided	
9. A colored architectural plan showing all sides of buildings	Color elevations provided	
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:		
Location map at appropriate scale	Cover sheet	
Proposed Project name and title and Planning File #	Cover sheet / title block	
Date, north arrow and scale	Site Plans	
Names of all abutting property owners	Existing Conditions Plan	
Name and address of owners and/or applicants	Cover Sht / Title Block	
Signature & stamp of NH licensed land surveyor and/or engineer	Existing Conditions Plan	
Zoning District boundaries, including any special or overlay districts	Neighborhood Plan	
Location of Conservation District areas	Site Plan / CUP Plan	
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	Site Plan	
Location and widths of existing & proposed easements & right of ways	Existing Conditions Plan / Site Plan	
Location and width of existing and proposed access/egress ways	Existing Conditions Plan/Site Plan	

	Explain How Provided	Reviewed
Depict pedestrian walkways and accessible access	Site Plan	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	Existing Conditions Plan	
Existing and proposed topographic information at two foot intervals	Existing Conditions Plan/Grading Plan	
Existing and proposed buildings and structure locations	Site Plan	
Minimum building setbacks or build to lines on all lots	General Notes / Site Plan	
Location and size of existing and proposed electric, telephone, gas cable and other underground utilities	Utilities Plan	
Existing and proposed water lines and fire hydrants, including materials and capacity needed	Utilities Plan	
Location and materials of sanitary sewage facilities within project site and projected additional peak hour sewer load	Utilities Plan	
Existing and proposed stormwater lines and facilities	Grading and Drainage Plan	
Lighting plan depicting all existing and proposed exterior light fixtures and a lighting level analysis for parking lots	Lighting Plan	
Location of Flood Hazard Zone	Existing Conditions Plan / Site Plan	
Location of all bodies of water and watercourses	Site Plan (Bellamy River)	
Location of wetlands and buffers	Site Plan / CUP Plan	
Neighborhood plan with aerial underlay showing how project relates to abutting uses within the plan set	Neighborhood Plan	
Existing natural features and/or significant vegetation on property	Existing Conditions Plan	
Depict existing contours up to 100 ft. beyond project limits	Existing Conditions Plan	
Landscape plan depicting existing and proposed landscaping, prepared by a licensed Professional Landscape Architect	Landscape Plan (L-1)	
Location of parking layout delineating spaces and arrangement; note addressing maximum required spaces	Site Plan / General Notes (GN-1)	
Location, material and size of existing and proposed pavement area	Site Plan	
Location of proposed fire lanes	Site Plan / Fire Truck Turning Plan	
Specify finished floor elevations of buildings	Grading and Drainage Plan	
Location of solid waste disposal facilities (dumpster, pad and screening, etc.), including required screening	Site Plan	
Depict all service, storage, loading bays and utility areas	Utility Plan	
All applicable Dover Common Site Plan notes	General Notes (GN-1)	
11. Additional Information if appropriate		
Stormwater Management Plan depicting the existing & proposed storm drainage system and engineered drainage analysis	Grading and Drainage Plan / Drainage Report	
Stormwater Management System Operation and Maintenance Plan	Stormwater I & M Manual	
Letter to Serve from Public and Private Utilities	Contact W/Unitil & Eversource	
Erosion and Sedimentation Control Plan	Plan Sheet C-3	
Landscape Operation and Maintenance Plan	Landscape I & M Plan	
Proposed restrictive covenants or homeowners association documents	N/A	
Dates and permit numbers of all required state and federal permits	General Notes (GN-1)	
If wetland buffer, indicate placards locations, as applicable	CUP Plan	
Depict test boring locations, groundwater elevations and soil profiles and/or soils types call-outs	Site Specific Soils Plan & Soils Report	
Location of proposed drive-in facilities	N/A	
Provide additional exhibits/technical data determined appropriate by the Planning Board or its staff as required	See Attachments	

REVIEWED BY: _____ DATE _____ TRC DATE _____



City of Dover, New Hampshire

CONDITIONAL USE PERMIT APPLICATION

[Revision Date: October 19, 2020]

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

APPLICANT AND OWNER INFORMATION

Name of Applicant: Summit Land Development Telephone # (603) 749-2800

Address of Applicant: 340 Central Avenue, Ste 202 Dover, NH 03820

E-Mail Address: chad@summitlanddev.com

Name of Property Owner (if different from applicant): 7 West, LLC Telephone # (603) 749-2800

Address of Property Owner: P.O. BOX 728, Dover, NH 03821

PROPERTY INFORMATION

Assessor's Map # H Lot(s) # 11

Address of Property: 15 Durham Road, Dover, NH 03820

Zoning District(s) G (Gateway) Overlay District(s) _____

Existing Use of Property: Vacant

CONDITIONAL USE PERMIT INFORMATION

Type of Conditional Use Permit (Check All That Apply):

- | | | |
|---|--|--|
| ☐ Conservation District | ☐ RCM Use Overlay District | ☒ Gateway District |
| ☐ Groundwater Protection | ☒ Off-Street Parking and Loading | ☐ Alternative Treatment Center |
| ☒ Wetland Protection District | ☐ Central Business District | ☐ Heritage Residential District |

Describe Proposed Use or Activity That Requires Conditional Use Permit and Describe Any Impacts:

The proposed project will construct a commercial medical office building and associated improvements.

The project will impact approximately 18,750 square feet within the 50 foot wetlands buffer area to construct a new roadway through the site that will become a City road and is intended to relieve traffic on Durham Road by serving the Elementary and High School. A CUP is also requested from the Gateway Zoning District Architectural and Dimensional Standards.. The proposed medical office building has a higher parking demand than a standard office/service building and 210 parking spaces are proposed.

List Any Associated State or Federal Permits That Have Been or Will Be Applied For and Indicate Their Status: _____

1. NHDES Alteration of Terrain Permit - Pending Application

2. NHDES Shoreland Permit - Pending Application

3. NHDES Sewer Connection Permit

4. USEPA - General Construction Permit

Name of Professional That Prepared Plans: _____ Cory D. Belden, PE (Altus Engineering)

Address _____ 133 Court Street, Portsmouth, NH 03801 Telephone #: _____ 603-433-2335

Professional License #: _____ NH license #14239 E-mail address: _____ cbelden@altus-eng.com

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. 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: _____

CITY OF DOVER CONDITIONAL USE LIST OF ABUTTERS

Pursuant to RSA 676:4, the State Law of New Hampshire, the City of Dover is required to notify the applicant, abutters (including holders of conservation easements), and any professional whose seal is on the plan, of the public hearing by certified mail, return receipt requested. Staff will provide the abutter information, while the applicant must provide accurate contact information for the owner, applicant and professional agents representing the project.

Owner:

TAX MAP	LOT #	PROPERTY OWNER	MAILING ADDRESS

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

PLANNING BOARD FEE SCHEDULE/INVOICE

(Revised July 1, 2021)

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- ☐ 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)
 - ☐ New construction \$.15 sq. ft. x # _____ sq. ft. = \$ _____
 - ☐ Additions (new floor space) \$.10 per sq. ft. x # _____ sq. ft. = \$ _____
- ☐ MOTEL/HOTEL \$35.00 x # _____ per lodging unit = \$ _____
- ☐ CHANGE OF USE Application fee \$200.00 + (not to exceed \$5,000)
 - ☐ Existing floor spaces \$.10 per sq. ft. x # _____ sq. ft. = \$ _____
- ☐ CONDITIONAL USE PERMIT Application fee \$200.00 x # _____ per Application = \$ _____
- ☐ GRAVEL PIT/ EXCAVATIONS
 - ☐ Application fee \$50.00 = \$ _____
 - ☐ 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. = \$ _____

SUBTOTAL PLAN REVIEW FEE (A) = \$ _____

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
 - ☐ 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.



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133 Court Street
Portsmouth, NH
03801-4413

Conditional Use Permit: Section 170-27.1 Wetlands Protection District

7 West Commercial Development
Durham Road, Dover, NH
Tax Map H, Lot 11

From: Cory Belden, PE, Altus Engineering, Inc.
Date: May 6, 2022

The applicant requests a conditional use permit from Section 170-27.1 (Wetlands Protection District) of the Dover Zoning regulations. The proposed site is located adjacent to the old Sawyer Mill Pond, along the Bellamy River. In 2020, the Sawyer Mill Dam was removed and the water no longer ponds in the project area. Wetlands delineation and a site specific soils survey were conducted by BAG Land Services to identify the limits of the existing wetlands and flagging was surveyed by McEneaney Survey Associates during the field survey.

The proposed project proposes to construct a new access road from the Back River Road / Durham Road intersection that will traverse through the site and provide a future connection to the Dover Elementary and High Schools, alleviating some of the traffic congestion on Durham Road. There will be no direct impacts to wetlands. The construction of this roadway will impact approximately 18,750 square feet of area within the wetlands buffer with the roadway generally following the existing contours. Approximately 17,500 sq ft of the impacts are on the propose parcel H, Lot 11 while approximately 1,250 sq ft are located on the City owner parcel at the corner of Back River Road. The impacts are mainly fill slopes as the roadway has been located primarily outside of the buffer area.

WETLAND IMPACT TABLE

	<u>DIRECT IMPACTS</u>	<u>BUFFER IMPACTS</u>
Lot H-11	0	17,500 SF
City of Dover Property	0	1,250 sf
	TOTAL 0 SF	18,750 SF

Stormwater treatment has been provided for all of the impervious roadway surfaces for the project site and a Drainage Report prepared. All new impervious areas for the site will be treated through raingardens or infiltration systems prior to discharging to the Bellamy River. NHDES Alteration of Terrain and Shoreland Permits will be requires for the proposed site improvements.

Attachments:

1. Partial Plan Set - Conditional Use Permit Plan (CUP-1)
2. Drainage Summary



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133 Court Street
Portsmouth, NH
03801-4413

Conditional Use Permit: Section 153-4D Parking

7 West Commercial Development
Durham Road, Dover, NH
Tax Map H, Lot 11

From: Cory Belden, PE, Altus Engineering, Inc.

Date: May 5, 2022

The applicant requests a conditional use permit from Section 153-14.D of the Site Plan Parking regulations. The Parking Regulation Table below indicates allowable maximum parking spaces of 1 vehicle per 300 GAL and 275 GLA for office and service uses respectively. The proposed building is a medical office / clinic, which does not correspond to the limited uses shown.

Parking Regulation Table					
Columns are cumulative, not exclusive.¹					
Maximum Number of Vehicle Parking Spaces					
Use*	Per Unit	Per Seats	Per Employee on Maximum Shift	Per Square Footage (GLA)²	Notes
Residential ³ (non-CBD-G)	1.4				+ 0.5 visitor space/unit
Residential ³ (CBD-G)	1.25				+ 0.4 visitor space/unit
Educational ⁴		0.3	1		
Gathering place ⁵		0.5	1		
Industrial/manufacturing ⁶				800	
Lodging ⁷	1		1		+ 1/500 of common area
Medical ⁸	0.5		1		Unit = bed or exam room
Office ⁹				300	
Retail/service ^{10, 11}				275	

Based on a “service” use as shown in the table, approximately 155 parking spaces would be allowed for the propose 42,480 square foot medical office clinic. The Institute of Transportation Engineers (ITE) Parking Generation Manual indicates that the average parking demand for a Medical-Dental Office Building (Land Use 72) is 1 space per 232 sf GLA (4.3 spaces/1,000 sf) and the average for a Clinic (Land Use 630) is 1 space per 188 sf GLA (5.3 spaces / 1,000 sf). These numbers are consistent with what is requested from the developer based on other similar projects

Dover parking regulations state:

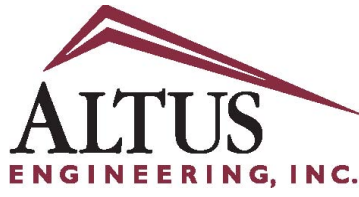
In Dover, parking is based less on the direct land use and more on the intensity and turnover rate of the use. Efforts are made to understand that not all businesses are alike and that one commercial use may differ widely from a neighboring one, even if considered the same use. Turnover rate and intensity of use are more important to the provision of parking spaces. High turnover and high-intensity use, such as retail, require fewer spaces than a use which has a low turnover and a low intensity, such as an assembly hall or gathering place. This concept and the table below will guide the Director of Planning and Community Development in determining the minimum and maximum number of spaces required for a project. Applicants shall meet with staff and review plans prior to submission to determine parking needs.

This statement implies that there is flexibility in the parking requirements and that there are minimum and maximum allotments for parking, but the regulations only read to a maximum number of spaces allowed, with additional requirements for any number of spaces over, irrespective of the use.

The two most similar land uses would allow 183 and 225 parking spaces base on the ITE parking generation manual. The proposed 210 parking spaces is consistent with these numbers. Due to the location of the site, it is desirable to provide for all required parking on-site and prevent overflow parking from extending onto the surrounding surface streets, such as Durham Road and the new site access road, if inadequate parking is available on-site. The propose 210 parking spaces is consistent with the intended use and will provide the necessary on-site parking to serve the site.

Attachments:

1. ITE Parking Generation Manual, 5th Edition – Land Use: 630 Clinic
2. ITE Parking Generation Manual, 5th Edition – Land Use: 720 Medical-Dental Office Building



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133 Court Street
Portsmouth, NH
03801-4413

Conditional Use Permit: Section 170-20B Gateway Zoning District

7 West Commercial Development
Durham Road, Dover, NH
Tax Map H, Lot 11

From: Cory Belden, PE, Altus Engineering, Inc.

Date: May 6, 2022

The applicant requests a conditional use permit from Section 170-20B of the Dover Zoning regulations. The Gateway District was established to provide a transition area from the less developed areas of the City to the central Business District. As shown on the Neighborhood Site Plan, the proposed lot is surrounded by R-40, R-12, and RM-SU districts. The proposed development is to construct a medical office building on the site with associated improvements. The site has existing ground elevations around elevation 80.0 in the southwest portion of the site and it drains to the Bellamy River to the northeast at an elevation around 45.0. Steep grades and ledge are site design considerations. In addition, the development proposes to construct a new access road from the Back River Road / Durham Road intersection that will traverse through the site and provide a future connection to the Dover Elementary and High Schools, alleviating some of the traffic congestion on Durham Road.

The following adjustments are proposed to the Gateways District Standards as part of the Conditional Use Permit application:

1. **Permitted Uses** – The proposed development is to construct a medical office building that will provide medical services to patients in the Dover and surrounding area. This use is not listed as a permitted use in the zoning Use Table for the district and is requested to be amended to allow this use.
2. **Dimensional Regulations** – The Gateway District dimensional regulations require a 5 foot minimum to 20 foot maximum build to line and 60% minimum buildout for the site. The proposed building is set back from the property line by approximately 146 feet. The primary reason for the setback is the presence of ledge on site and the steep grades to the north. To account for the grading, a lower “walk-out” basement level is proposed that will allow a thirteen foot lower entrance to the north. This also minimized the amount of ledge removal required for the project. Due to the lower basement level, only two of the three stories will be visible from the Durham Road level which will reduce the scale of the building. The building is also 146 feet in length, which is approximately 38% of the future lot frontage. Because the building is offset from the road, the intent of the build-out requirement does not appear to be relevant, as it is primarily intended for the pedestrian use along the frontage roadway,

3. **Architectural Standards** – The architectural standards for the Gateway Zoning District only identify Residential and Mixed-Use Residential building requirements. Section 170-20 of the Central Business District Regulations provide additional architectural standards. The applicant has provided building floor plans, elevations (color), and a rendering of the proposed building for review. Additional architectural review of the building may be completed upon request.

The applicant respectfully requests the Gateway District regulations be amended as described in this Conditional Use Permit application and as presented on the project site and building plans.

Attachments:

1. Gateway District – City of Dover Zoning Summary Sheets

Gateway District

The information included in this table represents the requirements for development in this district; see Section 170-20 for additional requirements (Adopted 12/9/2009 per O-2009.09.09-15).



STATEMENT OF PURPOSE

A gateway is an area that marks a transition point where you move from one existing condition to another. In terms of land use, Gateways generally indicate transition points from a less developed area (the highway, the rural landscape, etc.) to a more formal, densely developed urban core (multi-story buildings, civic buildings, etc.). In Dover the primary Gateways (Central Avenue north and south of the downtown core, Broadway, and Portland Avenue) are generally dominated by commercial activity, with buildings of a lower height than those located downtown. Some residual residential activity occurs occasionally as stand-alone buildings, but frequently residential activity is located above ground floor commercial uses. A modest distance between the building and the street exists, with a fair amount of landscaping.

DIMENSIONAL REGULATIONS*

Principal Building	
Lot Size	N/A
Lot Coverage	50%
Frontage Build-Out	60% min.
Front Primary BUILD TO LINE	5 ft. min - 20 ft. max
Front Secondary BUILD TO LINE	5 ft. min - 20 ft. max
Side Setback	10 ft. min
Rear Setback	15 ft. min
Outbuilding	
Front Setback	20 ft. min + bldg. setback
Side Setback	10 ft. min
Rear Setback	15 ft. min
Private Frontages	
Common Yard	Permitted
Porch and Fence	Permitted
Terrace/Lightwell	Permitted
Stoop	Permitted
Shopfront/Awning	Permitted
Gallery	Not permitted
Height of Building	
Principal Building	4 story max, 2 story min #
Outbuilding/Accessory	2 story max

*CUP (170-20B) may be used to adjust standards.

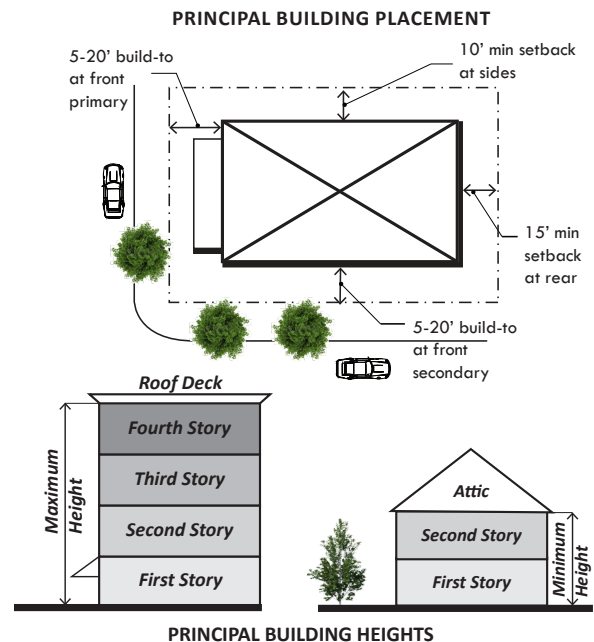
PARKING LOCATION STANDARDS (SEE 153-14)

New construction resulting in additional square footage or an increase in residential units must comply with parking standards for the new portion of the building only.

PERMITTED USES*

Use	
Residential	Permitted; density: 4,000 sf. per unit**
Lodging	Permitted, up to 12 rooms. Must be 150' from residential. 13 or more rooms are permitted with CUP.
Daycare	Adult and child permitted. Institutional not permitted.
Professional Services & Offices	Permitted #
Eating & Drinking Establishments	Permitted #
Retail/Personal Services	Permitted #
Industrial	Permitted on Broadway via CUP
Civic	Permitted
Drive-Thru Services	Not Permitted
Other	Via Conditional Use Permit

*CUP (170-20B) may be used to adjust standards.



SIGN REGULATIONS

Sign Size & Quantity	
Total signs permitted	2
Total area of all signs	24 sf
Sign Type	
Freestanding	Permitted- 16 ft. max ht.
Projecting	Permitted- 10 ft. min. above sidewalk, 25 ft. max height, 24 sq. ft. max.
Wall/Awning	Permitted
Temporary	Permitted per- 170-32.Q (1)

ARCHITECTURAL STANDARDS*

Preserving and enhancing the architectural tradition, history, and visual appeal of the Central Business District is integral to maintaining the character and identity of our community. Buildings designs and materials should enhance the appearance of Dover, reinforce pedestrian character where appropriate, reflect a consistency found within the sub-district, neighboring buildings, and natural and cultural resources. Building design should also minimize potential aesthetic conflicts between residential and nonresidential uses and between single family and multifamily uses. Architectural Standards are not intended to stifle creativity or variety, but produce designs respectful of place and context. **For more information, please see Section 2 of Dover's CBD Architectural Design Guidelines.**

The following **Architectural Standards** must apply for a residential building with 5 units or more and all mixed use/non-residential uses. Applicants will also be expected to prepare a narrative explaining how the project meets all of the architectural standards.

Required Ground Floor Standards:

- No less than 30% of the façade shall be windows.
- A pedestrian entrance shall be required at the street side or front façade.
- Residential uses permitted.
- The use of ground floor exterior lighting on the building should offer a feeling of warm security and increase safety to pedestrians without being overwhelming.

Required Building Standards:

- Building designs shall be harmonious with neighboring structures in terms of mass, width, height, proportion, spacing, and setback.
- All exterior walls that front on a public way with adjacent pedestrian traffic/infrastructure must incorporate wood, brick, stone or a suitable contemporary material appropriately detailed within the first 20 vertical feet.
- Large structures shall be broken into smaller masses to provide human scale, variation, and depth.
- The design of the building shall incorporate views that are directed to the street and garden/courtyard rather than adjacent neighbors.
- Buildings shall be placed at or near the street, along the outer edge of their sites, to ensure the unity of those streets and to encourage and facilitate pedestrian activity.
- Building design shall enhance the pedestrian environment and streetscape.
- Utility elements shall be screened in an aesthetically pleasing manner.
- Use of architectural details and changes in depth are included on building elevations to increase visual interest and scale.
- Garages shall not face the street.
- Solar/Green Roof Standard:
 - All buildings must be solar ready
 - Commercial and mixed use buildings that are 25,000 sq ft or more must also incorporate solar panels and a green roof on at least 30 percent of the roof area.

Optional Standards:

- Use of elements that accentuate and/or provide coverage at the entry such as canopy, porch, recessed entry, etc. are encouraged.
- Ornamental roof features that exceed the allowed building height are subject to the CUP process.
- Energy efficient design techniques, LEED standards, or an equivalent standard are encouraged.
- Other integrated green infrastructure elements are encouraged.
- Approved public art is encouraged.

**CUP (170-20B) may be used to adjust standards.*

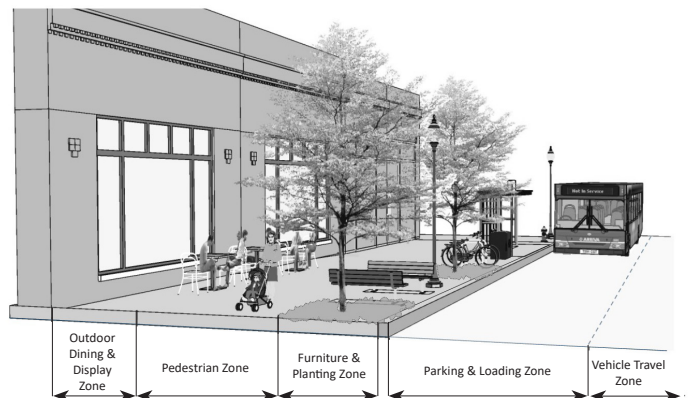
STREETSCAPE STANDARDS

Streetscape standards were crafted to ensure streets in mixed use areas of the CBD have a relationship with adjacent buildings, accommodate pedestrians and bicyclists, and are compatible with the character of Dover's neighborhoods. All street elements must be consistent with Dover Streetscape and Landscape Standards. **For more information on streetscape standards, please see Section 3 of Dover's CBD Architectural Design Guidelines.**

- Sidewalks shall be brick and a minimum of 5 feet wide.
- Street trees shall be planted at an average spacing of 25 to 30 feet on center. Planting method shall allow for maximum root zone space where possible. Existing healthy street trees shall be protected, if possible.
- Unpaved ground area along the frontage shall be planted with appropriate groundcover or shrubs, no bare ground permitted. Low Impact Development techniques such as rain gardens, bioretention areas, tree boxes and other green infrastructure techniques shall be incorporated into these landscaped areas and maintained to ensure 5' wide walkway.
- Projects shall be designed to maintain and enhance, the quality of vehicular, bicycle and pedestrian circulation and safety on affected public streets.
- Street furniture shall be provided as follows:
 - 1 bench for every 75 feet of frontage.
 - At least 1 waste bin at each block corner.
 - 1 bike rack per non-residential project.
- Lighting and mechanical equipment standards per 170-20(E)(3)(d).

**CUP (170-20B) may be used to adjust standards.*

STREETSCAPE ELEMENTS



**** Density:** 3,000 sf. per unit if part of a mixed-use building with 35 percent nonresidential uses. 2,000 sf. per unit if rents conform to HUD fair market rent rates for Dover, as published by the New Hampshire Housing Finance Authority.

Rooming houses and manufactured homes are considered other uses.

On Dover Point Road and within 300 feet of the center line of New Rochester Road:

- Building Height is limited to 2 Stories
- Residential is limited to Single Family and Two Family Dwelling units
- Professional Service & Office, Eating and Drinking Establishments and Retail/Personal Services are limited to 2,000 sf per unit



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133 Court Street
Portsmouth, NH
03801-4413

WAIVER REQUEST

**7 West Commercial Development
Dover, NH
Tax Map H, Lot 11**

May 6, 2022

Section 152-14(A.3.b) - Stormwater management for new development

The proposed project will construct a new three story medical office building, approximately 14,480 gross square feet. The new paved surfaces (roadways and parking) will be constructed to provide 210 surface parking stalls, driveway aisles, and a new roadway connection to Back River Road. The stormwater management system proposed for the site includes deep sump catch basins, two new raingardens, and a sub-surface chamber system.

The Drainage Modelling Summary table below illustrates that the peak flows are managed for the 2-yr-24 hr storm event per Env-Wq 1507.05. Per NHDES Env-Wq 1507.06, this project is exempt from the reduction of the peak flows for the 10 and 50 year 24-hour storm events because it is draining to a fourth order waterbody (the Bellamy River) if it does not increase the peak flow of the on-site and off-site flows directly downstream of the site.

Stormwater Modeling Summary
Peak Q (cfs) for Type III 24-Hour Storm Events

	2-Yr Storm (3.62 inch)	10-Yr Storm (5.46inch)	25-Yr Storm (6.91 inch)	50-Yr Storm (8.26 inch)
POA #1				
Pre	5.25	13.36	20.68	27.91
Post	5.09	16.02	23.78	30.35
Net Change	-0.16	+2.66	+3.10	+2.44

Note: Includes 15% increase for NH Seacoast communities, per NHDES guidelines.

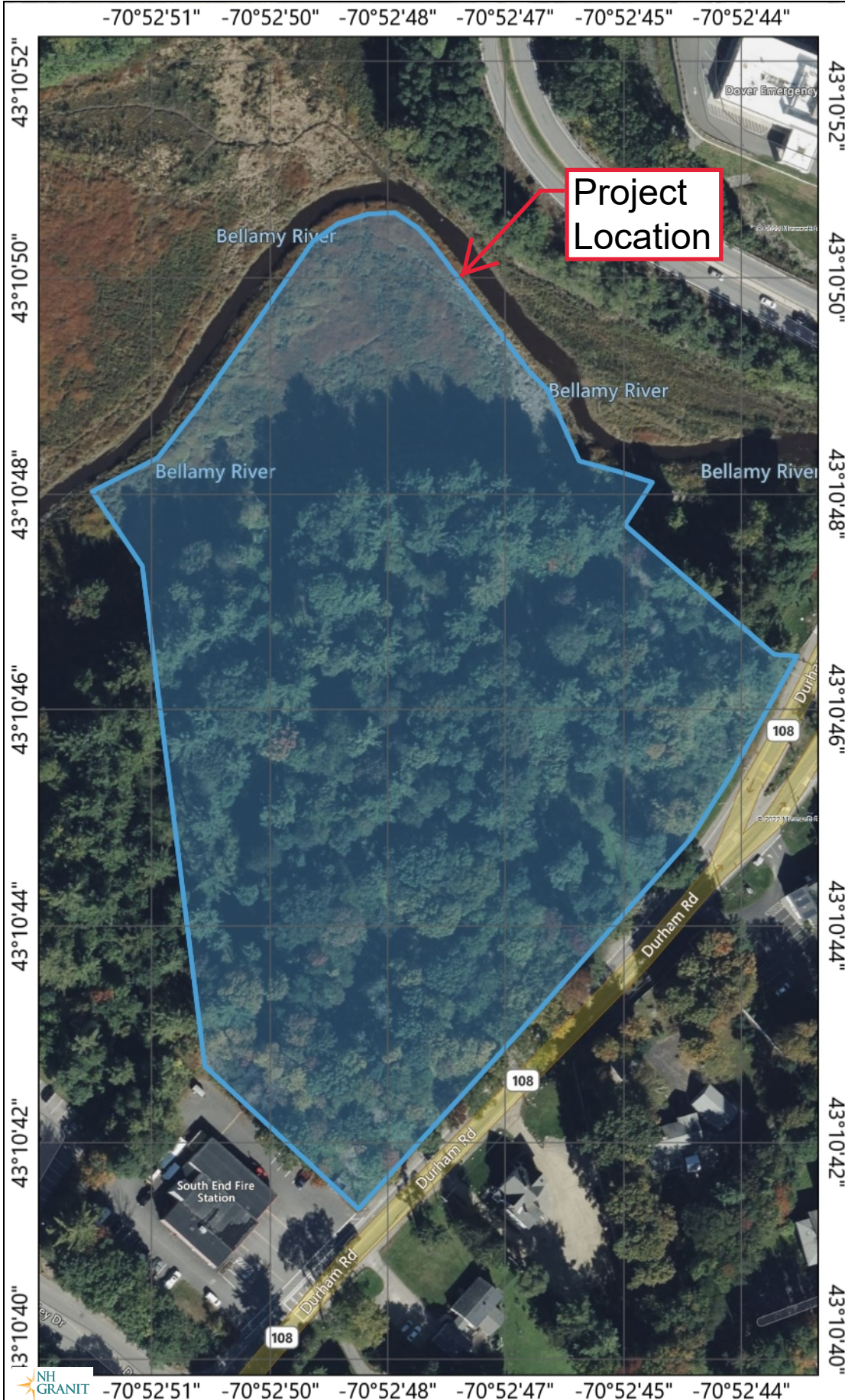
The StreamStat program was used to analyze the off-site flows and a report is included in the appendix. The point on the Bellamy River just upstream of the Durham Road crossing was used for the analysis. The upstream watershed area contributing to this point is 27.2 square miles (17,408 acres) and the peak flow rates in the river at this location are as shown below:

<u>Storm Event</u>	<u>Peak Flow</u>
10 year	725 cfs
25 year	944 cfs
50 year	1120 cfs

The proposed site existing conditions indicate a pre-development peak rate for the 10-year storm of 13.36 cfs and a post-development peak runoff rate of 16.02 for an increase of 2.66 cfs. The 25-year storm indicates a pre-development peak of 20.68 cfs and a post-development peak of 23.78 cfs, while the 50-year storm has pre and post-development runoff rates of 27.91 cfs and 30.35 cfs for an increase of 2.44 cfs. The on-site watershed is approximately 9 acres, which is approximately 0.05% of the total watershed area. Additionally, the on-site flows are at the lower end of the watershed, so the peak flow of the overall watershed will be at a much later time. Therefore, the proposed on-site improvements will not impact the overall peak flows for the watershed, including off-site flows downstream from site.

Utilizing the upstream watershed of the Bellamy River of 27.2 square miles (17,408) acres, the weighted C value was estimated to be 68 based on the predominant wooded areas. Without considering the on-site retention from the proposed stormwater management facilities, increasing 2.5 acres of the watershed to impervious would increase the overall C value from 68.0 to 68.004. This increase would be negligible to the watershed. As noted above, the proposed watershed peak would be much earlier than the 27.2 miles watershed area and not impact the overall peak flow of the Bellamy River.

7 West Commercial Development



Legend

- State
- County
- City/Town

Map Scale

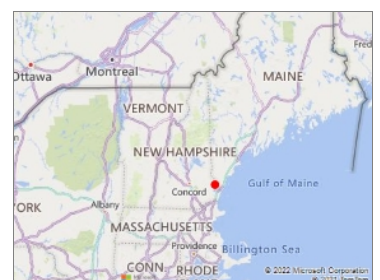
1: 1,624

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Map Generated: 4/12/2022



Notes



PROJECT DESCRIPTION

7 West Commercial Development Dover, NH 03820 (Tax Map H, Lot 11)

Overview

The Applicant, Summit Land Development, is proposing to construct a new commercial development on Durham Road in Dover, NH located on Tax Map H, Lot 11. The proposed development is for a medical office building which will be three stories and approximately 14,480 square feet (14,160 sq ft per floor). The existing lot is approximately 8.7 acres in size and abuts the Dover Fire Station and Elementary School to the west, the Bellamy River to the North, and the Spaulding Turnpike (Exit 7) ramps to the east. The project will construct a new roadway connection to the existing signalized intersection at Back River Road. The new roadway will become a City road and serve to reduce traffic on Durham Road by providing an alternate route to the Elementary School. The site will provide adequate on-site parking to meet the needs of the proposed use, as well as associated walkways, utilities, and storm drainage. The proposed site has been designed with a stormwater treatment system that consists of deep sump catch basins, raingardens, and a sub-surface chamber system. The project will require both NHDES Alteration of Terrain and Shoreland Permit approvals.

Existing Site Conditions / Surveys

The existing site conditions reflect the current conditions of the site, as depicted on the Existing Conditions Plan, prepared by McEneaney Survey Associates (MSA). The existing site is primarily an undeveloped wooded lot and discharges to the Bellamy River to the east by surface runoff. The Sawyer Mill Dam, located on the Bellamy River, just downstream from the project site, was removed in 2020. However, there has not yet been a Letter of Map Revision (LOMR) to adjust the FEMA Flood elevations in the project area. It is understood that Vanesse Hangen Brustlin, Inc. (VHB), who were the engineers for the dam removal project, are working with the State of NH to complete the LOMR.

BAG Land Services performed a Site Specific Soil Survey documenting the on-site soils and hydrologic soil conditions. BAG also flagged the wetlands and Bellamy River reference line, which were surveyed by MSA for accurate locations.

Site Layout and Parking

The attached project plans illustrate the proposed site layout. The project site is located in the Gateway Zoning District, which requires a front buildout and build-to setback. Due to the site conditions, the building is situated approximately 145 feet from the road so that a basement level can be constructed with a walk out on the north side. There is ledge located on the site that will require blasting for removal. The proposed building location minimizes blasting and provides a view of only two stories from Durham Road. Parking is located in both the front and rear of the building with landscaping to shade and screen the parking from the street.

As described in the Conditional Use permit application, the parking demand for the site is more intensive than the Parking Regulation Table allows for office or service buildings. The proposed parking calculations provide for one parking stall per 210 square feet of GLA, which is consistent with the parking requirements for medical office buildings and clinics.

The project proposes a new roadway connection on the north side of the existing Durham Road and Back River Road signalized intersection. The existing intersection is a three-leg intersection, which will be converted to four-leg intersection upon project approval. The new roadway will extend through the project site with a future extension to the Elementary and High Schools to alleviate traffic on Durham Road. Further analysis and intersection design will be required upon approval of the site plan and with coordination of the City and the City traffic engineering firm, who maintain the traffic model for the Durham Road corridor.

Drainage Summary

A complete summary of the drainage model is the Drain report. The following table compares pre- and post-development peak rates of runoff for all analyzed storm events at the Point of Analysis, located downstream from the proposed project:

Stormwater Modeling Summary
Peak Q (cfs) for Type III 24-Hour Storm Events

	2-Yr Storm (3.62 inch)	10-Yr Storm (5.46inch)	25-Yr Storm (6.91 inch)	50-Yr Storm (8.26 inch)
POA #1				
Pre	5.25	13.36	20.68	27.91
Post	5.09	16.02	23.78	30.35
Net Change	-0.16	+2.66	+3.10	+2.44

Note: Includes 15% increase for NH Seacoast communities, per NHDES guidelines.

Per NHDES Env-Wq 1507.06, a project draining to a river may increase the peak flows from the site if no increase is proposed to the river system. The proposed development at 15 Durham Road (7 West) in Dover, NH will not have an adverse effect on abutting properties and infrastructure as a result of stormwater runoff. The project will treat all proposed impervious areas with two raingardens and a sub-surface infiltration basin. Pre-treatment will be provided to all paved areas with deep sump catch basins. The post-construction peak rates of runoff from the site will be managed accordingly for the 2, 10, 25, and 50 year storms. Appropriate steps will be taken to properly mitigate erosion and sedimentation through construction with the use of temporary and permanent Best Management Practices for sediment and erosion control.



LAND CONSULTANTS

March 28, 2022

Chad Kageleiry
7 West, LLC
340 Central Avenue, Ste 202
Dover, NH 03820

RE: Medical Office Building Project [6 Ac. +/-]
11 Durham Road - Dover, NH

Dear Chad:

Site Specific Soil Survey Technical Letter Report

At your request, we visited the above-referenced property to document onsite conditions for the purpose of preparing a Site-Specific Soil Map (SSSM) that would assist in the planning / design of your proposed land improvements. Below is a summary report that details the standards utilized, soil descriptions, field findings, and any limiting soil features encountered on the property.

Standards

The criteria under which the soil map was prepared is the *Site-specific Soil Mapping Standards for New Hampshire and Vermont*, Version 7.0, March 2021. The standards apply the very latest knowledge of soils and provide the public with the most advanced soil resource information available today. The standards are based on a universally recognized taxonomic system of soil classification and are supported by national soil mapping standards established by the USDA National Cooperative Soil Survey. They allow for the development of multi-purpose soil map products that are carefully controlled and monitored through a state, regional and national quality assessment program. The SSSM's have been developed by the Society of Soil Scientists of Northern New England (SSSNNE) in cooperation with the USDA Natural Resources Conservation Service (NRCS). Their development responded to the need to provide regulatory agencies, local officials, and land use planners with consistent high-quality large scale soil resource information.

The Site-specific Soil Map Units identified on this property come from the *New Hampshire State-wide Numerical Soils Legend*, Issue 10, January 2011. This document represents the latest release of the permanent New Hampshire State-Wide Numerical Soils Legend since originally developed and adopted by the NRCS of NH in 1985.

Base Map

The soil map was developed on a base map of 1"= 40', with contour intervals of two (2') feet, and ground control indicators provided with wetland flags, existing utility poles, underground drainage structures, and strategically placed survey traverse stations. Topographic & boundary survey information was compiled onto our base map by McEneaney Survey Associates, Inc; Dover, NH.

Location

The project site is located on the north side of Durham Road (Route 108) in the City of Dover. The subject parcel study area is approximately 6.0 Ac.+/- and has greater than 800 feet of frontage directly on the south side of the Bellamy River. The City of Dover has a south end fire station building that abuts the southwest corner of our property.

Field Findings

The onsite soil test probes were hand dug with shovel and auger. We strategically selected locations on the topography to study our various soil profiles. Our Scantic (233B/P) soil probe [TP#1] showed evidence of estimated high water table less than 12" below the soil surface. Our Charlton (62C) soil probe [TP#2] documented: A-Horizon (0-7") 10YR 3/2, loam texture, weak fine granular, friable//Bw₁, Horizon – (7-12") 10YR 5/6, fine sand loam, moderate fine granular, friable //Bw₂ Horizon – (12-20") 2.5Y 5/4, sandy loam, subangular, friable//C Horizon - (20 – 38") 10YR 5/3, sandy loam, massive, friable (w/distinct & common, 7.5 YR 5/6 redox@36"). In addition, TP#3 & TP#4 recorded soil depths to ledge >40" and both had E.S.H.W.T. greater than 40" below soil surface.

Legend

The following is the soil identification legend for the site-specific soil map units used in the preparation of the map.

SITE SPECIFIC SOIL MAP UNIT KEY

<u>SYMBOL</u>	<u>SOIL TAXONOMIC NAME</u>	<u>HSG CLASS</u>	<u>DRAINAGE CLASS</u>
62	Charlton	B	Well Drained
86	Hollis	C	Well Drained
232	Buxton	C	Moderately Well-drained
233/P	Scantic	D	Poorly Drained (P)
200/daade	Udorthents	-	Smooth Fill Refuse Material
[d-moderately well drained / a-no natural soil within 60"/ a-no restrictive layers / d- no Ksat / e- No HSG]			

Slope

The following slope phases are used to designate the percent slope of the individual soil map units. Map units not having a slope designation typically are assumed to be nearly level over most of the map unit.

<u>Slope Designation</u>	<u>Percent Slope</u>
B	0 to 8%
C	8 to 15%
D	15 to 25%
E	> 25%

Limiting Soil Features

The majority of the upland soils on this property are well suited for commercial development and the placement of structures with associated parking and access roads. The most prominent soil is well drained Charlton (62) which has moderate infiltration rates when thoroughly wetted and has moderate to moderately rapid permeability throughout all horizons. This soil would be given a HSG 'B' hydrologic grouping assignment. The Charlton soils we observed on this property are derived from firm glacial till uplands with massive structure characteristics in the substratum layers. The other well drained soils found on the higher elevations were mapped Hollis (86) which was given a HSG 'C' hydrologic grouping due to its shallow to ledge characteristics.

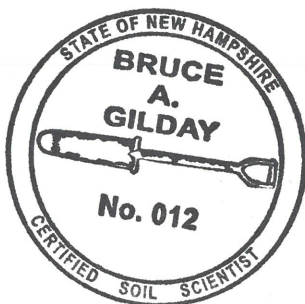
The moderately well drained Buxton (232) soils have slow infiltration rates when thoroughly wetted and very slow permeability in the substratum. This soil was given a HSG 'C' hydrologic grouping assignment. In the lowest elevations, in close proximity to the Bellamy River, we mapped areas of poorly drained (P) soils. These Scantic (233/P) soils would fall into a HSG 'D' category. These soils have slow to very slow permeability from subsoil down through the substratum. The Udorthents (200) soils have no clear, natural horizons to describe - they are fill material that was deposited when the old structure onsite was razed. No HSG assignment.

Sincerely,

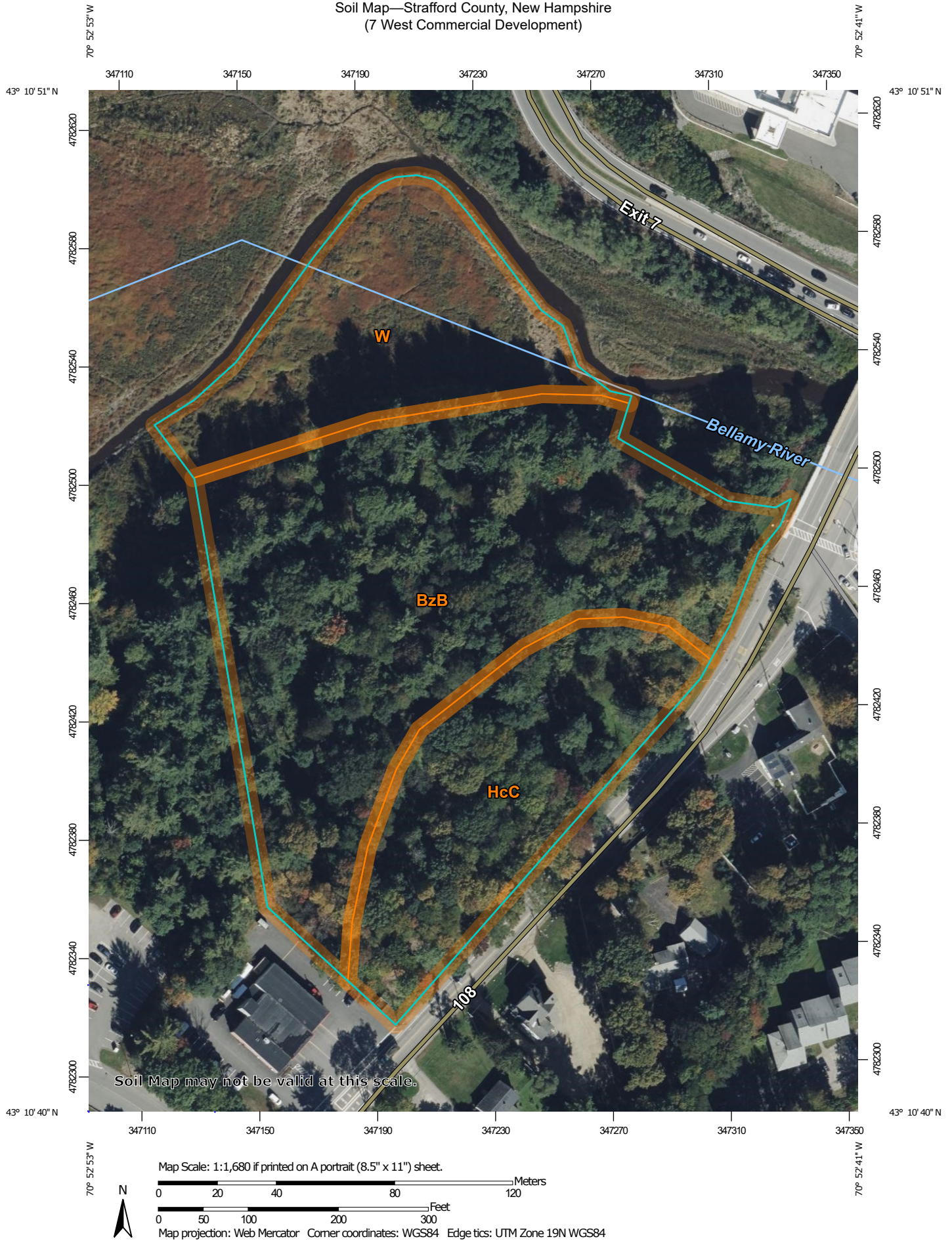
Bruce A. Gilday

Bruce A. Gilday
Certified Soil Scientist

BAG:3238B



Soil Map—Strafford County, New Hampshire
(7 West Commercial Development)



Soil Map—Strafford County, New Hampshire
(7 West Commercial Development)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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 22, Aug 31, 2021

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

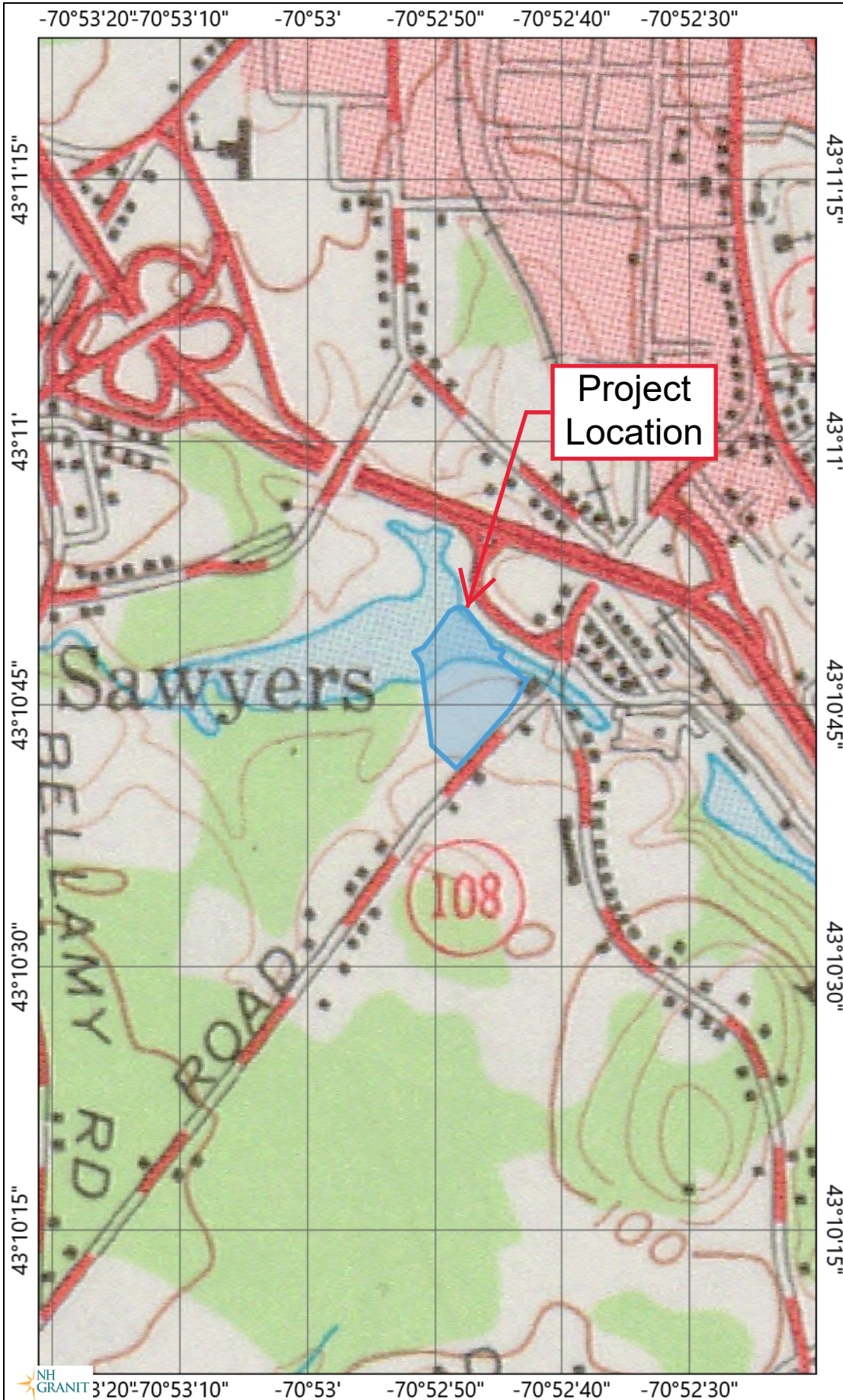
Date(s) aerial images were photographed: Jul 22, 2021—Oct 7, 2021

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BzB	Buxton silt loam, 3 to 8 percent slopes	4.5	54.8%
HcC	Hollis-Charlton fine sandy loams, 8 to 15 percent slopes	1.9	23.1%
W	Water	1.8	22.1%
Totals for Area of Interest		8.2	100.0%

7 West Commercial Development



Legend

1956 with vegetation

Map Scale

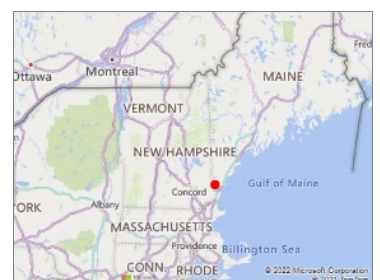
1: 10,000

© NH GRANIT, www.granit.unh.edu

Map Generated: 4/12/2022



Notes





**Aerial Photograph
7 West Dover, NH**



**Aerial Photograph
7 West Dover, NH**







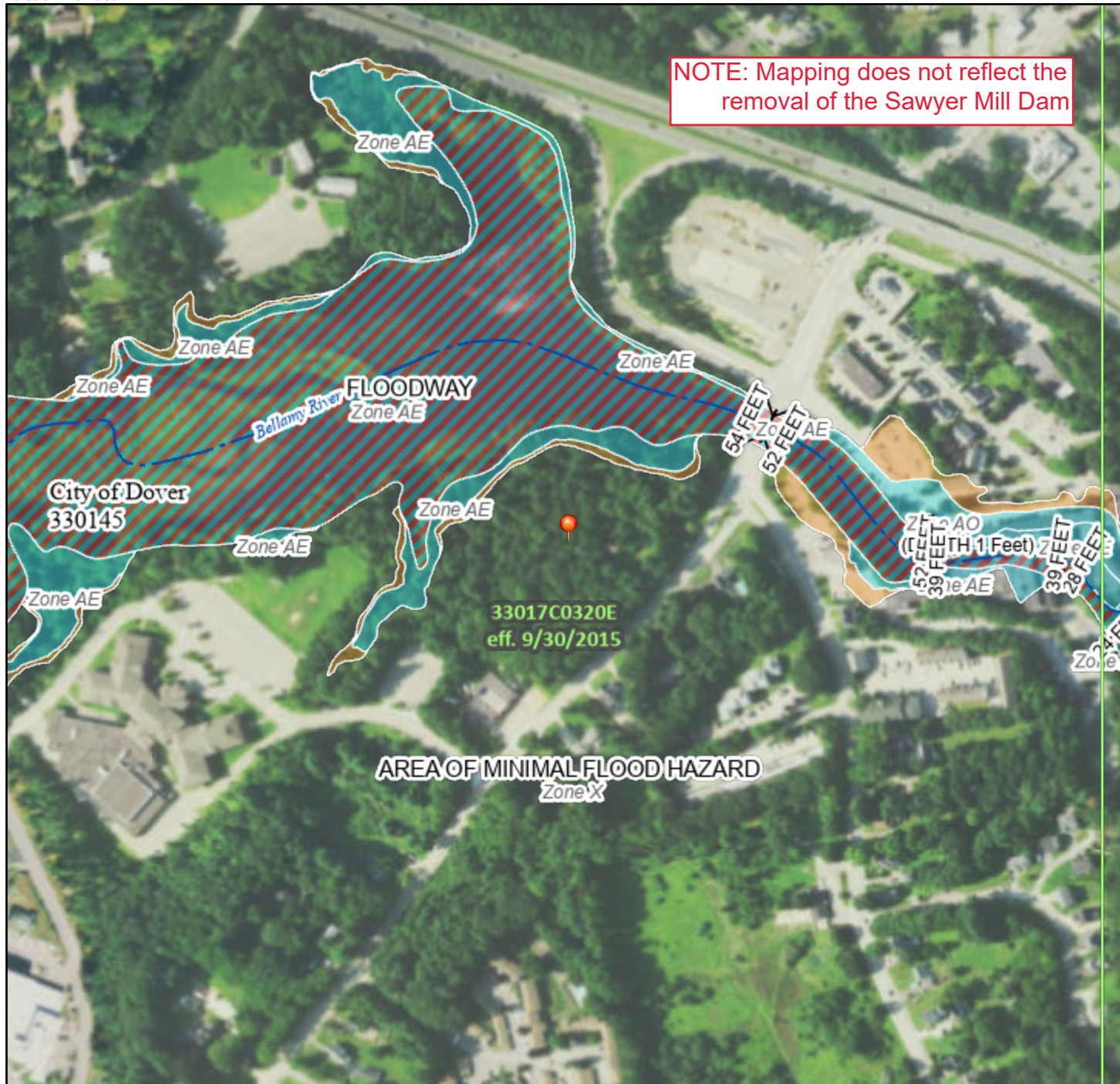




National Flood Hazard Layer FIRMette



70°53'6"W 43°10'58"N



Legend

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

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/29/2022 at 11:23 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

0 250 500 1,000 1,500 2,000 Feet 1:6,000

70°52'29"W 43°10'32"N

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

MEMORANDUM

93 Stiles Road, Suite 201, Salem, New Hampshire 03079 USA
800 Turnpike Street, Suite 300, North Andover, Massachusetts 01845 USA
Phone (603) 212-9133 and Fax (603) 226-4108
Email tepp@teppllc.com and Web www.teppllc.com

Ref: 1607
Subject: Traffic Assessment
7 West Commercial Development
Durham Road
Dover, New Hampshire
From: Kim Eric Hazarvartian, Ph.D., P.E., PTOE
Principal
Email keh@teppllc.com
Date: May 5, 2022

INTRODUCTION

Summit Land Development, LLC has retained TEPP LLC to prepare this traffic-assessment memorandum (TAM). This TAM regards the proposed 7 West commercial development along Durham Road in the in the City of Dover, New Hampshire.

This TAM includes:

- existing site description
- proposed development description
- road description
- public transit
- sight distances
- trip generation
- trip distribution
- potential traffic impacts

This TAM concludes that the proposed development will not attract significant new traffic to the area.

EXISTING SITE

The development site:

- is along the west side of Durham Road south of Back River Road and north of the Dover Fire and Rescue station
- is bounded on the east by Durham Road, on the north and west by the undeveloped land, and on the south by the Dover Middle School and the Dover Fire and Rescue Station
- is largely wooded

PROPOSED DEVELOPMENT

The development program provides:

- a medical office building with about 60 employees
- one unsignalized driveway along the west side of Durham Road toward the southern limit of the site frontage
- one unsignalized driveway along the south side of a potential road between the Dover Middle School and Durham Road opposite Back River Road

ROAD DESCRIPTION

Durham (New Hampshire Route 108):

- is a north-south arterial street under the jurisdiction of the City
- provides connections, to the south, with the Town of Durham
- provides connections, to the north, with central Dover
- provides connections, to the north, with the Spaulding Turnpike, a freeway of regional importance
- has a horizontal alignment with minor curves
- has a vertical alignment with minor grades
- has asphalt cement concrete pavement in overall good condition
- has at least one lane per direction
- carries a bike route
- includes sidewalk along the west side
- has pavement markings including double-yellow lines, separating traffic directions, and single-white edge lines
- includes a posted speed limit of 30 miles per hour (mph)
- has utility poles and some luminaires

PUBLIC TRANSIT

University of New Hampshire Wildcat bus-transit Route 3 runs along Central Avenue near the site, with a stop at Charles Street. Route 3 connects with:

- central Dover, to the north
- Central Avenue north of central Dover
- the Town of Durham, to the south
- the University of New Hampshire campus in the Town of Durham
- the Cooperative Alliance for Seacoast Transportation (COAST) bus-transit system

SIGHT DISTANCES

Relevant sight distances at the Durham Road/proposed driveway intersection will be at least 400 feet in both directions. The potential road/proposed driveway intersection design will include appropriate sight distances.

TRIP GENERATION

The Institute of Transportation Engineers (ITE) publishes trip-generation information in the authoritative *Trip Generation Manual*.¹ This information is based on empirical data for a variety of land uses including medical-dental office building, land use 720, based on employees.²

Table 1 shows calculated weekday vehicle-trips for the proposed development as:

- daily, 406 (total of in and out)
- AM-street-peak hour, 37 (27 in and 10 out)
- PM-street-peak hour, 61 (22 in and 29 out)

TRIP DISTRIBUTION

Along Durham Road, trips to/from the north are likely to predominate. Dover Point Road, to/from the north, provides connections with central Dover and with the Spaulding Turnpike.

¹ ITE, *Trip Generation Manual*, 11th Edition (Washington DC, September 2021).

² ITE, *Trip Generation Manual*, Volume 4, pages 760 to 788.

Table 1. Calculated weekday trip generation.

Time Period and Direction	Vehicle-Trips ^a
Daily	406
AM-Street-Peak Hour	
In	27
<u>Out</u>	<u>10</u>
Total	37
PM-Street-Peak Hour	
In	22
<u>Out</u>	<u>39</u>
Total	61

^aBased on ITE, *Trip Generation Manual*, multifamily housing (low rise), land use 220, 42 dwelling units.

POTENTIAL TRAFFIC IMPACTS

ITE suggests that land developments generating at least 100 peak-hour vehicle trips, in the busier direction, are candidates for consideration of traffic impact analysis.³ Anticipated peak-hour trip generation due to the proposed development is well below this national ITE threshold. The proposed project is not anticipated to add significant new traffic to the area.

POTENTIAL ROAD

A potential may connect Dover Middle School and Durham Road opposite Back River Road at a modified existing signalized intersection.

CONCLUSION

In conclusion the proposed development will not attract significant new traffic to the area.

³ ITE, *Manual of Transportation Engineering Studies* (Prentice Hall: Englewood Cliffs, New Jersey, 2000), page 144.



D-Series Size 0 LED Area Luminaire



Catalog Number
Notes
Type

Hit the Tab key or mouse over the page to see all interactive elements.

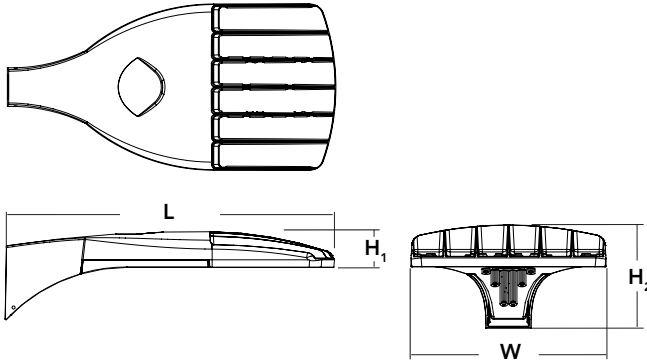
Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 400W metal halide with typical energy savings of 70% and expected service life of over 100,000 hours.

Specifications

EPA:	0.95 ft ² (.09 m ²)
Length:	26" (66.0 cm)
Width:	13" (33.0 cm)
Height ₁ :	3" (7.62 cm)
Height ₂ :	7" (17.8 cm)
Weight (max):	16 lbs (7.25 kg)



Ordering Information

EXAMPLE: DSX0 LED P6 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX0 LED					
Series	LEDs	Color temperature	Distribution	Voltage	Mounting
DSX0 LED	Forward optics P1 P5 P2 P6 P3 P7 ¹ P4 ¹ Rotated optics P10 ² P12 ² P11 ² P13 ^{1,2}	30K 3000 K 40K 4000 K 50K 5000 K	T1S Type I short (Automotive) T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium T4M Type IV medium TFTM Forward throw medium T5VS Type V very short ³	T5S Type V short ³ T5M Type V medium ³ T5W Type V wide ³ BLC Backlight control ⁴ LCCO Left corner cutoff ⁴ RCCO Right corner cutoff ⁴	MVOLT (120V-277V) ^{5,6} XVOLT (277V-480V) ^{7,8,9} 120 ⁶ 208 ⁶ 240 ⁶ 277 ⁶ 347 ⁶ 480 ⁶ Shipped included SPA Square pole mounting RPA Round pole mounting ¹⁰ WBA Wall bracket ³ SPUMBA Square pole universal mounting adaptor ¹¹ RPUMBA Round pole universal mounting adaptor ¹¹ Shipped separately KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish) ¹²

Control options	Other options	Finish (required)
Shipped installed NLTAIR2 nLight AIR generation 2 enabled ^{13,14} PIRHN Network, high/low motion/ambient sensor ¹⁵ PER NEMA twist-lock receptacle only (control ordered separate) ¹⁶ PER5 Five-pin receptacle only (control ordered separate) ^{16,17} PER7 Seven-pin receptacle only (leads exit fixture) (control ordered separate) ^{16,17} DMG 0-10V dimming extend out back of housing for external control (control ordered separate) ¹⁸	PIR High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 5fc ^{19,20} PIRHN High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc ^{19,20} PIR1FC3V High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc ^{19,20} PIRHN1FC3V High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc ^{19,20} FAO Field adjustable output ²¹	Shipped installed HS House-side shield ²² SF Single fuse (120, 277, 347V) ⁶ DF Double fuse (208, 240, 480V) ⁶ L90 Left rotated optics ² R90 Right rotated optics ² DDL Diffused drop lens ²² HA 50°C ambient operations ¹ BAA Buy America(n) Act Compliant Shipped separately BS Bird spikes ²³ EGS External glare shield
		DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white



COMMERCIAL OUTDOOR

One Lithonia Way • Conyers, Georgia 30012 • Phone: 1-800-705-SERV (7378) • www.lithonia.com
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DSX0-LED
Rev. 07/19/21
Page 1 of 8

Ordering Information

Accessories

Ordered and shipped separately.

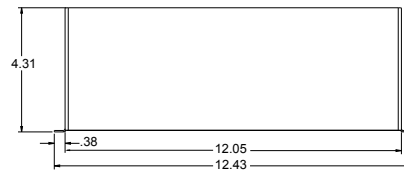
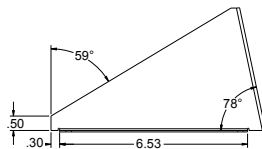
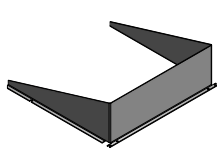
DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) ²⁴
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) ²⁴
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) ²⁴
DSHORT SBK U	Shorting cap ²⁴
DSX0HS 20C U	House-side shield for P1,P2,P3 and P4 ²²
DSX0HS 30C U	House-side shield for P10,P11,P12 and P13 ²²
DSX0HS 40C U	House-side shield for P5,P6 and P7 ²²
DSX0DDL U	Diffused drop lens (polycarbonate) ²²
PUMBA DDBXD U*	Square and round pole universal mounting bracket adaptor (specify finish) ²⁵
KMA8 DDBXD U	Max arm mounting bracket adaptor (specify finish) ¹²
DSX0EGS (FINISH) U	External glare shield

For more control options, visit [DTL](#) and [ROAM](#) online.
Link to [nLight Air 2](#)

NOTES

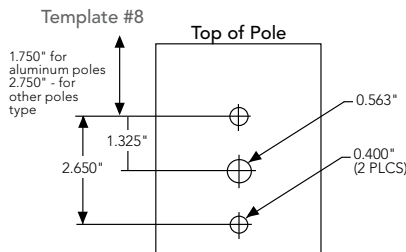
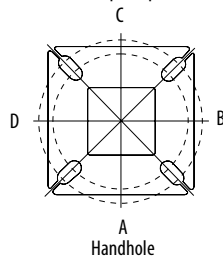
- HA not available with P4, P7, and P13.
- P10, P11, P12 and P13 and rotated options (L90 or R90) only available together.
- Any Type 5 distribution with photocell, is not available with WBA.
- Not available with HS or DDL.
- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
- Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V. XVOLT not available with fusing (SF or DF).
- XVOLT only suitable for use with P4, P7 and P13.
- XVOLT operates with any voltage between 277V and 480V.
- XVOLT not available with fusing (SF or DF) and not available with PIR, PIRH, PIR1FC3V, PIRH1FC3V.
- Suitable for mounting to round poles between 3.5" and 12" diameter.
- Universal mounting brackets intended for retrofit on existing pre-drilled poles only. 1.5 G vibration load rating per ANCI C136.31. Only usable when pole's drill pattern is NOT Lithonia template #8.
- Must order fixture with SPA mounting. Must be ordered as a separate accessory; see Accessories information. For use with 2-3/8" diameter mast arm (not included).
- Must be ordered with PIRHN.
- Sensor cover available only in dark bronze, black, white and natural aluminum colors.
- Must be ordered with NLTAIR2. For more information on nLight Air 2 visit [this link](#).
- Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting Cap included.
- If ROAM® node required, it must be ordered and shipped as a separate line item from Acuity Brands Controls. Shorting Cap included.
- DMG not available with PIRHN, PER5, PER7, PIR, PIRH, PIR1FC3V or PIRH1FC3V, FAO.
- Reference Controls Options table on page 4.
- Reference Motion Sensor Default Table on page 4 to see functionality.
- Not available with other dimming controls options.
- Not available with BLC, LCCO and RCCO distribution.
- Must be ordered with fixture for factory pre-drilling.
- Requires luminaire to be specified with PER, PER5 or PER7 option. See Controls Table on page 4.
- For retrofit use only. Only usable when pole's drill pattern is NOT Lithonia template #8

EGS – External Glare Shield



Drilling

HANDHOLE ORIENTATION (from top of pole)



Tenon Mounting Slipfitter

Tenon O.D.	Mounting	Single Unit	2 @ 180	2 @ 90	3 @ 90	3 @ 120	4 @ 90
2-3/8"	RPA	AS3-5 190	AS3-5 280	AS3-5 290	AS3-5 390	AS3-5 320	AS3-5 490
2-7/8"	RPA	AST25-190	AST25-280	AST25-290	AST25-390	AST25-320	AST25-490
4"	RPA	AST35-190	AST35-280	AST35-290	AST35-390	AST35-320	AST35-490

Mounting Option	Drilling Template	Single	2 @ 180	2 @ 90	3 @ 90	3 @ 120	4 @ 90
Head Location		Side B	Side B & D	Side B & C	Side B, C & D	Round Pole Only	Side A, B, C & D
Drill Nomenclature	#8	DM19AS	DM28AS	DM29AS	DM39AS	DM32AS	DM49AS
Minimum Acceptable Outside Pole Dimension							
SPA	#8	2-7/8"	2-7/8"	3.5"	3.5"		3.5"
RPA	#8	2-7/8"	2-7/8"	3.5"	3.5"	3"	3.5"
SPUMBA	#5	2-7/8"	3"	4"	4"		4"
RPUMBA	#5	2-7/8"	3.5"	5"	5"	3.5"	5"

DSX0 Area Luminaire - EPA

*Includes luminaire and integral mounting arm. Other tenons, arms, brackets or other accessories are not included in this EPA data.

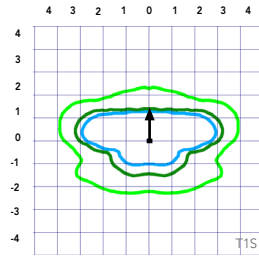
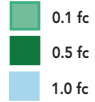
Fixture Quantity & Mounting Configuration	Single DM19	2 @ 180 DM28	2 @ 90 DM29	3 @ 90 DM39	3 @ 120 DM32	4 @ 90 DM49
Mounting Type						
DSX0 LED	0.950	1.900	1.830	2.850	2.850	3.544

Photometric Diagrams

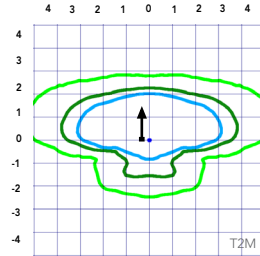
To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's [D-Series Area Size 0 homepage](#).

Isofootcandle plots for the DSX0 LED 40C 1000 40K. Distances are in units of mounting height (20').

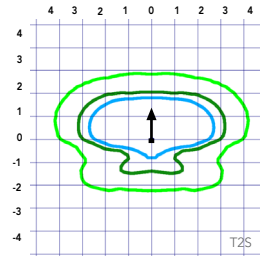
LEGEND



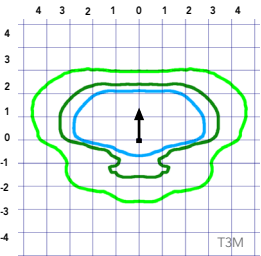
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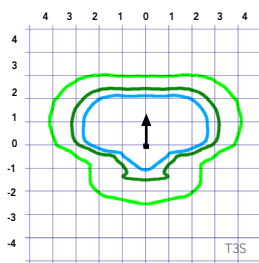
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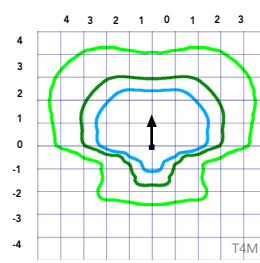
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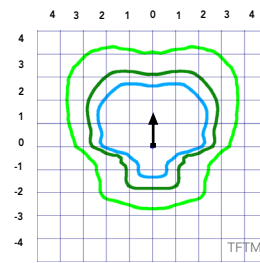
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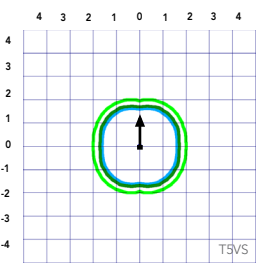
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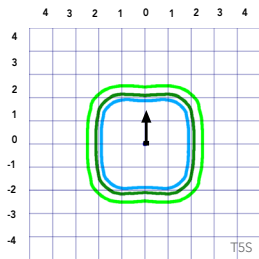
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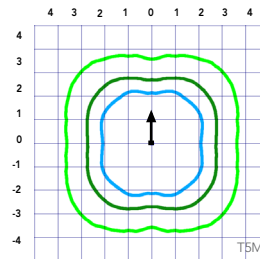
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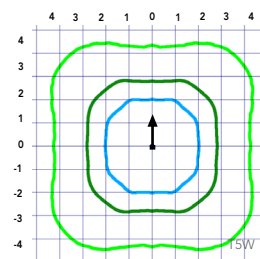
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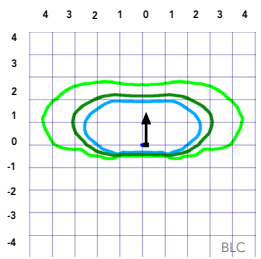
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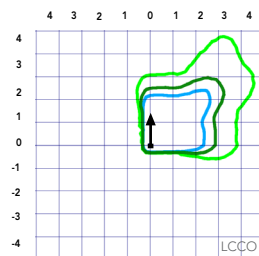
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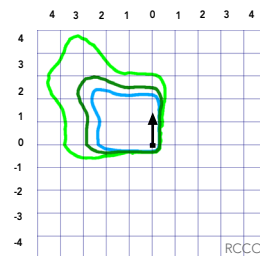
Test No. LTL2345/P25 tested in accordance with IESNA LM-79-08.



Test No.



Test No.



Test No.

Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.04
5°C	41°F	1.04
10°C	50°F	1.03
15°C	59°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	Lumen Maintenance Factor
25,000	0.96
50,000	0.92
100,000	0.85

Motion Sensor Default Settings						
Option	Dimmed State	High Level (when triggered)	Photocell Operation	Dwell Time	Ramp-up Time	Ramp-down Time
PIR or PIRH	3V (37%) Output	10V (100%) Output	Enabled @ 5FC	5 min	3 sec	5 min
*PIR1FC3V or PIRH1FC3V	3V (37%) Output	10V (100%) Output	Enabled @ 1FC	5 min	3 sec	5 min

*for use when motion sensor is used as dusk to dawn control.

Controls Options

Nomenclature	Description	Functionality	Primary control device	Notes
FAO	Field adjustable output device installed inside the luminaire; wired to the driver dimming leads.	Allows the luminaire to be manually dimmed, effectively trimming the light output.	FAO device	Cannot be used with other controls options that need the 0-10V leads
DS	Drivers wired independently for 50/50 luminaire operation	The luminaire is wired to two separate circuits, allowing for 50/50 operation.	Independently wired drivers	Requires two separately switched circuits. Consider nLight AIR as a more cost effective alternative.
PERS or PER7	Twist-lock photocell receptacle	Compatible with standard twist-lock photocells for dusk to dawn operation, or advanced control nodes that provide 0-10V dimming signals.	Twist-lock photocells such as DLL Elite or advanced control nodes such as ROAM.	Pins 4 & 5 to dimming leads on driver, Pins 6 & 7 are capped inside luminaire
PIR or PIRH	Motion sensors with integral photocell. PIR for 8-15' mounting; PIRH for 15-30' mounting	Luminaires dim when no occupancy is detected.	Acuity Controls SBGR	Also available with PIRH1FC3V when the sensor photocell is used for dusk-to-dawn operation.
NLTAIR2 PIRHN	nLight AIR enabled luminaire for motion sensing, photocell and wireless communication.	Motion and ambient light sensing with group response. Scheduled dimming with motion sensor over-ride when wirelessly connected to the nLight Eclipse.	nLight Air rSDGR	nLight AIR sensors can be programmed and commissioned from the ground using the CIAIRity Pro app.

Electrical Load

					Current (A)					
	Performance Package	LED Count	Drive Current	Wattage	120	208	240	277	347	480
Forward Optics (Non-Rotated)	P1	20	530	38	0.32	0.18	0.15	0.15	0.10	0.08
	P2	20	700	49	0.41	0.23	0.20	0.19	0.14	0.11
	P3	20	1050	71	0.60	0.37	0.32	0.27	0.21	0.15
	P4	20	1400	92	0.77	0.45	0.39	0.35	0.28	0.20
	P5	40	700	89	0.74	0.43	0.38	0.34	0.26	0.20
	P6	40	1050	134	1.13	0.65	0.55	0.48	0.39	0.29
	P7	40	1300	166	1.38	0.80	0.69	0.60	0.50	0.37
Rotated Optics (Requires L90 or R90)	P10	30	530	53	0.45	0.26	0.23	0.21	0.16	0.12
	P11	30	700	72	0.60	0.35	0.30	0.27	0.20	0.16
	P12	30	1050	104	0.88	0.50	0.44	0.39	0.31	0.23
	P13	30	1300	128	1.08	0.62	0.54	0.48	0.37	0.27

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Forward Optics

Power Package	LED Count	Drive Current	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P1	20	530	38W	T1S	4,369	1	0	1	115	4,706	1	0	1	124	4,766	1	0	1	125
				T2S	4,364	1	0	1	115	4,701	1	0	1	124	4,761	1	0	1	125
				T2M	4,387	1	0	1	115	4,726	1	0	1	124	4,785	1	0	1	126
				T3S	4,248	1	0	1	112	4,577	1	0	1	120	4,634	1	0	1	122
				T3M	4,376	1	0	1	115	4,714	1	0	1	124	4,774	1	0	1	126
				T4M	4,281	1	0	1	113	4,612	1	0	2	121	4,670	1	0	2	123
				TFTM	4,373	1	0	1	115	4,711	1	0	2	124	4,771	1	0	2	126
				TSVS	4,548	2	0	0	120	4,900	2	0	0	129	4,962	2	0	0	131
				TSS	4,552	2	0	0	120	4,904	2	0	0	129	4,966	2	0	0	131
				TSM	4,541	3	0	1	120	4,891	3	0	1	129	4,953	3	0	1	130
				TSW	4,576	3	0	2	120	4,929	3	0	2	130	4,992	3	0	2	131
				BLC	3,586	1	0	1	94	3,863	1	0	1	102	3,912	1	0	1	103
				LCCO	2,668	1	0	1	70	2,874	1	0	2	76	2,911	1	0	2	77
				RCCO	2,668	1	0	1	70	2,874	1	0	2	76	2,911	1	0	2	77
P2	20	700	49W	T1S	5,570	1	0	1	114	6,001	1	0	1	122	6,077	2	0	2	124
				T2S	5,564	1	0	2	114	5,994	1	0	2	122	6,070	2	0	2	124
				T2M	5,593	1	0	1	114	6,025	1	0	1	123	6,102	1	0	1	125
				T3S	5,417	1	0	2	111	5,835	1	0	2	119	5,909	2	0	2	121
				T3M	5,580	1	0	2	114	6,011	1	0	2	123	6,087	1	0	2	124
				T4M	5,458	1	0	2	111	5,880	1	0	2	120	5,955	1	0	2	122
				TFTM	5,576	1	0	2	114	6,007	1	0	2	123	6,083	1	0	2	124
				TSVS	5,799	2	0	0	118	6,247	2	0	0	127	6,327	2	0	0	129
				TSS	5,804	2	0	0	118	6,252	2	0	0	128	6,332	2	0	1	129
				TSM	5,789	3	0	1	118	6,237	3	0	1	127	6,316	3	0	1	129
				TSW	5,834	3	0	2	119	6,285	3	0	2	128	6,364	3	0	2	130
				BLC	4,572	1	0	1	93	4,925	1	0	1	101	4,987	1	0	1	102
				LCCO	3,402	1	0	2	69	3,665	1	0	2	75	3,711	1	0	2	76
				RCCO	3,402	1	0	2	69	3,665	1	0	2	75	3,711	1	0	2	76
P3	20	1050	71W	T1S	7,833	2	0	2	110	8,438	2	0	2	119	8,545	2	0	2	120
				T2S	7,825	2	0	2	110	8,429	2	0	2	119	8,536	2	0	2	120
				T2M	7,865	2	0	2	111	8,473	2	0	2	119	8,580	2	0	2	121
				T3S	7,617	2	0	2	107	8,205	2	0	2	116	8,309	2	0	2	117
				T3M	7,846	2	0	2	111	8,452	2	0	2	119	8,559	2	0	2	121
				T4M	7,675	2	0	2	108	8,269	2	0	2	116	8,373	2	0	2	118
				TFTM	7,841	2	0	2	110	8,447	2	0	2	119	8,554	2	0	2	120
				TSVS	8,155	3	0	0	115	8,785	3	0	0	124	8,896	3	0	0	125
				TSS	8,162	3	0	1	115	8,792	3	0	1	124	8,904	3	0	1	125
				TSM	8,141	3	0	2	115	8,770	3	0	2	124	8,881	3	0	2	125
				TSW	8,204	3	0	2	116	8,838	4	0	2	124	8,950	4	0	2	126
				BLC	6,429	1	0	2	91	6,926	1	0	2	98	7,013	1	0	2	99
				LCCO	4,784	1	0	2	67	5,153	1	0	2	73	5,218	1	0	2	73
				RCCO	4,784	1	0	2	67	5,153	1	0	2	73	5,218	1	0	2	73
P4	20	1400	92W	T1S	9,791	2	0	2	106	10,547	2	0	2	115	10,681	2	0	2	116
				T2S	9,780	2	0	2	106	10,536	2	0	2	115	10,669	2	0	2	116
				T2M	9,831	2	0	2	107	10,590	2	0	2	115	10,724	2	0	2	117
				T3S	9,521	2	0	2	103	10,256	2	0	2	111	10,386	2	0	2	113
				T3M	9,807	2	0	2	107	10,565	2	0	2	115	10,698	2	0	2	116
				T4M	9,594	2	0	2	104	10,335	2	0	3	112	10,466	2	0	3	114
				TFTM	9,801	2	0	2	107	10,558	2	0	2	115	10,692	2	0	2	116
				TSVS	10,193	3	0	1	111	10,981	3	0	1	119	11,120	3	0	1	121
				TSS	10,201	3	0	1	111	10,990	3	0	1	119	11,129	3	0	1	121
				TSM	10,176	4	0	2	111	10,962	4	0	2	119	11,101	4	0	2	121
				TSW	10,254	4	0	3	111	11,047	4	0	3	120	11,186	4	0	3	122
				BLC	8,036	1	0	2	87	8,656	1	0	2	94	8,766	1	0	2	95
				LCCO	5,979	1	0	2	65	6,441	1	0	2	70	6,523	1	0	3	71
				RCCO	5,979	1	0	2	65	6,441	1	0	2	70	6,523	1	0	3	71

Performance Data

Lumen Output

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Forward Optics

Power Package	LED Count	Drive Current	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P5	40	700	89W	T1S	10,831	2	0	2	122	11,668	2	0	2	131	11,816	2	0	2	133
				T2S	10,820	2	0	2	122	11,656	2	0	2	131	11,803	2	0	2	133
				T2M	10,876	2	0	2	122	11,716	2	0	2	132	11,864	2	0	2	133
				T3S	10,532	2	0	2	118	11,346	2	0	2	127	11,490	2	0	2	129
				T3M	10,849	2	0	2	122	11,687	2	0	2	131	11,835	2	0	2	133
				T4M	10,613	2	0	3	119	11,434	2	0	3	128	11,578	2	0	3	130
				TFTM	10,842	2	0	2	122	11,680	2	0	2	131	11,828	2	0	2	133
				TSVS	11,276	3	0	1	127	12,148	3	0	1	136	12,302	3	0	1	138
				TSS	11,286	3	0	1	127	12,158	3	0	1	137	12,312	3	0	1	138
				TSM	11,257	4	0	2	126	12,127	4	0	2	136	12,280	4	0	2	138
				TSW	11,344	4	0	3	127	12,221	4	0	3	137	12,375	4	0	3	139
				BLC	8,890	1	0	2	100	9,576	1	0	2	108	9,698	1	0	2	109
				LCCO	6,615	1	0	3	74	7,126	1	0	3	80	7,216	1	0	3	81
				RCCO	6,615	1	0	3	74	7,126	1	0	3	80	7,216	1	0	3	81
P6	40	1050	134W	T1S	14,805	3	0	3	110	15,949	3	0	3	119	16,151	3	0	3	121
				T2S	14,789	3	0	3	110	15,932	3	0	3	119	16,134	3	0	3	120
				T2M	14,865	3	0	3	111	16,014	3	0	3	120	16,217	3	0	3	121
				T3S	14,396	3	0	3	107	15,509	3	0	3	116	15,705	3	0	3	117
				T3M	14,829	2	0	3	111	15,975	3	0	3	119	16,177	3	0	3	121
				T4M	14,507	2	0	3	108	15,628	3	0	3	117	15,826	3	0	3	118
				TFTM	14,820	2	0	3	111	15,965	3	0	3	119	16,167	3	0	3	121
				TSVS	15,413	4	0	1	115	16,604	4	0	1	124	16,815	4	0	1	125
				TSS	15,426	3	0	1	115	16,618	4	0	1	124	16,828	4	0	1	126
				TSM	15,387	4	0	2	115	16,576	4	0	2	124	16,786	4	0	2	125
				TSW	15,506	4	0	3	116	16,704	4	0	3	125	16,915	4	0	3	126
				BLC	12,151	1	0	2	91	13,090	1	0	2	98	13,255	1	0	2	99
				LCCO	9,041	1	0	3	67	9,740	1	0	3	73	9,863	1	0	3	74
				RCCO	9,041	1	0	3	67	9,740	1	0	3	73	9,863	1	0	3	74
P7	40	1300	166W	T1S	17,023	3	0	3	103	18,338	3	0	3	110	18,570	3	0	3	112
				T2S	17,005	3	0	3	102	18,319	3	0	3	110	18,551	3	0	3	112
				T2M	17,092	3	0	3	103	18,413	3	0	3	111	18,646	3	0	3	112
				T3S	16,553	3	0	3	100	17,832	3	0	3	107	18,058	3	0	3	109
				T3M	17,051	3	0	3	103	18,369	3	0	3	111	18,601	3	0	3	112
				T4M	16,681	3	0	3	100	17,969	3	0	3	108	18,197	3	0	3	110
				TFTM	17,040	3	0	3	103	18,357	3	0	4	111	18,590	3	0	4	112
				TSVS	17,723	4	0	1	107	19,092	4	0	1	115	19,334	4	0	1	116
				TSS	17,737	4	0	2	107	19,108	4	0	2	115	19,349	4	0	2	117
				TSM	17,692	4	0	2	107	19,059	4	0	2	115	19,301	4	0	2	116
				TSW	17,829	5	0	3	107	19,207	5	0	3	116	19,450	5	0	3	117
				BLC	13,971	2	0	2	84	15,051	2	0	2	91	15,241	2	0	2	92
				LCCO	10,396	1	0	3	63	11,199	1	0	3	67	11,341	1	0	3	68
				RCCO	10,396	1	0	3	63	11,199	1	0	3	67	11,341	1	0	3	68

Performance Data

Lumen Output

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Rotated Optics																			
Power Package	LED Count	Drive Current	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P10	30	530	53W	T1S	6,727	2	0	2	127	7,247	3	0	3	137	7,339	3	0	3	138
				T2S	6,689	3	0	3	126	7,205	3	0	3	136	7,297	3	0	3	138
				T2M	6,809	3	0	3	128	7,336	3	0	3	138	7,428	3	0	3	140
				T3S	6,585	3	0	3	124	7,094	3	0	3	134	7,183	3	0	3	136
				T3M	6,805	3	0	3	128	7,331	3	0	3	138	7,424	3	0	3	140
				T4M	6,677	3	0	3	126	7,193	3	0	3	136	7,284	3	0	3	137
				TFTM	6,850	3	0	3	129	7,379	3	0	3	139	7,472	3	0	3	141
				TSVS	6,898	3	0	0	130	7,431	3	0	0	140	7,525	3	0	0	142
				TSS	6,840	2	0	1	129	7,368	2	0	1	139	7,461	2	0	1	141
				TSM	6,838	3	0	1	129	7,366	3	0	2	139	7,460	3	0	2	141
				TSW	6,777	3	0	2	128	7,300	3	0	2	138	7,393	3	0	2	139
				BLC	5,626	2	0	2	106	6,060	2	0	2	114	6,137	2	0	2	116
				LCCO	4,018	1	0	2	76	4,328	1	0	2	82	4,383	1	0	2	83
				RCCO	4,013	3	0	3	76	4,323	3	0	3	82	4,377	3	0	3	83
P11	30	700	72W	T1S	8,594	3	0	3	119	9,258	3	0	3	129	9,376	3	0	3	130
				T2S	8,545	3	0	3	119	9,205	3	0	3	128	9,322	3	0	3	129
				T2M	8,699	3	0	3	121	9,371	3	0	3	130	9,490	3	0	3	132
				T3S	8,412	3	0	3	117	9,062	3	0	3	126	9,177	3	0	3	127
				T3M	8,694	3	0	3	121	9,366	3	0	3	130	9,484	3	0	3	132
				T4M	8,530	3	0	3	118	9,189	3	0	3	128	9,305	3	0	3	129
				TFTM	8,750	3	0	3	122	9,427	3	0	3	131	9,546	3	0	3	133
				TSVS	8,812	3	0	0	122	9,493	3	0	0	132	9,613	3	0	0	134
				TSS	8,738	3	0	1	121	9,413	3	0	1	131	9,532	3	0	1	132
				TSM	8,736	3	0	2	121	9,411	3	0	2	131	9,530	3	0	2	132
				TSW	8,657	4	0	2	120	9,326	4	0	2	130	9,444	4	0	2	131
				BLC	7,187	3	0	3	100	7,742	3	0	3	108	7,840	3	0	3	109
				LCCO	5,133	1	0	2	71	5,529	1	0	2	77	5,599	1	0	2	78
				RCCO	5,126	3	0	3	71	5,522	3	0	3	77	5,592	3	0	3	78
P12	30	1050	104W	T1S	12,149	3	0	3	117	13,088	3	0	3	126	13,253	3	0	3	127
				T2S	12,079	4	0	4	116	13,012	4	0	4	125	13,177	4	0	4	127
				T2M	12,297	3	0	3	118	13,247	3	0	3	127	13,415	3	0	3	129
				T3S	11,891	4	0	4	114	12,810	4	0	4	123	12,972	4	0	4	125
				T3M	12,290	3	0	3	118	13,239	4	0	4	127	13,407	4	0	4	129
				T4M	12,058	4	0	4	116	12,990	4	0	4	125	13,154	4	0	4	126
				TFTM	12,369	4	0	4	119	13,325	4	0	4	128	13,494	4	0	4	130
				TSVS	12,456	3	0	1	120	13,419	3	0	1	129	13,589	4	0	1	131
				TSS	12,351	3	0	1	119	13,306	3	0	1	128	13,474	3	0	1	130
				TSM	12,349	4	0	2	119	13,303	4	0	2	128	13,471	4	0	2	130
				TSW	12,238	4	0	3	118	13,183	4	0	3	127	13,350	4	0	3	128
				BLC	10,159	3	0	3	98	10,944	3	0	3	105	11,083	3	0	3	107
				LCCO	7,256	1	0	3	70	7,816	1	0	3	75	7,915	1	0	3	76
				RCCO	7,246	3	0	3	70	7,806	4	0	4	75	7,905	4	0	4	76
P13	30	1300	128W	T1S	14,438	3	0	3	113	15,554	3	0	3	122	15,751	3	0	3	123
				T2S	14,355	4	0	4	112	15,465	4	0	4	121	15,660	4	0	4	122
				T2M	14,614	3	0	3	114	15,744	4	0	4	123	15,943	4	0	4	125
				T3S	14,132	4	0	4	110	15,224	4	0	4	119	15,417	4	0	4	120
				T3M	14,606	4	0	4	114	15,735	4	0	4	123	15,934	4	0	4	124
				T4M	14,330	4	0	4	112	15,438	4	0	4	121	15,633	4	0	4	122
				TFTM	14,701	4	0	4	115	15,836	4	0	4	124	16,037	4	0	4	125
				TSVS	14,804	4	0	1	116	15,948	4	0	1	125	16,150	4	0	1	126
				TSS	14,679	3	0	1	115	15,814	3	0	1	124	16,014	3	0	1	125
				TSM	14,676	4	0	2	115	15,810	4	0	2	124	16,010	4	0	2	125
				TSW	14,544	4	0	3	114	15,668	4	0	3	122	15,866	4	0	3	124
				BLC	7,919	3	0	3	62	8,531	3	0	3	67	8,639	3	0	3	67
				LCCO	5,145	1	0	2	40	5,543	1	0	2	43	5,613	1	0	2	44
				RCCO	5,139	3	0	3	40	5,536	3	0	3	43	5,606	3	0	3	44

FEATURES & SPECIFICATIONS

INTENDED USE

The sleek design of the D-Series Size 0 reflects the embedded high performance LED technology. It is ideal for many commercial and municipal applications, such as parking lots, plazas, campuses, and pedestrian areas.

CONSTRUCTION

Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance and future light engine upgrades. The LED driver is mounted in direct contact with the casting to promote low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65). Low EPA (0.95 ft²) for optimized pole wind loading.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in both textured and non-textured finishes.

OPTICS

Precision-molded proprietary acrylic lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in 3000 K, 4000 K or 5000 K (70 CRI) configurations. The D-Series Size 0 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engine(s) configurations consist of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L85/100,000 hours at 25°C). Class 1 electronic drivers are designed to have a power factor >90%, THD <20%, and an expected life of 100,000 hours with <1% failure rate. Easily serviceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

STANDARD CONTROLS

The DSX0 LED area luminaire has a number of control options. DSX Size 0, comes standard with 0-10V dimming driver. Dusk to dawn controls can be utilized via optional NEMA twist-lock photocell receptacles. Integrated motion sensors with on-board photocells feature field-adjustable programming and are suitable for mounting heights up to 30 feet.

nLIGHT AIR CONTROLS

The DSX0 LED area luminaire is also available with nLight® AIR for the ultimate in wireless control. This powerful controls platform provides out-of-the-box basic motion sensing and photocontrol functionality and is suitable for mounting heights up to 40 feet. Once commissioned using a smartphone and the easy-to-use CLAIRITY app, nLight AIR equipped luminaires can be grouped, resulting in motion sensor and photocell group response without the need for additional equipment. Scheduled dimming with motion sensor over-ride can be achieved when used with the nLight Eclipse. Additional information about nLight Air can be found [here](#).

INSTALLATION

Included mounting block and integral arm facilitate quick and easy installation. Stainless steel bolts fasten the mounting block securely to poles and walls, enabling the D-Series Size 0 to withstand up to a 3.0 G vibration load rating per ANSI C136.31. The D-Series Size 0 utilizes the AERIS™ series pole drilling pattern (template #8). Optional terminal block and NEMA photocontrol receptacle are also available.

LISTINGS

UL listed to meet U.S. and Canadian standards. UL Listed for wet locations. Light engines are IP66 rated; luminaire is IP65 rated. Rated for -40°C to 50°C ambient with HA option. U.S. Patent No. D672,492 S. International patent pending.

DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only.

BUY AMERICAN

Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT. Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY

5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/support/customer-support/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.



FEATURES & SPECIFICATIONS

INTENDED USE — These specifications are for USA standards only. Square Straight Steel is a general purpose light pole for up to 39-foot mounting heights. This pole provides a robust yet cost effective option for mounting area lights and floodlights.

CONSTRUCTION —

Pole Shaft: The pole shaft is of uniform dimension and wall thickness and is made of a weldable-grade, hot-rolled, commercial-quality steel tubing with a minimum yield of 55 KSI (11-gauge, .1196"), or 50 KSI (7-gauge, .1793"). Shaft is one-piece with a full-length longitudinal high-frequency electric resistance weld. Uniformly square in cross-section with flat sides, small corner radii and excellent torsional qualities. Available shaft widths are 4", 5" and 6".

Pole Top: Options include tenon top, drilled for side mount fixture, tenon with drilling (includes extra handhole) and open top. Side drilled and open top poles include a removable top cap.

Handhole: A reinforced handhole with grounding provision is provided at 18" from the base on side A. Positioning the handhole lower may not be possible and requires engineering review; consult Tech Support-Outdoor for further information. Every handhole includes a cover and cover attachment hardware. The handhole has a nominal dimension of 2.5" x 5".

Base Cover: A durable ABS plastic two-piece full base cover, finished to match the pole, is provided with each pole assembly. Additional base cover options are available upon request.

Anchor Base/Bolts: Anchor base is fabricated from steel that meets ASTM A36 standards and can be altered to match existing foundations; consult factory for modifications. Anchor bolts are manufactured to ASTM F1554 Standards grade 55, (55 KSI minimum yield strength and tensile strength of 75-95 KSI). Top threaded portion (nominal 12") is hot-dipped galvanized per ASTM A-153.

HARDWARE — All structural fasteners are high-strength galvanized carbon steel. All non-structural fasteners are galvanized or zinc-plated carbon steel or stainless steel.

FINISH — Extra durable painted finish is coated with TGIC (Triglycidyl Isocyanurate) Polyester powder that meets 5A and 5B classifications of ASTM D3359. Powder-coat finishes include Dark Bronze, White, Black, and Natural Aluminum colors. Architectural Colors and Special Finishes are available by quote and include, but are not limited to Paint over Hot-dipped Galvanized, RAL Colors, Custom Colors and Extended Warranty Finishes.

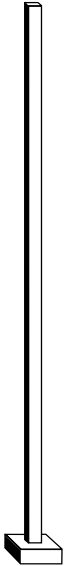
BUY AMERICAN — Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT. Please refer to www.acuitybrands.com/buy-american for additional information.

INSTALLATION — **Do not** erect poles without having fixtures installed. Factory-supplied templates must be used when setting anchor bolts. Lithonia Lighting will not accept claim for incorrect anchorage placement due to failure to use Lithonia Lighting factory templates. If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage. Lithonia Lighting is not responsible for the foundation design.

WARRANTY — 1-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

NOTE: Actual performance may differ as a result of end-user environment and application. Specifications subject to change without notice.

Catalog Number
Notes
Type



Anchor Base Poles

SSS

SQUARE STRAIGHT STEEL



SSS Square Straight Steel Poles

ORDERING INFORMATION		Lead times will vary depending on options selected. Consult with your sales representative.			Example: SSS 20 5C DM19 DDBXD	
SSS						
Series	Nominal fixture mounting height	Nominal shaft base size/wall thickness ²	Mounting ³		Options	Finish ¹³
SSS ¹	10'-39' (for 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.) See technical information table for complete ordering information.)	4C 4" 11g (.1196") 4G 4" 7g (.1793") 5C 5" 11g (.1196") 5G 5" 7g (.1793") 6G 6" 7g (.1793") See technical information table for complete ordering information.)	<u>Tenon mounting</u> PT Open top (includes top cap) T20 2-3/8" O.D. (2" NPS) T25 2-7/8" O.D. (2-1/2" NPS) T30 3-1/2" O.D. (3" NPS) T35 4" O.D. (3-1/2" NPS) <u>KAC/KAD/KSE/KSF/KVR/KVF Drill mounting⁴</u> DM19 1 at 90° DM28 2 at 180° DM28 PL 2 at 180° with one side plugged DM29 2 at 90° DM39 3 at 90° DM49 4 at 90° <u>CSX/DSX/RSX/AERIS™/OMERO™/HLA/KAX Drill mounting⁴</u> DM19AS 1 at 90° DM28AS 2 at 180° DM29AS 2 at 90° DM39AS 3 at 90° DM49AS 4 at 90° <u>RAD drill mounting⁴</u> DM19RAD 1 at 90° DM28RAD 2 at 180° DM29RAD 2 at 90° DM39RAD 3 at 90° DM49RAD 4 at 90° <u>ESX Drill mounting⁴</u> DM19ESX 1 at 90° DM28ESX 2 at 180° DM29ESX 2 at 90° DM39ESX 3 at 90° DM49ESX 4 at 90°	<u>AERIS™ Suspend drill mounting^{4,5}</u> DM19AST_ 1 at 90° DM28AST_ 2 at 180° DM29AST_ 2 at 90° DM39AST_ 3 at 90° DM49AST_ 4 at 90° <u>OMERO™ Suspend drill mounting^{4,5}</u> DM19MRT_ 1 at 90° DM28MRT_ 2 at 180° DM29MRT_ 2 at 90° DM39MRT_ 3 at 90° DM49MRT_ 4 at 90°	<u>Shipped installed</u> VD Vibration damper ⁶ HAxy Horizontal arm bracket (1 fixture) ^{7,8} FDLxy Festoon outlet less electrical ^{7,9} CPL12/xy 1/2" coupling ⁷ CPL34/xy 3/4" coupling ⁷ CPL1/xy 1" coupling ⁷ NPL12/xy 1/2" threaded nipple ⁷ NPL34/xy 3/4" threaded nipple ⁷ NPL1/xy 1" threaded nipple ⁷ EHHxy Extra handhole ^{7,10} NEC NEC 410.30 compliant gasketed handhole (Not UL Labeled) IC Interior coating ¹¹ L/AB Less anchor bolts (Include when anchor bolts are not needed) TP Tamper resistant handhole cover fasteners UL UL listed with label (Includes NEC compliant cover) BAA Buy America(n) Act Compliant ¹²	<u>Super durable paint colors</u> DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white <u>Other finishes</u> GALV Galvanized finish <u>Architectural colors and special finishes</u> Paint over Galvanized, RAL Colors, Custom Colors and Extended Warranty Finishes available.

- NOTES:
1. Handhole covers (HHC), full base covers (FBC) and top caps (TC) shipped separately. No need to call out in nomenclature. For additional parts please order as replacements.
2. Wall thickness will be signified with a "C" (11 Gauge) or a "G" (7-Gauge) in nomenclature. "C" - 0.1196" | "G" - 0.1793".
3. PT open top poles include top cap. When ordering tenon mounting and drill mounting for the same pole, follow this example: DM28/T20. The combination includes a required extra handhole.
4. Refer to the fixture spec sheet for the correct drilling template pattern and orientation compatibility.
5. Insert "1" or "2" to designate fixture size; e.g. DM19AST2.
6. On 4" and 5" poles, VD cannot be installed if provisions (EHH, FDL, NPL, CPL) are located higher than 2/3 of the pole's total height.
Example: Pole height is 25ft, A provision cannot be placed above 16ft.
7. Specify location and orientation when ordering option.
For "x": Specify the height above the base of pole in feet or inches; separate feet and inches with a "-".
Example: 5ft = 5 and 20ft 3in = 20-3
For "y": Specify orientation from handhole (A,B,C,D) Refer to the Handhole Orientation diagram below.
Example: 1/2" coupling at 5' 8", orientation C = CPL12/5-8C
8. Horizontal arm is 18" x 2-3/8" O.D. tenon standard, with radius curve providing 12" rise and 2-3/8" O.D. If ordering two horizontal arm at the same height, specify with HAxy. Example: HA20BD.
9. FDL does not come with GFCI outlet or handhole cover. These must be supplied by contractor or electrician.
10. Combination of tenon-top and drill mount includes extra handhole. EHH includes cover.
11. Provides enhanced corrosion resistance.
12. Use when mill certifications are required.
13. Finish must be specified. Additional colors available; see Architectural Colors brochure linked [here](#) (Form No. 794.3).

Accessories: Order as separate catalog number.	
PL DT20	Plugs for ESX drillings
PL DT8	Plugs for DMxxAS drillings

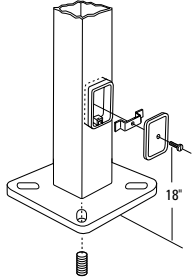
SSS Square Straight Steel Poles

TECHNICAL INFORMATION — EPA (ft²) with 1.3 gust

Catalog Number	Nominal Shaft Length (ft.)*	Pole Shaft Size (Base in. x Top in. x ft.)	Wall thick (in)	Gauge	EPA (ft²) with 1.3 gust						Bolt circle (in)	Bolt size (in. x in. x in.)	Approximate ship weight (lbs.)
					80 MPH	Max. weight	90 MPH	Max. weight	100 MPH	Max. weight			
SSS 10 4C	10	4.0 x 10.0	0.1196	11	30.6	765	23.8	595	18.9	473	8--9	3/4 x 18 x 3	75
SSS 12 4C	12	4.0 x 12.0	0.1196	11	24.4	610	18.8	470	14.8	370	8--9	3/4 x 18 x 3	90
SSS 14 4C	14	4.0 x 14.0	0.1196	11	19.9	498	15.1	378	11.7	293	8--9	3/4 x 18 x 3	100
SSS 16 4C	16	4.0 x 16.0	0.1196	11	15.9	398	11.8	295	8.9	223	8--9	3/4 x 18 x 3	115
SSS 18 4C	18	4.0 x 18.0	0.1196	11	12.6	315	9.2	230	6.7	168	8--9	3/4 x 18 x 3	125
SSS 20 4C	20	4.0 x 20.0	0.1196	11	9.6	240	6.7	167	4.5	150	8--9	3/4 x 18 x 3	140
SSS 20 4G	20	4.0 x 20.0	0.1793	7	14	350	11	275	8	200	8--9	3/4 x 30 x 3	198
SSS 20 5C	20	5.0 x 20.0	0.1196	11	17.7	443	12.7	343	9.4	235	10--12	1 x 36 x 4	185
SSS 20 5G	20	5.0 x 20.0	0.1793	7	28.1	703	21.4	535	16.2	405	10--12	1 x 36 x 4	265
SSS 25 4C	25	4.0 x 25.0	0.1196	11	4.8	150	2.6	100	1	50	8--9	3/4 x 18 x 3	170
SSS 25 4G	25	4.0 x 25.0	0.1793	7	10.8	270	7.7	188	5.4	135	8--9	3/4 x 30 x 3	245
SSS 25 5C	25	5.0 x 25.0	0.1196	11	9.8	245	6.3	157	3.7	150	10--12	1 x 36 x 4	225
SSS 25 5G	25	5.0 x 25.0	0.1793	7	18.5	463	13.3	333	9.5	238	10--12	1 x 36 x 4	360
SSS 30 4G	30	4.0 x 30.0	0.1793	7	6.7	168	4.4	110	2.6	65	8--9	3/4 x 30 x 3	295
SSS 30 5C	30	5.0 x 30.0	0.1196	11	4.7	150	2	50	--	--	10--12	1 x 36 x 4	265
SSS 30 5G	30	5.0 x 30.0	0.1793	7	10.7	267	6.7	167	3.9	100	10--12	1 x 36 x 4	380
SSS 30 6G	30	6.0 x 30.0	0.1793	7	19	475	13.2	330	9	225	11--13	1 x 36 x 4	520
SSS 35 5G	35	5.0 x 35.0	0.1793	7	5.9	150	2.5	100	--	--	10--12	1 x 36 x 4	440
SSS 35 6G	35	6.0 x 35.0	0.1793	7	12.4	310	7.6	190	4.2	105	11--13	1 x 36 x 4	540
SSS 39 6G	39	6.0 x 39.0	0.1793	7	7.2	180	3	75	--	--	11--13	1 x 36 x 4	605

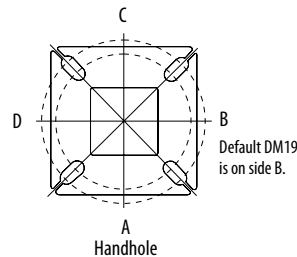
NOTE: * EPA values are based ASCE 7-93 wind map. For 1/2 ft increments, add .6 to the pole height. Ex: 20-6 equals 20ft 6in.

BASE DETAIL



POLE DATA								
Shaft base size	Bolt circle A	Bolt projection B	Base diameter C	Base plate thickness	Template description	Anchor bolt description	Anchor bolt and template number	Anchor bolt description
4"C	8" - 9"	3.25" - 3.75"	8" - 8.25"	0.75"	ABTEMPLATE PJ50004	AB18-0	ABSSS-4C	3/4"x18"x3"
4"G	8" - 9"	3.38" - 3.75"	8" - 8.25"	0.875"	ABTEMPLATE PJ50004	AB30-0	ABSSS-4G	3/4"x30"x3"
5"	10" - 12"	3.5" - 4"	11"	1"	ABTEMPLATE PJ50010	AB36-0	ABSSS-5	1"x36"x4"
6"	11" - 13"	4" - 4.50"	12.5"	1"	ABTEMPLATE PJ50011	AB36-0	N/A	1"x36"x4"

HANDHOLE ORIENTATION



IMPORTANT INSTALLATION NOTES:

- Do not erect poles without having fixtures installed.
- Factory-supplied templates must be used when setting anchor bolts. Lithonia Lighting will not accept claim for incorrect anchorage placement due to failure to use Lithonia Lighting factory templates.
- If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage.
- Lithonia Lighting is not responsible for the foundation design.
- Bolt circles have +/- 1/2" tolerance.

CAUTION: These specifications are intended for general purposes only. Lithonia Lighting reserves the right to change material or design, without prior notice, in a continuing effort to upgrade its products.



WDGE1 LED

Architectural Wall Sconce



Catalog
Number

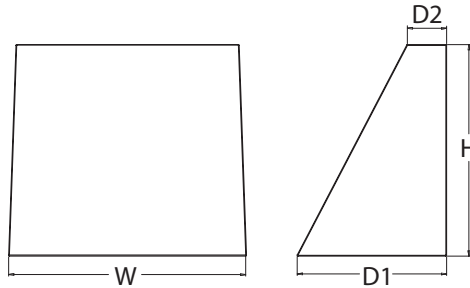
Notes

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Specifications

Depth (D1): 5.5"
Depth (D2): 1.5"
Height: 8"
Width: 9"
Weight: 9 lbs
 (without options)



Introduction

The WDGE LED family is designed to meet specifier's every wall-mounted lighting need in a widely accepted shape that blends with any architecture. The clean rectilinear design comes in four sizes with lumen packages ranging from 1,200 to 25,000 lumens, providing true site-wide solution.

WDGE1 delivers up to 2,000 lumens with a soft, non-pixelated light source, creating a visually comfortable environment. The compact size of WDGE1, with its integrated emergency battery backup option, makes it an ideal over-the-door wall-mounted lighting solution.

WDGE LED Family Overview

Luminaire	Standard EM, 0°C	Cold EM, -20°C	Sensor	Lumens (4000K)					
				P1	P2	P3	P4	P5	P6
WDGE1 LED	4W	--	--	1,200	2,000	--	--	--	--
WDGE2 LED	10W	18W	Standalone / nLight	1,200	2,000	3,000	4,500	6,000	--
WDGE3 LED	15W	18W	Standalone / nLight	7,500	8,500	10,000	12,000	--	--
WDGE4 LED	--	--	Standalone / nLight	12,000	16,000	18,000	20,000	22,000	25,000

Ordering Information

EXAMPLE: WDGE1 LED P2 40K 80CRI VF MVOLT SRM PE DDBXD

Series	Package	Color Temperature	CRI	Distribution	Voltage	Mounting
WDGE1 LED	P1	27K 2700K	80CRI	VF Visual comfort forward throw	MVOLT 347 ²	Shipped included SRM Surface mounting bracket ICW Indirect Canopy/Ceiling Washer bracket (dry/damp locations only) ⁵ Shipped separately AWS 3/8inch Architectural wall spacer PBBW Surface-mounted back box (top, left, right conduit entry) Use when there is no junction box available.
	P2	30K 3000K	90CRI	VW Visual comfort wide		
		35K 3500K				
		40K 4000K				
		50K ¹ 5000K				

Options	Finish
E4WH³ Emergency battery backup, Certified in CA Title 20 MAEDBS (4W, 0°C min) PE⁴ Photocell, Button Type DS Dual switching (comes with 2 drivers and 2 light engines; see page 3 for details) DMG 0-10V dimming wires pulled outside fixture (for use with an external control, ordered separately) BCE Bottom conduit entry for back box (PBBW). Total of 4 entry points. BAA Buy America(n) Act Compliant	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DDBTXD Textured dark bronze DBLTXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white DSSTXD Textured sandstone

Accessories

Ordered and shipped separately.

WDGEAWS DDBXD WDGE 3/8inch Architectural Wall Spacer (specify finish)
 WDGE1PBBW DDBXD U WDGE1 surface-mounted back box (specify finish)

NOTES

- 50K not available in 90CRI.
- 347V not available with E4WH, DS or PE.
- E4WH not available with PE or DS.
- PE not available with DS.
- Not qualified for DLC. Not available with E4WH.



COMMERCIAL OUTDOOR

One Lithonia Way • Conyers, Georgia 30012 • Phone: 1-800-705-SERV (7378) • www.lithonia.com
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WDGE1 LED
 Rev. 03/01/22

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	System Watts	Dist. Type	27K (2700K, 80 CRI)					30K (3000K, 80 CRI)					35K (3500K, 80 CRI)					40K (4000K, 80 CRI)					50K (5000K, 80 CRI)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
P1	10W	VF	1,120	112	0	0	0	1,161	116	0	0	0	1,194	119	0	0	0	1,227	123	0	0	0	1,235	123	0	0	0
		VW	1,122	112	0	0	0	1,163	116	0	0	0	1,196	120	0	0	0	1,229	123	0	0	0	1,237	124	0	0	0
P2	15W	VF	1,806	120	1	0	0	1,872	125	1	0	0	1,925	128	1	0	0	1,978	132	1	0	0	1,992	133	1	0	0
		VW	1,809	120	1	0	0	1,876	125	1	0	0	1,929	128	1	0	0	1,982	132	1	0	0	1,996	133	1	0	0

Electrical Load

Performance Package	System Watts	Current (A)				
		120V	208V	240V	277V	347V
P1	10W	0.082	0.049	0.043	0.038	--
	13W	--	--	--	--	0.046
P2	15W	0.132	0.081	0.072	0.064	--
	18W	--	--	--	--	0.056

Lumen Multiplier for 90CRI

CCT	Multiplier
27K	0.845
30K	0.867
35K	0.845
40K	0.885
50K	0.898

Lumen Output in Emergency Mode (4000K, 80 CRI)

Option	Dist. Type	Lumens
E4WH	VF	646
	VW	647

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.03
10°C	50°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.98

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

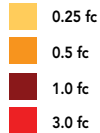
Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	>0.96	>0.95	>0.91



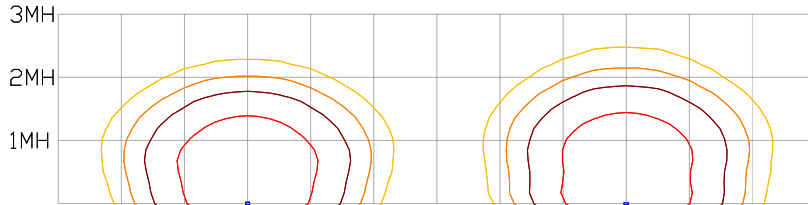
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit the Lithonia Lighting WDGE LED homepage.
Tested in accordance with IESNA LM-79 and LM-80 standards.

LEGEND



MH = 8ft
Grid = 8ft x 8ft



WDGE1 LED P2 40K 80CRI VW

WDGE1 LED P2 40K 80CRI VF

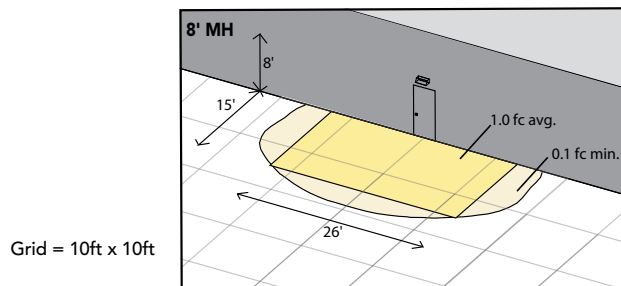
Emergency Egress Options

Emergency Battery Backup

The emergency battery backup is integral to the luminaire — no external housing required! This design provides reliable emergency operation while maintaining the aesthetics of the product. All emergency battery backup configurations include an independent secondary driver with an integral relay to immediately detect loss of normal power and automatically energize the luminaire. The emergency battery will power the luminaire for a minimum duration of 90 minutes (maximum duration of three hours) from the time normal power is lost and maintain a minimum of 60% of the light output at the end of 90 minutes.

Applicable codes: NFPA 70/NEC – section 700.16, NFPA 101 Life Safety Code Section 7.9

The example below shows illuminance of 1 fc average and 0.1 fc minimum in emergency mode with E4WH and VF distribution.

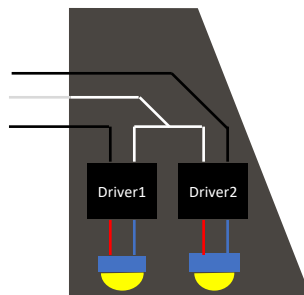


WDGE1 LED xx 40K 80CRI VF MVOLT E4WH

Dual Switching (DS) Option

The dual switching option offers operational redundancy that certain codes require. With this option the luminaire comes integrated with two drivers and two light engines. These work completely independent to each other so that a failure of any individual component does not cause the whole luminaire to go dark. This option is typically used with a back generator or inverter providing emergency power.

Applicable codes: NFPA 70/NEC – section 700.16, NFPA 101 Life Safety Code Section 7.9





E4WH – 4W Emergency Battery Backup

D = 5.5"

H = 8"

W = 9"



PBBW – Surface-Mounted Back Box

Use when there is no junction box available.

D = 1.75"

H = 8"

W = 9"



AWS – 3/8inch Architectural Wall Spacer

D = 0.38"

H = 4.4"

W = 7.5"

FEATURES & SPECIFICATIONS

INTENDED USE

Common architectural look, with clean rectilinear shape, of the WEDGE LED was designed to blend with any type of construction, whether it be tilt-up, frame or brick. Applications include commercial offices, warehouses, hospitals, schools, malls, restaurants, and other commercial buildings.

CONSTRUCTION

The single-piece die-cast aluminum housing integrates secondary heat sinks to optimize thermal transfer from the internal light engine heat sinks and promote long life. The driver is mounted in direct contact with the casting for a low operating temperature and long life. The die-cast door frame is fully gasketed with a one-piece solid silicone gasket to keep out moisture and dust, providing an IP66 rating for the luminaire.

FINISH

Exterior painted parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum, sandstone and white. Available in textured and non-textured finishes.

OPTICS

Well crafted reflector optics allow the light engine to be recessed within the luminaire, providing visual comfort, superior distribution, uniformity, and spacing in wall-mount applications. The WEDGE LED has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engine consists of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L91/100,000 hours at 25°C). The electronic driver has a power factor of >90%, THD <20%. Luminaire comes with built in 6kV surge protection, which meets a minimum Category C low exposure (per ANSI/IEEE C62.41.2). Fixture ships standard with 0-10v dimmable driver.

INSTALLATION

A universal mounting plate with integral mounting support arms allows the fixture to hinge down for easy access while making wiring connections. The 3/8" Architectural Wall Spacer (AWS) can be used to create a floating appearance or to accommodate small imperfections in the wall surface. The ICW option can be used to mount the luminaire inverted for indirect lighting in dry and damp locations. Design can withstand up to a 1.5 G vibration load rating per ANSI C136.31.

LISTINGS

CSA certified to U.S. and Canadian standards. Luminaire is IP66 rated. PIR options are rated for wet location. Rated for -40°C minimum ambient. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified. International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 2700K and 3000K color temperature only and SRM mounting only.

BUY AMERICAN

Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT. Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY

5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.



WEDGE3 LED

Architectural Wall Sconce



Buy American



Catalog
Number

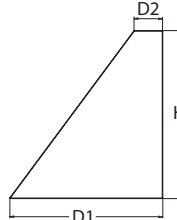
Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

Depth (D1): 8"
Depth (D2): 1.5"
Height: 9"
Width: 18"
Weight: 19.5 lbs
 (without options)



Introduction

The WEDGE LED family is designed to meet specifier's every wall-mounted lighting need in a widely accepted shape that blends with any architecture. The clean rectilinear design comes in four sizes with lumen packages ranging from 1,200 to 25,000 lumens, providing a true site-wide solution. Embedded with nLight® AIR wireless controls, the WEDGE family provides additional energy savings and code compliance.

WEDGE3 has been designed to deliver up to 12,000 lumens through a precision refractive lens with wide distribution, perfect for augmenting the lighting from pole mounted luminaires.

WEDGE LED Family Overview

Luminaire	Standard EM, 0°C	Cold EM, -20°C	Sensor	Lumens (4000K)					
				P1	P2	P3	P4	P5	P6
WEDGE1 LED	4W	--	--	1,200	2,000	--	--	--	--
WEDGE2 LED	10W	18W	Standalone / nLight	1,200	2,000	3,000	4,500	6,000	--
WEDGE3 LED	15W	18W	Standalone / nLight	7,500	8,500	10,000	12,000	--	--
WEDGE4 LED	--	--	Standalone / nLight	12,000	16,000	18,000	20,000	22,000	25,000

Ordering Information

EXAMPLE: WEDGE3 LED P3 40K 70CRI R3 MVOLT SRM DDBXD

Series	Package	Color Temperature	CRI	Distribution	Voltage	Mounting
WEDGE3 LED	P1	30K 3000K	70CRI	R2 Type 2	MVOLT	Shipped included
	P2	40K 4000K	80CRI	R3 Type 3	347 ¹	SRM Surface mounting bracket
	P3	50K 5000K		R4 Type 4	480 ¹	ICW Indirect Canopy/Ceiling Washer bracket (dry/damp locations only) ⁴
	P4			RFT Forward Throw		
						Shipped separately
						AWS 3/8inch Architectural wall spacer
						PBBW Surface-mounted back box (top, left, right conduit entry). Use when there is no junction box available.

Options				Finish	
E15WH	Emergency battery backup, Certified in CA Title 20 MAEDBS (15W, 5°C min)	Standalone Sensors/Controls		DDBXD	Dark bronze
E20WC	Emergency battery backup, Certified in CA Title 20 MAEDBS (18W, -20°C min)	PIR	Bi-level (100/35%) motion sensor for 8-15' mounting heights. Intended for use on switched circuits with external dusk to dawn switching.	DBLXD	Black
PE ²	Photocell, Button Type	PIRH	Bi-level (100/35%) motion sensor for 15-30' mounting heights. Intended for use on switched circuits with external dusk to dawn switching	DNAXD	Natural aluminum
DMG ³	0-10V dimming wires pulled outside fixture (for use with an external control, ordered separately)	PIR1FC3V	Bi-level (100/35%) motion sensor for 8-15' mounting heights with photocell pre-programmed for dusk to dawn operation.	DWHXD	White
BCE	Bottom conduit entry for back box (PBBW). Total of 4 entry points.	PIRH1FC3V	Bi-level (100/35%) motion sensor for 15-30' mounting heights with photocell pre-programmed for dusk to dawn operation.	DSSXD	Sandstone
SPD10KV	10kV Surge pack	Networked Sensors/Controls		DDBTXD	Textured dark bronze
BAA	Buy America(n) Act Compliant	NLTAIR2 PIR	nLightAIR Wireless enabled bi-level motion/ambient sensor for 8-15' mounting heights.	DBLBXD	Textured black
See page 4 for out of box functionality				DNATXD	Textured natural aluminum
				DWHGXD	Textured white
				DSSTXD	Textured sandstone

Accessories

Ordered and shipped separately.

WEDGEAWS DDBXD WEDGE 3/8inch Architectural Wall Spacer (specify finish)
 WEDGE3PBBW DDBXD U WEDGE3 surface-mounted back box (specify finish)

NOTES

- 347V and 480V not available with E15WH and E20WC.
- PE not available in 480V and with sensors/controls.
- DMG option not available with sensors/controls.
- Not qualified for DLC. Not available with emergency battery backup or sensors/controls



COMMERCIAL OUTDOOR

One Lithonia Way • Conyers, Georgia 30012 • Phone: 1-800-705-SERV (7378) • www.lithonia.com
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WEDGE3 LED
 Rev. 03/01/22

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	System Watts	Dist. Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
P1	52W	R2	7,037	136	1	0	1	7,649	148	2	0	1	7,649	148	2	0	1
		R3	6,922	134	1	0	2	7,524	145	1	0	2	7,524	145	1	0	2
		R4	7,133	138	1	0	2	7,753	150	1	0	2	7,753	150	1	0	2
		RFT	6,985	135	1	0	2	7,592	147	1	0	2	7,592	147	1	0	2
P2	59W	R2	7,968	135	2	0	1	8,661	147	2	0	1	8,661	147	2	0	1
		R3	7,838	133	1	0	2	8,519	144	1	0	2	8,519	144	1	0	2
		R4	8,077	137	1	0	2	8,779	149	1	0	2	8,779	149	1	0	2
		RFT	7,909	134	1	0	2	8,597	146	2	0	2	8,597	146	2	0	2
P3	71W	R2	9,404	132	2	0	1	10,221	143	2	0	1	10,221	143	2	0	1
		R3	9,250	130	2	0	2	10,054	141	2	0	2	10,054	141	2	0	2
		R4	9,532	134	2	0	2	10,361	145	2	0	2	10,361	145	2	0	2
		RFT	9,334	131	2	0	2	10,146	142	2	0	2	10,146	142	2	0	2
P4	88W	R2	11,380	129	2	0	1	12,369	140	2	0	1	12,369	140	2	0	1
		R3	11,194	127	2	0	2	12,167	138	2	0	2	12,167	138	2	0	2
		R4	11,535	131	2	0	2	12,538	142	2	0	2	12,538	142	2	0	2
		RFT	11,295	128	2	0	2	12,277	139	2	0	2	12,277	139	2	0	2

Electrical Load

Performance Package	System Watts	Current (A)					
		120V	208V	240V	277V	347V	480V
P1	52W	0.437	0.246	0.213	0.186	0.150	0.110
P2	59W	0.498	0.287	0.251	0.220	0.175	0.126
P3	71W	0.598	0.344	0.300	0.262	0.210	0.152
P4	88W	0.727	0.424	0.373	0.333	0.260	0.190

Lumen Output in Emergency Mode (4000K, 70 CRI)

Option	Dist. Type	Lumens
E15WH	R2	3,185
	R3	3,133
	R4	3,229
	RFT	3,162
E20WC	R2	3,669
	R3	3,609
	R4	3,719
	RFT	3,642

Lumen Multiplier for 80CRI

CCT	Multiplier
30K	0.891
40K	0.906
50K	0.906

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.05
10°C	50°F	1.03
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

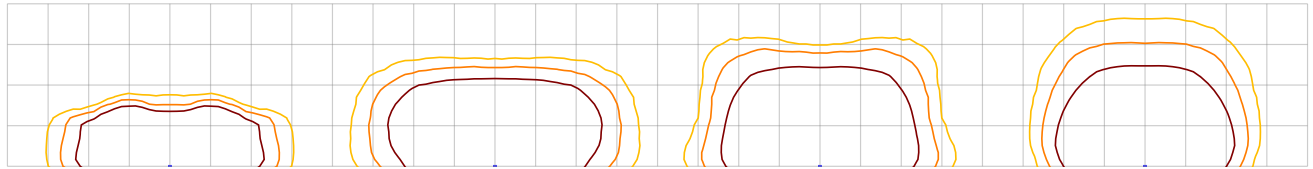
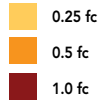
Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	>0.98	>0.97	>0.92



Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit the Lithonia Lighting WDGE LED homepage.
Tested in accordance with IESNA LM-79 and LM-80 standards.

LEGEND



MH = 15ft
Grid = 15ft x 15ft

WDGE3 LED P3 40K 70CRI R2

WDGE3 LED P3 40K 70CRI R3

WDGE3 LED P3 40K 70CRI R4

WDGE3 LED P3 40K 70CRI RFT

Emergency Egress Options

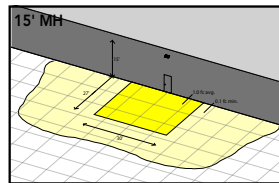
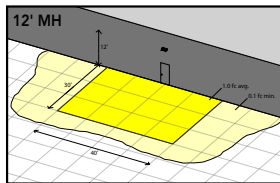
Emergency Battery Backup

The emergency battery backup is integral to the luminaire — no external housing required! This design provides reliable emergency operation while maintaining the aesthetics of the product. All emergency battery backup configurations include an independent secondary driver with an integral relay to immediately detect loss of normal power and automatically energize the luminaire. The emergency battery will power the luminaire for a minimum duration of 90 minutes (maximum duration of three hours) from the time normal power is lost and maintain, minimum of 60% of the light output at the end of 90 minutes.

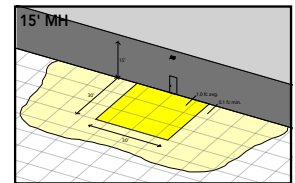
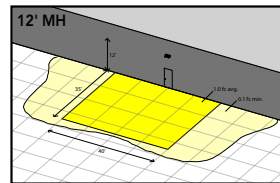
Applicable codes: NFPA 70/NEC – section 700.16, NFPA 101 Life Safety Code Section 7.9

The examples below show illuminance of 1 fc average and 0.1 fc minimum in emergency mode with E15WH or E20WC and R4 distribution.

Grid = 10ft x 10ft



WDGE3 LED xx 40K 70CRI R4 MVOLT E15WH



WDGE3 LED xx 40K 70CRI R4 MVOLT E20WC

Motion/Ambient Sensor (PIR_, PIRH_)

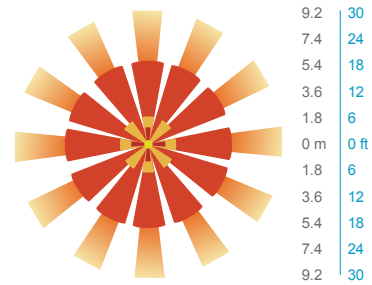
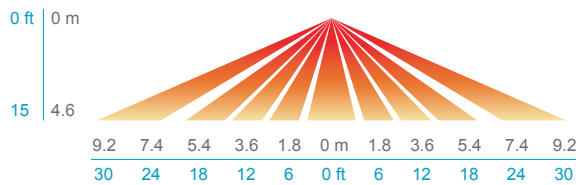
Motion/Ambient sensor (Sensor Switch MSOD) is integrated into the the luminaire. The sensor provides both Motion and Daylight based dimming of the luminaire. For motion detection, the sensor utilizes 100% Digital Passive Infrared (PIR) technology that is tuned for walking size motion while preventing false tripping from the environment. The integrated photocell enables additional energy savings during daytime periods when there is sufficient daylight. Optimize sensor coverage by either selecting PIR or PIRH option. PIR option comes with a sensor lens that is optimized to provide maximum coverage for mounting heights between 8-15ft, while PIRH is optimized for 15-40ft mounting height.

Networked Control (NLTAIR2)

nLight® AIR is a wireless lighting controls platform that allows for seamless integration of both indoor and outdoor luminaires. Five-tier security architecture, 900 MHz wireless communication and app (CLAIRITY™ Pro) based configurability combined together make nLight® AIR a secure, reliable and easy to use platform.

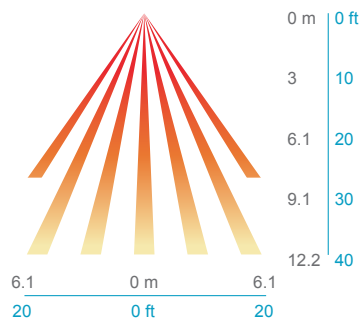
PIR

HIGH VIEW

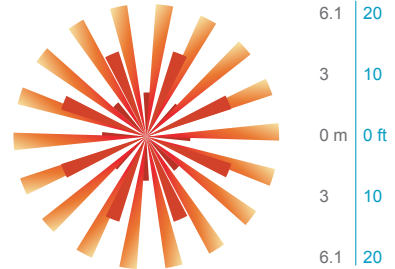


PIRH

SIDE VIEW



TOP VIEW



Motion/Ambient Sensor Default Settings

Option	Dim Level	High Level (when triggered)	Photocell Operation	Motion Time Delay	Ramp-down Time	Ramp-up Time
PIR or PIRH	Motion - 3V (37% of full output) Photocell - 0V (turned off)	10V (100% output)	Enabled @ 5fc	5 min	5 min	Motion - 3 sec Photocell - 45 sec
PIR1FC3V, PIRH1FC3V	Motion - 3V (37% of full output) Photocell - 0V (turned off)	10V (100% output)	Enabled @ 1fc	5 min	5 min	Motion - 3 sec Photocell - 45 sec
NLTAIR2 PIR, NLTAIR2 PIRH (out of box)	Motion - 3V (37% of full output) Photocell - 0V (turned off)	10V (100% output)	Enabled @ 5fc	7.5 min	5 min	Motion - 3 sec Photocell - 45 sec



**NLTAIR2 PIR – nLight AIR
Motion/Ambient Sensor**

D = 8"

H = 11"

W = 18"



PBBW – Surface-Mounted Back Box
Use when there is no junction box available.

D = 1.75"

H = 9"

W = 18"



AWS – 3/8inch Architectural Wall Spacer

D = 0.38"

H = 4.4"

W = 7.5"

FEATURES & SPECIFICATIONS

INTENDED USE

Common architectural look, with clean rectilinear shape, of the WEDGE LED was designed to blend with any type of construction, whether it be tilt-up, frame or brick. Applications include commercial offices, warehouses, hospitals, schools, malls, restaurants, and other commercial buildings.

CONSTRUCTION

The single-piece die-cast aluminum housing to optimize thermal transfer from the light engine and promote long life. The driver is mounted in direct contact with the casting for a low operating temperature and long life. The die-cast door frame is fully gasketed with a one-piece solid silicone gasket to keep out moisture and dust, providing an IP65 rating for the luminaire.

FINISH

Exterior painted parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum, sandstone and white. Available in textured and non-textured finishes.

OPTICS

Individually formed acrylic lenses are engineered for superior application efficiency which maximizes the light in the areas where it is most needed. Light engines are available in 3000 K, 4000 K or 5000 K configurations. The WEDGE LED has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engine consists of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L92/100,000 hours at 25°C). The electronic driver has a power factor of >90%, THD <20%. Luminaire comes with built in 6kV surge protection, which meets a minimum Category C low exposure (per ANSI/IEEE C62.41.2). Fixture ships standard with 0-10v dimmable driver.

INSTALLATION

A universal mounting plate with integral mounting support arms allows the fixture to hinge down for easy access while making wiring connections. The 3/8" Architectural Wall Spacer (AWS) can be used to create a floating appearance or to accommodate small imperfections in the wall surface. The ICW option can be used to mount the luminaire inverted for indirect lighting in dry and damp locations. Design can withstand up to a 1.5 G vibration load rating per ANSI C136.31.

LISTINGS

CSA certified to U.S. and Canadian standards. Light engines are IP66 rated; luminaire is IP65 rated. PIR options are rated for wet location. Rated for -40°C minimum ambient. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified. International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature and SRM mounting only.

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Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Landscape Best Management Practices Operations and Maintenance Plan

7 West Commercial Development
Dover Project #P22-XX

Prepared For:
Altus Engineering, Inc
Portsmouth, NH 03801
May 5, 2022

Prepared By:
Ironwood Design Group, LLC
Exeter, NH 03833



Landscape Maintenance

Introduction

The landscape enhancements proposed for the 7 West Commercial Development will require modest maintenance at various times throughout the year. For the site plantings, maintenance is most important during the first 1-2 years following installation when plants are becoming established. Anyone involved in the upkeep of the facility should become familiar with the landscape and its features. Identified below are basic, at minimum, maintenance tasks:

Weekly Tasks

1. Prune back any shrubs overhanging curbs or sidewalks.
2. Remove litter from plants bed.
3. Remove broken or fallen branches from trees.
4. Prune sucker growth from tree trunks.
5. Remove weeds larger than 2 inches high or wide from plant beds. Weeds 2 inches and larger must be removed, not just killed. **The application of herbicides such as Roundup is discouraged.**
6. Any invasive species seedlings observed should be removed and disposed of properly.
7. Replace bark mulch that may have been washed out of planting beds. Smooth mulch layer if it has been disturbed.
8. Check plants for signs of stress, pests or disease and notify Owner for authorization to replace.
9. If a significant decline in plant health is attributed to an insect pest, **apply an organic product and/or process** to control the pest.
10. Water plants that are dry and stressed.
11. Notify Owner for authorization to replace dead plants at the appropriate time (see annual tasks, September).
12. Identify other tasks listed on the Annual and Monthly checklist of tasks.

Annual Tasks

Early Spring

1. Prune winter damage such as broken tree branches that interfere with public safety.
2. Trim dead perennial foliage left in the fall for winter interest to within six inches of the ground.
3. Add new mulch to plant beds where the mulch depth has been reduced to less than 2 inches. Mulch depth shall not exceed two inches (top dressed). Mulch is not required where shrubs or groundcover completely hide the soil surface from view.
4. Gently prune shrubs at appropriate time of year based on species, for shape and form. **Do not shear.**
5. Energize the irrigation system, repair damaged components, test the system, adjust heads, and update programming.
6. Conduct a soil test to measure at a minimum, pH, phosphorus, potassium, calcium, and magnesium. Follow the recommendations provided with the soil test results.

7. Apply fertilizer only when required. A single application of fertilizer per year before Memorial Day is encouraged.

Monthly Tasks

June

No additional items

July

No additional items

August

No additional items

September

1. Inventory all plant materials, including an exact count of all shrubs and trees.
2. Replace any dead or missing plants.
3. Aerate lawn areas.
4. Apply pelletized lime at a rate of 80 lbs/1,000 square feet or as soil test dictates.

October

1. Winterize irrigation system.

November

1. Remove leaves from lawn areas and planting beds.
2. Remove perennial vegetation that has died back for the season.
3. Apply "WILT-PRUF" to broadleaf evergreens, according to label instructions, to protect shrubs from winter die back.

December

1. Prune any tree branches that interfere with public safety.
2. Prune street and parking lot trees yearly to encourage strong growth the following growing season. Trees adjacent to pedestrian sidewalks shall have branches pruned to 6-foot height.

Management Task or Activity	Time or Frequency						
	Weekly	Monthly	Spring	Summer	Fall	Winter	After Major Rain Events
Replace dead or dying plants			X				
Remove weeds	X		X	X	X		
Cut down grasses			X				
Remove accumulated leaves, litter, and plant debris		X					X

Stormwater Detention Facilities

Introduction

The stormwater facilities are used to attenuate flow and treat stormwater. The stormwater treatment areas consist of a large basin and linear swales seeded with a variety of native, adaptable, and rugged perennial grasses and flowering plants. There are maintenance tasks associated with stormwater facilities.

Erosion

The soil in the facility and in areas draining to the facility shall be inspected for erosion. Eroded areas shall be filled with soil or mulch and seeded with the approved seed mix for the location.

Sediment Accumulation & Clogging

The accumulation of sediment within the facility may reduce its infiltration capacity and impair performance. The facility shall be inspected for accumulation of sediment and excessive sediment shall be removed with the area re-mulched and replanted as appropriate and necessary.

Outlet Structure Maintenance

The facility outlet structure requires monitoring. Periodically, the orifice on the outlet pipe may clog with debris. Any found debris should be removed and appropriately disposed of off-site.

Riprap

To prevent erosion of soils from stormwater flows, the facility may have surface stone armoring where runoff enters or leaves the facility. The facility shall be monitored after rain events to make sure that an adequate amount of stone exists to prevent erosion; additional stone can be added if necessary.

Debris & Litter

Debris and litter should be removed monthly to maintain aesthetic appearance and public acceptance.

Plant Maintenance

Healthy vegetation contributes to the optimal operation of the stormwater facility. Planting area maintenance tasks include the removal of accumulated leaves, litter, and plant debris as needed. During the first 1-2 years after planting, the facility should be monitored for invasive species and weeded as needed and appropriate. Well-established facility vegetation should be mowed annually in the fall.

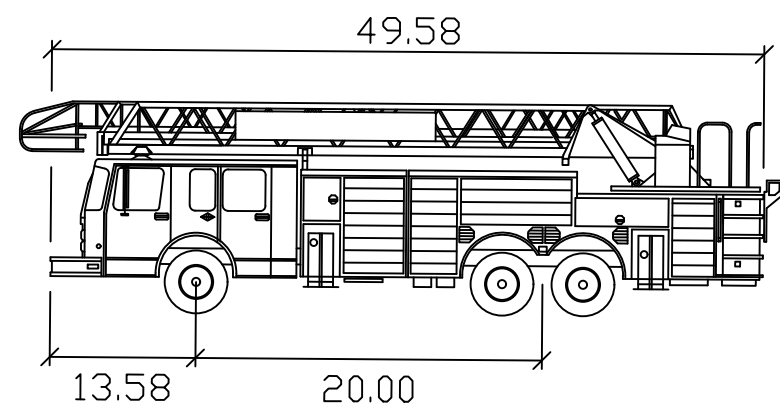
Snow Storage

Snow shall not be dumped directly onto the facility.

Chlorides

The stormwater facility is not suitable for treating chlorides. Chloride use on source surface areas tributary to the facility should be avoided if possible. In these locations, it would be prudent to eliminate or reduce application of chloride-containing deicing compounds, use alternative deicers, or apply clean sand as needed. Aggressive sweeping in these areas, along with pretreatment sumps and filter strips, will minimize the negative impact of the sand on the facility.

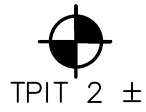
Management Task or Activity	Time or Frequency						
	Weekly	Monthly	Spring	Summer	Fall	Winter	After Major Rain Events
Inspect for erosion. Rake and redistribute/replenish any soil, rap, or mulch that has eroded		X					X
Inspect for standing water							X
Remove accumulated leaves, litter, and plant debris		X					X
Weed plant material		X					
Mow plant material					X		



Dover Tower

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

VEHICLE MODELED – DOVER FIRE TRUCK



19-2188
7 WEST, LLC
DURHAM ROAD / BACK RIVER ROAD INTERSECTION
1" = 20' 4/11/2022
MSA\2188\22-2188 WORKSHEET.DWG
HORIZONTAL: NH STATE PLAN NAD83
VERTICAL: NAD88

133 COURT STREET

PORTSMOUTH, NH 03801

(603) 433-2335

www.ALTUS-ENG.com

THIS DRAWING HAS NOT BEEN
RELEASED FOR CONSTRUCTION

ISSUED FOR: CLIENT REVIEW

ISSUE DATE: APRIL 26, 2022

REVISIONS		
NO.	DESCRIPTION	BY DATE
0	INITIAL SUBMITTAL	CDB XX/XX/22

DRAWN BY: _____ MBS
APPROVED BY: _____ CDB
DRAWING FILE: 4952-Site.dwg

SCALE: 24" X 36" 1" = 30'
12" X 18" 1" = 60'

OWNER:
7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

APPLICANT:
STACMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

PROJECT:
7 WEST
COMMERCIAL
DEVELOPMENT
(FILE NO. P21-___)
TAX MAP H, LOT 11
DOVER, NH

TITLE:

TRUCK TURNING

SHEET NUMBER:

T-1

THIS DRAWING HAS NOT BEEN
RELEASED FOR CONSTRUCTION

ISSUED FOR: CLIENT REVIEW

ISSUE DATE: APRIL 26, 2022

REVISIONS	NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	04/26/22	

DRAWN BY: MBS
APPROVED BY: CDB
DRAWING FILE: 4952-Site.dwg

SCALE: 24" X 36" 1" = 20'
12" X 18" 1" = 40'

OWNER:
7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

APPLICANT:
SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

PROJECT:
7 WEST
COMMERCIAL
DEVELOPMENT

(FILE NO. P21-___)
TAX MAP H, LOT 11
DOVER, NH

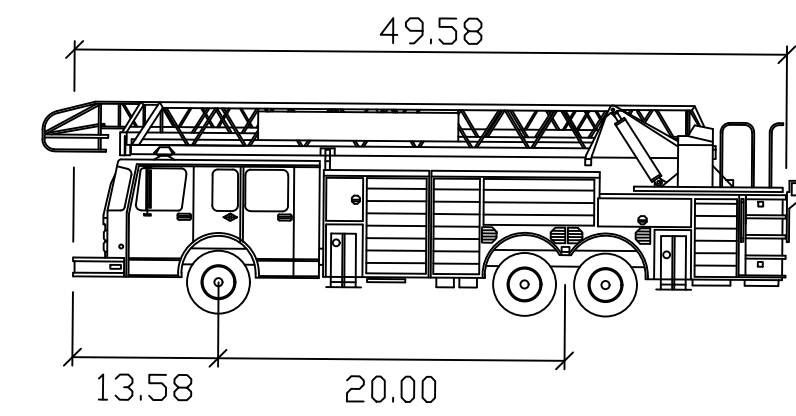
TITLE:

TRUCK TURNING

SHEET NUMBER:

T-2

P4952

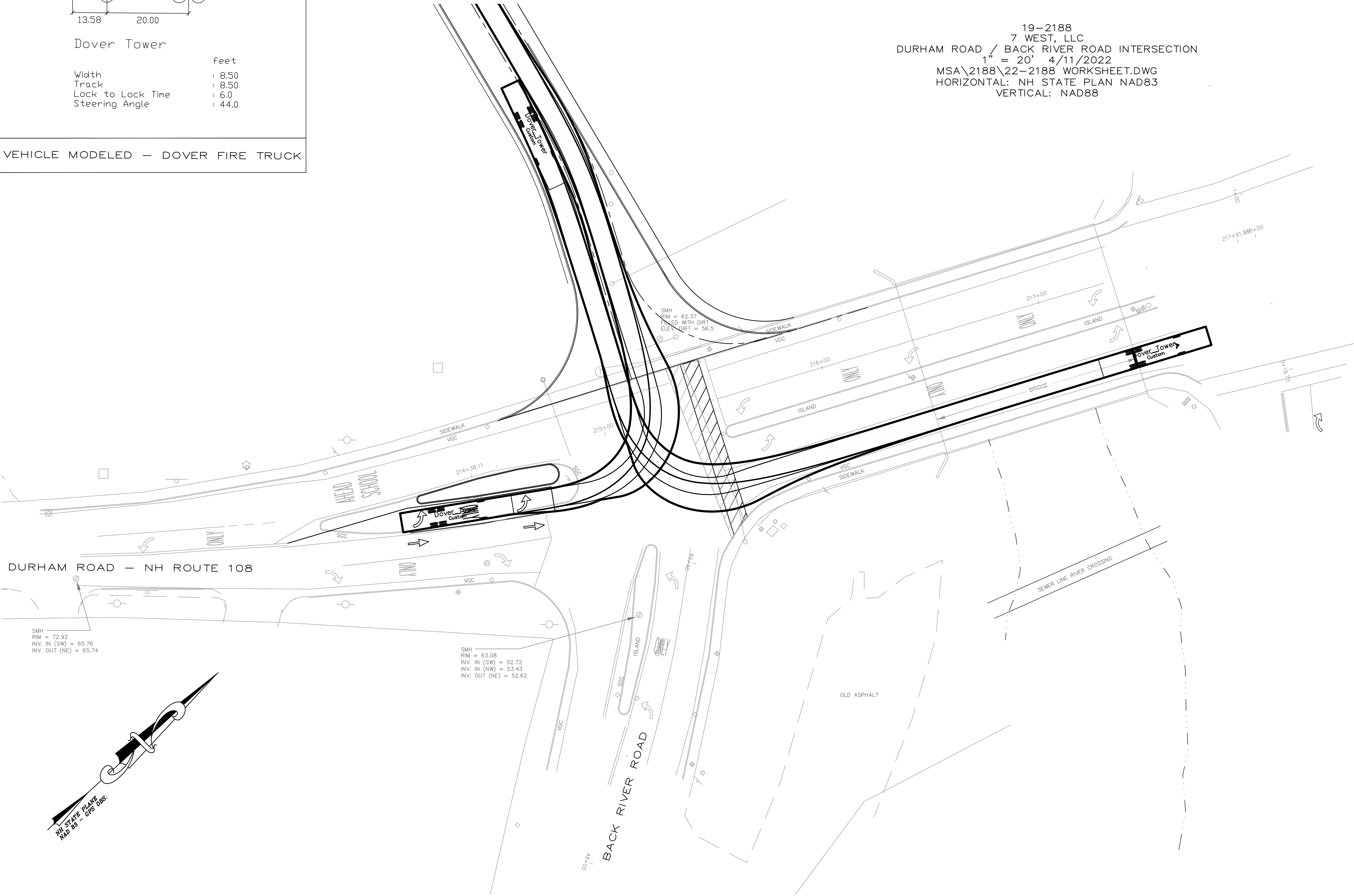


Dover Tower

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

VEHICLE MODELED — DOVER FIRE TRUCK

19-2188
7 WEST, LLC
DURHAM ROAD / BACK RIVER ROAD INTERSECTION
1" = 20' 4/11/2022
MSA\2188\22-2188 WORKSHEET.DWG
HORIZONTAL: NH STATE PLAN NAD83
VERTICAL: NAD88



THIS DRAWING HAS NOT BEEN
RELEASED FOR CONSTRUCTION

ISSUED FOR: CLIENT REVIEW

ISSUE DATE: APRIL 26, 2022

REVISIONS
NO. DESCRIPTION BY DATE
0 INITIAL SUBMITTAL CDB XX/XX/22

DRAWN BY: MBS
APPROVED BY: CDB
DRAWING FILE: 4952-Site.dwg

SCALE: 24" X 36" 1" = 20'
12" X 18" 1" = 40'

OWNER:
7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

APPLICANT:
SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

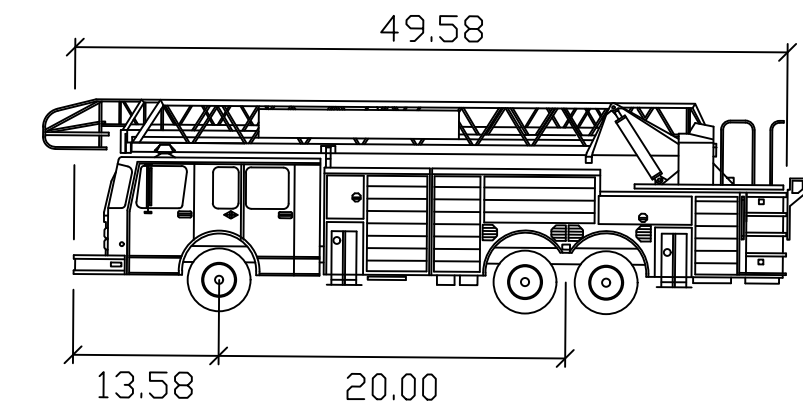
PROJECT:
7 WEST
COMMERCIAL
DEVELOPMENT

(FILE NO. P21-___)
TAX MAP H, LOT 11
DOVER, NH

TITLE:

TRUCK TURNING

SHEET NUMBER:
T-3

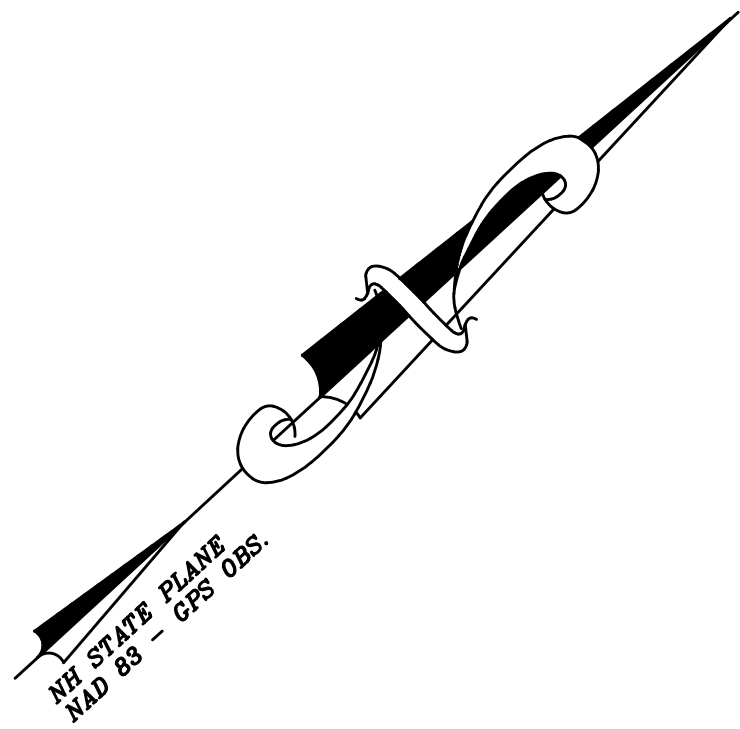
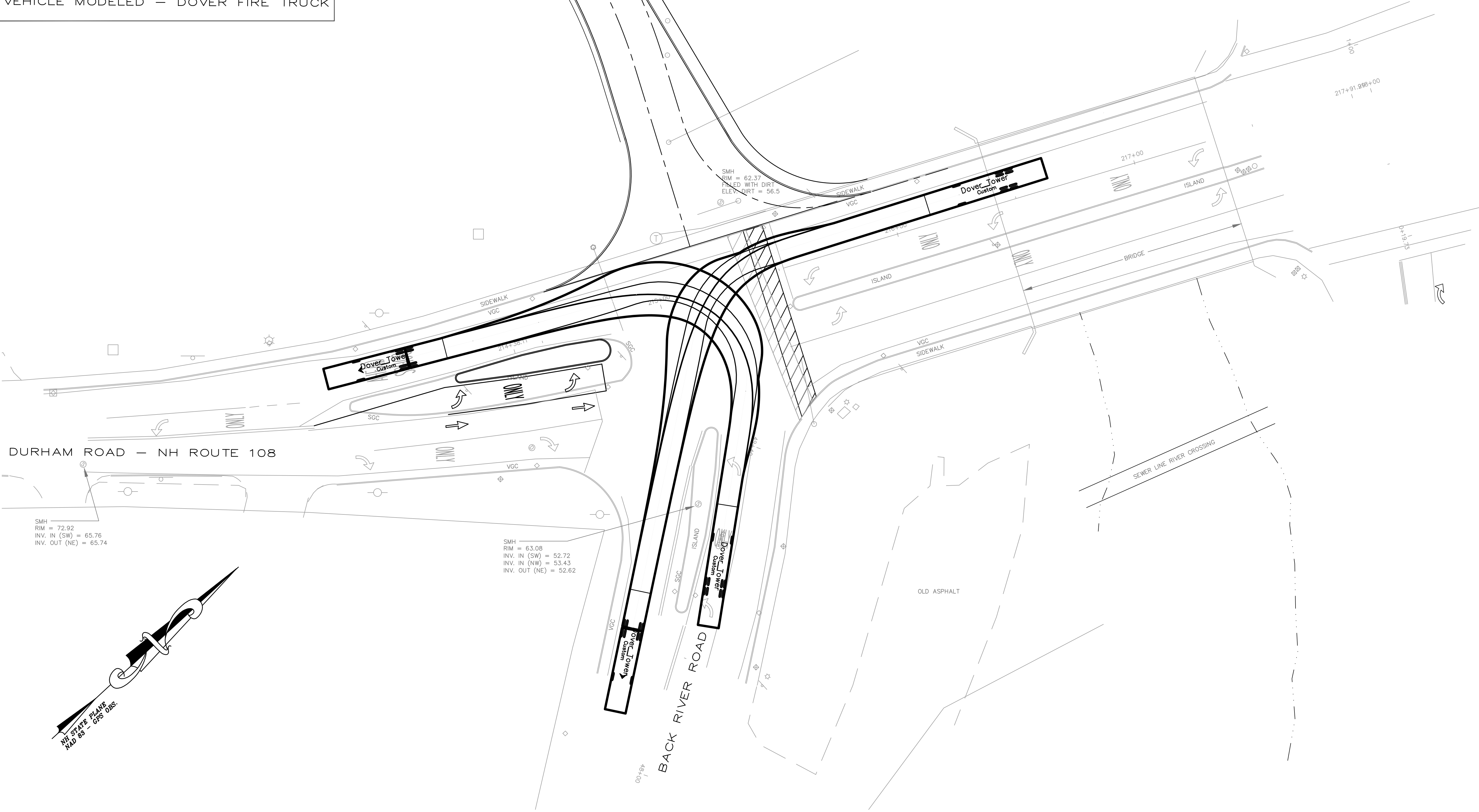


Dover Tower

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

VEHICLE MODELED — DOVER FIRE TRUCK

19-2188
7 WEST, LLC
DURHAM ROAD / BACK RIVER ROAD INTERSECTION
1" = 20' 4/11/2022
MSA\2188\22-2188 WORKSHEET.DWG
HORIZONTAL: NH STATE PLAN NAD83
VERTICAL: NAD88



SITE PLAN REVIEW and CONDITIONAL USE PERMITS
CITY OF DOVER DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT
FILE NO. P22-38

7 WEST COMMERCIAL DEVELOPMENT

Tax Map H, Lot 11

DOVER, NEW HAMPSHIRE

ISSUED FOR PLANNING BOARD APPLICATION

Owner:

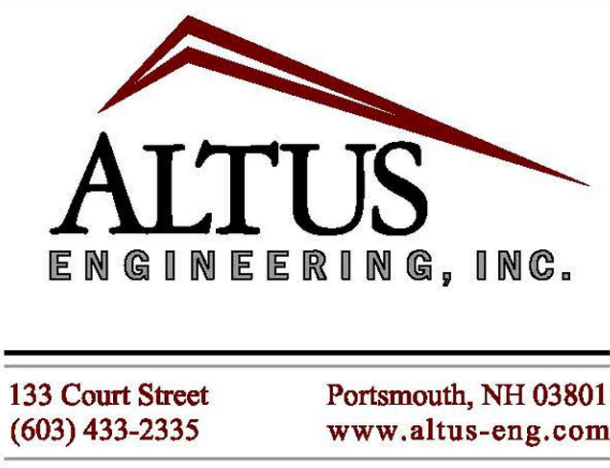
7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

Plan Issue Date:
May 5, 2022

Applicant:

Summit Land Development
340 Central Avenue #202
Dover, NH 03820

Civil Engineer:



Surveyor:

McEneaney Survey Associates
24 Chestnut Street
Dover, NH 03820
PHONE: (603) 742-0911

Wetland/Soil Scientist:

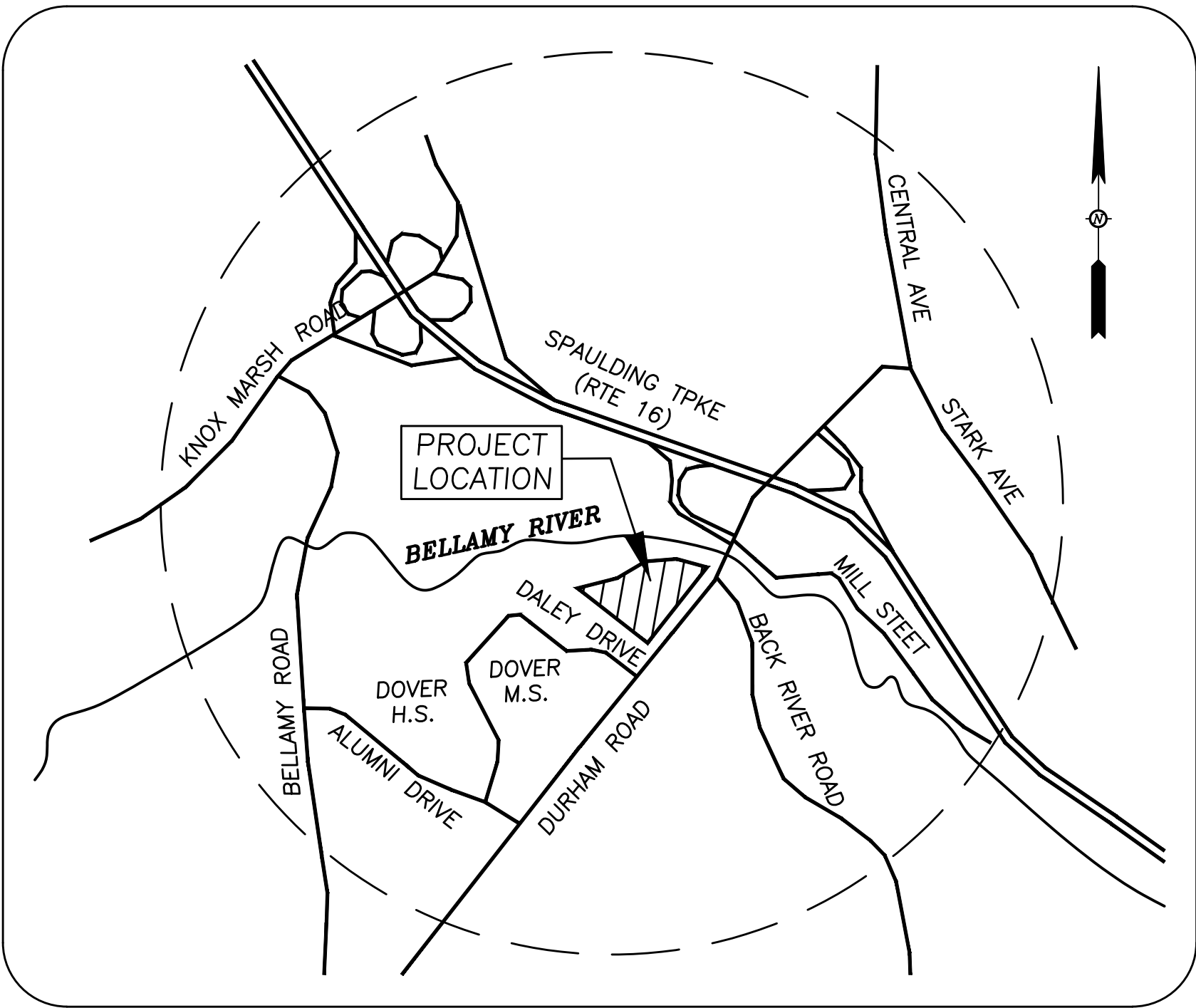
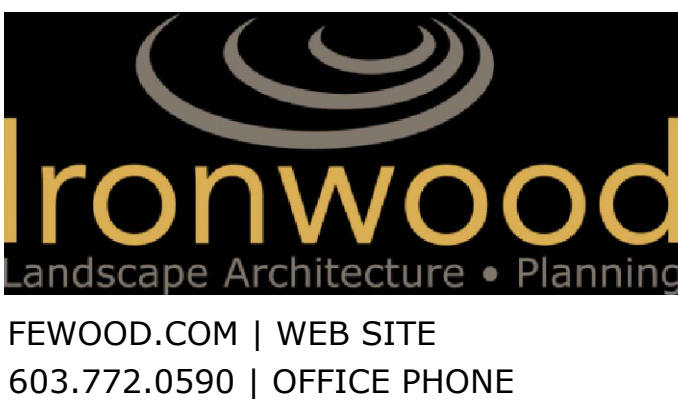


Architect:



104 Congress Street
Suite 203
Portsmouth NH, 03801
PH: 603.501.0202
MarketSquareArchitects.com

Landscape Architect:



LOCUS MAP
Scale: 1" = 1000'±

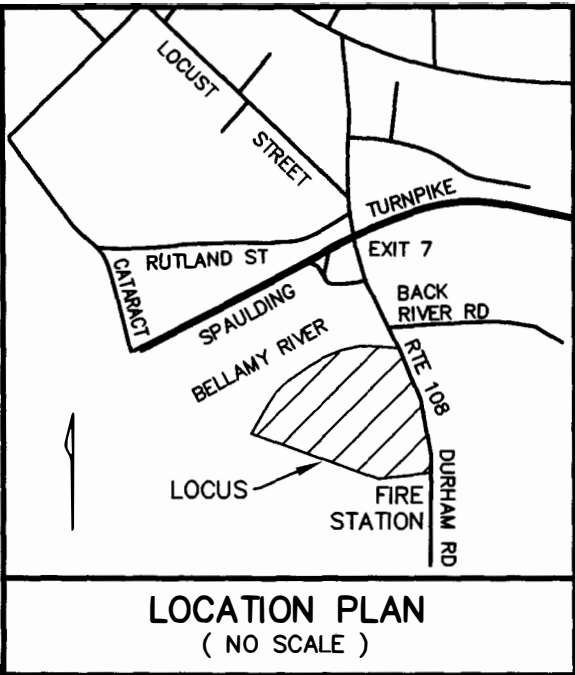
Permit Summary

NHDES Shoreland Permit –
NHDES Alteration of Terrain Permit –
NHDES Sewer Connection Permit –
Building Permits – Building Permits to be obtained from the City of Dover
US-EPA Storm Water Pollution Prevention Plan (SWPPP) – Filed by Contractor

Sheet Index Title	Sheet No.:	Rev.	Date
Existing Conditions Plan (by McEneaney Survey)	1 of 1	1	04/22/22
Site Specific Soils Plan	S-1	1	05/05/22
General Notes	GN-1	1	05/05/22
General Notes	GN-2	0	05/05/22
Neighborhood Site Plan	C-1	1	05/05/22
Site Plan	C-2	1	05/05/22
Grading and Drainage and Erosion and Sediment Control Plan	C-3	1	05/05/22
Utility Plan	C-4	1	05/05/22
Wetlands Conditional Use Plan	CUP-1	0	05/05/22
Sitework Details	D-1	0	05/05/22
Sitework Details	D-2	0	05/05/22
Sitework Details	D-3	0	05/05/22
Sitework Details	D-4	0	05/05/22
Sitework Details	D-5	0	05/05/22
Sitework Details	D-6	0	05/05/22
Sitework Details	D-7	0	05/05/22
Sitework Details	D-8	0	05/05/22
Sitework Details	D-9	0	05/05/22
Stormtech SC-740 Standard Details	1 of 1		
Landscape Plan (by Ironwood Design Group)	L1.0	0	05/05/22
Landscape Details	L2.0-2.1	0	05/05/22
Site Lighting Plan (by Visible Light, Inc.)	1 of 1	0	05/05/22
Architectural Plans (by Market Square Architects)			
Floor Plans	3 SHTS	0	02/25/22
Building Elevations	4 SHTS	0	02/25/22
Building Rendering	1 SHT	0	02/25/22
TOTAL = 32 SHEETS			

Conditional Use Permits:

- Section 170-27.1 – Wetlands Protection District
- Section 170-20B – Gateway District Standards
- Section 153-14D – Parking



- LEGEND**
- EDGE OF PAVEMENT
 - 100 YEAR FLOOD PLANE BOUNDARY
 - UTILITY POLE
 - IRON PIPE OR PIN
 - WATER SHUT OFF VALVE
 - HIGHEST OBSERVED TIDE LINE
 - APPROX. TREE LINE
 - HYDRANT
 - WETLANDS
 - STRAFFORD COUNTY REGISTRY OF DEEDS
 - CONTOUR LINE
 - SEWER MANHOLE
 - VERTICAL GRANITE CURB
 - WATER GATE VALVE
 - CATCH BASIN
 - SIGN

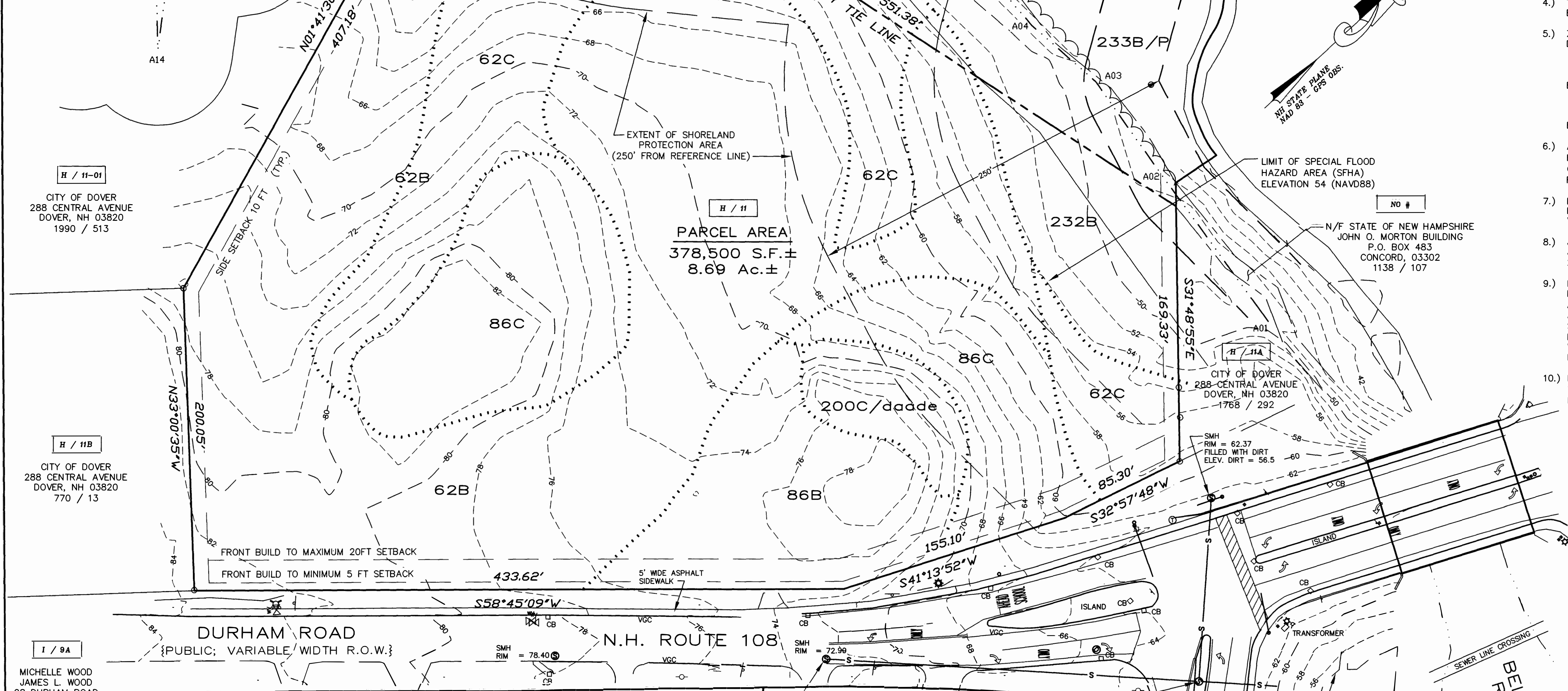
SITE SPECIFIC SOIL MAP UNIT KEY

SYMBOL	SOIL	TAXONOMIC NAME	HSG	CLASS	DRAINAGE CLASS
62	CHARLTON		B		WELL DRAINED
86	HOLLIS		C		WELL DRAINED
232	BUXTON		C		MODERATELY WELL-DRAINED
233/P	SCANTIC		D		POORLY DRAINED (P)
200/daade	UDORTHTENS				SMOOTH FILL REFUSE MATERIAL

[d-MODERATELY WELL DRAINED / a-NO NATURAL SOIL WITHIN 60" /
a-NO RESTRICTIVE LAYERS / d- NO KSAT / e- NO HSG]

SLOPE PHASES

SYMBOL	PHASE
A	0-3%
B	3-8%
C	8-15%
D	15-25%
E	25-50%
F	50%+



REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK
1	4/22/22	REVISE TO SHOW INTERSECTION DETAIL	KJF	KMM

21-2188 EXIST.COND.

PROJECT NO	TYPE	FIELDBOOK & PAGES

SMITH FAMILY LIVING TRUST 10 PONDVIEW DRIVE DOVER, NH 03820 4923 / 175	LESLIE DONAIS JOHN DONAIS 16 DURHAM ROAD DOVER, NH 03820 2825 / 1	10 DURHAM GROUP, LLC 10 DURHAM ROAD DOVER, NH 03820 4643 / 739
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REFERENCE PLANS:

- SUBDIVISION OF LAND FOR THE DOVER SCHOOL DISTRICT, DURHAM ROAD (NH ROUTE 108), DOVER, NEW HAMPSHIRE; SCALE: 1" = 40'; DATED: 3/3/98; BY: DOUCET SURVEY, INC.; RECORDED S.C.R.D. PLAN 51-56.
- PLAN OF PROPOSED FEDERAL AID PRIMARY PROJECT FG-BRF-043-1(1), N.H. PROJECT NO. C-3556, DURHAM ROAD, (N.H. ROUTE 108); BY: STATE OF NEW HAMPSHIRE PUBLIC WORKS AND HIGHWAYS; APPROVED 1/18/85.
- PROPERTY ACQUIRED BY STATE OF NEW HAMPSHIRE FROM SALVATORE BONANNO IN DOVER, N.H. STRAFFORD COUNTY; SCALE: 1" = 20'; DATED: 28 MAY 1984; RECORDED S.C.R.D. PLAN 17E-68.
- PLAN OF LAND IN DOVER, N.H. FOR D2M ASSOCIATES, SHEET 2 OF 2; SCALE: 1" = 40'; DATED: 6/28/83; BY: KIMBALL CHASE COMPANY, INC.; RECORDED S.C.R.D. PLAN 24-46.
- PLAN OF PROPERTY OF THE SAWYER MILLS OWNED BY AMERICAN WOOLEN CO.; SCALE: 1" = 100'; DATED: APRIL 1932; BY: JOHN FRANKLIN, CE; RECORDED S.C.R.D. PLAN 1, POCKET 7, FOLDER 2.
- PLAN OF LOT ON CENTRAL AVENUE OWNED BY CHA.S H. SAWYER; SCALE: 1" = 40'; DATED: JUNE 30, 1905; BY: WM A. GROVER; RECORDED S.C.R.D. PLAN 20, POCKET 10, FOLDER 1.

NOTES:

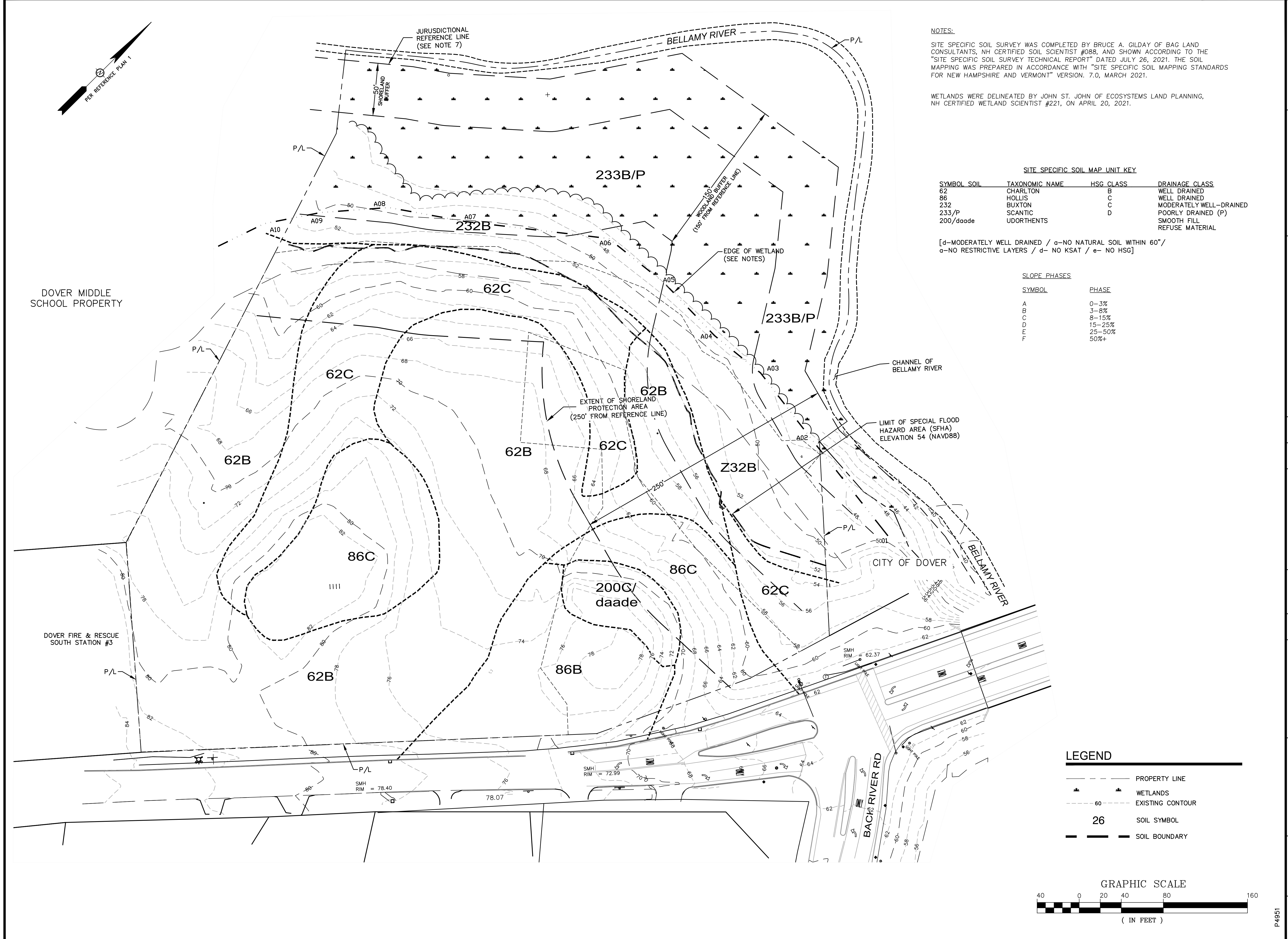
- OWNER OF RECORD:
7 WEST, LLC
C/O SUMMIT LAND DEVELOPMENT, LLC
340 CENTRAL AVE STE 202
DOVER, NEW HAMPSHIRE 03820
S.C.R.D. VOLUME 4468, PAGE 979
- H / 11 - DENOTES TAX MAP AND PARCEL NUMBER.
- PARCEL AREA = 378,500± S.F. / 8.69± Ac.
- THE INTENT OF THIS PLAN IS TO DEPICT THE PARCELS BOUNDARIES AND EXISTING SITE CONDITIONS AS OF JUNE 1, 2021.
- ZONING DISTRICT: G (GATEWAY)
DIMENSIONAL REQUIREMENTS:
MINIMUM LOT SIZE = N/A
LOT COVERAGE = 50 PERCENT
FRONTAGE BUILD-OUT = 60% MINIMUM
BUILDING SETBACK REQUIREMENTS:
FRONT BUILD TO = 5-25 FEET
SIDE SETBACK = 10 FEET
REAR SETBACK = 15 FEET
BUILDING HEIGHT = 2-4 STORY
- A PORTION OF THE SUBJECT PARCEL IS LOCATED WITHIN THE SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1 PERCENT ANNUAL CHANCE FLOOD, ZONE AE (BASE FLOOD ELEVATION 54.0); AS SHOWN ON FLOOD INSURANCE RATE MAP 33017C0320E; EFFECTIVE DATE 9/30/2015.
- BASIS OF BEARING IS NH STATE PLANE (NAD83) BASED ON GPS OBSERVATION DATED .
VERTICAL DATUM IS NAVD88 BASED ON GPS OBSERVATION DATED .
- JURISDICTIONAL WETLANDS AND REFERENCE LINE IDENTIFIED AND FLAGGED BY JOHN ST. JOHN, N.H.C.W.S. 221 OF ECOSYSTEMS LAND PLANNING ON APRIL 21, 2021 AND FIELD LOCATED BY THIS OFFICE.
- NOTES: SITE SPECIFIC SOIL SURVEY WAS COMPLETED BY BRUCE A. GILDAY OF BAG LAND CONSULTANTS, NH CERTIFIED SOIL SCIENTIST #088, AND SHOWN ACCORDING TO THE "SITE SPECIFIC SOIL SURVEY TECHNICAL REPORT" DATED JULY 26, 2021. THE SOIL MAPPING WAS PREPARED IN ACCORDANCE WITH "SITE SPECIFIC SOIL MAPPING STANDARDS SITE SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT" VERSION. 7.0, MARCH 2021. WETLANDS WERE DELINEATED BY JOHN ST. JOHN OF ECOSYSTEMS LAND PLANNING, NH CERTIFIED WETLAND SCIENTIST #221, ON APRIL 20, 2021.
- PORTIONS OF THE PARCELS ARE SUBJECT TO THE RULES OF THE SHORELAND WATER QUALITY PROTECTION ACT (NH RSA 483-B), THOSE AREAS WITHIN TWO HUNDRED AND FIFTY (250) FEET OF THE BELLAMY RIVER REFERENCE LINE.

EXISTING CONDITIONS PLAN
PREPARED FOR
7 WEST, LLC
TAX MAP H, LOT No. 11
DURHAM ROAD (N.H. ROUTE 108)
CITY OF DOVER
COUNTY of STRAFFORD
STATE of NEW HAMPSHIRE

DRAWN BY: **KJF** FILE: **MSA\2188\DWG\21-2188-3**
SCALE: 1" = 40' DATE: **AUGUST 9, 2021**

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

SURVEYING - PLANNING - CONSULTING



NOTES:

SITE SPECIFIC SOIL SURVEY WAS COMPLETED BY BRUCE A. GILDAY OF BAG LAND CONSULTANTS, NH CERTIFIED SOIL SCIENTIST #088, AND SHOWN ACCORDING TO THE "SITE SPECIFIC SOIL SURVEY TECHNICAL REPORT" DATED JULY 26, 2021. THE SOIL MAPPING WAS PREPARED IN ACCORDANCE WITH "SITE SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT" VERSION. 7.0, MARCH 2021.

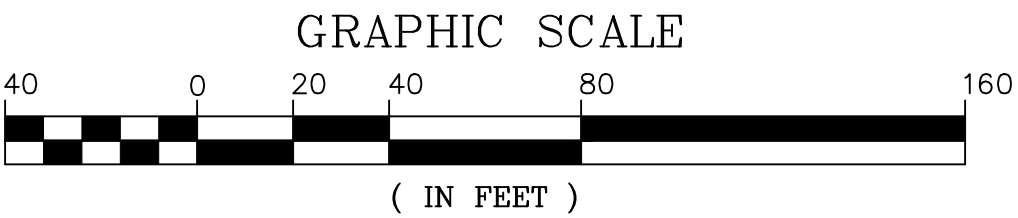
WETLANDS WERE DELINEATED BY JOHN ST. JOHN OF ECOSYSTEMS LAND PLANNING, NH CERTIFIED WETLAND SCIENTIST #221, ON APRIL 20, 2021.

SITE SPECIFIC SOIL MAP UNIT KEY			
SYMBOL	SOIL	TAXONOMIC NAME	HSG CLASS
62	CHARLTON		B
86	HOLLIS		C
232	BUXTON		C
233/P	SCANTIC		D
200/daade	UDORTHENTS		
		DRAINAGE CLASS	
		WELL DRAINED	
		MODERATELY WELL-DRAINED	
		POORLY DRAINED (P)	
		SMOOTH FILL	
		REFUSE MATERIAL	

[d-MODERATELY WELL DRAINED / a-NO NATURAL SOIL WITHIN 60" /
a-NO RESTRICTIVE LAYERS / d- NO KSAT / e- NO HSG]

SLOPE PHASES	
SYMBOL	PHASE
A	0-3%
B	3-8%
C	8-15%
D	15-25%
E	25-50%
F	50%+

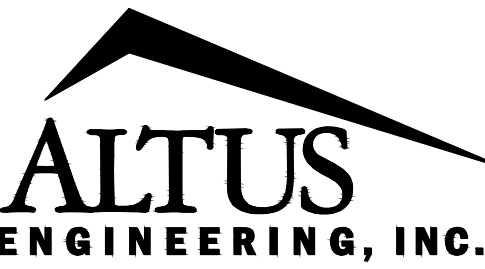
LEGEND	
	PROPERTY LINE
	WETLANDS
	EXISTING CONTOUR
	SOIL SYMBOL
	SOIL BOUNDARY



LAND CONSULTANTS

43 ROCKINGHAM ST
CONCORD, NH 03301

(603)228-5775



133 COURT STREET PORTSMOUTH, NH 03801
(603) 433-2335 www.ALTUS-ENG.com



THIS DRAWING HAS NOT BEEN
RELEASED FOR CONSTRUCTION

ISSUED FOR:
DESIGN AND PERMITTING

ISSUE DATE:
MAY 5, 2022

REVISIONS			
NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	08/06/21
1	SURVEY UPDATE	CDB	05/05/22

DRAWN BY: CDB
APPROVED BY: EDW
DRAWING FILE: 4952-SITE_C010.dwg

SCALE: 24"x36" 1" = 40'
12"x18" 1" = 80'

OWNER:
7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

APPLICANT:
SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

PROJECT:
7 WEST
COMMERCIAL
DEVELOPMENT

TAX MAP H, LOT 11
DOVER, NH

TITLE:
SITE SPECIFIC
SOILS SURVEY

SHEET NUMBER:
S-1

P4951

LEGEND

	PROPERTY LINE
	PROPOSED EASEMENT
	WETLAND BOUNDARY
	BUILDING SETBACK
	100' CITY WETLAND BUFFER
	50' LIMITED CUT ZONE
	EXISTING PAVEMENT/CURB
	PROP. PAVEMENT/VERTICAL OR SLOPED GRANITE CURB
	SAWCUT LINE/MATCH EXISTING
	EXISTING/PROPOSED GUARDRAIL
	PROPOSED FENCE
	EXISTING CONTOUR
	PROPOSED CONTOUR
	PROPOSED SPOT GRADE/TOP & BOTTOM (WHERE NECESSARY)
	PROPOSED RETAINING WALL
	PROPOSED STONE RETAINING WALL
	EXISTING WELL/WATER LINE/CURBSTOP/VALVE/HYDRANT
	EXISTING SEWER/MANHOLE
	EXISTING GAS/VALVE
	EXIST. OVER/UNDERGROUND UTILITIES/POLE
	EXISTING DRAINAGE/CB/DMH
	PROPOSED THRUST BLOCK/WATER/CURB STOP/VALVE/HYDRANT
	PROPOSED SEWER/MANHOLE/CLEANOUT
	PROPOSED SEWER FORCEMAIN
	PROPOSED GAS
	PROPOSED OVERHEAD UTILITIES/UTILITY POLE
	PROPOSED UNDERGROUND ELECTRIC/PHONE/TV
	PROPOSED DRAINAGE (HARD PIPE)/CB/DCB/DMH/FES
	PROPOSED CATCH BASIN INLET PROTECTION
	PROPOSED DRAINAGE (FNDTN. DRAIN/PERF. PIPE)/CLEANOUT
	PROPOSED GROUND SLOPE DIRECTION
	SILTFENCE/SEDIMENT BARRIER/CONST. FENCE/CLEARING LIMITS
	STABILIZED CONSTRUCTION EXIT
	LIMIT OF DISTURBANCE/CLEARING
	EXISTING TREE/D RIP LINE
	PROPOSED TREELINE
	EXISTING/PROPOSED SHRUB LINE
	TREE PROTECTION/TREE REMOVAL/PARKING COUNT PER ROW
	PROPOSED EROSION CONTROL BLANKET
	PROPOSED RIPRAP
	PROPOSED CONCRETE
	PROPOSED DRIPEDGE
	PROPOSED PAVERS
	PROPOSED PAVEMENT RECLAMATION OR REMOVAL
	PROPOSED CONCRETE RECLAMATION OR REMOVAL
	PROPOSED RAINGARDEN w/ 3/4" STONE
	PROPOSED STONE VELOCITY REDUCTION APRON
	PROPOSED 100' CITY WETLAND BUFFER IMPACT

GENERAL SITE NOTES:

- THE INTENT OF THIS PLAN SUBMITTAL IS TO PROVIDE THE NECESSARY INFORMATION FOR THE DESIGN AND REVIEW OF A COMMERCIAL DEVELOPMENT SITE ON ASSESSOR'S PARCEL H, LOT 11 FOR CITY AND STATE PERMIT APPLICATIONS. THIS PLAN SET PROVIDES DETAILED INFORMATION FOR THE GENERAL LAYOUT, GRADING, AND UTILITY LOCATIONS. ADDITIONAL DETAILED ENGINEERING DESIGN WILL BE REQUIRED TO IMPLEMENT CONSTRUCTION.
- OWNER OF RECORD: 7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

AUTHORIZED SIGNATURE

- THE PROJECT PARCEL IS SHOWN AS LOT NO. 11, MAP 11 OF THE CITY OF DOVER TAX ASSESSOR'S MAPS.
- THE PROJECT PARCEL CONTAINS 8.69 ACRES OR 378,500± SQUARE FEET AREA OF LAND.
- TITLE REFERENCE FOR THE PROJECT PARCEL IS THE STRAFFORD COUNTY REGISTRY OF DEEDS, BOOK NO. 4468, PAGE NO. 979.
- PROJECT PLAN REFERENCES:
 - SUBDIVISION OF LAND FOR THE DOVER SCHOOL DISTRICT, DURHAM ROAD (NH ROUTE 108), DOVER, NEW HAMPSHIRE; SCALE: 1" = 40'; DATED: 3/3/98; BY: DOUCET SURVEY, INC.; RECORDED S.C.R.D. PLAN 51-56.
 - PLAN OF PROPOSED FEDERAL AID PRIMARY PROJECT FG-BRF-043-1(1), N.H. PROJECT NO. C-3556, DURHAM ROAD, (N.H. ROUTE 108); BY: STATE OF NEW HAMPSHIRE PUBLIC WORKS AND HIGHWAYS; APPROVED 1/18/85.
 - PROPERTY ACQUIRED BY STATE OF NEW HAMPSHIRE FROM SALVATORE BONANNO IN DOVER, N.H. STRAFFORD COUNTY; SCALE: 1" = 20'; DATED: 28 MAY 1984; RECORDED S.C.R.D. PLAN 17E-68.
 - PLAN OF LAND IN DOVER, N.H. FOR D2M ASSOCIATES, SHEET 2 OF 2; SCALE: 1" = 40'; DATED: 6/28/83; BY: KIMBALL CHASE COMPANY, INC.; RECORDED S.C.R.D. PLAN 24-46.
 - PLAN OF PROPERTY OF THE SAWYER MILLS OWNED BY AMERICAN WOOLEN CO.; SCALE: 1" = 100'; DATED: APRIL 1932; BY: JOHN FRANKLIN, CE; RECORDED S.C.R.D. PLAN 1, POCKET 7, FOLDER 2.
 - PLAN OF LOT ON CENTRAL AVENUE OWNED BY CHA.S H. SAWYER; SCALE: 1" = 40'; DATED: JUNE 30, 1905; BY: WM A. GROVER; RECORDED S.C.R.D. PLAN 20, POCKET 10, FOLDER 1.

- THE SUBJECT PROPERTY IS ENCUMBERED BY THE FOLLOWING EASEMENTS: WATER, DRAINAGE, ACCESS AND UTILITY.

NO KNOWN EASEMENTS

- ZONING DIMENSIONAL AND DENSITY REQUIREMENTS ARE SHOWN IN TABLE LOCATED ON THE SITE PLAN, SHEET C-2.
- VARIANCE OR SPECIAL EXCEPTIONS - NO VARIANCES OR SPECIAL EXEMPTIONS HAVE BEEN GRANTED BY THE ZONING BOARD OF ADJUSTMENT FOR THE PROPOSED DEVELOPMENT
CONDITIONAL USE PERMIT - THREE CONDITIONAL USE PERMITS ARE REQUIRE:
 - > WETLANDS CONDITIONAL USE PERMIT
 - > CONDITIONAL USE PERMIT OF ADDITIONAL PARKING
 - > CONDITIONAL USE PERMIT FOR GATEWAY ARCHITECTURAL AND DIMENSIONAL STANDARDS

- PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES, INC. AS REFERENCED IN THE ATTACHED "EXISTING CONDITIONS PLAN", DATED _____.

- SUBJECT PARCEL IS LOCATED WITHIN A FEDERALLY DESIGNATED FLOOD HAZARD AREA.

FROM SURVEYOR

- WETLANDS WERE DELINEATED BY BAG LAND CONSULTANTS, BRUCE GILDAY, CERTIFIED WETLANDS SCIENTIST #088, IN ACCORDANCE WITH CHAPTER 170:27.1 OF THE ZONING ORDINANCE AND SURVEYED BY MCENEANEY SURVEY INC.

- ADDITIONALLY, A SITE SPECIFIC SOILS REPORT WAS PREPARED BY BRUCE GILDAY (CERT #022), ON MARCH 28, 2022. THE SOILS SURVEY WAS COMPLETED IN ACCORDANCE WITH THE SITE-SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT, VERSION 4.0 BY THE SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND AND STANDARDS ESTABLISHED BY THE NATIONAL COOPERATIVE SOIL SURVEY. THE SOIL SURVEY IS ALSO MEETS THE STANDARDS FOR AN ORDER 1 SOIL SURVEY AS DEFINED IN THE NH STATE-WIDE NUMERICAL SOIL LEGEND.

- 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.

- THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION AND TELEPHONE LINES SHALL BE UNDERGROUND THROUGHOUT THE SITE FOR WHICH DEVELOPMENT IS PROPOSED.

- THE SUBJECT PARCEL IS SERVED BY MUNICIPAL WATER AND SEWER.

- ALL CONSTRUCTION SHALL CONFORM WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION "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.

- SHEET D-1 PROVIDES EROSION CONTROL NOTES AND REQUIREMENTS.

- 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.

- 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 ANY EARTH DISTURBING ACTIVITY OCCURS.

- NO TREATMENT SWALES ARE PROPOSED FOR THIS PROJECT.

- A LETTER OF CREDIT FOR THE COST OF REVEGETATING ALL DISTURBED AREAS ON THE SITE SHALL BE SUBMITTED, AND THE APPROVED CONSTRUCTION SIGN INSTALLED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS.

- 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.

- 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. SITE CONSTRUCTION HOURS SHALL BE LIMITED TO:

MONDAY-FRIDAY 7 AM-6 PM,
SATURDAY 9 AM-4 PM,
SUNDAY - NO WORK ALLOWED WITHOUT APPROVAL FROM CITY

- BUILDING ADDRESSES SHALL BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.
- THE PROPOSED USE FOR THE SITE COMMERCIAL. APPROXIMATELY 42,480 SQUARE FEET OF GLA OF COMMERCIAL SPACE WILL BE PROVIDED IN THE NEW BUILDING.
- THE FOLLOWING FEDERAL AND STATE PERMITS HAVE BEEN ISSUED FOR THE SUBJECT PROPERTY AND CONTRACTOR SHALL COMPLY WITH ALL CONDITIONS OF PERMITS:

NHDES SHORELAND PERMIT (PERMIT: #____)
NHDES ALTERATION OF TERRAIN PERMIT (PERMIT: #____)
NHDES SEWER CONNECTION PERMIT (PERMIT: #____)
EPA NPDES CONSTRUCTION GENERAL PERMIT (TO BE PROVIDED 2 WEEKS PRIOR TO CONSTRUCTION)

- COMMERCIAL VEHICLE ROUTE DURING CONSTRUCTION SHALL CONFORM WITH DOVER CITY CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR.

- ANY RETAINING WALL TALLER THAN FOUR FEET (4') REQUIRES ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES AND SHALL BE STAMPED BY A STRUCTURAL ENGINEER.
- ANY FENCE TALLER THAN SEVEN FEET (7') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
- APPLICANT SHALL COMPLETE LAND USE DEVELOPMENT TRACKING FORM, MOST RECENTLY REVISED VERSION, UTILIZING THE ONLINE POLLUTION TRACKING AND ACCOUNTING PILOT PROJECT (PTAPP) PORTAL. <https://www.unh.edu/unhsc/ptapp>
- THE OWNER OF RECORD SHALL RECORD AT THE REGISTRY OF DEEDS DOCUMENTATION SUFFICIENT TO PROVIDE NOTICE TO ALL PERSONS 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.
- FIRE DEPARTMENT ACCESS ROAD(S) SHALL BE INSTALLED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF FIRE APPARATUS IN ALL WEATHER CONDITIONS AT ALL TIMES.
- THE MAXIMUM PARKING SPACE CALCULATION IS 255 SPACES (BASED ON 1 STALL PER 275 GLA) AND 210 SPACES ARE PROVIDED. A CONDITIONAL USE PERMIT IS REQUIRED.
- EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 153:14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.
- TOPOGRAPHIC SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES, INC. IN MARCH/APRIL OF 2020 AND UPDATED IN APRIL 2022.
- VERTICAL DATUM IS NAVD88 BASED ON GPS OBSERVATION DATA.
BASIS OF BEARING IS NH STATE PLANE (NAD83) BASED ON GPS OBSERVATION.
- A SECURITY SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 58, ARTICLE I, SECTION 58-2 OF THE CODE OF THE CITY OF DOVER.
- APPROVED BACKFLOW PREVENTORS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.
- THE PROPOSED STRUCTURES SHALL BE SERVED BY A SPRINKLER SYSTEM AS REQUIRED UNDER CHAPTER 109: 30 OF THE CODE OF THE CITY OF DOVER AND THE 2015 STATE BUILDING CODES.
- 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 AND APPROVED BY INSPECTION SERVICES PRIOR TO CONNECTION OF THE BACKFLOW DEVICE.
- FIRE DEPARTMENT CONNECTION(S) SHALL BE LOCATED ON THE STREET SIDE OF THE BUILDING PER NFPA 13. ACCESS TO THE FDC SHALL MAINTAIN A CLEAR AND UNOBSTRUCTED PATH AT ALL TIMES.
- THE SITE LAYOUT IS DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS. THE PROPOSED STRUCTURE WILL BE ALSO BE DESIGNED IN ACCORDANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS.

CONDITIONS OF APPROVAL:

THE CITY OF DOVER PLANNING BOARD GRANTED CONDITIONAL APPROVAL FOR THE PROPOSED SITE PLAN AT THE _____ PLANNING BOARD MEETING, FILE #21-X. THE CONDITIONS TO BE MET PRIOR TO THE PLANNING BOARD CHAIR SIGNING OF THE PLANS ARE COMPLETED AND INCLUDED IN THIS SUBMITTAL. THE FOLLOWING ADDITIONAL CONDITIONS SHALL BE MET BY AS REQUIRED PRIOR TO CONSTRUCTION, ISSUANCE OF A BUILDING PERMIT, AND FOR OCCUPANCY:

CONDITIONS TO BE MET PRIOR TO ANY CONSTRUCTION ACTIVITY:

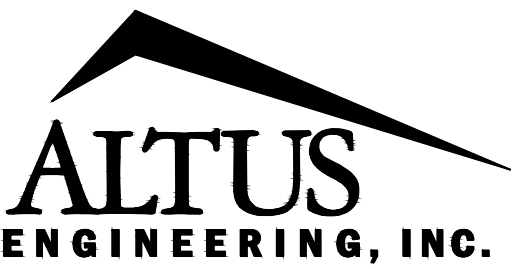
TO BE COMPLETED AFTER PLANNING BOARD CONDITIONAL APPROVAL

CONDITIONS TO BE MET PRIOR TO ISSUANCE OF A BUILDING PERMIT:

TO BE COMPLETED AFTER PLANNING BOARD CONDITIONAL APPROVAL

CONDITIONS TO BE MET PRIOR TO OCCUPANCY:

TO BE COMPLETED AFTER PLANNING BOARD CONDITIONAL APPROVAL



133 COURT STREET PORTSMOUTH, NH 03801
(603) 433-2335 www.ALTUS-ENG.com



THIS DRAWING HAS NOT BEEN
RELEASED FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: MAY 5, 2022

REVISIONS			
NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	10/14/21
1	PLANNING BOARD	CDB	05/05/22

DRAWN BY: _____ CDB
APPROVED BY: _____ EDW
DRAWING FILE: _____ 4952-DETAILS.dwg

SCALE: 24"x36" N.T.S.
12"x18" N.T.S.

OWNER:
7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

APPLICANT:
SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

PROJECT:
7 WEST
COMMERCIAL
DEVELOPMENT

(FILE NO. P22-38)
TAX MAP H, LOT 11
DOVER, NH

TITLE:

GENERAL NOTES

SHEET NUMBER:

GN-1

DEMOLITION NOTES

1. CONTRACTOR SHALL SAFELY SECURE THE SITE WITH SECURITY FENCING. FENCING SHALL BE LOCKED DURING NON-WORK HOURS.
2. CITY DEMOLITION PERMIT REQUIRED PRIOR TO ANY DEMOLITION ACTIVITIES. CONTRACTOR IS NOTIFIED THAT THIS PERMIT PROCESS MAY REQUIRE A 30-DAY LEAD TIME.
3. CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES SCHEDULED TO REMAIN.
4. THIS DEMOLITION PLAN IS INTENDED TO PROVIDE MINIMUM GUIDELINES FOR THE DEMOLITION OF EXISTING SITE FEATURES. UNLESS OTHERWISE NOTED TO REMAIN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL PAVEMENT, CONCRETE, CURBING, SIGNS, POLES, UTILITIES, FENCES, VEGETATION AND OTHER EXISTING FEATURES AS NECESSARY TO FULLY CONSTRUCT THE PROJECT.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TIMELY NOTIFICATION OF ALL PARTIES, CORPORATIONS, COMPANIES, INDIVIDUALS AND STATE AND LOCAL AUTHORITIES OWNING AND/OR HAVING JURISDICTION OVER ANY UTILITIES RUNNING TO, THROUGH OR ACROSS AREAS TO BE DISTURBED BY DEMOLITION AND/OR CONSTRUCTION ACTIVITIES WHETHER OR NOT SAID UTILITIES ARE SUBJECT TO DEMOLITION, RELOCATION, MODIFICATION AND/OR CONSTRUCTION.
6. ALL UTILITY DISCONNECTIONS/DEMOLITIONS/RELOCATIONS TO BE COORDINATED BETWEEN THE CONTRACTOR, ALL APPROPRIATE UTILITY COMPANIES AND THE PORTSMOUTH DEPARTMENT OF PUBLIC WORKS. UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELATED EXCAVATION, TRENCHING AND BACKFILLING.
7. ALL STRUCTURES, CURBING, CONCRETE, PAVEMENT AND SUBBASE MATERIALS SHALL BE REMOVED FROM PROPOSED LANDSCAPE AREAS AND REPLACED WITH LOAM MATERIALS SUITABLE FOR LANDSCAPE AND/OR STORMWATER MANAGEMENT PURPOSES AND MEETING THE PROJECT SPECIFICATIONS.
8. WHERE SPECIFIED TO REMAIN, MANHOLE RIMS, CATCH BASIN GRATES, VALVE COVERS, HANDHOLES, MONITORING WELLS, ETC. SHALL BE ADJUSTED TO FINISH GRADE.
9. NO BURNING SHALL BE PERMITTED PER LOCAL REGULATIONS.
10. HAZARDOUS MATERIALS ENCOUNTERED DURING DEMOLITION AND CONSTRUCTION ACTIVITIES SHALL BE ABATED IN STRICT ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL REGULATIONS.
11. IN AREAS WHERE CONSTRUCTION IS TO BE ADJACENT TO ABUTTING PROPERTIES, THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG THE PROPERTY LINE IN ALL AREAS WHERE SILT FENCING IS NOT OTHERWISE REQUIRED.
12. SEE EROSION CONTROL PLANS FOR EROSION CONTROL REQUIREMENTS TO BE IN PLACE PRIOR TO START OF DEMOLITION ACTIVITIES, INCLUDING, BUT NOT LIMITED TO; PERIMETER EROSION CONTROL MEASURES AND STORM DRAIN INLET PROTECTION.
13. ALL DEMOLISHED MATERIALS OR MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS SPECIFIED.
14. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BE LEGALLY DISPOSED IN ACCORDANCE WITH ALL LOCAL, STATE, & FEDERAL REGULATIONS AND CODES.
15. LEDGE REMOVAL IS ANTICIPATED ON THE PROJECT. THE CONTRACTOR SHALL PROVIDE THE CITY WITH A LEDGE REMOVAL PLAN. IF BLASTING IS TO BE PERFORMED, ALL STATE AND LOCAL REQUIREMENTS SHALL BE COMPLIED WITH. SEE BEST MANAGEMENT PRACTICES FOR BLASTING NOTES.
16. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL DISCONNECTIONS/INSTALLATIONS WITH EVERSOURCE. CONTACT NICK KOSKO @ 603-332-4227, EXT. 5555334
17. CONTRACTOR SHALL COORDINATE ALL NATURAL GAS DISCONNECTIONS/INSTALLATIONS WITH UNTIL CORPORATION. CONTACT DAVID BEAULIEU @ 603-294-5144
18. CONTRACTOR SHALL COORDINATE ALL CABLE DISCONNECTIONS/INSTALLATIONS WITH COMCAST. CONTACT MIKE COLLINS @ 603-679-5695 EXT 1037
19. CONTRACTOR SHALL COORDINATE ALL TELE-COMMUNICATION DISCONNECTIONS AND INSTALLATION WITH FAIRPOINT COMMUNICATIONS. CONTACT JOE CONSIONE @ 603-427-5255

SITE NOTES

1. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE CITY OF PORTSMOUTH & NHDOT'S STANDARD SPECIFICATIONS FOR ROAD & BRIDGE, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
2. ALL BONDS AND FEES SHALL BE PAID/POSTED PRIOR TO INITIATING CONSTRUCTION.
3. ALL CONDITIONS OF APPROVAL SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
4. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE CITY OF DOVER & NHDOT'S STANDARD SPECIFICATIONS FOR ROAD & BRIDGE, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
5. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAWCUT LINE WITH RS-1 IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
6. THE CONTRACTOR SHALL VERIFY ALL BENCHMARKS AND TOPOGRAPHY IN THE FIELD PRIOR TO CONSTRUCTION.
7. THE CONTRACTOR SHALL VERIFY ALL BUILDING DIMENSIONS WITH THE ARCHITECTURAL AND STRUCTURAL PLANS PRIOR TO CONSTRUCTION. ALL DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER FOR RESOLUTION.
8. AREA OF DISTURBANCE IS OVER 43,560 SF, SO COVERAGE UNDER EPA NPDES PHASE II CONSTRUCTION GENERAL PERMIT IS REQUIRED (NOI TO BE PREPARED AND SUBMITTED BY CONTRACTOR, SWPPP AND INSPECTIONS TO BE PREPARED AND PERFORMED BY CONTRACTOR).
9. SITEWORK ACTIVITIES ARE OVER 100,000 SF. NHDES ALTERATION OF TERRAIN PERMIT IS REQUIRED.
10. SNOW SHALL BE STORED AT THE EDGE OF PAVEMENT, IN UPLAND AREAS SHOWN THEREON. NO SNOW STORAGE SHALL BE PROVIDED IN THE LANDSCAPED ISLAND BETWEEN THE DRIVEWAY ENTRANCE AND EXIT THAT WOULD RESTRICT SITE VEHICULAR AND PEDESTRIAN SIGHT DISTANCE. IF ADEQUATE ON-SITE SNOW STORAGE IS NOT AVAILABLE, THE SNOW SHALL BE REMOVED FROM THE SITE AND LEGALLY DISPOSED.
11. PAVEMENT MARKINGS SHALL BE CONSTRUCTED USING WHITE, YELLOW, OR BLUE TRAFFIC PAINT (WHERE SPECIFIED) MEETING THE REQUIREMENTS OF AASHTO M248, TYPE F OR EQUAL. PAINTED ISLANDS AND LOADING ZONES SHALL BE 4"-WIDE DIAGONAL WHITE LINES 3'-0" O.C. BORDERED BY 4"-WIDE WHITE LINES. PARKING STALLS SHALL BE SEPARATED BY 4"-WIDE WHITE LINES. SEE DETAILS FOR HANDICAP SYMBOLS, SIGNS AND SIGN DETAILS. PAVEMENT MARKINGS SHALL BE INSTALLED AT LEAST 14-DAYS AFTER INSTALLATION OF WEARING COURSE PAVEMENT. CONTRACTOR SHALL APPLY TWO (2) COATS OF ALL PAVEMENT MARKINGS.
12. PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC DEVICES," "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND THE AMERICANS WITH DISABILITIES ACT (ADA), LATEST EDITIONS.
13. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE DOVER PLANNING DIRECTOR.
17. SITEWORK CONTRACTOR SHALL PREPARE A LICENSED LAND SURVEYOR (LLS) STAMPED AS-BUILT SITE PLAN & PROVIDE A DIGITAL (CAD FORMAT) COPY FOR THE CITY'S G.I.S. DATA BASE.
18. THE PROPOSED LIGHTING SHALL BE DARK SKY FRIENDLY.

GRADING AND DRAINAGE NOTES

1. ALL BENCHMARKS AND TOPOGRAPHY SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO INITIATING CONSTRUCTION
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL READ AND FAMILIARIZE THEMSELVES WITH THE PROJECT GEOTECHNICAL REPORT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FOLLOWING ALL THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT.
3. DEWATERING ACTIVITIES SHALL BE DONE IN ACCORDANCE WITH TEH USEPA CONSTRUCTION GENERAL PERMIT AND NHDES REGULATIONS AND GUIDELINES.
4. PROTECTION OF SUBGRADE: THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN STABLE, DEWATERED SUBGRADES FOR FOUNDATIONS, PAVEMENT AREAS, UTILITY TRENCHES AND OTHER AREAS DURING CONSTRUCTION. SUBGRADE DISTURBANCE MAY BE INFLUENCED BY EXCAVATION METHODS, MOISTURE, PRECIPITATION, GROUNDWATER CONTROL, AND CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT SUBGRADE DISTURBANCE. SUCH PRECAUTIONS MAY INCLUDE DIVERTING STORMWATER RUNOFF AWAY FROM CONSTRUCTION AREAS, REDUCING TRAFFIC IN SENSITIVE AREAS, AND MAINTAINING AN EFFECTIVE DEWATERING PROGRAM. SOILS EXHIBITING HEAVING OR INSTABILITY SHALL BE OVER EXCAVATED TO MORE COMPETENT BEARING SOIL AND BEARING SOIL AND REPLACED WITH FREE DRAINING STRUCTURAL FILL IF THE EARTHWORK IS PERFORMED DURING FREEZING WEATHER, EXPOSED SUBGRADES AREA SUSCEPTIBLE TO FROST. NO FILL OR UTILITIES SHALL BE PLACED ON FROZEN SOIL CRUST AT THE COMMENCEMENT OF EACH DAY'S OPERATIONS DEGREE OF INSULATION AGAINST FREEZING.
5. IF SUITABLE, EXCAVATED MATERIALS SHALL BE PLACED AS FILL WITHIN UPLAND AREAS ONLY AND SHALL NOT BE PLACED WITHIN WETLANDS. PLACEMENT OF BORROW MATERIALS SHALL BE PERFORMED IN A MANNER THAT PREVENTS LONG TERM DIFFERENTIAL SETTLEMENT. EXCESSIVELY WET MATERIALS SHALL BE STOCKPILED AND ALLOWED TO DRAIN BEFORE PLACEMENT. FROZEN MATERIAL SHALL NOT BE USED FOR CONSTRUCTION.
6. ALL STORM DRAIN PIPE SHALL BE ADS N-12 OR EQUAL AND APPROVED BY THE ENGINEER.
7. ALL CATCH BASIN, GATE VALVE COVERS, AND MANHOLE RIMS SHALL BE SET FLUSH WITH OR NO LESS THAN 0.1' BELOW FINISHED GRADE IN PAVED AREAS.. ANY RIM OR VALVE COVER ABOVE SURROUNDING FINISHED GRADE WILL NOT BE ACCEPTED.
8. ALL CATCH BASINS SHALL BE PRECAST, H-20 LOADING AND BE EQUIPPED WITH 4-FOOT DEEP MIN SEDIMENTATION HUMPS AND GREASE HOODS. (SEE DETAILS)
9. ALL SPOT GRADES ARE AT THE FINISH GRADE AND BOTTOM OF CURB WHERE APPLICABLE.
10. UNLESS OTHERWISE SPECIFIED, RETAINING WALL AND BUILDING PERIMETER DRAINS SHALL BE DIRECTED TO THE NEAREST DRAINAGE STRUCTURE. IF DEEMED APPROPRIATE, CONTRACTOR SHALL PROVIDE ADDITIONAL UNDERDRAINS AT THE DIRECTION OF THE ENGINEER.
11. RETAINING WALLS OVER 4 FEET IN HEIGHT MUST BE DESIGNED AND STAMPED BY A STRUCTURAL ENGINEER.
12. MATCH EXISTING SHOULDER GRADE SLOPE ALONG DURHAM ROAD.
13. CONTRACTOR SHALL PROTECT ALL RAINGARDENS AND STORMWATER MANAGEMENT AREAS FROM CONSTRUCTION STORMWATER RUNOFF. TEMPORARY SEDIMENT BASINS SHALL BE CONSTRUCTED DURING CONSTRUCTION. STORMWATER SHALL NOT BE DIRECTED TO THE RAINGARDENS UNTIL THE WATERSHED AREA HAS BEEN STABILIZED.

UTILITY NOTES

1. ALL ROAD/LANE CLOSURES OR OTHER TRAFFIC INTERRUPTIONS ON CITY ROADS SHALL BE COORDINATED WITH THE DOVER POLICE DEPARTMENT AND DPW.
2. ALL WATER MAIN INSTALLATIONS AND SERVICE CONNECTIONS SHALL CONFORM TO DOVER WATER DEPARTMENT STANDARDS.
3. ALL SEWER INSTALLATIONS AND SERVICE CONNECTIONS SHALL CONFORM TO DOVER SEWER STANDARDS. CONTRACTOR SHALL CONTACT DOVER DPW FOR TESTING OF SEWER LINES.
4. DO NOT BEGIN CONSTRUCTION UNTIL ALL STATE, LOCAL, AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED. CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH ALL PERMIT CONDITIONS AND REQUIREMENTS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR POSTING OF ALL BONDS AND PAYMENT OF ALL TAP, TIE-IN AND CONNECTION FEES.
6. ALL TRENCHING, PIPE LAYING AND BACKFILLING SHALL CONFORM TO FEDERAL OSHA AND CITY REGULATIONS.
7. SITEWORK CONTRACTOR SHALL COORDINATE ALL WORK WITH MECHANICAL DRAWINGS.
8. SEE ARCHITECTURAL/MECHANICAL DRAWINGS FOR EXACT LOCATIONS & ELEVATIONS OF UTILITY CONNECTIONS AT BUILDINGS. COORDINATE ALL WORK WITHIN FIVE (5) FEET OF BUILDINGS WITH BUILDING CONTRACTOR AND ARCHITECTURAL/MECHANICAL DRAWINGS. ALL CONFLICTS AND DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY AND PRIOR TO COMMENCING RELATED WORK.
9. FINAL UTILITY LOCATIONS TO BE COORDINATED BETWEEN THE CONTRACTOR, ALL APPROPRIATE UTILITY COMPANIES AND THE ARCHITECT.
10. CONTRACTOR SHALL COORDINATE ALL TELECOMMUNICATIONS INSTALLATIONS WITH FAIRPOINT COMMUNICATIONS.
11. CONTRACTOR SHALL COORDINATE ALL CABLE INSTALLATIONS WITH COMCAST.
12. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL INSTALLATIONS WITH EVERSOURCE. ALL ELECTRIC CONDUIT INSTALLATION SHALL BE INSPECTED BY EVERSOURCE PRIOR TO BACKFILL, 48-HOUR MINIMUM NOTICE REQUIRED.
13. TRANSFORMER SHALL BE PAD MOUNTED. COORDINATE WITH ARCHITECT & EVERSOURCE.
14. DETECTABLE WARNING TAPE SHALL BE PLACED OVER THE ENTIRE LENGTH OF ALL BURIED UTILITIES, COLORS PER THE RESPECTIVE UTILITY PROVIDERS.
15. CONTRACTOR SHALL CONTACT CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS TO COORDINATE INSPECTION OF SEWER WORK.
16. THE TESTING OF THE MUNICIPAL SEWER INFRASTRUCTURE IMPROVEMENTS SHALL BE UNDER THE SUPERVISION OF THE DOVER DEPARTMENT OF PUBLIC WORKS (DPW).

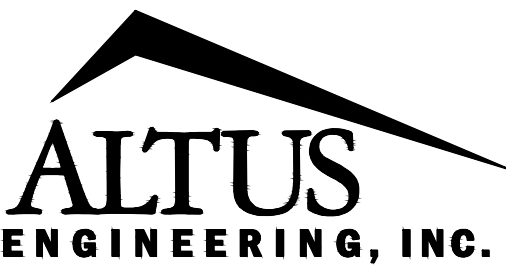
GENERAL NOTES

1. THE INTENT OF THIS PLAN SET IS TO PROVIDE THE NECESSARY INFORMATION FOR THE REVIEW, PERMITTING AND DEVELOPMENT OF THE PROPOSED COMMERCIAL DEVELOPMENT SITE ON DURHAM ROAD, IN DOVER, NH. THESE PLANS PROVIDE DETAILED INFORMATION FOR THE SITE LAYOUT, GRADING, UTILITIES, STORMWATER MANAGEMENT, AND LANDSCAPE IMPROVEMENTS. THE PROJECT INTENDS TO IMPLEMENT A NEW 3-STORY BUILDING WITH ASSOCIATED SITE IMPROVEMENTS, INCLUDING; PARKING, DRIVEWAYS, SIDEWALKS/ WALKWAYS, UTILITIES, DRAINAGE AND STORMWATER MANAGEMENT FACILITIES.
2. DO NOT BEGIN CONSTRUCTION UNTIL ALL STATE, LOCAL AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED. THE LANDOWNER AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH LOCAL, STATE AND FEDERAL WETLAND PERMITTING REQUIREMENTS INCLUDING PROTECTION OF NATURAL RESOURCES AND THEIR BUFFERS.
3. CONTRACTOR SHALL CALL DIG SAFE AT 1 (800) DIG-SAFE AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO COMMENCING CONSTRUCTION.
4. CONTRACTOR SHALL NOTIFY CITY OF DOVER DEPARTMENT OF PUBLIC WORKS PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES.
5. CONTRACTOR SHALL INSTALL AND MAINTAIN A TEMPORARY SECURITY FENCE AROUND THE PERIMETER OF THE WORK AREA THROUGHOUT CONSTRUCTION.
6. CONTRACTOR SHALL INSTALL AND MAINTAIN TEMPORARY SEDIMENT AND EROSION CONTROL ITEMS TO PREVENT SEDIMENT FROM CONSTRUCTION ACTIVITIES FROM LEAVING THE SITE. CONTROLS SHALL BE INSPECTED ON A REGULAR BASIS AND AFTER ALL RAIN EVENTS OF 0.25 INCHES OR GREATER. ANY DEFICIENCIES IN THE CONTROLS SHALL BE ADDRESSED IMMEDIATELY AND BROUGHT TO THE ATTENTION OF THE OWNER. ALL STORMS DRAINS WITHIN OR ADJACENT TO THE WORK AREA, WITH THE POTENTIAL TO RECEIVE RUNOFF FROM EXPOSED CONSTRUCTION AREAS, SHALL RECEIVE STORM DRAIN INLET PROTECTION.
7. CONTRACTOR SHALL PREVENT TRACKING OF DIRT ONTO ANY PUBLIC OR PRIVATE ROADWAYS. IF TRACKING OF DIRT FROM CONSTRUCTION VEHICLES IS PRESENT ON THE OPEN STREETS, CONTRACTOR WILL BE REQUIRED TO SWEEP THE ROADWAY AT NO ADDITIONAL EXPENSE TO THE OWNER.

BEST MANAGEMENT PRACTICES FOR BLASTING

All activities related to blasting shall follow Best Management Practices (BMPs) to prevent contamination of groundwater including preparing, reviewing and following an approved blasting plan; proper drilling, explosive handing and loading procedures; observing the entire blasting procedures; evaluating blasting performance; and handling and storage of blasted rock.

- (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 conditions.
 - b. Explosive products shall be managed on-site so that they are either used in the borehole, returned to the the delivery vehicle, or placed in secure containers for off-site disposal.
 - c. Spillage around the borehole shall either be placed in the borehole or cleaned up and returned to an appropriate vehicle for handling or placement in secured containers for off-site disposal.
 - d. Loaded explosives shall be detonated as soon as possible and shall not be left in the blastholes overnight, unless weather or other safety concerns reasonably dictate that detonation should be postponed.
 - e. Loading equipment shall be cleaned in an area where wastewater can be properly contained and handled in a manner that prevents release of contaminants to the environment.
 - f. Explosives shall be loaded to maintain good continuity in the column load to promote complete detonation. Industry accepted loading practices for priming, stemming, decking and column rise need to be attended to.
- (2) Explosive Selection. The following BMPs shall be followed to reduce the potential for groundwater contamination when explosives are used:
 - a. Explosive products shall be selected that are appropriate for site conditions and safe blast execution.
 - b. Explosive products shall be selected that have the appropriate water resistance for the site conditions present to minimize the potential for hazardous effect of the product upon groundwater.
- (1) Prevention of Misfires. Appropriate practices shall be developed and implemented to prevent misfires.
- (2) Muck Pile Management. Muck piles (the blasted pieces of rock) and rock piles shall be managed in a manner to reduce the potential for contamination by implementing the following measures:
 - a. Remove the muck pile from the blast area as soon as reasonably possible.
 - b. Manage the interaction of blasted rock piles and stormwater to prevent contamination of water supply wells or surface water.
- (5) Spill Prevention Measures and Spill Mitigation. Spill prevention and spill mitigation measures shall be implemented to prevent the release of fuel and other related substances to the environment. The measures shall include at a minimum:
 - a. The fuel storage requirements shall include:
 1. Storage of regulated substances on an impervious surface.
 2. Secure storage areas against unauthorized entry.
 3. Label regulated containers clearly and visibly.
 4. Inspect storage areas weekly.
 5. Cover regulated containers in outside storage areas.
 6. Wherever possible, keep regulated containers that are stored outside more than 50 feet from surface water and storm drains, 75 feet from private wells, and 400 feet from public wells.
 7. Secondary containment is required for containers containing regulated substances stored outside, except for on premise use heating fuel tanks, or aboveground or underground storage tanks otherwise regulated.
 - b. The fuel handling requirements shall include:
 1. Except when in use, keep containers containing regulated substances closed and sealed.
 2. Place drip pans under spigots, valves, and pumps.
 3. Have spill control and containment equipment readily available in all work areas.
 4. Use funnels and drip pans when transferring regulated substances.
 5. Perform transfers of regulated substances over an impervious surface.
 - c. The training of on-site employees and the on-site posting of release response information describing what to do in the event of a spill of regulated substances.
 - d. Fueling and maintenance of excavation, earthmoving and other construction related equipment will comply with the regulations of the New Hampshire Department of Environmental Services [note these requirements are summarized in WD-DWGB-22-6 Best Management Practices for Fueling and Maintenance of Excavation and Earthmoving Equipment" or its successor document. (see <http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/documents/dwgb-22-6.pdf>)



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5/6/22

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MAY 5, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	10/14/21
1	PLANNING BOARD	CDB	05/05/22

DRAWN BY: _____ CDB

APPROVED BY: _____ EDW

DRAWING FILE: _____ 4952-DETAILS.dwg

SCALE:

24"x36" N.T.S.
12"x18" N.T.S.

OWNER:

7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

APPLICANT:

SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

PROJECT:

7 WEST
COMMERCIAL
DEVELOPMENT

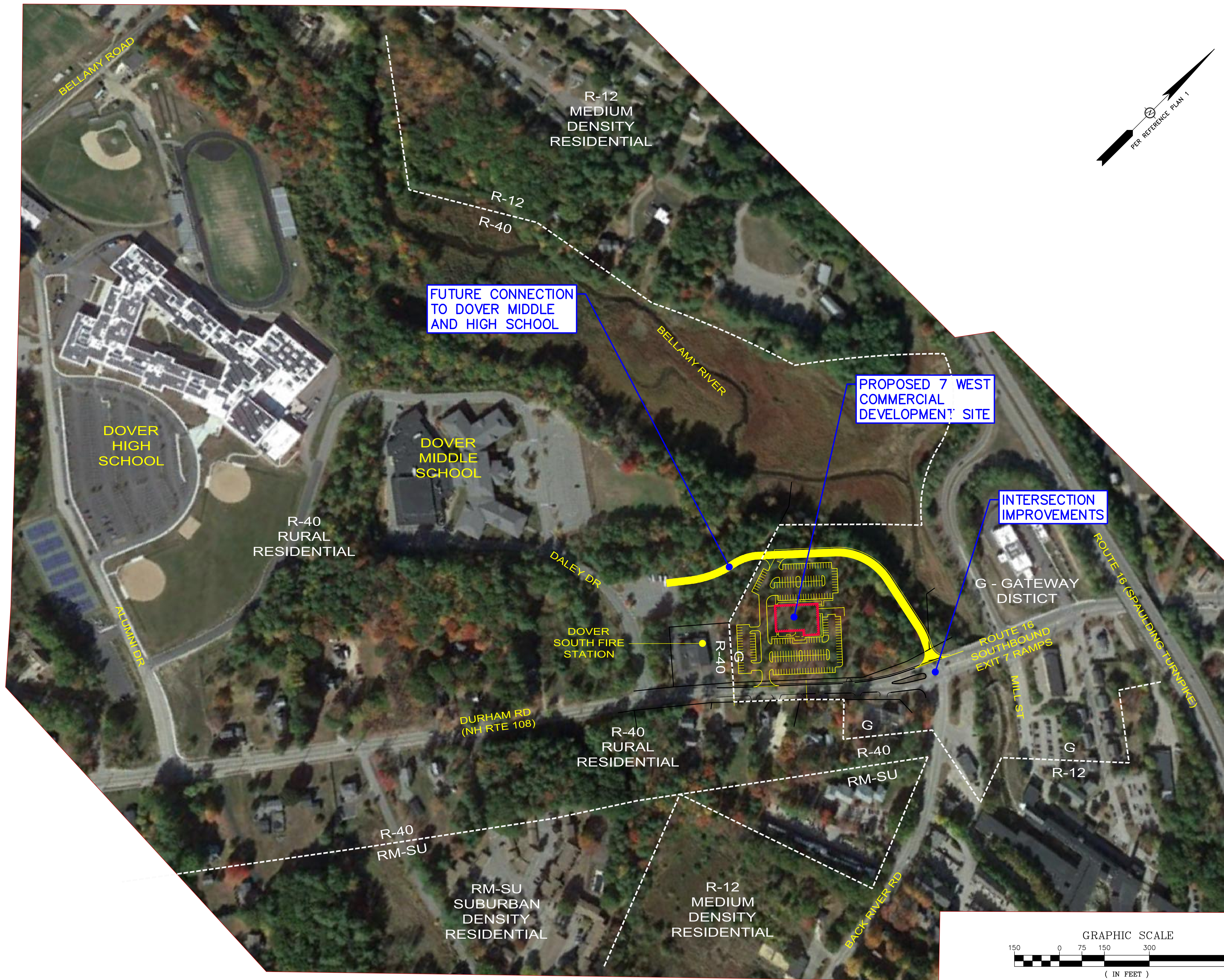
(FILE NO. P22-___)
TAX MAP H, LOT 11
DOVER, NH

TITLE:

GENERAL NOTES

SHEET NUMBER:

GN-2



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REVISIONS	NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL		CDB	5/05/22

DRAWN BY: _____ CDB
APPROVED BY: _____ EDW
DRAWING FILE: 4952-SITE.dwg

SCALE: 24"x36" 1" = 150'
12"x18" 1" = 300'

OWNER:
7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

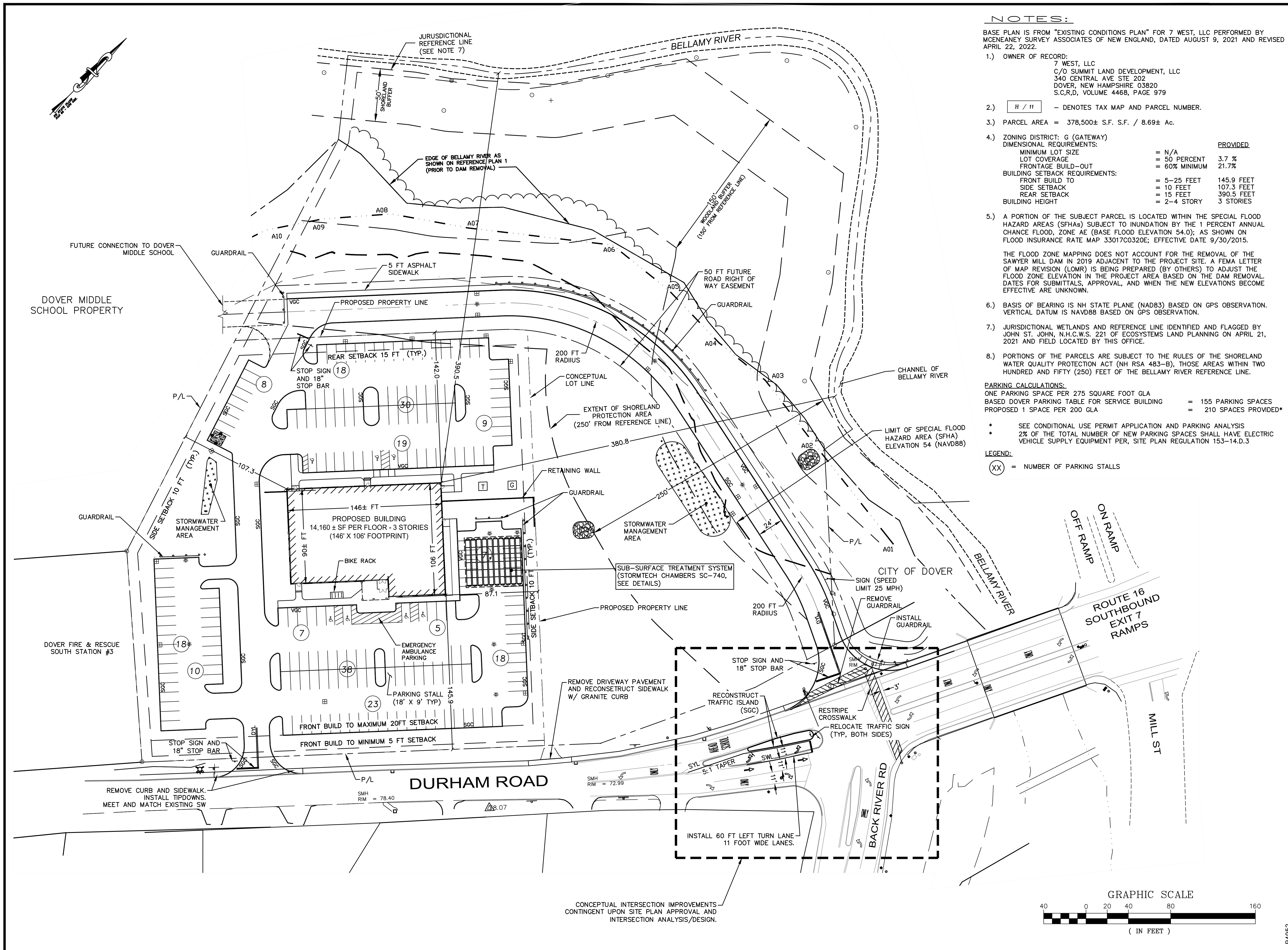
APPLICANT:
SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

PROJECT:
7 WEST
COMMERCIAL
DEVELOPMENT

(FILE NO. P22-38)
TAX MAP H, LOT 11
DOVER, NH

TITLE:
**NEIGHBORHOOD
SITE PLAN**

SHEET NUMBER:
C-1



- NOTES:**
- BASE PLAN IS FROM "EXISTING CONDITIONS PLAN" FOR 7 WEST, LLC PERFORMED BY MCENEANEY SURVEY ASSOCIATES OF NEW ENGLAND, DATED AUGUST 9, 2021 AND REVISED APRIL 22, 2022.
- OWNER OF RECORD:
7 WEST, LLC
C/O SUMMIT LAND DEVELOPMENT, LLC
340 CENTRAL AVE STE 202
DOVER, NEW HAMPSHIRE 03820
S.C.R.D, VOLUME 4468, PAGE 979
 - | | |
|--------|--------------------------------------|
| H / II | - DENOTES TAX MAP AND PARCEL NUMBER. |
|--------|--------------------------------------|
 - PARCEL AREA = 378,500± S.F. S.F. / 8.69± Ac.
 - ZONING DISTRICT: G (GATEWAY)
DIMENSIONAL REQUIREMENTS:

	MINIMUM LOT SIZE	LOT COVERAGE	FRONTAGE BUILD-OUT
	= N/A	= 50 PERCENT	= 60% MINIMUM
BUILDING SETBACK REQUIREMENTS:			
FRONT BUILD TO	= 5-25 FEET	145.9 FEET	
SIDE SETBACK	= 10 FEET	107.3 FEET	
REAR SETBACK	= 15 FEET	390.5 FEET	
BUILDING HEIGHT	= 2-4 STORY	3 STORIES	

PROVIDED
 - A PORTION OF THE SUBJECT PARCEL IS LOCATED WITHIN THE SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1 PERCENT ANNUAL CHANCE FLOOD, ZONE AE (BASE FLOOD ELEVATION 54.0); AS SHOWN ON FLOOD INSURANCE RATE MAP 33017C0320E; EFFECTIVE DATE 9/30/2015.

THE FLOOD ZONE MAPPING DOES NOT ACCOUNT FOR THE REMOVAL OF THE SAWYER MILL DAM IN 2019 ADJACENT TO THE PROJECT SITE. A FEMA LETTER OF MAP REVISION (LOMR) IS BEING PREPARED (BY OTHERS) TO ADJUST THE FLOOD ZONE ELEVATION IN THE PROJECT AREA BASED ON THE DAM REMOVAL DATES FOR SUBMITTALS, APPROVAL, AND WHEN THE NEW ELEVATIONS BECOME EFFECTIVE ARE UNKNOWN.
 - BASIS OF BEARING IS NH STATE PLANE (NAD83) BASED ON GPS OBSERVATION. VERTICAL DATUM IS NAVD88 BASED ON GPS OBSERVATION.
 - JURISDICTIONAL WETLANDS AND REFERENCE LINE IDENTIFIED AND FLAGGED BY JOHN ST. JOHN, N.H.C.W.S. 221 OF ECOSYSTEMS LAND PLANNING ON APRIL 21, 2021 AND FIELD LOCATED BY THIS OFFICE.
 - PORTIONS OF THE PARCELS ARE SUBJECT TO THE RULES OF THE SHORELAND WATER QUALITY PROTECTION ACT (NH RSA 483-B), THOSE AREAS WITHIN TWO HUNDRED AND FIFTY (250) FEET OF THE BELLAMY RIVER REFERENCE LINE.
- PARKING CALCULATIONS:**
ONE PARKING SPACE PER 275 SQUARE FOOT GLA = 155 PARKING SPACES
BASED DOVER PARKING TABLE FOR SERVICE BUILDING
PROPOSED 1 SPACE PER 200 GLA = 210 SPACES PROVIDED*
- * SEE CONDITIONAL USE PERMIT APPLICATION AND PARKING ANALYSIS
* 2% OF THE TOTAL NUMBER OF NEW PARKING SPACES SHALL HAVE ELECTRIC VEHICLE SUPPLY EQUIPMENT PER, SITE PLAN REGULATION 153-14.D.3
- LEGEND:**
(XX) = NUMBER OF PARKING STALLS

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DRAWN BY: _____ CDB
APPROVED BY: _____ EDW
DRAWING FILE: _____ 4952-SITE.dwg

SCALE: 24"x36" 1" = 40'
12"x18" 1" = 80'

OWNER:
7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

APPLICANT:
SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

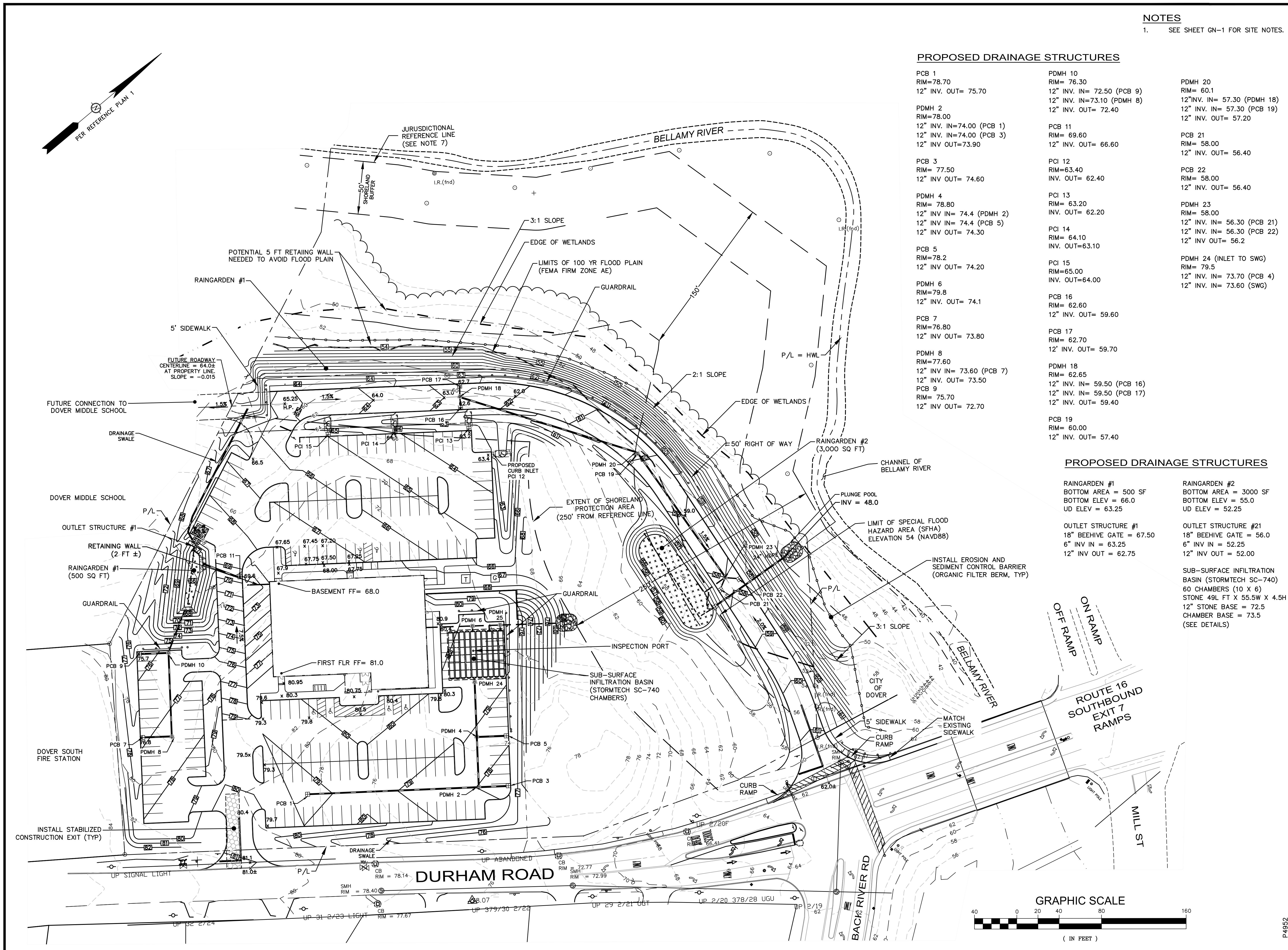
PROJECT:
7 WEST
COMMERCIAL
DEVELOPMENT

(FILE NO. P22-38)
TAX MAP H, LOT 11
DOVER, NH

TITLE:
SITE PLAN

SHEET NUMBER:
C-2

P4952



NOTES
1. SEE SHEET GN-1 FOR SITE NOTES.

PROPOSED DRAINAGE STRUCTURES

PCB 1 RIM=78.70 12" INV. OUT= 75.70	PDMH 10 RIM= 76.30 12" INV. IN= 72.50 (PCB 9) 12" INV. IN=73.10 (PDMH 8) 12" INV. OUT= 72.40	PDMH 20 RIM= 60.1 12" INV. IN= 57.30 (PDMH 18) 12" INV. IN= 57.30 (PCB 19) 12" INV. OUT= 57.20
PDMH 2 RIM=78.00 12" INV. IN=74.00 (PCB 1) 12" INV. IN=74.00 (PCB 3) 12" INV. OUT=73.90	PCB 11 RIM= 69.60 12" INV. OUT= 66.60	PCB 21 RIM= 58.00 12" INV. OUT= 56.40
PCB 3 RIM= 77.50 12" INV. OUT= 74.60	PCI 12 RIM=63.40 INV. OUT= 62.40	PCB 22 RIM= 58.00 12" INV. OUT= 56.40
PDMH 4 RIM= 78.80 12" INV. IN= 74.4 (PDMH 2) 12" INV. IN= 74.4 (PCB 5) 12" INV. OUT= 74.30	PCI 13 RIM= 63.20 INV. OUT= 62.20	PDMH 23 RIM= 58.00 12" INV. IN= 56.30 (PCB 21) 12" INV. IN= 56.30 (PCB 22) 12" INV. OUT= 56.2
PCB 5 RIM=78.2 12" INV. OUT= 74.20	PCI 14 RIM= 64.10 INV. OUT=63.10	PDMH 24 (INLET TO SWG) RIM= 79.5 12" INV. IN= 73.70 (PCB 4) 12" INV. IN= 73.60 (SWG)
PDMH 6 RIM=79.8 12" INV. OUT= 74.1	PCI 15 RIM=65.00 INV. OUT=64.00	
PCB 7 RIM=76.80 12" INV. OUT= 73.80	PCB 16 RIM= 62.60 12" INV. OUT= 59.60	
PDMH 8 RIM=77.60 12" INV. IN= 73.60 (PCB 7) 12" INV. OUT= 73.50 PCB 9 RIM= 75.70 12" INV. OUT= 72.70	PCB 17 RIM= 62.70 12" INV. OUT= 59.70	
	PDMH 18 RIM= 62.65 12" INV. IN= 59.50 (PCB 16) 12" INV. IN= 59.50 (PCB 17) 12" INV. OUT= 59.40	
	PCB 19 RIM= 60.00 12" INV. OUT= 57.40	

PROPOSED DRAINAGE STRUCTURES

RAINGARDEN #1 BOTTOM AREA = 500 SF BOTTOM ELEV = 66.0 UD ELEV = 63.25	RAINGARDEN #2 BOTTOM AREA = 3000 SF BOTTOM ELEV = 55.0 UD ELEV = 52.25
OUTLET STRUCTURE #1 18" BEEHIVE GATE = 67.50 6" INV. IN = 63.25 12" INV. OUT = 62.75	OUTLET STRUCTURE #21 18" BEEHIVE GATE = 56.0 6" INV. IN = 52.25 12" INV. OUT = 52.00
SUB-SURFACE INFILTRATION BASIN (STORMTECH SC-740) 60 CHAMBERS (10 X 6) STONE 49L FT X 55.5W X 4.5H 12" STONE BASE = 72.5 CHAMBER BASE = 73.5 (SEE DETAILS)	

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NO.	DESCRIPTION	BY	DATE
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DRAWN BY: _____ CDB

APPROVED BY: _____ EDW

DRAWING FILE: _____ 4952-Site.dwg

SCALE: **24"x36" 1" = 40'**
12"x18" 1" = 80'

OWNER: **7 WEST, LLC**
P.O. BOX 728
DOVER, NH 03821

APPLICANT: **SUMMIT LAND DEVELOPMENT**
340 CENTRAL AVE., #202
DOVER, NH 03820

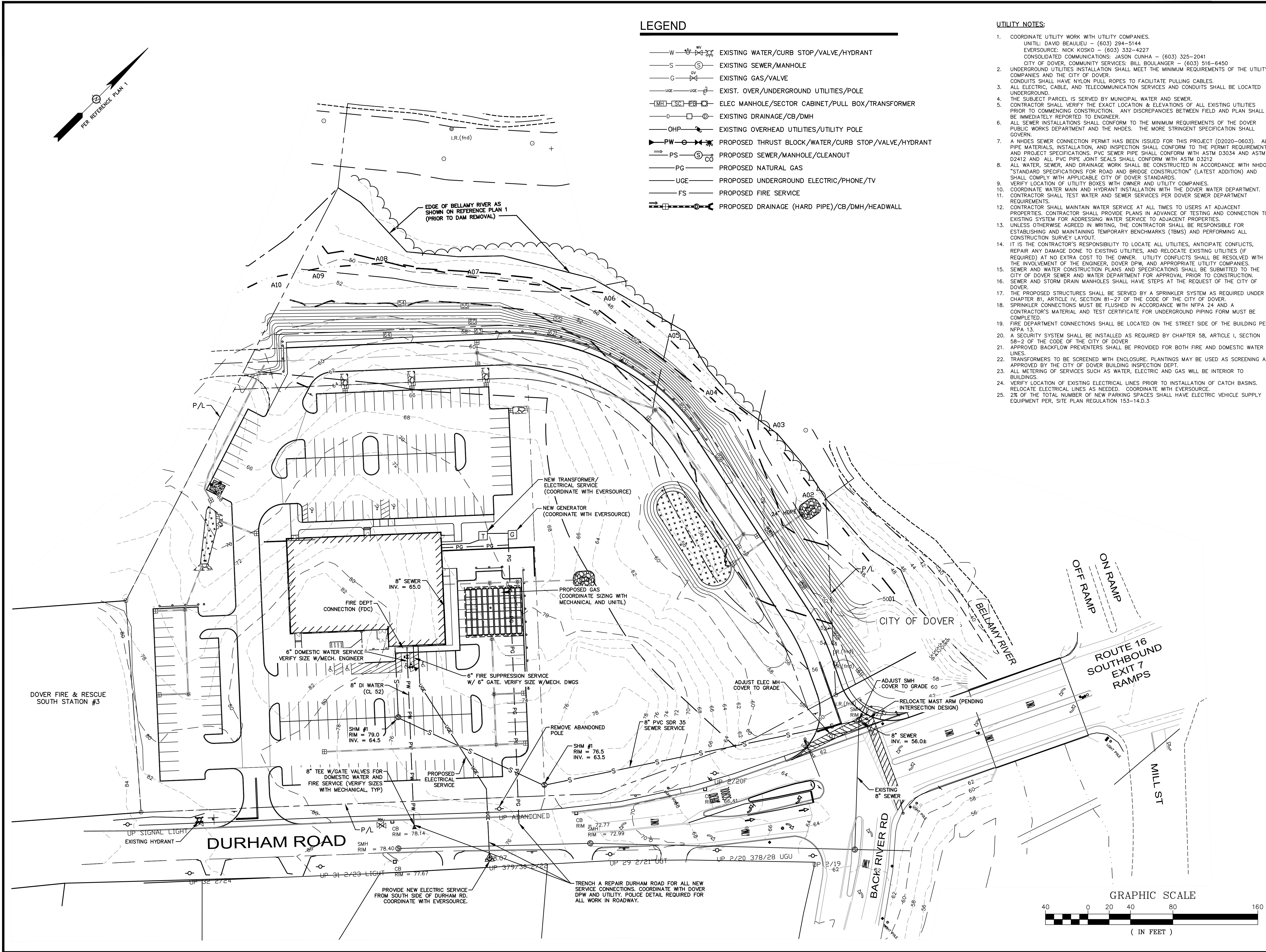
PROJECT: **7 WEST COMMERCIAL DEVELOPMENT**

(FILE NO. P22-38)
TAX MAP H, LOT 11
DOVER, NH

TITLE: **GRADING, DRAINAGE, AND EROSION AND SEDIMENT CONTROL PLAN**

SHEET NUMBER: **C-3**

P4952



- LEGEND**
- W — — EXISTING WATER/CURB STOP/VALVE/HYDRANT
 - S — — EXISTING SEWER/MANHOLE
 - G — — EXISTING GAS/VALVE
 - UGE — — EXIST. OVER/UNDERGROUND UTILITIES/POLE
 - — ELEC MANHOLE/SECTOR CABINET/PULL BOX/TRANSFORMER
 - D — — EXISTING DRAINAGE/CB/DMH
 - OHP — — EXISTING OVERHEAD UTILITIES/UTILITY POLE
 - — PROPOSED THRUST BLOCK/WATER/CURB STOP/VALVE/HYDRANT
 - — PROPOSED SEWER/MANHOLE/CLEANOUT
 - — PROPOSED NATURAL GAS
 - — PROPOSED UNDERGROUND ELECTRIC/PHONE/TV
 - — PROPOSED FIRE SERVICE
 - — PROPOSED DRAINAGE (HARD PIPE)/CB/DMH/HEADWALL

- UTILITY NOTES:**
- COORDINATE UTILITY WORK WITH UTILITY COMPANIES.
UNUTIL: DAVID BEAULIEU — (603) 294-5144
EVERSOURCE: NICK KOSKO — (603) 332-4227
CONSOLIDATED COMMUNICATIONS: JASON CUNHA — (603) 325-2041
CITY OF DOVER, COMMUNITY SERVICES: BILL BOULANGER — (603) 516-6450
 - UNDERGROUND UTILITIES INSTALLATION SHALL MEET THE MINIMUM REQUIREMENTS OF THE UTILITY COMPANIES AND THE CITY OF DOVER.
CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
 - ALL ELECTRIC, CABLE, AND TELECOMMUNICATION SERVICES AND CONDUITS SHALL BE LOCATED UNDERGROUND.
 - THE SUBJECT PARCEL IS SERVED BY MUNICIPAL WATER AND SEWER.
 - CONTRACTOR SHALL VERIFY THE EXACT LOCATION & ELEVATIONS OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. ANY DISCREPANCIES BETWEEN FIELD AND PLAN SHALL BE IMMEDIATELY REPORTED TO ENGINEER.
 - ALL SEWER INSTALLATIONS SHALL CONFORM TO THE MINIMUM REQUIREMENTS OF THE DOVER PUBLIC WORKS DEPARTMENT AND THE NHDES. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
 - A NHDES SEWER CONNECTION PERMIT HAS BEEN ISSUED FOR THIS PROJECT (D2020-0603). ALL PIPE MATERIALS, INSTALLATION, AND INSPECTION SHALL CONFORM TO THE PERMIT REQUIREMENTS AND PROJECT SPECIFICATIONS. PVC SEWER PIPE SHALL CONFORM WITH ASTM D3034 AND ASTM D2412 AND ALL PVC PIPE JOINT SEALS SHALL CONFORM WITH ASTM D3212.
 - ALL WATER, SEWER, AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH NHDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" (LATEST ADDITION) AND SHALL COMPLY WITH APPLICABLE CITY OF DOVER STANDARDS.
 - VERIFY LOCATION OF UTILITY BOXES WITH OWNER AND UTILITY COMPANIES.
 - COORDINATE WATER MAIN AND HYDRANT INSTALLATION WITH THE DOVER WATER DEPARTMENT.
 - CONTRACTOR SHALL TEST WATER AND SEWER SERVICES PER DOVER SEWER DEPARTMENT REQUIREMENTS.
 - CONTRACTOR SHALL MAINTAIN WATER SERVICE AT ALL TIMES TO USERS AT ADJACENT PROPERTIES. CONTRACTOR SHALL PROVIDE PLANS IN ADVANCE OF TESTING AND CONNECTION TO EXISTING SYSTEM FOR ADDRESSING WATER SERVICE TO ADJACENT PROPERTIES.
 - UNLESS OTHERWISE AGREED IN WRITING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING TEMPORARY BENCHMARKS (TBMS) AND PERFORMING ALL CONSTRUCTION SURVEY LAYOUT.
 - IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR ANY DAMAGE DONE TO EXISTING UTILITIES, AND RELOCATE EXISTING UTILITIES (IF REQUIRED) AT NO EXTRA COST TO THE OWNER. UTILITY CONFLICTS SHALL BE RESOLVED WITH THE INVOLVEMENT OF THE ENGINEER, DOVER DPW, AND APPROPRIATE UTILITY COMPANIES.
 - SEWER AND WATER CONSTRUCTION PLANS AND SPECIFICATIONS SHALL BE SUBMITTED TO THE CITY OF DOVER SEWER AND WATER DEPARTMENT FOR APPROVAL PRIOR TO CONSTRUCTION.
 - SEWER AND STORM DRAIN MANHOLES SHALL HAVE STEPS AT THE REQUEST OF THE CITY OF DOVER.
 - THE PROPOSED STRUCTURES SHALL BE SERVED BY A SPRINKLER SYSTEM AS REQUIRED UNDER CHAPTER 81, ARTICLE IV, SECTION 81-27 OF THE CODE OF THE CITY OF DOVER.
 - 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.
 - FIRE DEPARTMENT CONNECTIONS SHALL BE LOCATED ON THE STREET SIDE OF THE BUILDING PER NFPA 13.
 - A SECURITY SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 58, ARTICLE I, SECTION 58-2 OF THE CODE OF THE CITY OF DOVER.
 - APPROVED BACKFLOW PREVENTERS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.
 - TRANSFORMERS TO BE SCREENED WITH ENCLOSURE. PLANTINGS MAY BE USED AS SCREENING AS APPROVED BY THE CITY OF DOVER BUILDING INSPECTION DEPT.
 - ALL METERING OF SERVICES SUCH AS WATER, ELECTRIC AND GAS WILL BE INTERIOR TO BUILDINGS.
 - VERIFY LOCATION OF EXISTING ELECTRICAL LINES PRIOR TO INSTALLATION OF CATCH BASINS. RELOCATE ELECTRICAL LINES AS NEEDED. COORDINATE WITH EVERSOURCE.
 - 2% OF THE TOTAL NUMBER OF NEW PARKING SPACES SHALL HAVE ELECTRIC VEHICLE SUPPLY EQUIPMENT PER, SITE PLAN REGULATION 153-14.D.3

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NO.	DESCRIPTION	BY DATE
0	INITIAL SUBMITTAL	CDB 05/05/22

DRAWN BY: _____ CDB
APPROVED BY: _____ EDW
DRAWING FILE: _____ 4952-SITE.dwg

SCALE: **24"x36" 1" = 40'**
12"x18" 1" = 80'

OWNER: **7 WEST, LLC**
P.O. BOX 728
DOVER, NH 03821

APPLICANT: **SUMMIT LAND DEVELOPMENT**
340 CENTRAL AVE., #202
DOVER, NH 03820

PROJECT: **7 WEST**
COMMERCIAL
DEVELOPMENT

(FILE NO. P22-38)
TAX MAP H, LOT 11
DOVER, NH

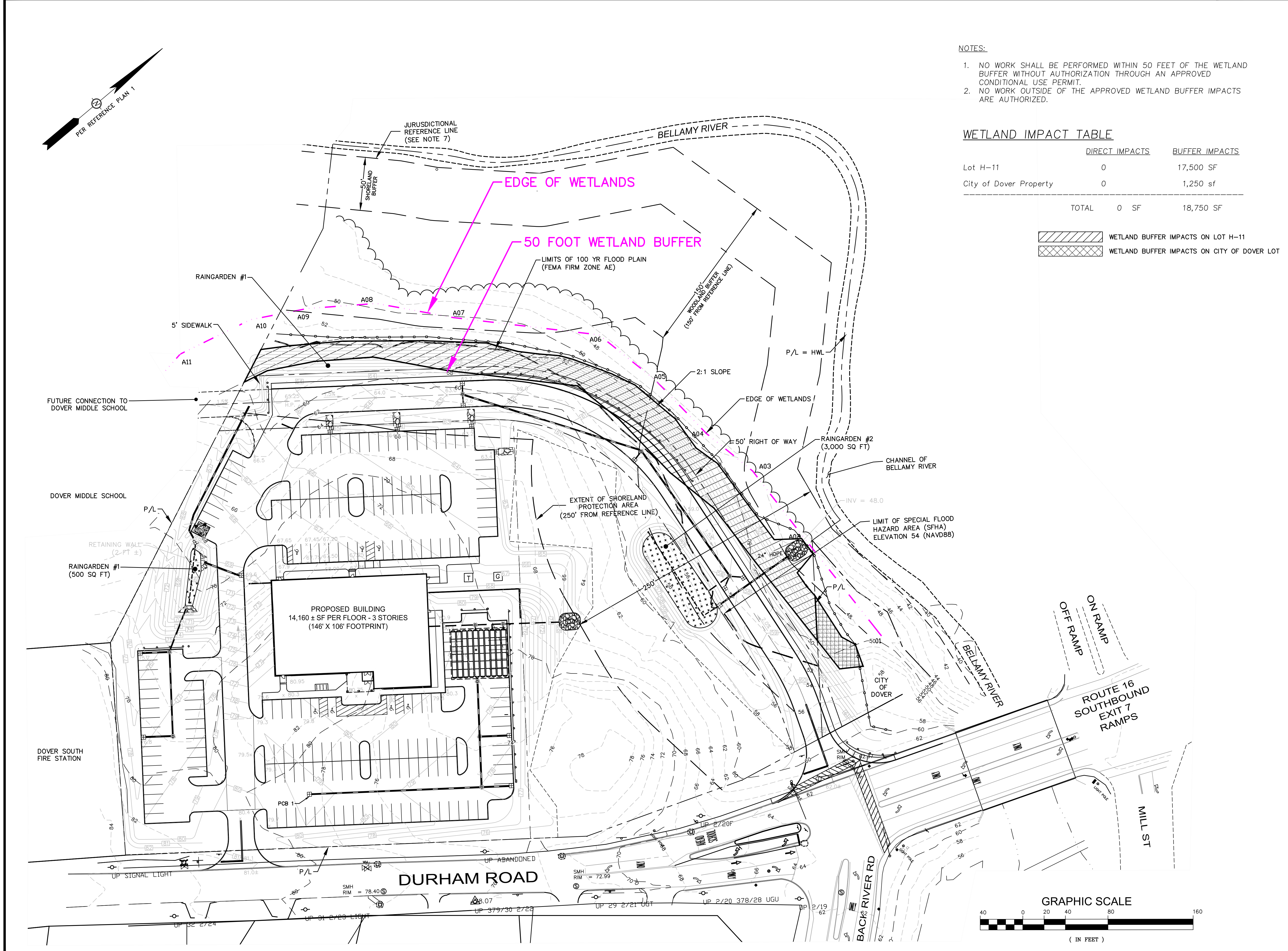
TITLE: _____

UTILITIES PLAN

SHEET NUMBER: _____

C-4

P4951



- NOTES:
1. NO WORK SHALL BE PERFORMED WITHIN 50 FEET OF THE WETLAND BUFFER WITHOUT AUTHORIZATION THROUGH AN APPROVED CONDITIONAL USE PERMIT.
 2. NO WORK OUTSIDE OF THE APPROVED WETLAND BUFFER IMPACTS ARE AUTHORIZED.

WETLAND IMPACT TABLE

	DIRECT IMPACTS	BUFFER IMPACTS
Lot H-11	0	17,500 SF
City of Dover Property	0	1,250 sf
TOTAL	0 SF	18,750 SF

- WETLAND BUFFER IMPACTS ON LOT H-11
- WETLAND BUFFER IMPACTS ON CITY OF DOVER LOT

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NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	05/05/22

DRAWN BY: CDB
APPROVED BY: EDW
DRAWING FILE: 4952-Site.dwg

SCALE: 24"x36" 1" = 40'
12"x18" 1" = 80'

OWNER: 7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

APPLICANT: SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

PROJECT: 7 WEST COMMERCIAL DEVELOPMENT
(FILE NO. P22-38)
TAX MAP H, LOT 11
DOVER, NH

TITLE: WETLANDS CONDITIONAL USE PLAN

SHEET NUMBER: CUP-1

P4952

SEDIMENT AND EROSION CONTROL NOTES

PROJECT NAME AND LOCATION

7 WEST COMMERCIAL DEVELOPMENT
DURHAM ROAD
DOVER, NEW HAMPSHIRE

LONGITUDE: 70.8797 W
LATITUDE: 43.1790 N
TAX MAP H LOT 11

OWNER:
POINTE WEST, LLC
P.O. BOX 728
DOVER, NH 03821

APPLICANT:
SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

DESCRIPTION

The project consists of a single 3–Story commercial building approximately 14,160 square feet in size (footprint). The site will provide associated site improvements including parking, walkways, lighting, utilities, stormwater management and landscaping improvements. The project is located on an 6.43 acre lot identified as Assessor's parcel Tax Map H, Lot 11 in the City of Dover, NH.

DISTURBED AREA

The total area to be disturbed for the site development improvements is approximately ±243,750 SF (±5.5 acres).

NAME OF RECEIVING WATER

The site drains to the Bellamy River.

NPDES CONSTRUCTION GENERAL PERMIT

Contractor shall prepare a Stormwater Pollution Prevention Plan (SWPPP) in accordance with federal storm water permit requirements (see "Developing Your Stormwater Pollution Prevention Plan", EPA 833-R-060-4). The SWPPP must be prepared in a format acceptable to the Owner and three (3) copies provided to the Municipality at least fourteen (14) days prior to initiating construction. Contractor is responsible for all cost associated with preparation and implementation of SWPPP including any temporary erosion control measures (whether indicated or not on these drawings) as required for the contractor's sequence of activities.

The Contractor and Owner shall each file a Notice of Intent (NOI) with the U.S.E.P.A. under the NPDES Construction General Permit. (U.S.E.P.A., 1200 Pennsylvania Avenue NW, Washington, DC 20460). All work shall be in accordance with NPDES General Permit: NHG07000, including NOI requirements, effluent limitations, standards and management for construction. The Contractor shall be responsible for obtaining a USEPA Construction Dewatering Permit, if required.

SEQUENCE OF MAJOR ACTIVITIES

1. Prepare SWPPP and file NPDES Notice of Intent (NOI), 14 days prior to any construction activities (Required).
2. Hold a pre-construction meeting with City & stake holders, as required.
3. Install temporary erosion control measures including organic filter berms, stabilized construction exits, inlet sediment filters, and temporary sediment traps as noted on the plan. All temporary erosion control measures shall be maintained in good working condition for the duration of the project.
4. DO NOT construct or direct construction flows to proposed raingardens until proposed grades are established and site is stabilized.
5. Prepare building area per geotechnical engineering recommendations.
6. Rough grade site including ledge removal. Blasting to be obtained by Contractor if required.
7. Construct utility services.
8. Construct drainage structures, culverts, and swales.
9. Construct building foundations, driveways and parking area base course paving & curbing.
10. Construct final grading, loam (6" min) and seed all disturbed areas not paved or otherwise stabilized.
11. Complete building construction.
12. When site is fully stabilized, complete construction of raingardens.
13. Install top course paving, pavement markings and signs.
14. When all construction activity is complete and as each phase is stabilized, remove all temporary erosion control measures and any sediment that has been trapped by these devices.
15. File a Notice of Termination (N.O.T.) with U.S.E.P.A. (Required)

CONSTRUCTION SEQUENCE / EROSION CONTROL

- THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:33 AND CHAPTER AGR 3600 RELATIVE TO INVASIVE SPECIES.
- PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH MOVING OPERATIONS.
- TEMPORARY WATER DIVERSION (SWALES, BASINS, ETC) MUST BE USED AS NECESSARY UNTIL AREAS ARE STABILIZED.
- PONDS AND SWALES SHALL BE INSTALLED EARLY ON IN THE CONSTRUCTION SEQUENCE (BEFORE ROUGH GRADING THE SITE).
- ALL DITCHES AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
- ALL ROADWAYS AND PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
- ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOADED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
- ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.
- THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL EXCEED 55,000 SQUARE FEET AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
 - BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED.
 - A MINIMUM OF 85 PERCENT VEGETATED GROWTH HAS BEEN ESTABLISHED.
 - A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH STONE OR RIPRAP HAS BEEN INSTALLED.
 - OR, EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
- ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.

TEMPORARY EROSION & SEDIMENT CONTROL AND STABILIZATION PRACTICES

All work shall be in accordance with state and local permits. Work shall conform to the practices described in the "New Hampshire Stormwater Manual, Volumes 1 – 3", issued December 2008, as amended. As indicated in the sequence of Major Activities, the silt fences shall be installed prior to commencing any clearing or grading of the site. Structural controls shall be installed concurrently with the applicable activity. Once construction activity ceases permanently in an area, silt fences and any earth/dikes will be removed once permanent measures are established.

During construction, runoff will be diverted around the site with stabilized channels where possible. Sheet runoff from the site shall be filtered through hay bale barriers, stone check dams, and silt fences. All storm drain inlets shall be provided with hay bale filters or stone check dams. Stone rip rap shall be provided at the outlets of drain pipes and culverts where shown on the drawings.

Stabilize all ditches, swales, & level spreaders prior to directing flow to them.

Temporary and permanent vegetation and mulching is an integral component of the erosion and sedimentation control plan. All areas shall be inspected and maintained until vegetative cover is established. These control measures are essential to erosion prevention and also reduce costly rework of graded and shaped areas.

Temporary vegetation shall be maintained in these areas until permanent seeding is applied. Additionally, erosion and sediment control measures shall be maintained until permanent vegetation is established.

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES

A. GENERAL

These are general inspection and maintenance practices that shall be used to implement the plan:

1. The smallest practical portion of the site shall be denuded at one time.
2. All control measures shall be inspected at least once each week and following any storm event of 0.5 inches or greater.
3. All measures shall be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours.
4. Built-up sediment shall be removed from silt fence or other barriers when it has reached one-third the height of the fence or bale, or when "bulges" occur.
5. All diversion dikes shall be inspected and any breaches promptly repaired.
6. Temporary seeding and planting shall be inspected for bare spots, washouts, and unhealthy growth.
7. The owner's authorized engineer shall inspect the site on a periodic basis to review compliance with the Plans.
8. An area shall be considered stable if one of the following has occurred:
 - a. Base coarse gravels have been installed in areas to be paved;
 - b. A minimum of 85% vegetated growth has been established;
 - c. A minimum of 3 inches of non-erosive material such as stone or riprap has been installed; – or
 - d. Erosion control blankets have been properly installed.
9. The length of time of exposure of area disturbed during construction shall not exceed 45 days.

B. MULCHING

Mulch shall be used on highly erodible soils, on critically eroding areas, on areas where conservation of moisture will facilitate plant establishment, and where shown on the plans.

1. Timing – In order for mulch to be effective, it must be in place prior to major storm events. There are two (2) types of standards which shall be used to assure this:
 - a. Apply mulch prior to any storm event. This is applicable when working within 100 feet of wetlands. It will be necessary to closely monitor weather predictions, usually by contacting the National Weather Service in Concord, to have adequate warning of significant storms.
 - b. Required Mulching within a specified time period. The time period can range from 21 to 28 days of inactivity on a area, the length of time varying with site conditions (soil erodibility, season of year, extent of disturbance, proximity to sensitive resources, etc.) and the potential impact of erosion on adjacent areas to choose an appropriate time restriction.

2. Guidelines for Winter Mulch Application –

Type	Rate per 1,000 s.f.	Use and Comments
Hay or Straw	70 to 90 lbs.	Must be dry and free from mold. May be used with plantings.
Wood Chips or Bark Mulch	460 to 920 lbs.	Used mostly with trees and shrub plantings.
Jute and Fibrous Matting (Erosion Blanket)	As per manufacturer Specifications	Used in slope areas, water courses and other Control areas.
Crushed Stone 1/4" to 1-1/2" dia.	Spread more than 1/2" thick	Effective in controlling wind and water erosion.
Erosion Control Mix	2" thick (min)	* The organic matter content is between 80 and 100%, dry weight basis. * Particle size by weight is 100% passing a 6" screen and a minimum of 70 % maximum of 85%, passing a 0.75" screen. * The organic portion needs to be fibrous and elongated. * Large portions of silts, clays or fine sands are not acceptable in the mix. * Soluble salts content is less than 4.0 mmhos/cm. * The pH shall fall between 5.0 and 8.0.

3. Maintenance – All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied.

C. TEMPORARY GRASS COVER

1. Seedbed Preparation – Apply fertilizer at the rate of 600 pounds per acre of 10–10–10. Apply limestone (equivalent to 50 percent calcium plus magnesium oxide) at a rate of three (3) tons per acre.
10. Seeding –
 - a. Utilize annual rye grass at a rate of 40 lbs/acre.
 - b. Where the soil has been compacted by construction operations, loosen soil to a depth of two (2) inches before applying fertilizer, lime and seed.
 - c. Apply seed uniformly by hand, cyclone seeder, or hydroseeder (slurry including seed and fertilizer). Hydroseddings, which include mulch, may be left on soil surface. Seeding rates must be increased 10% when hydrosedding.
3. Maintenance – Temporary seedings shall be periodically inspected. At a minimum, 95% of the soil surface should be covered by vegetation. If any evidence of erosion or sedimentation is apparent, repairs shall be made and other temporary measures used in the interim (mulch, filter barriers, check dams, etc.).

D. FILTERS

1. Silt Fence
 - a. Synthetic filter fabric shall be a pervious sheet of propylene, nylon, polyester or ethylene yarn and shall be certified by the manufacturer or supplier as conforming to the following requirements:

Physical Property	Test	Requirements
Filtering Efficiency	VTM–51	75% minimum
Tensile Strength at 20% Maximum Elongation*	VTM–52	Extra Strength 50 lb./in (min) Standard Strength 30 lb./in (min)
Flow Rate	VTM–51	0.3 gal/sf/min (min)
* Requirements reduced by 50 percent after six (6) months of installation.		

Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizer to provide a minimum of six (6) months of expected usable construction life at a temperature range of 0 degrees F to 120° F.

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES (CON'T)

- b. Posts shall be spaced a maximum of ten (10) feet apart at the barrier location or as recommended by the manufacturer and driven securely into the ground (minimum of 16 inches).
- c. A trench shall be excavated approximately six (6) inches wide and eight (8) inches deep along the line of posts and upslope from the barrier.
- d. When standard strength filter fabric is used, a wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy duty wire staples at least one (1) inch long, tie wires or hog rings. The wire shall extend no more than 36 inches above the original ground surfaces.
- e. The "standard strength" filter fabric shall be stapled or wired to the fence, and eight (8) inches of the fabric shall be extended into the trench. The fabric shall not extend more than 36 inches above the original ground surface. Filter fabric shall not be stapled to existing trees.
- f.
- g. When extra strength filter fabric and closer post spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled or wired directly to the posts with all other provisions of item (g) applying.
- h. The trench shall be backfilled and the soil compacted over the filter fabric.
- i. Silt fences shall be removed when they have served their useful purpose but not before the upslope areas has been permanently stabilized.
2. Sequence of Installation – Sediment barriers shall be installed prior to any soil disturbance of the contributing upslope drainage area.
3. Maintenance –
 - a. Silt fence barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. They shall be repaired if there are any signs of erosion or sedimentation below them. Any required repairs shall be made immediately. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water, the sediment barriers shall be replaced with a temporary stone check dam.
 - b. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier still is necessary, the fabric shall be replaced promptly.
 - c. Sediment deposits must be removed when deposits reach approximately one-third (1/3) the height of the barrier.
 - d. Any sediment deposits remaining in place after the silt fence or other barrier is no longer required shall be removed. The area shall be prepared and seeded.
 - e. Additional stone may have to be added to the construction entrance, rock barrier and riprap lined swales, etc., periodically to maintain proper function of the erosion control structure.
- E. PERMANENT SEEDING –
 1. Bedding – stones larger than 1", trash, roots, and other debris that will interfere with seeding and future maintenance of the area should be removed. Where feasible, the soil should be tilled to a depth of 5" to prepare a seedbed and mix fertilizer into the soil.
 2. Fertilizer – lime and fertilizer should be applied evenly over the area prior to or at the time of seeding and incorporated into the soil. 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 @ 100 lbs. per 1,000 s.f.
 - 10–20–20 fertilizer @ 12 lbs. per 1,000 s.f.
 3. Seed Mixture (recommended):

Type	Lbs. / Acre	Lbs. / 1,000 sf
Tall Fescue	24	0.55
Creeping Red Fescue	24	0.55
Total	48	1.10

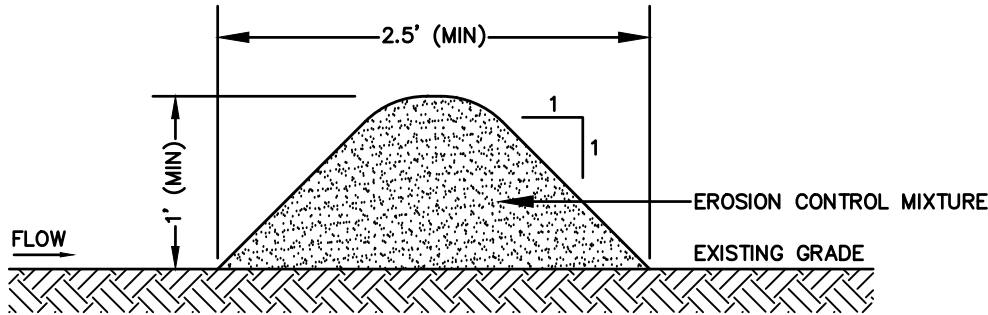
Seed Mixture (For slope embankments):
Grass Seed: Provide fresh, clean, new-crop seed complying with tolerance for purity and germination established by Official Seed Analysts of North America. Provide seed mixture composed of grass species, proportions and minimum percentages of purity, germination, and maximum percentage of weed seed, as specified:

Type	Min. Purity (%)	Min. Germination (%)	Kg./Hectare (Lbs./Acre)
Creeping Red Fescue (b)	98	85	45 (40)
Perennial Rye Grass (c)	98	90	35 (30)
Redtop	95	80	5 (5)
Alsike Clover	97	80	5 (5)
Total 90 (80)			

 - a. Ryegrass shall be a certified fine-textured variety such as Pennfine, Flesta, Yorktown, Diplomat, or equal.
 - b. Fescue varieties shall include – Creeping Red and/or Hard Reliant, Scaldis, Koket, or Jamestown.
 4. Sodding – sodding is done where it is desirable to rapidly establish cover on a disturbed area. Sodding on area may be substituted for permanent seeding procedures anywhere on site. Bed preparation, fertilizing, and placement of sod shall be performed according to the S.O.S. Handbook. Sodding is recommended for steep sloped areas, areas immediately adjacent to sensitive water courses, easily erodible soils (fine sand/silt), etc.

WINTER CONSTRUCTION NOTES

1. All proposed vegetated areas which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th, shall be stabilized by seeding and installing erosion control blankets on slopes greater than 3:1, and elsewhere seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting. The installation of erosion control blankets or mulch and netting shall not occur over accumulated snow or on frozen ground and shall be completed in advance of thaw or spring melt events;
2. All ditches or swales which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th, shall be stabilized temporarily with stone or erosion control blankets appropriate for the design flow conditions; and
3. After October 15th, incomplete road or parking surfaces where work has stopped for the winter season shall be protected with a minimum of 3 inches of crushed gravel per NHDOT Item 304.3.

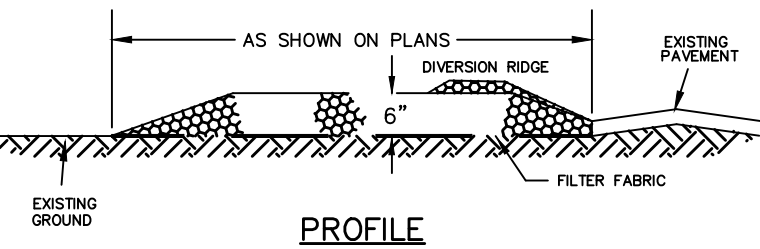
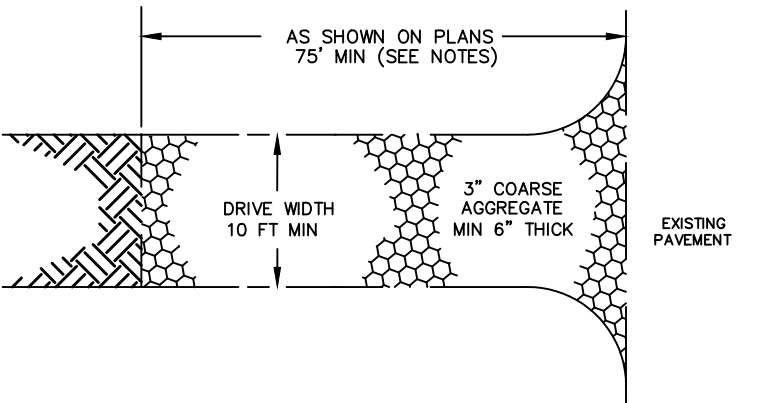


NOTES

1. ORGANIC FILTER BERMS TO BE UTILIZED IN LIEU OF SILT FENCE OR OTHER SEDIMENT BARRIERS.
2. THE EROSION CONTROL MIXTURE USED IN FILTER BERMS SHALL BE A WELL-GRADED MIX OF PARTICLE SIZES THAT MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER, STUMP GRINDINGS, SHREDDED OR COMPOSTED BARK, AND/OR ACCEPTABLE MANUFACTURED PRODUCTS AND SHALL BE FREE OF REFUSE, PHYSICAL CONTAMINANTS AND MATERIAL TOXIC TO PLANT GROWTH. EROSION CONTROL MIXTURE SHALL MEET THE FOLLOWING STANDARDS:
 - a) THE ORGANIC CONTENT SHALL BE 80–100% OF DRY WEIGHT.
 - b) PARTICLE SIZE BY WEIGHT SHALL BE 100% PASSING A 6" SCREEN, AND 70–85% PASSING A 0.75" SCREEN.
 - c) THE ORGANIC PORTION SHALL BE FIBROUS AND ELONGATED.
 - d) LARGE PORTIONS OF SILTS, CLAYS, OR FINE SANDS SHALL NOT BE INCLUDED IN THE MIXTURE.
 - e) SOLUBLE SALTS CONTENT SHALL BE >4.0mmhos/cm.
 - f) THE pH SHALL BE BETWEEN 5.0 AND 8.0.
3. ORGANIC FILTER BERMS SHALL BE INSTALLED ALONG A RELATIVELY LEVEL CONTOUR. IT MAY BE NECESSARY TO CUT TALL GRASSES OR WOODY VEGETATION TO AVOID CREATING VOIDS AND BRIDGES THAT WOULD ENABLE FINES TO WASH UNDER THE BERM.
4. ON SLOPES LESS THAN 5% OR AT THE BOTTOM OF SLOPES NO STEEPER THAN 3:1 AND UP TO 20' LONG, THE BERM SHALL BE A MINIMUM OF 12" HIGH (AS MEASURED ON THE UPHILL SIDE) AND A MINIMUM OF 36" WIDE. ON LONGER AND/OR STEEPER SLOPES, THE BERM SHALL BE TALLER AND WIDER TO ACCOMMODATE THE POTENTIAL FOR ADDITIONAL RUNOFF (MAXIMUM HEIGHT SHALL NOT EXCEED 2').
5. FROZEN GROUND, OUTCROPS OF BEDROCK, AND VERY ROOTED FORESTED AREAS PRESENT THE MOST PRACTICAL AND EFFECTIVE LOCATIONS FOR ORGANIC FILTER BERMS. OTHER BMP'S SHOULD BE USED AT LOW POINTS OF CONCENTRATED RUNOFF, BELOW CULVERT OUTLET APRONS, AROUND CATCH BASINS, AND AT THE BOTTOM OF STEEP PERIMETER SLOPES THAT HAVE A LARGE CONTRIBUTING AREA.
6. SEDIMENT SHALL BE REMOVED FROM BEHIND THE FILTER BERMS WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE BERM.
7. ORGANIC FILTER BERMS MAY BE LEFT IN PLACE ONCE THE SITE IS STABILIZED PROVIDED ANY SEDIMENT DEPOSITS TRAPPED BY THEM ARE REMOVED AND DISPOSED OF PROPERLY.

ORGANIC FILTER BERM

NOT TO SCALE



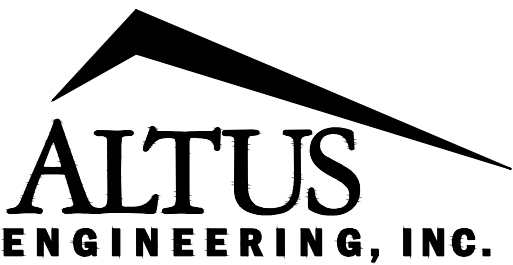
CONSTRUCTION SPECIFICATIONS

1. REFERENCE NEW HAMPSHIRE STORMWATER MANUAL VOLUME 3 (LATEST EDITION), SECTION 4.2 "TEMPORARY CONSTRUCTION EXIT" REQUIREMENTS AND BMP DETAIL.
2. STONE SIZE – 3" COARSE AGGREGATE
3. THICKNESS – SIX (6) INCHES (MINIMUM).
4. LENGTH – 75 FOOT MINIMUM, OR 50 FOOT ALLOWED WHEN DIVERSION RIDGE IS PROVIDED.
5. WIDTH – 1/2 OF DRIVEWAY (10 FOOT MINIMUM).
6. FILTER FABRIC – MIRAF 600X OR APPROVED EQUAL.
7. SURFACE WATER CONTROL – ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
8. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS WILL REQUIRE PERIODIC TOP DRESSING WITH STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
9. WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

STABILIZED CONSTRUCTION EXIT

NOT TO SCALE

NOTE:
ALL FACILITIES SHOULD BE INSPECTED ON AN ANNUAL BASIS AT A MINIMUM. IN ADDITION, ALL FACILITIES SHOULD BE INSPECTED AFTER A SIGNIFICANT PRECIPITATION EVENT TO ENSURE THE FACILITY IS DRAINING APPROPRIATELY AND TO IDENTIFY ANY DAMAGE THAT OCCURRED AS A RESULT OF THE INCREASED RUNOFF. FOR THE PURPOSE OF THIS STORMWATER MANAGEMENT PROGRAM, A SIGNIFICANT RAINFALL EVENT IS CONSIDERED AN EVENT OF THREE (3) INCHES IN A 24-HOUR PERIOD OR 0.5 INCHES IN A ONE-HOUR PERIOD. IT IS ANTICIPATED THAT A SHORT, INTENSE EVENT IS LIKELY TO HAVE A HIGHER POTENTIAL OF EROSION FOR THIS SITE THAN A LONGER, HIGH VOLUME EVENT.



133 COURT STREET PORTSMOUTH, NH 03801
(603) 433–2335 www.ALTUS-ENG.com



THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR:

PLANNING BOARD

ISSUE DATE:

MAY 5 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	05/05/22

DRAWN BY:

CDB

APPROVED BY:

EDW

DRAWING FILE: 4952–DETAILS.dwg

SCALE:

24"x36" N.T.S.
12"x18" N.T.S.

OWNER:

7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

APPLICANT:

SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

PROJECT:

7 WEST
COMMERCIAL
DEVELOPMENT

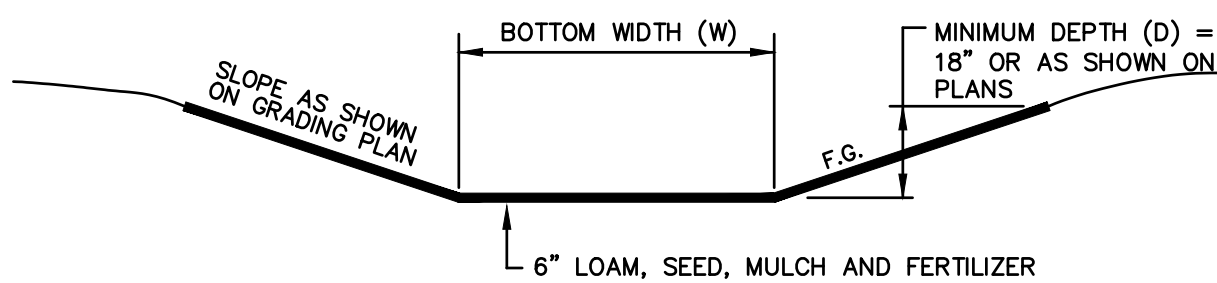
(FILE NO. P22–38)
TAX MAP H, LOT 11
DOVER, NH

TITLE:

DETAILS

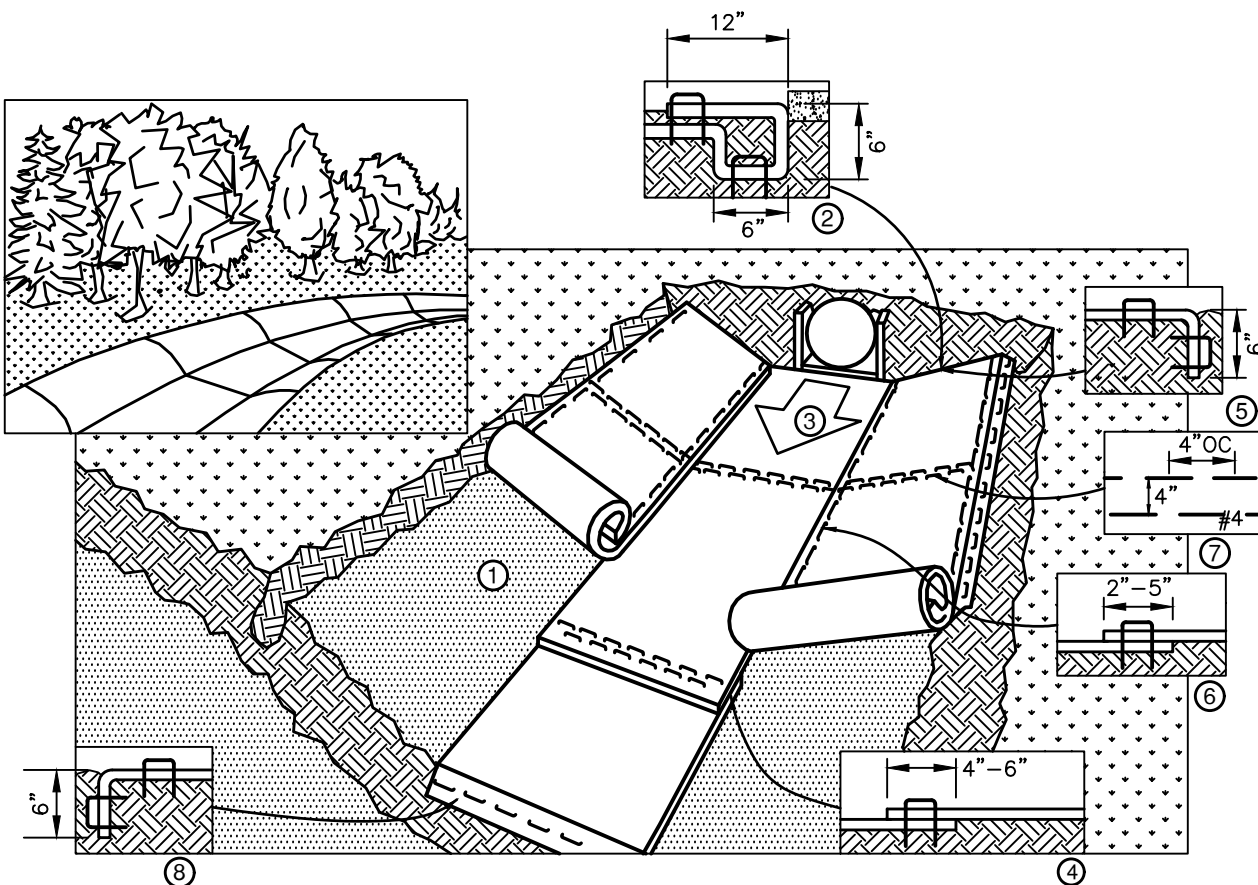
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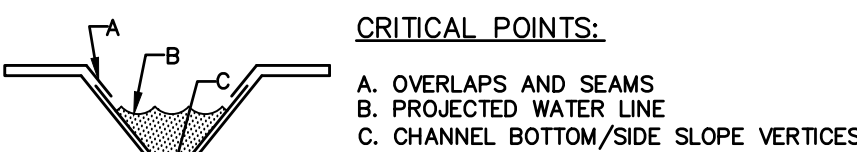


- NOTES**
1. THE FOUNDATION AREA OF THE SWALE SHALL BE CLEARED AND GRUBBED OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL.
 2. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE DESIGN CRITERIA AND BE FREE OF IRREGULARITIES.
 3. EARTH FILLS REQUIRED TO MEET SUBGRADE REQUIREMENTS BECAUSE OF OVER EXCAVATION OR TOPOGRAPHY SHALL BE COMPACTED TO THE SAME DENSITY AS THE SURROUNDING SOIL TO PREVENT UNEQUAL SETTLEMENT THAT COULD CAUSE DAMAGE TO THE COMPLETED SWALE.
 4. VEGETATION SHALL BE ESTABLISHED IN THE SWALE OR AN EROSION CONTROL MATTING INSTALLED PRIOR TO DIRECTING STORMWATER TO IT.
 5. MAINTENANCE OF THE VEGETATION IS EXTREMELY IMPORTANT IN ORDER TO PREVENT RILLING, EROSION, AND FAILURE OF THE SWALE. MOWING SHALL BE DONE FREQUENTLY ENOUGH TO CONTROL ENCROACHMENT OF WEEDS AND WOODY VEGETATION AND TO KEEP GRASSES IN A VIGOROUS CONDITION. THE VEGETATION SHALL NOT BE MOWED TOO CLOSELY SO AS TO REDUCE THE EROSION RESISTANCE IN THE SWALE.
 6. THE SWALE SHOULD BE INSPECTED PERIODICALLY AND AFTER ANY STORM GREATER THAN 0.5" OF RAINFALL IN 24 HOURS TO DETERMINE ITS CONDITION. RILLS AND DAMAGED AREAS SHOULD BE PROMPTLY REPAIRED AND REVEGETATED AS NECESSARY TO PREVENT FURTHER DETERIORATION.

VEGETATED SWALE **NOT TO SCALE**

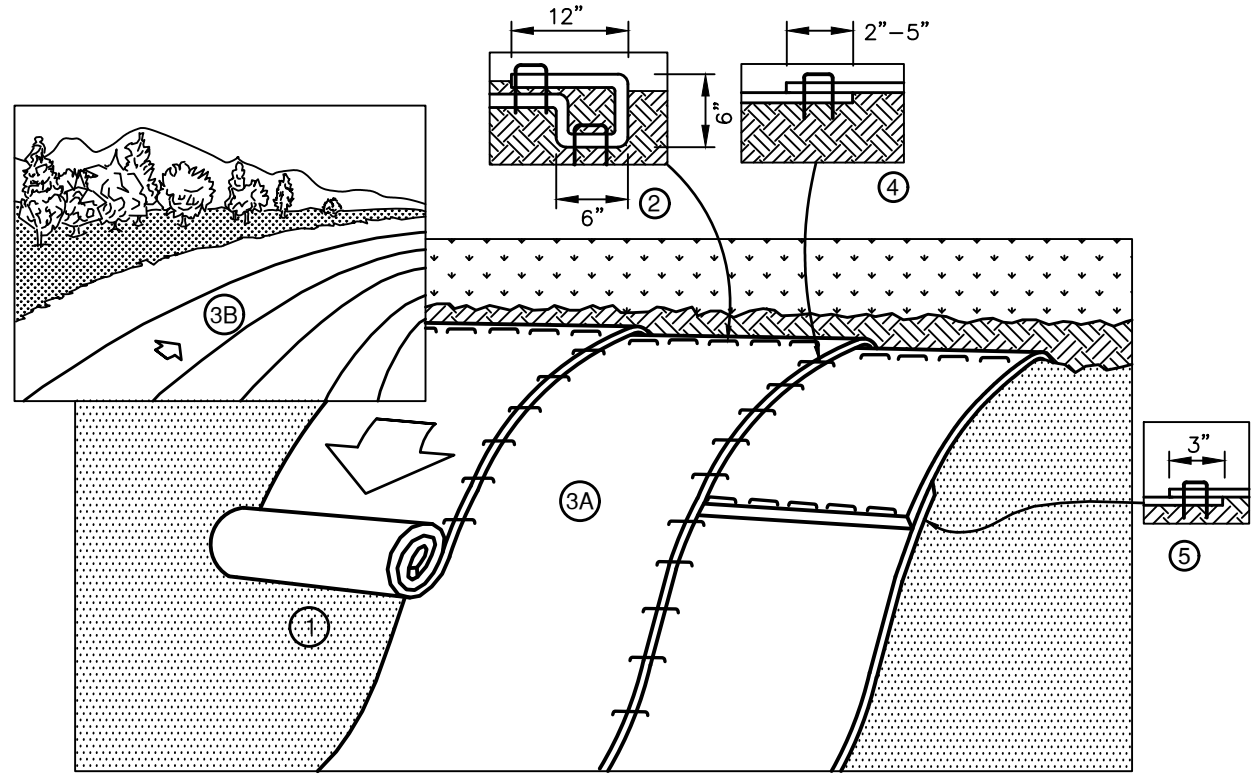


- NOTES**
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
 2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET 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 BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
 3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
 4. PLACE CONSECUTIVE BLANKETS 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 BLANKETS.
 5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
 6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2"-5" (DEPENDING ON BLANKET TYPE) AND STAPLED TO INSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE BLANKET BEING OVERLAPPED.
 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 BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.



- CRITICAL POINTS:**
- A. OVERLAPS AND SEAMS
 - B. PROJECTED WATER LINE
 - C. CHANNEL BOTTOM/SIDE SLOPE VERTICES
- NOTES:**
- * 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 BLANKETS.

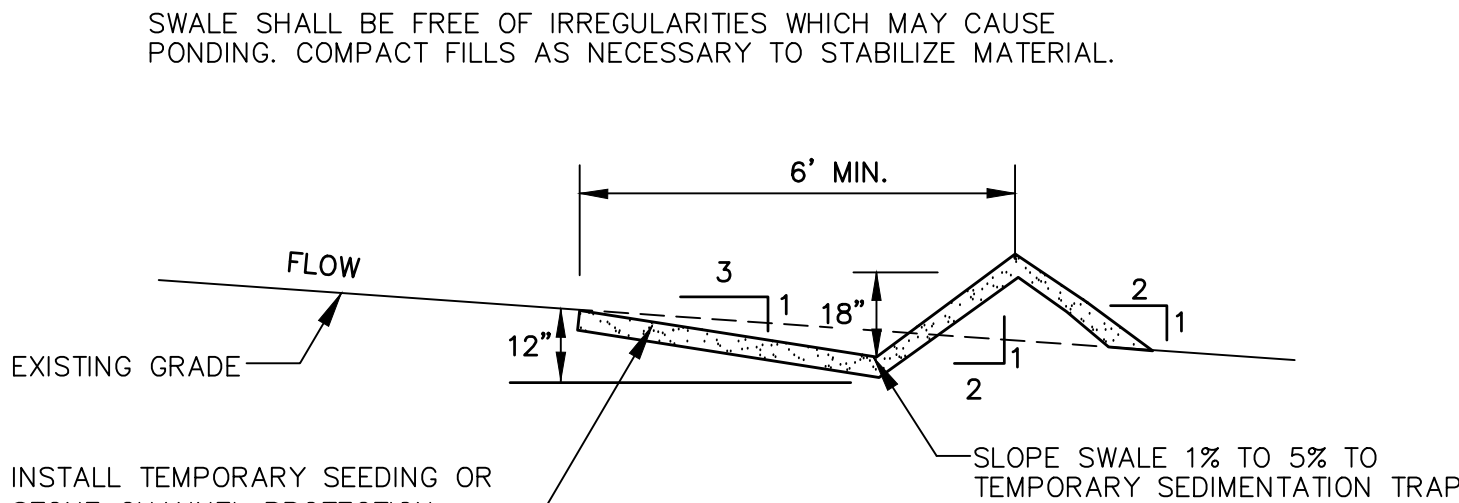
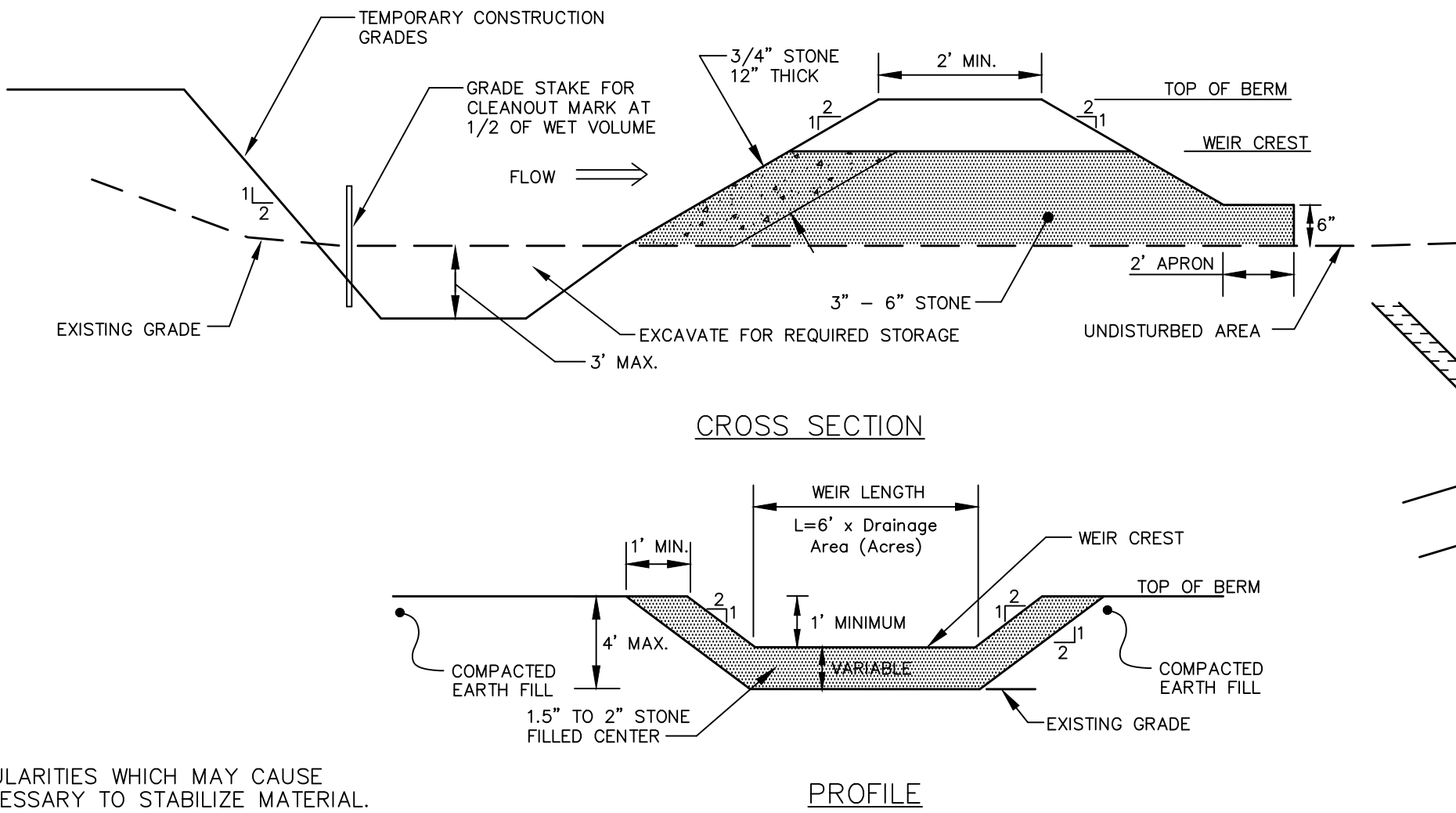
EROSION CONTROL BLANKET - SWALE **NOT TO SCALE**



- NOTES**
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
 2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET 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 BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
 3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
 4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
 5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP, STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH. NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

NOTE: EROSION CONTROL BLANKET SHALL BE MADE OF STRAW, JUTE, OR COCONUT FIBER AND SHALL NOT CONTAIN WELDED PLASTIC OR BIO-DEGRADABLE PLASTIC NETTING.

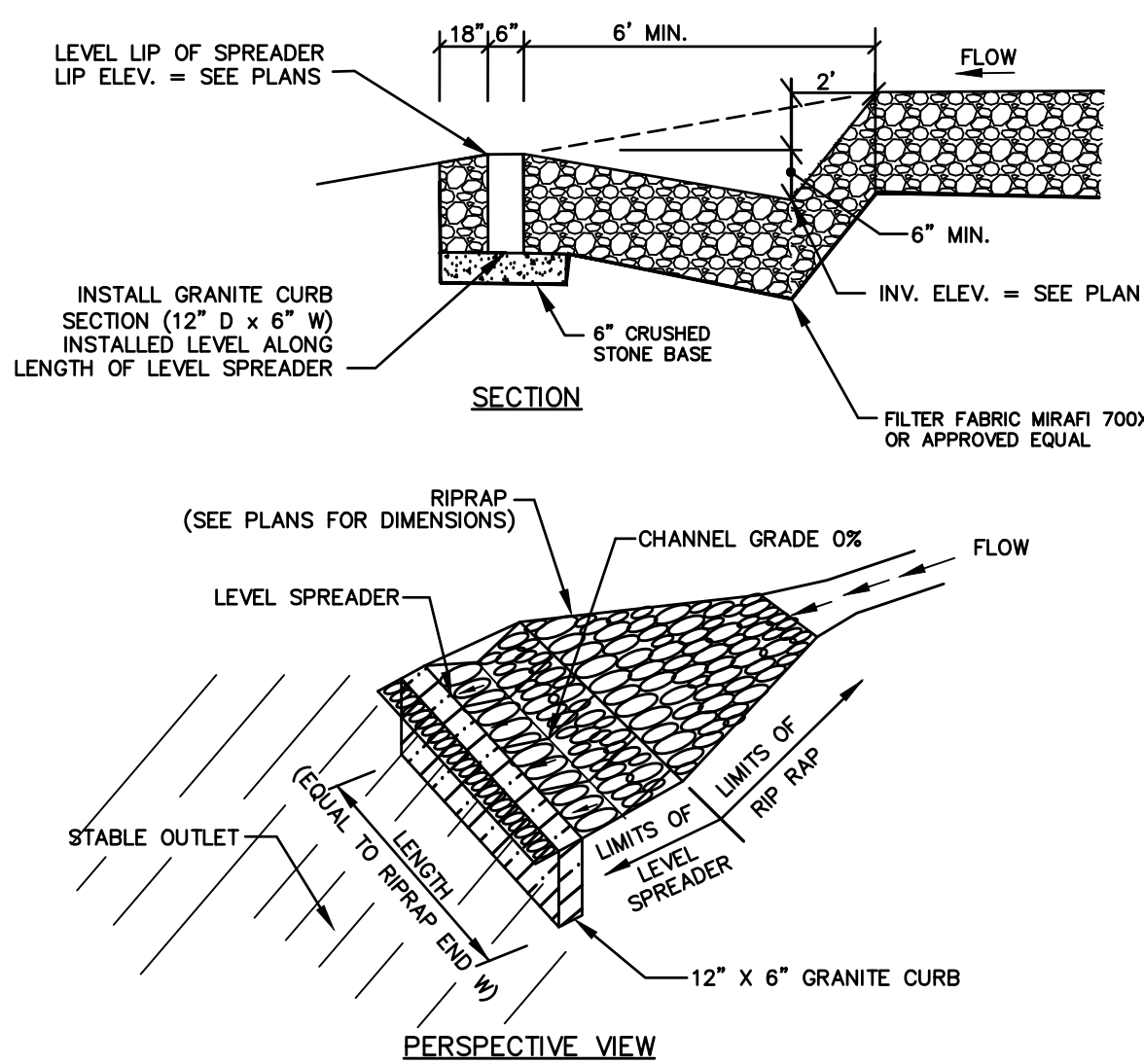
EROSION CONTROL BLANKET - SLOPE **NOT TO SCALE**



TEMPORARY DIVERSION SWALE **NOT TO SCALE**

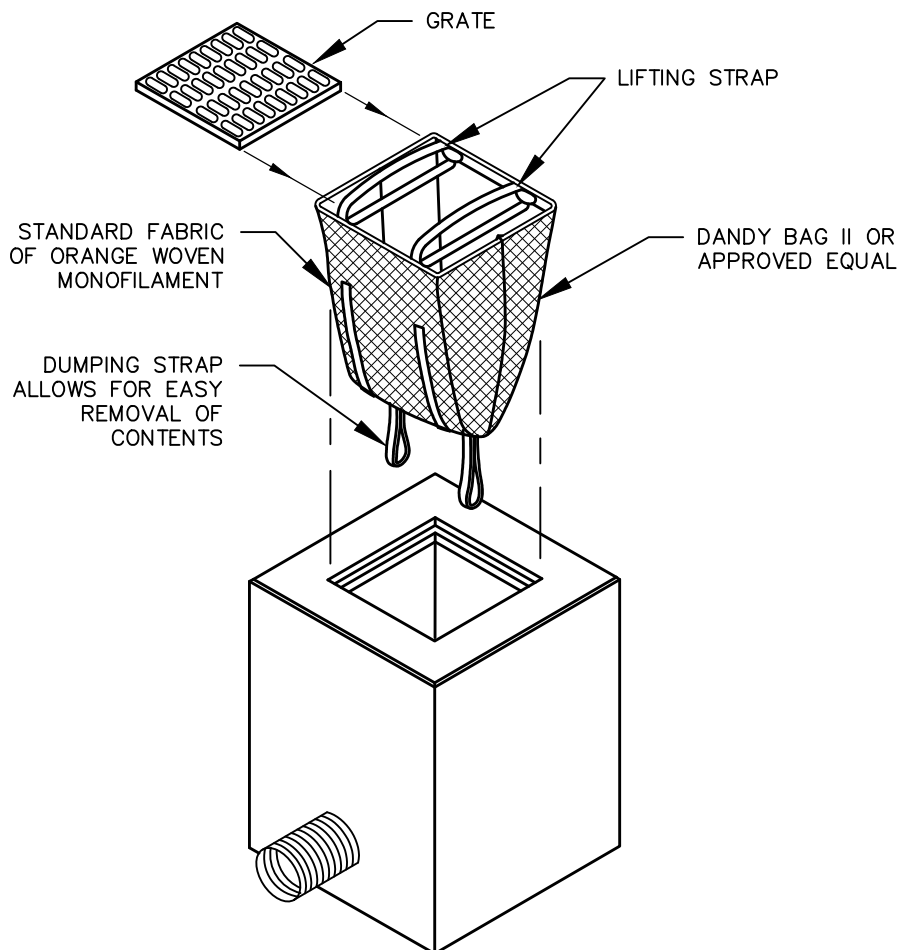
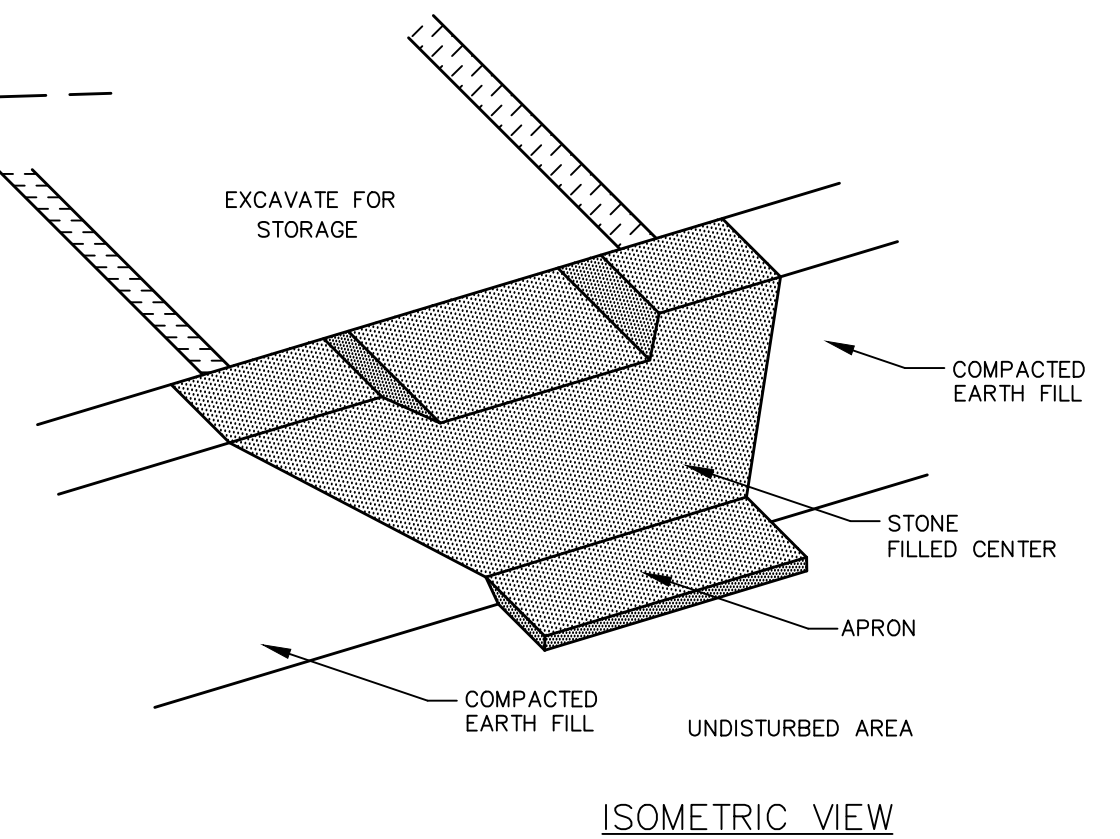
- MAINTENANCE**
1. SEDIMENT SHALL BE REMOVED AND THE TRAP SHALL BE RESTORED TO ITS ORIGINAL CAPACITY WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN STORAGE VOLUME. SEDIMENT REMOVED SHALL BE DISPOSED OF SO THAT IT DOES NOT CAUSE A SEDIMENT PROBLEM AT ANOTHER LOCATION.
 2. THE STRUCTURE SHALL BE CHECKED BI-WEEKLY AND AFTER EVERY MAJOR STORM TO INSURE THAT IT IS WORKING PROPERLY AND IS NOT DAMAGED. DAMAGE TO THE STRUCTURE SHALL BE REPAIRED IMMEDIATELY.
 3. 3/4" STONE SHALL BE CHECKED DURING INSPECTION AND REPLACED WHEN THE OPENINGS IN THE STONE HAVE BECOME CLOGGED.
 4. WHEN THE DRAINAGE AREA FLOWING INTO THE BASIN HAS BEEN FULLY STABILIZED, THE SEDIMENT TRAP SHALL BE REMOVED AND THE AREA VEGETATED USING LOAM AND SEED WITH MULCH (OR SOD IF NECESSARY) WITHIN 72 HOURS OF THE REMOVAL OF THE BASIN.

TEMPORARY SEDIMENT TRAP (TST) OUTLET **NOT TO SCALE**



- NOTES**
1. LEVEL SPREADERS SHALL BE CONSTRUCTED PER CITY OF DOVER STANDARD DETAILS AND SPECIFICATIONS.
 2. FOR STAPLE REQUIREMENTS SEE MANUFACTURER'S STANDARDS & SPECIFICATIONS FOR PROTECTIVE MATERIALS.
 3. AREAS BELOW LEVEL SPREADERS SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.

LEVEL SPREADER **NOT TO SCALE**



INSTALLATION AND MAINTENANCE:

INSTALLATION: REMOVE THE GRATE FROM CATCH BASIN. IF USING OPTIONAL OIL ABSORBENTS, PLACE ABSORBENT PILLLOW IN UNIT. STAND GRATE ON END. MOVE THE TOP LIFTING STRAPS OUT OF THE WAY AND PLACE THE GRATE INTO CATCH BASIN INSERT SO THE GRATE IS BELOW THE TOP STRAPS AND ABOVE THE LOWER STRAPS. HOLDING THE LIFTING DEVICES, INSERT THE GRATE INTO THE INLET.

MAINTENANCE: REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM VICINITY OF THE UNIT AFTER EACH STORM EVENT. AFTER EACH STORM EVENT AND AT REGULAR INTERVALS, LOOK INTO THE CATCH BASIN. INSERT. IF THE CONTAINMENT AREA IS MORE THAN 1/3 FULL OF SEDIMENT, THE UNIT MUST BE EMPTIED. TO EMPTY THE UNIT, LIFT THE UNIT OUT OF THE INLET USING THE LIFTING STRAPS AND REMOVE THE GRATE. IF USING OPTIONAL ABSORBENTS, REPLACE ABSORBENT WHEN NEAR SATURATION.

STORM DRAIN INLET PROTECTION **NOT TO SCALE**



THIS DRAWING HAS NOT BEEN
RELEASED FOR CONSTRUCTION

ISSUED FOR: **PLANNING BOARD**

ISSUE DATE: **MAY 5 2022**

REVISIONS	NO.	DESCRIPTION	BY	DATE
0	INITIAL	SUBMITTAL	CDB	05/05/22

DRAWN BY: **CDB**
APPROVED BY: **EDW**
DRAWING FILE: **4952-DETAILS.dwg**

SCALE: **24"x36" N.T.S.**
12"x18" N.T.S.

OWNER: **7 WEST, LLC**
P.O. BOX 728
DOVER, NH 03821

APPLICANT: **SUMMIT LAND DEVELOPMENT**
340 CENTRAL AVE., #202
DOVER, NH 03820

PROJECT: **7 WEST**
COMMERCIAL
DEVELOPMENT

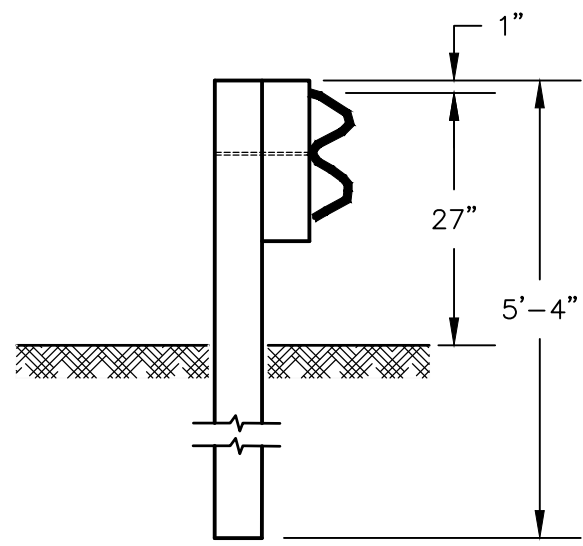
(FILE NO. P22-38)
TAX MAP H, LOT 11
DOVER, NH

TITLE:

DETAILS

SHEET NUMBER:

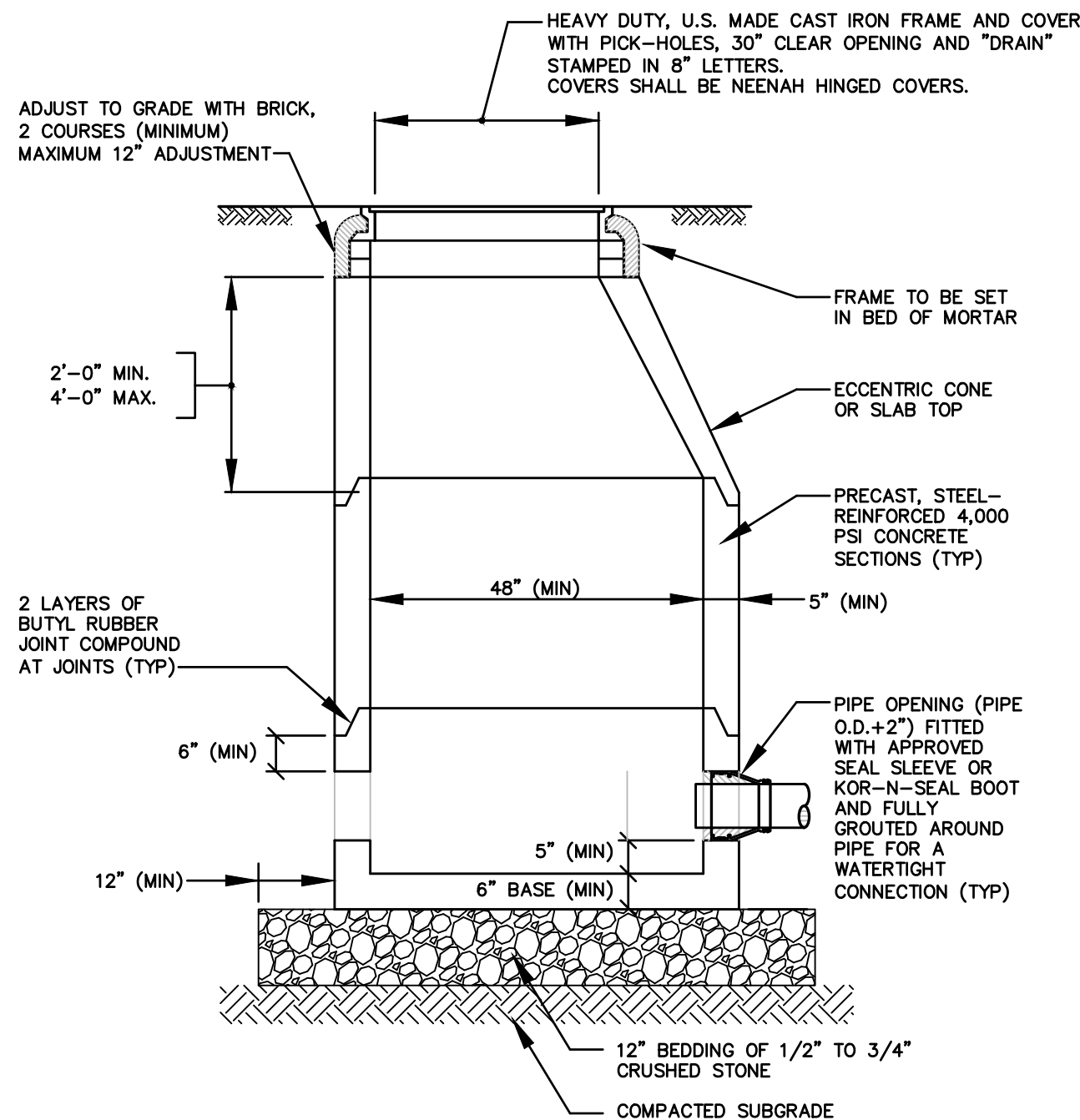
D-2



AASHTO DESIGNATION	G4(2W)
MAINE STANDARD DETAIL	HD-6
POST SPACING	6'-3"
DEFLECTION DISTANCE *	3'
POST TYPE	6" x 8" TREATED WOOD POST
BEAM TYPE	"W" SECTION, 12 GA., "CORTEN" STEEL
OFFSET BRACKETS	6" x 6" x 14" TREATED BLOCK

* CLEAR DISTANCE FROM THE BACK OF THE POST TO THE ROADSIDE OBJECTS. DECREASING THE POST SPACING TO 3.5 FEET WILL DECREASE THE DEFLECTION DISTANCE BY ONE FOOT.

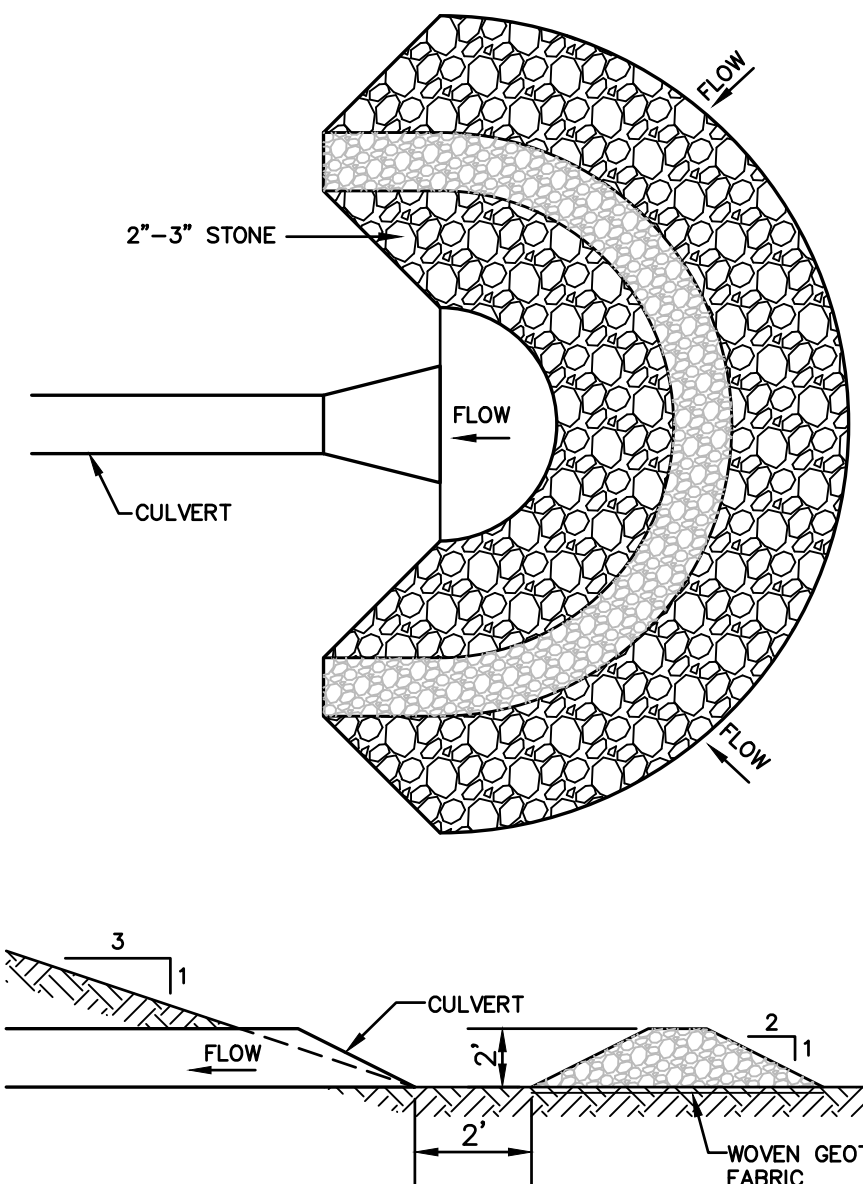
"W" BEAM GUARDRAIL DETAIL (WOOD POSTS) NOT TO SCALE



NOTES:

1. ALL SECTIONS SHALL BE CONCRETE CLASS AA (4000 PSI).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ. IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE OR GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. ALL MANHOLE STRUCTURES SHALL BE DESIGNED FOR H2O LOADING.
6. USE H-20 LOADING SLAB TOP SECTION IN LIEU OF ECCENTRIC TOP WHERE PIPE INVERT IS WITHIN 4 FT. OF GRADE.
7. CITY OF DOVER INSTALLS STEPS IN DRAIN MANHOLES.

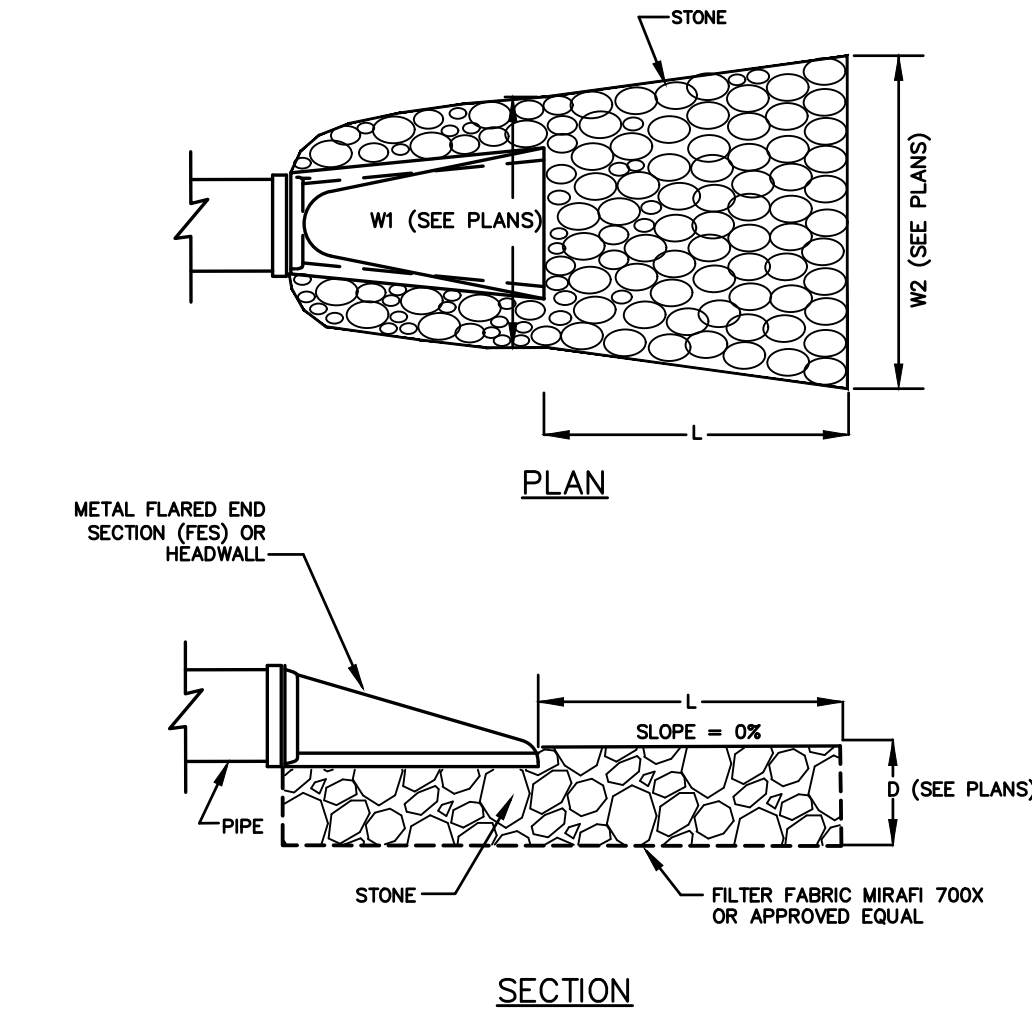
DRAIN MANHOLE DETAIL NOT TO SCALE



NOTES:

1. TEMPORARY CULVERT INLET PROTECTION CHECK DAMS SHALL BE CONSTRUCTED OF 2-3" CLEAN WASHED STONE OVER WOVEN GEOTEXTILE FABRIC.
2. INLET PROTECTION MEASURES SHALL BE INSTALLED AT THE OPENINGS OF ALL EXISTING AND PROPOSED CULVERTS WHERE SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
3. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURE WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE STRUCTURE AND DISPOSED OF PROPERLY.
4. STRUCTURES SHALL BE REMOVED WHEN DIRECTED BY THE ENGINEER AND THE SITE IS STABILIZED WITH VEGETATION AND THE CHANNEL SHALL BE SMOOTHED AND REVEGETATED.

TEMPORARY CULVERT INLET PROTECTION CHECK DAM NOT TO SCALE



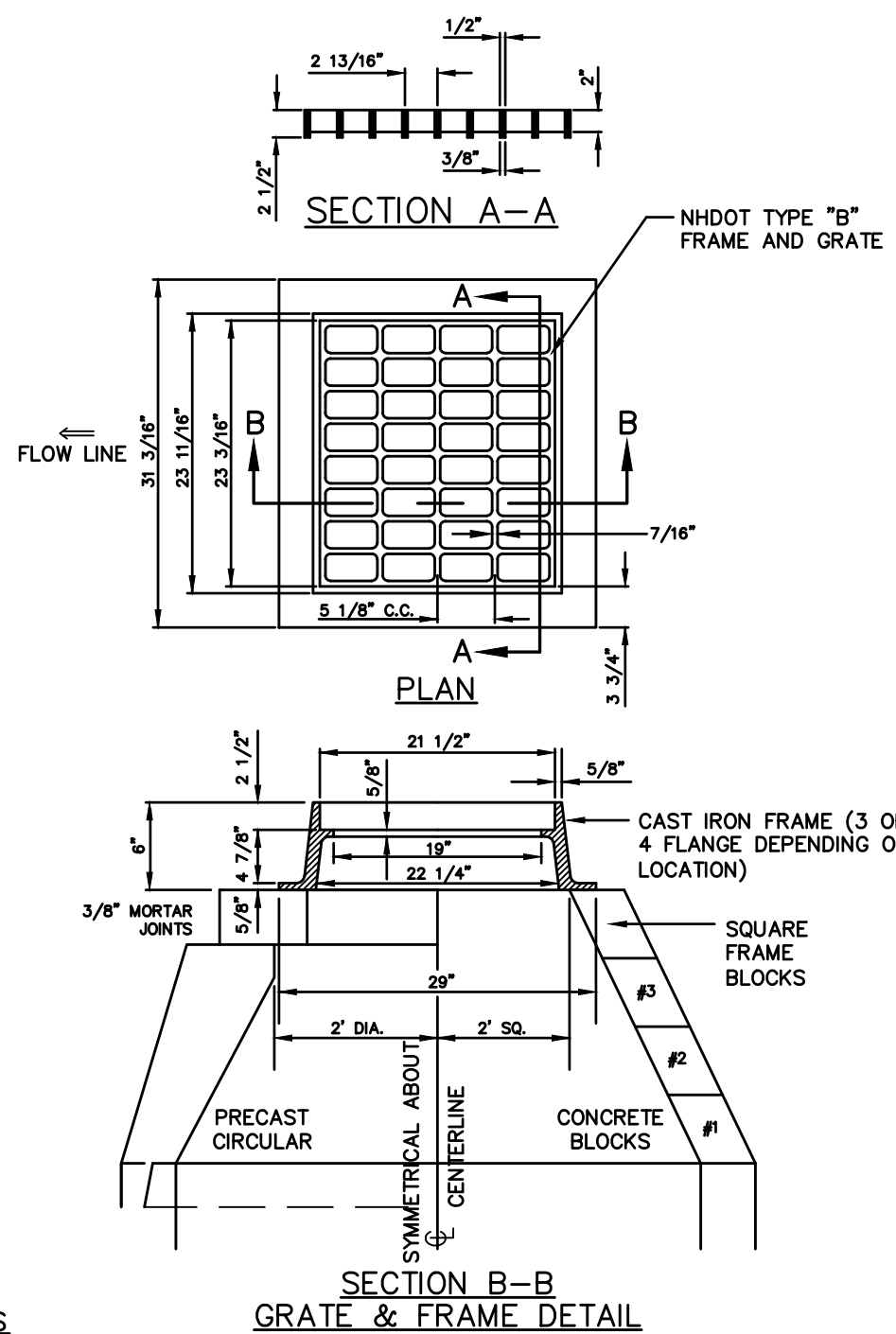
MAINTENANCE

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.

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.

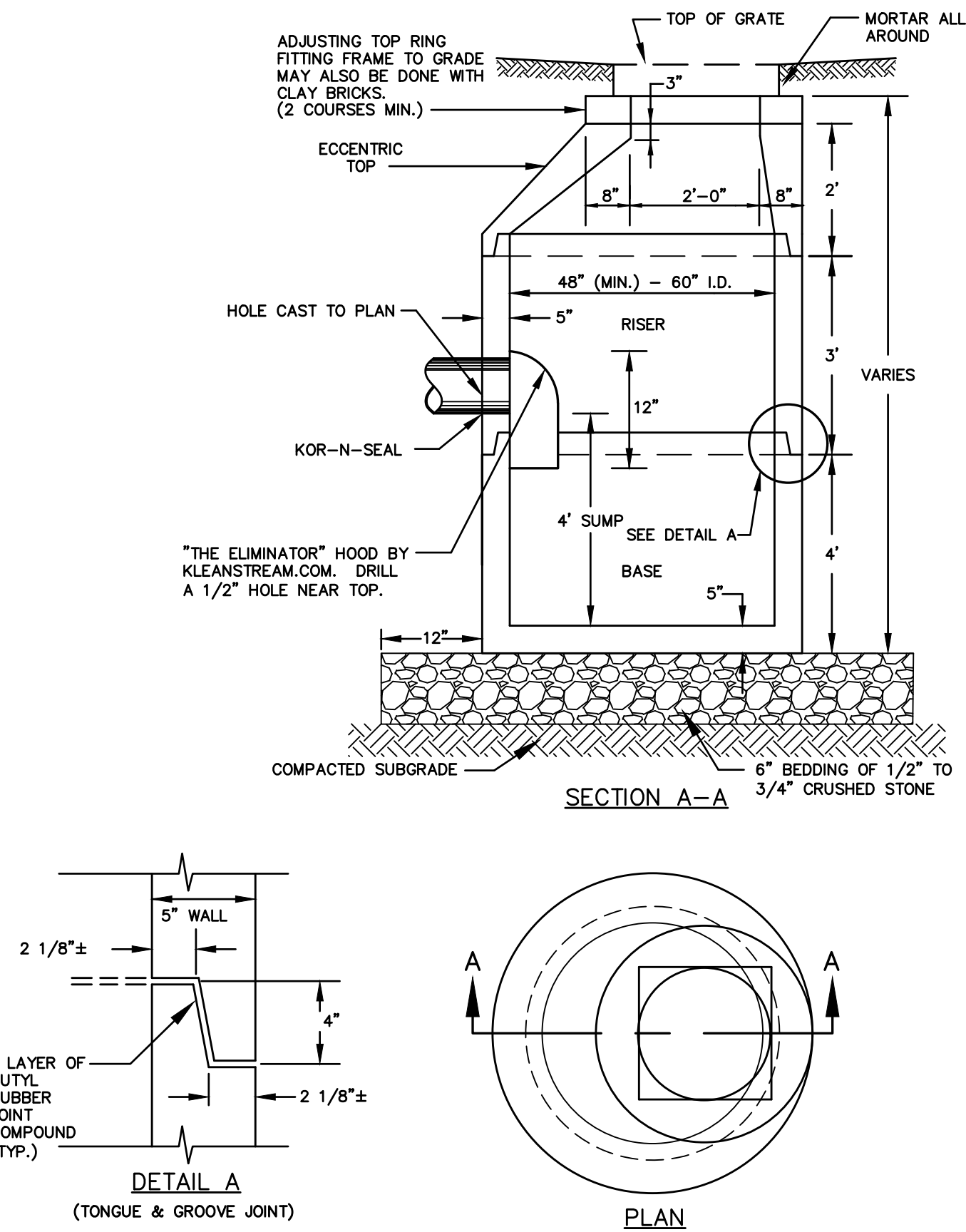
RIPRAP OUTLET PROTECTION NOT TO SCALE



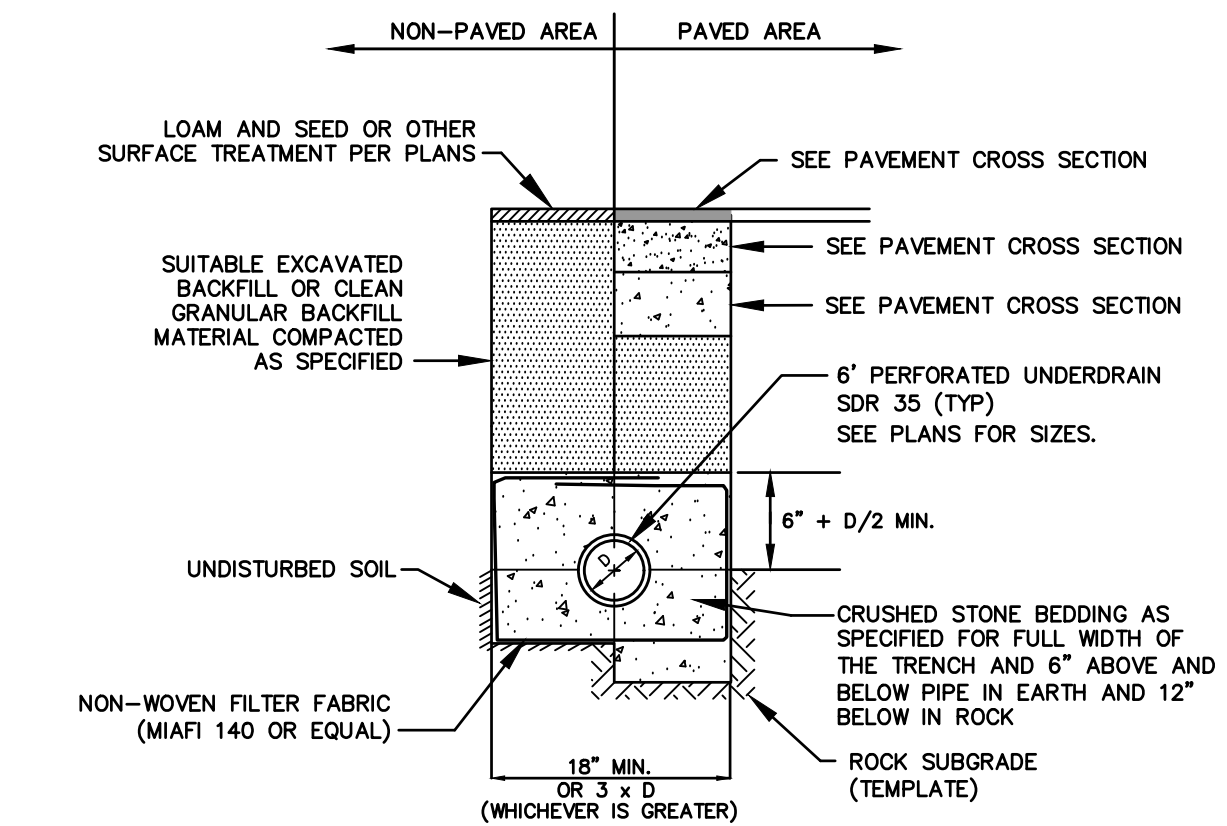
NOTES:

1. ALL SECTIONS SHALL BE CONCRETE CLASS AA (4000 PSI).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ. IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE OR GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. THE STRUCTURES SHALL BE DESIGNED FOR H2O LOADING.
6. USE H2O LOADING SLAB TOP SECTION IN LIEU OF ECCENTRIC TOP WHERE PIPE INVERT IS WITHIN 4' OF FINISH GRADE.
7. FRAME AND GRATE DIMENSIONS ARE TYPICAL BUT MAY VARY BASED ON PRODUCT SELECTED OR EQUIVALENT APPROVED BY THE ENGINEER.

DEEP SUMP CATCH BASIN



NOT TO SCALE

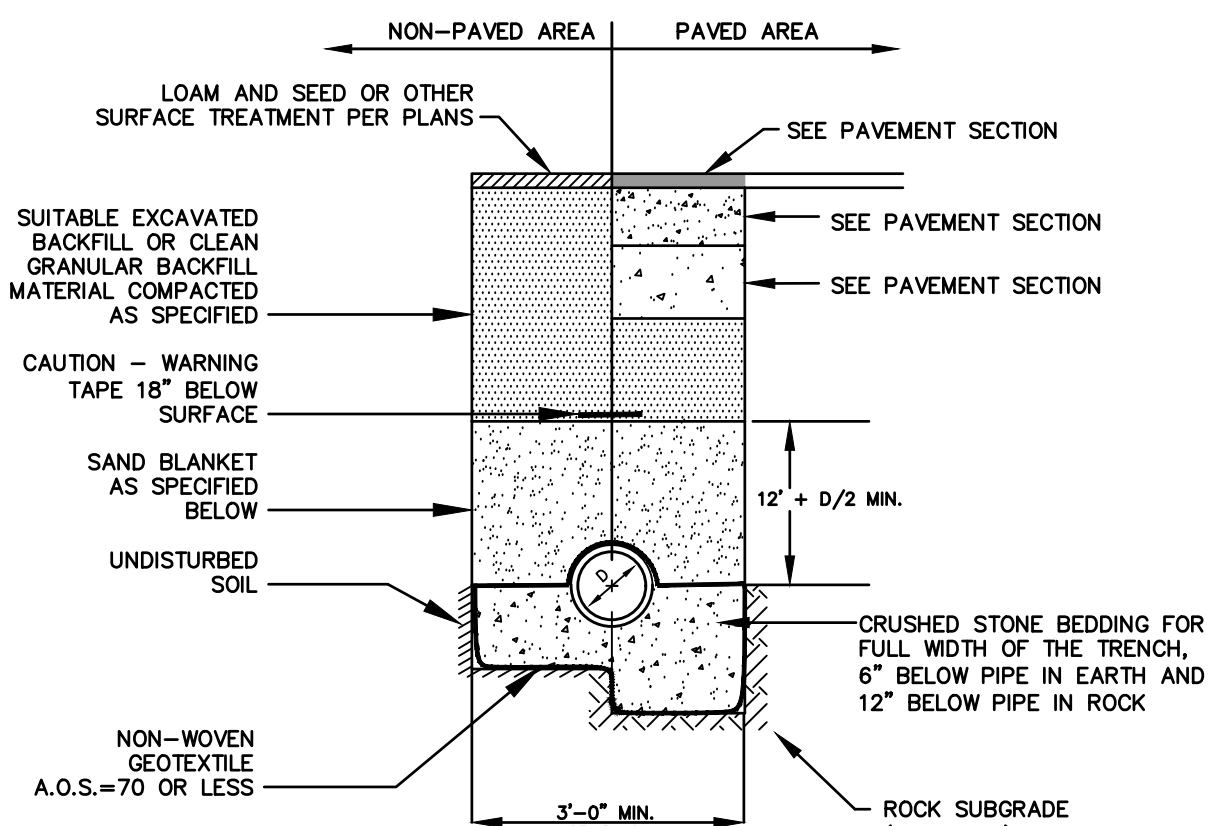


BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.

SAND BLANKET/BARRIER		SCREENED GRAVEL OR CRUSHED STONE BEDDING*	
SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% PASSING BY WEIGHT
1/2"	90 - 100	1"	100
200	0 - 15	3/4"	90 - 100
		3/8"	20 - 55
		# 4	0 - 10
		# 8	0 - 5

* EQUIVALENT TO STANDARD STONE SIZE #67 - SECTION 703 OF NHDOT STANDARD SPECIFICATIONS

UNDERDRAIN TRENCH SECTION NOT TO SCALE



BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.

SAND BLANKET/BARRIER		SCREENED GRAVEL OR CRUSHED STONE BEDDING*	
SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% PASSING BY WEIGHT
1/2"	90 - 100	1"	100
200	0 - 15	3/4"	90 - 100
		3/8"	20 - 55
		# 4	0 - 10
		# 8	0 - 5

* EQUIVALENT TO STANDARD STONE SIZE #67 - SECTION 703 OF NHDOT STANDARD SPECIFICATIONS

STORM DRAIN UTILITY TRENCH SECTION NOT TO SCALE



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ISSUED FOR:

PLANNING BOARD

ISSUE DATE:

MAY 5 2022

REVISIONS

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DRAWN BY: CDB

APPROVED BY: EDW

DRAWING FILE: 4952-DETAILS.dwg

SCALE: 24"x36" N.T.S.
12"x18" N.T.S.

OWNER:

7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

APPLICANT:

SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

PROJECT:

7 WEST
COMMERCIAL
DEVELOPMENT

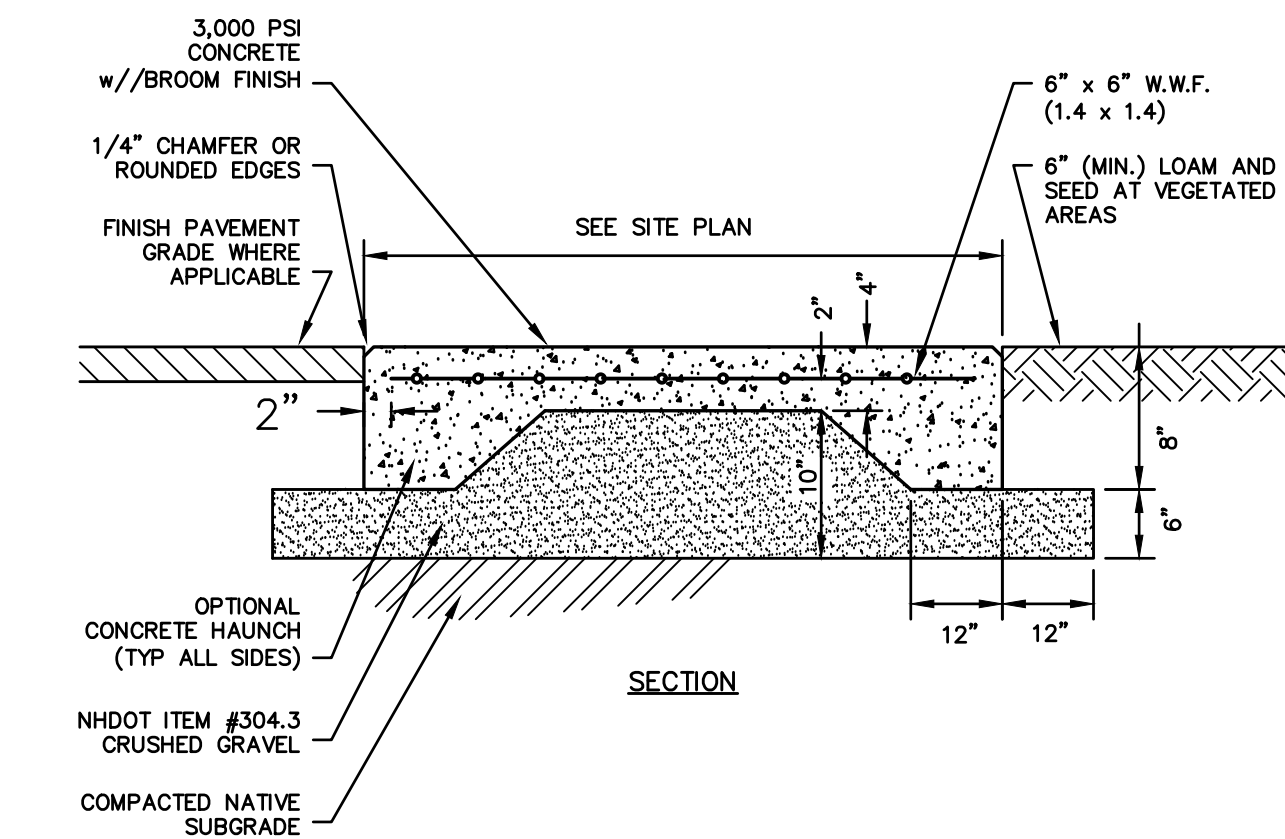
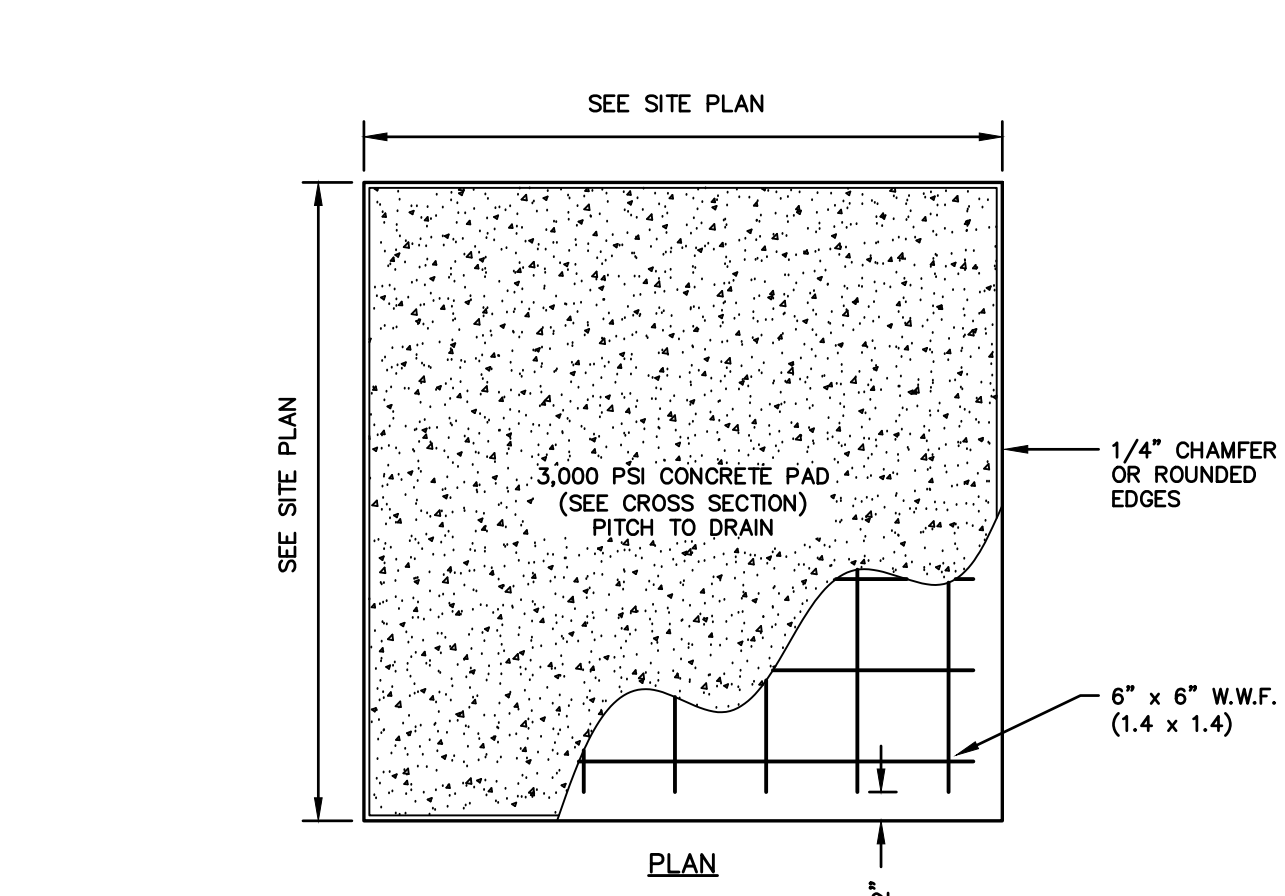
(FILE NO. P22-38)
TAX MAP H, LOT 11
DOVER, NH

TITLE:

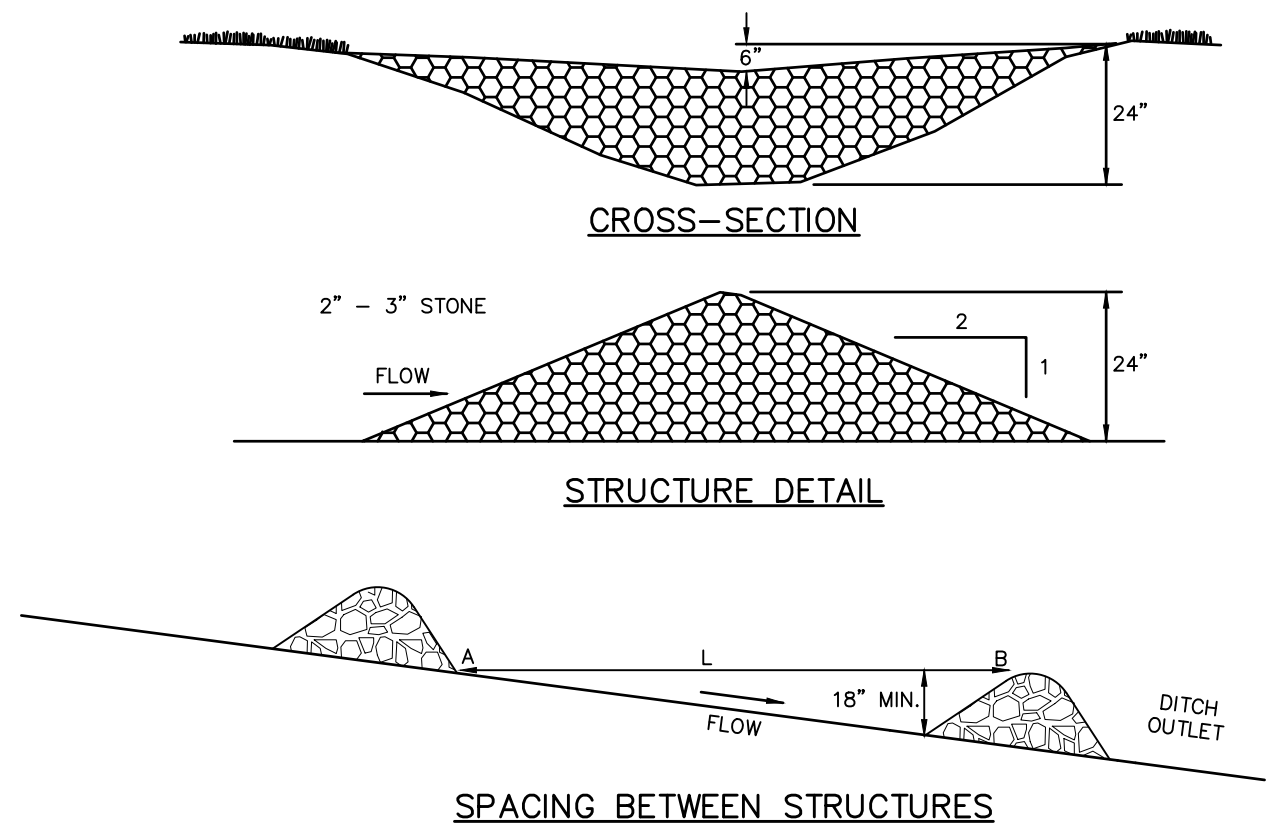
DETAILS

SHEET NUMBER:

D-3



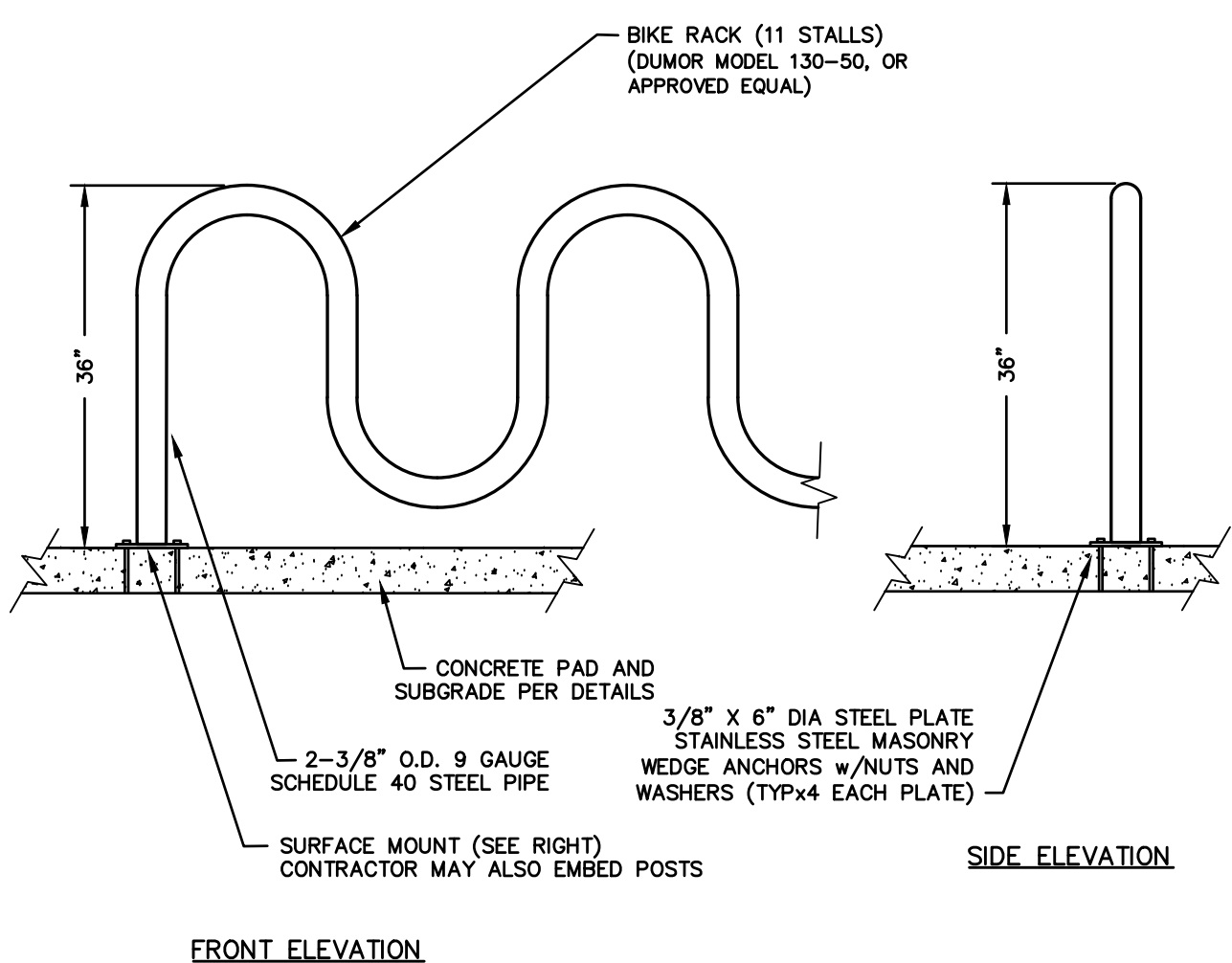
BIKE RACK / BENCH PAD NOT TO SCALE



- SPACING BETWEEN STRUCTURES**
1. L = DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION
 2. CHECK DAM SHALL BE CONSTRUCTED OF 2\"/>

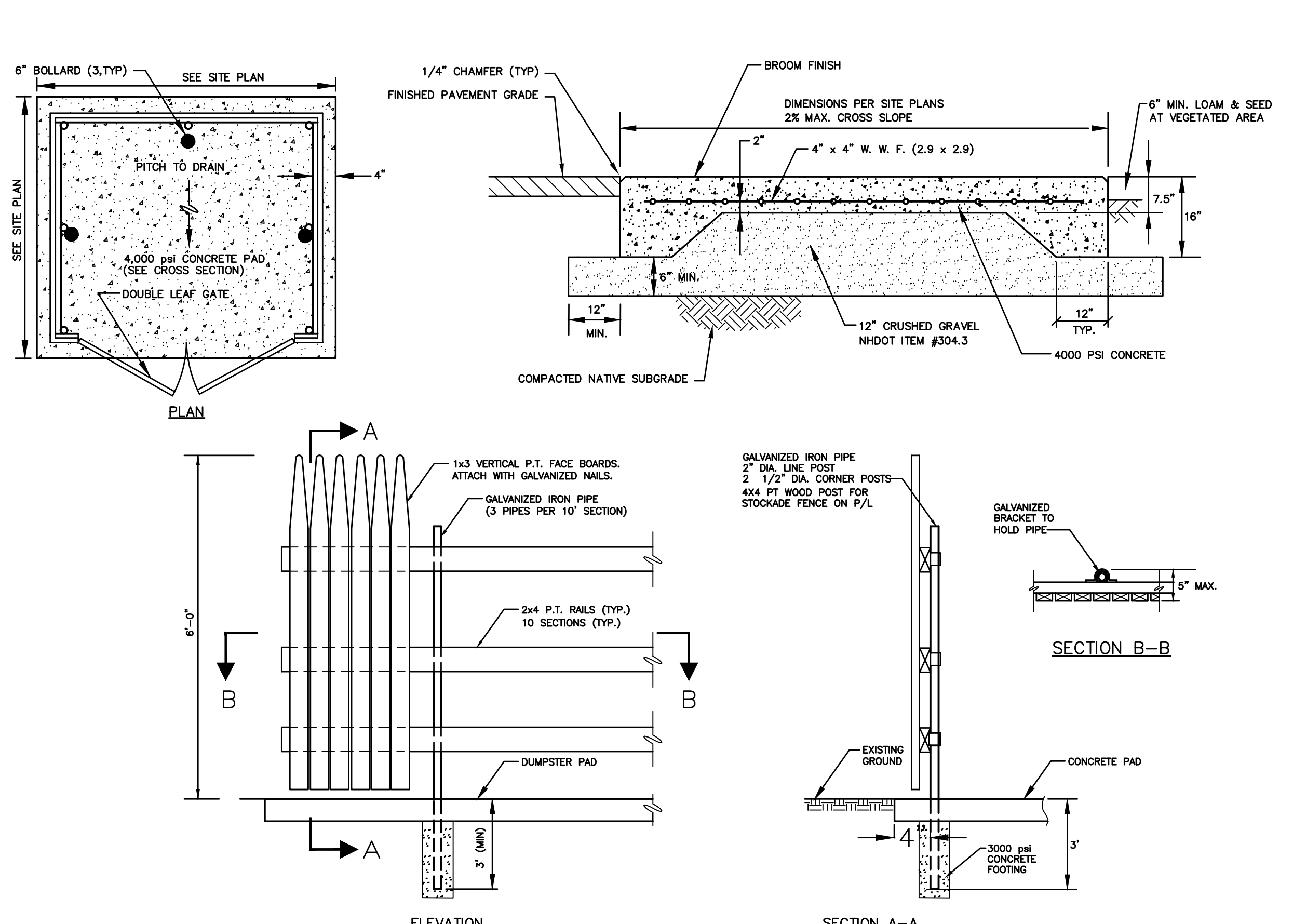
- MAINTENANCE**
- TEMPORARY GRADE STABILIZATION STRUCTURES SHOULD BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED STORMS. ANY NECESSARY REPAIRS SHOULD BE MADE IMMEDIATELY. PARTICULAR ATTENTION SHOULD BE GIVEN TO END RUN AND EROSION AT THE DOWNSTREAM TOE OF THE STRUCTURE. WHEN THE STRUCTURES ARE REMOVED, THE DISTURBED PORTION SHOULD BE BROUGHT TO THE EXISTING CHANNEL GRADE AND THE AREAS PREPARED, SEDED, AND MULCHED. WHILE THIS PRACTICE IS NOT INTENDED TO BE USED PRIMARILY FOR SEDIMENT TRAPPING, SOME SEDIMENT WILL ACCUMULATE BEHIND THE STRUCTURES. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURES WHEN IT HAS ACCUMULATED TO ONE HALF OF THE ORIGINAL HEIGHT OF THE STRUCTURE.
- CONSTRUCTION SPECIFICATIONS**
1. STRUCTURES SHALL BE INSTALLED ACCORDING TO THE DIMENSIONS SHOWN ON THE PLANS AT THE APPROPRIATE SPACING.
 2. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER SO THAT EROSION AND AIR AND WATER POLLUTION WILL BE MINIMIZED.
 3. SEEDING, FERTILIZING, AND MULCHING SHALL CONFORM TO THE RECOMMENDATIONS IN THE APPROPRIATE VEGETATIVE BMP.
 4. STRUCTURES SHALL BE REMOVED FROM THE CHANNEL WHEN THEIR USEFUL LIFE HAS BEEN COMPLETED.

STONE CHECK DAM NOT TO SCALE

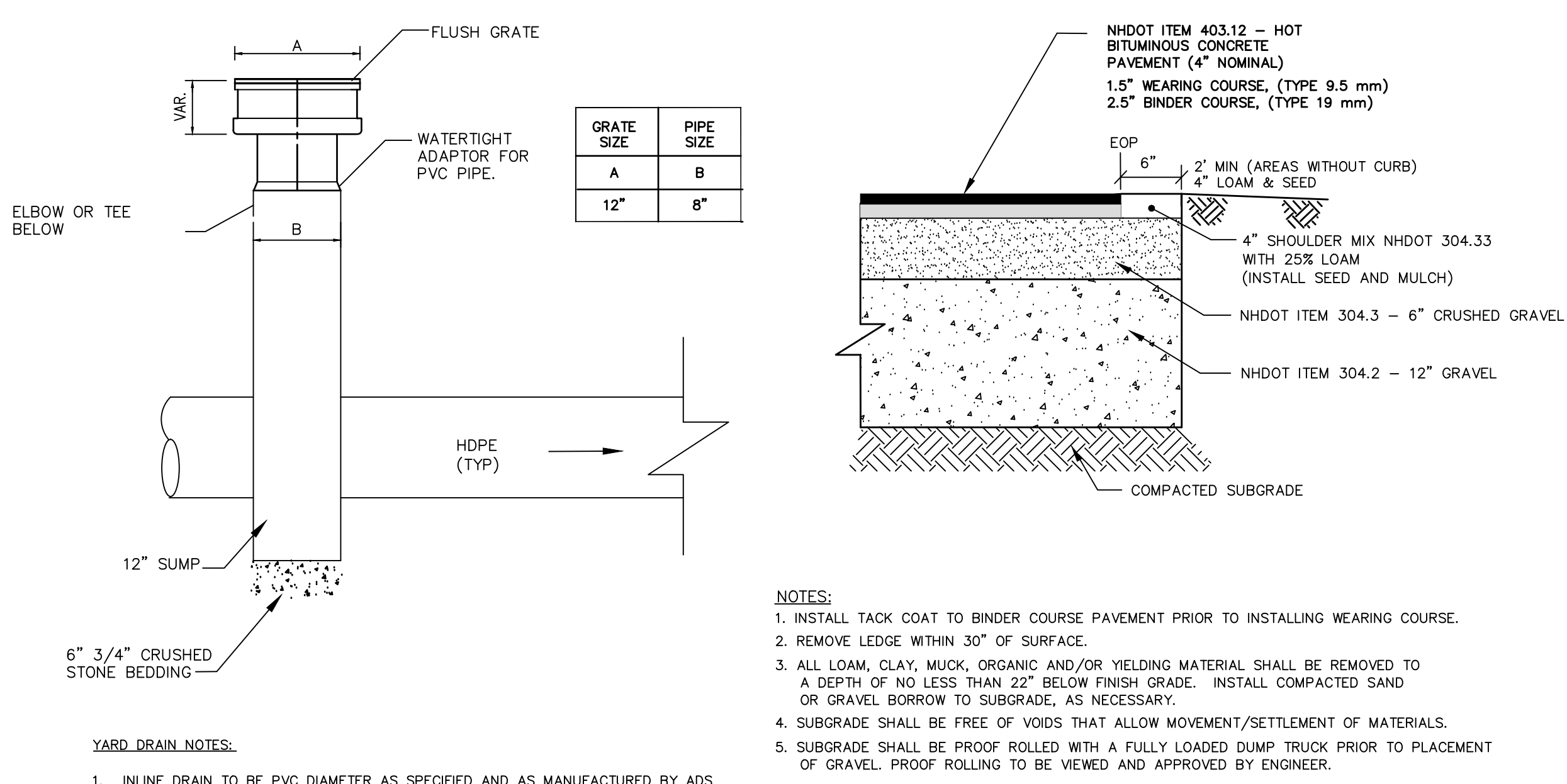


- NOTES**
1. ALL STEEL PIPE SHALL MEET ASTM A53.
 2. ALL STEEL PLATES SHALL MEET ASTM A36.
 3. RACK(S) SHALL BE INSTALLED IN THE QUANTITY AND ORIENTATION SHOWN ON THE PLANS.
 4. RACK(S) TO BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS.
 5. RACK FINISH TO BE AT THE OWNER'S DISCRETION. OPTIONS INCLUDE BUT MAY NOT BE LIMITED TO GALVANIZED, POWDER COATED OR STAINLESS STEEL.
 6. BOLTS MAY BE EMBEDDED IN CONCRETE DURING POUR OR DRILLED INTO PAD AT CONTRACTOR'S DISCRETION.
 7. SEE CONCRETE BIKE RACK PAD DETAIL.
 8. CONTRACTOR MAY SUBSTITUTE AN IN-GROUND MOUNTED RACK AFTER REVIEW AND APPROVAL BY THE ENGINEER.

BIKE RACK NOT TO SCALE



STOCKADE FENCE AND ENCLOSURE DETAIL (TRANSFORMER AND DUMPSTERS) NOT TO SCALE



- YARD DRAIN NOTES:**
1. INLINE DRAIN TO BE PVC DIAMETER AS SPECIFIED AND AS MANUFACTURED BY ADS 1-800-821-6710 OR APPROVED EQUAL.
 2. THE CONTRACTOR SHALL INSTALL THE INLINE DRAIN AS PER THE MANUFACTURER'S RECOMMENDATIONS AND AS SHOWN ON THE DRAWINGS.

YARD DRAIN AND GRATE NOT TO SCALE

STANDARD PAVEMENT CROSS SECTION NOT TO SCALE
(VERIFY WITH GEOTECHNICAL RECOMMENDATIONS)



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ISSUED FOR: **PLANNING BOARD**

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DRAWN BY: **CDB**
APPROVED BY: **EDW**
DRAWING FILE: **4952-DETAILS.dwg**

SCALE: **24"x36" N.T.S.**
12"x18" N.T.S.

OWNER:
7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

APPLICANT:
SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

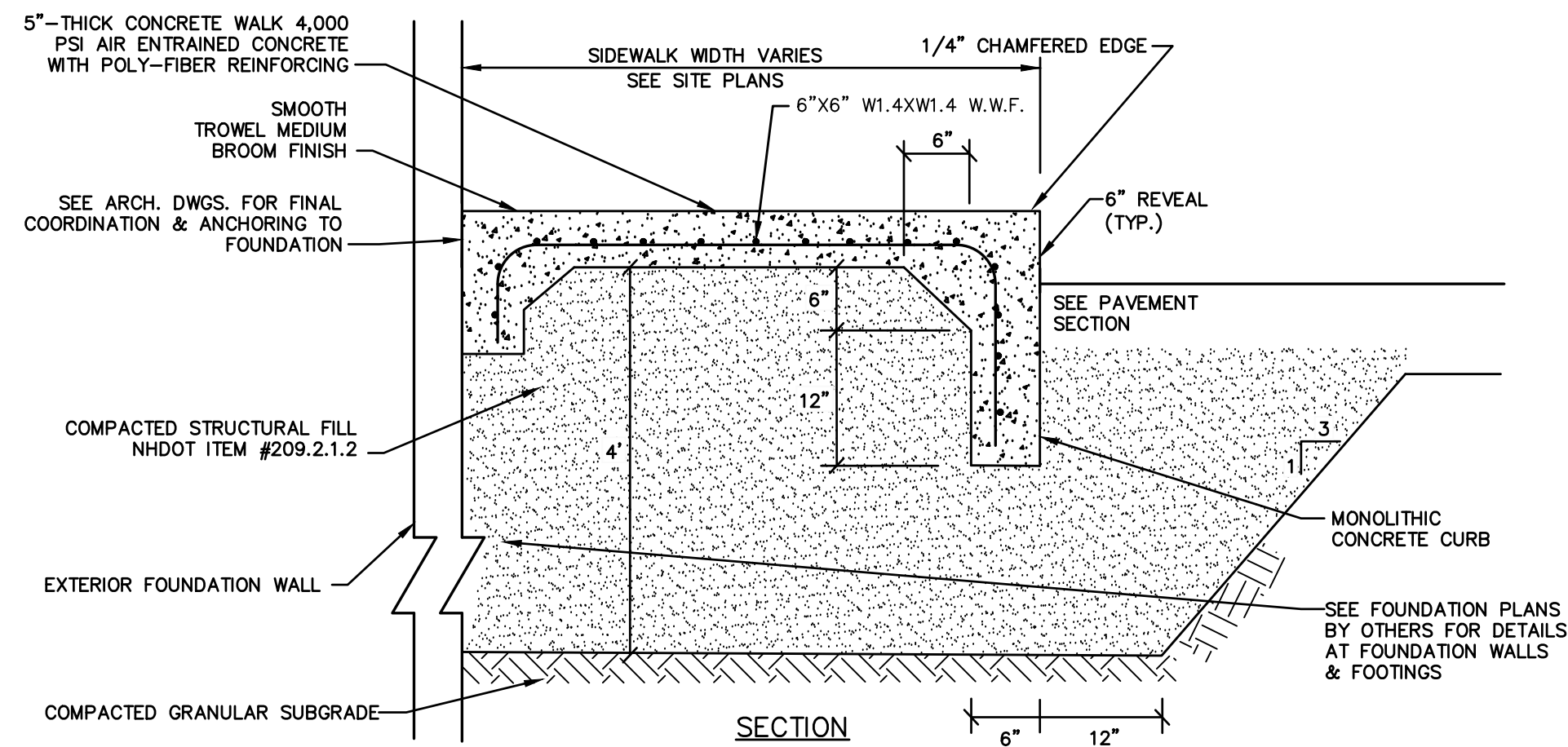
PROJECT:
7 WEST COMMERCIAL DEVELOPMENT

(FILE NO. P22-38)
TAX MAP H, LOT 11
DOVER, NH

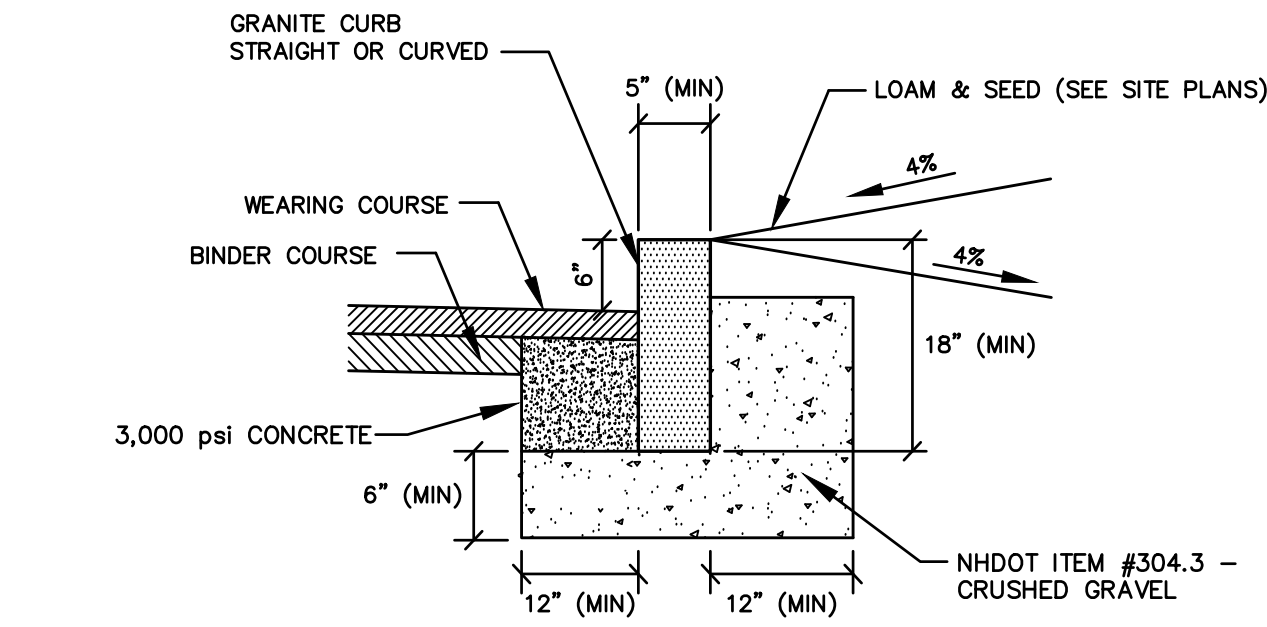
TITLE:

DETAILS

SHEET NUMBER: **D-4**



CONCRETE SLAB (SIDEWALKS) DETAILS @ BLDG. ENTRANCE NOT TO SCALE

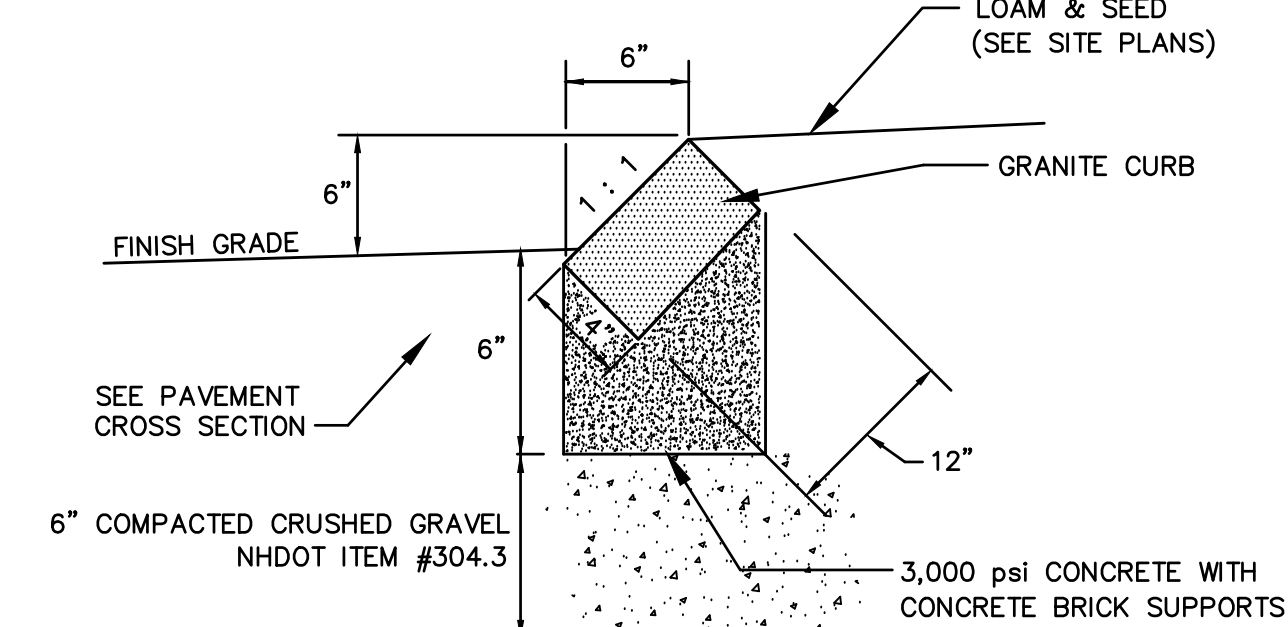


NOTES

- SEE PLANS FOR CURB LOCATION.
- SEE PLANS FOR PAVEMENT CROSS SECTION.
- ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
- MINIMUM LENGTH OF CURB STONES = 4'.
- MAXIMUM LENGTH OF CURB STONES = 10'.
- MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES - SEE CHART.
- CURB ENDS TO ROUNDED AND BATTERED FACES TO BE CUT WHEN CALLED FOR ON THE PLANS.
- CURB SHALL BE INSTALLED PRIOR TO PLACEMENT OF TOP PAVEMENT COURSE.
- JOINTS BETWEEN CURB STONES SHALL BE MORTARED.

RADIUS	MAX. LENGTH
21'	3'
22'-28'	4'
29'-35'	5'
36'-42'	6'
43'-49'	7'
50'-56'	8'
57'-60'	9'
OVER 60'	10'

VERTICAL GRANITE CURB NOT TO SCALE

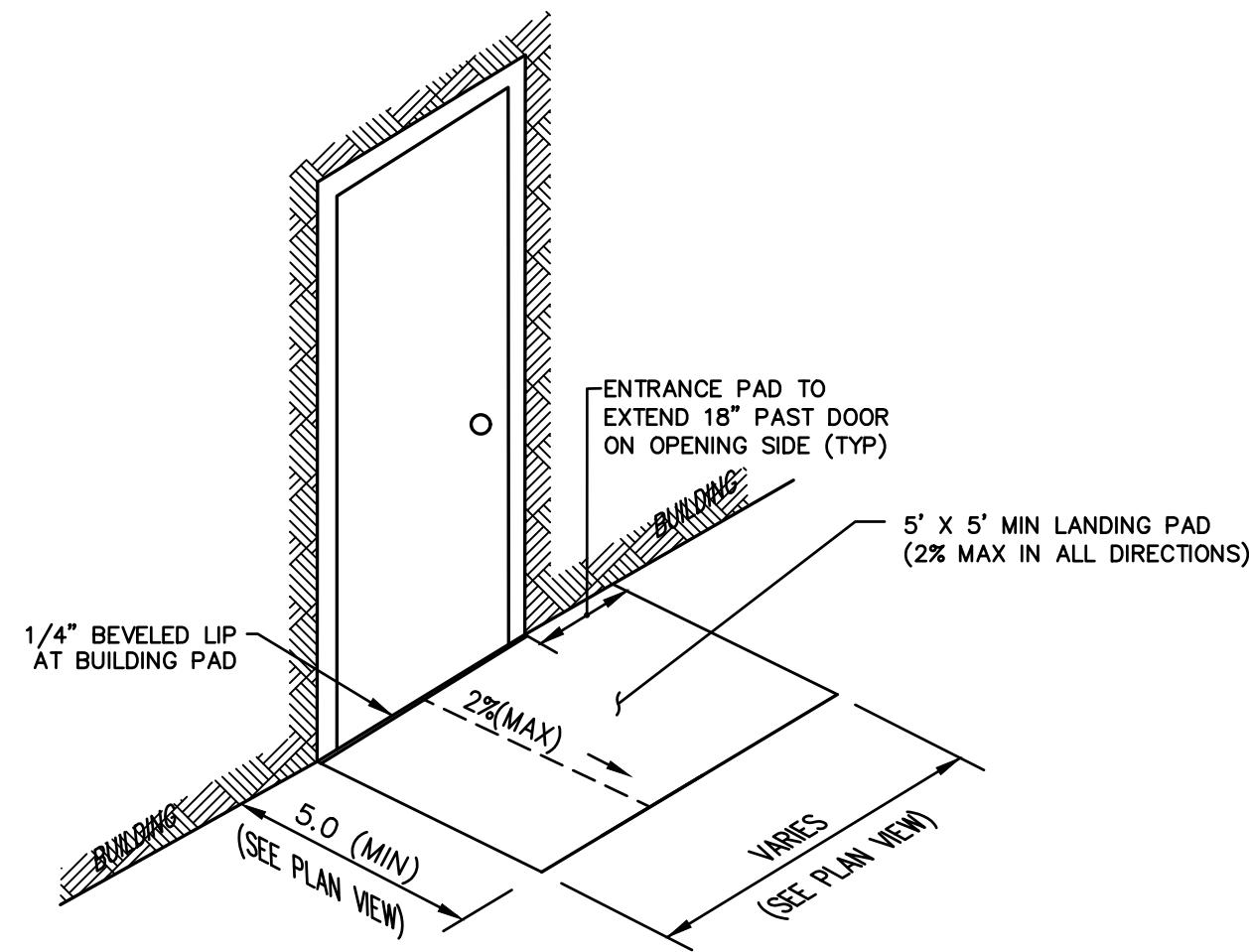


NOTES

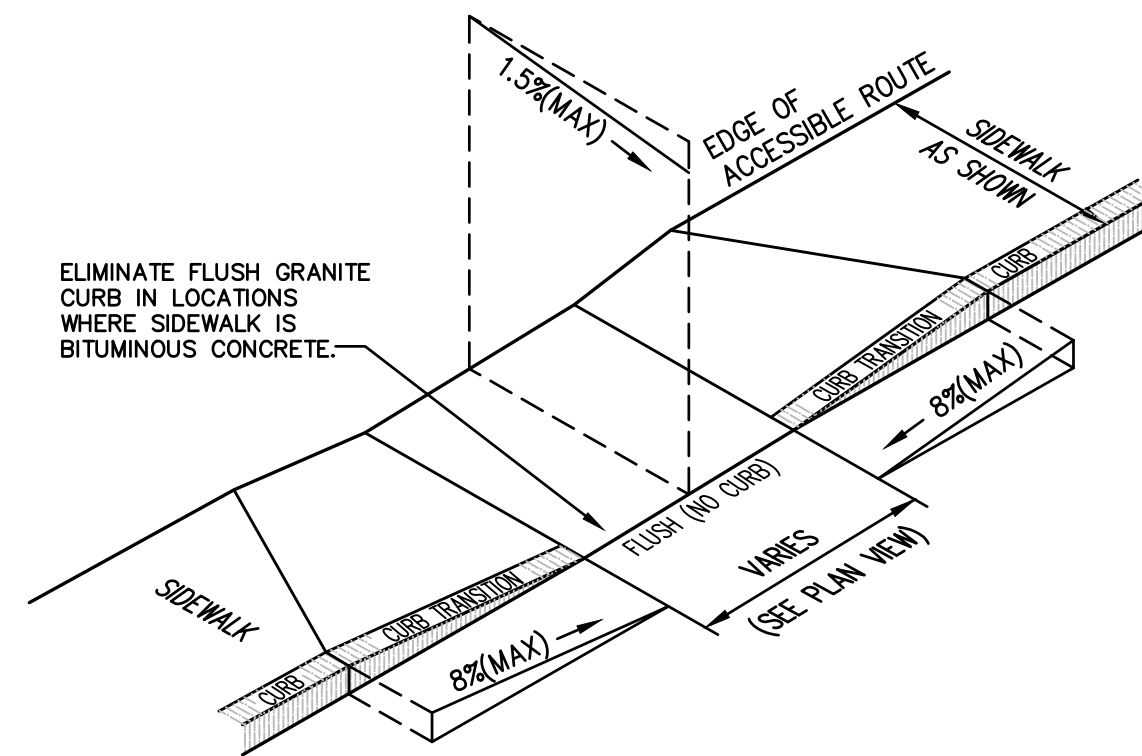
- SEE SITE PLAN FOR LIMITS OF CURBING
- ADJOINING STONES OF STRAIGHT CURB LAID ON CURVES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH
- MINIMUM LENGTH OF STRAIGHT CURB STONES = 18"
- MAXIMUM LENGTH OF STRAIGHT CURB STONES = 8'
- MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES - SEE CHART

RADIUS FOR STONES WITH SQUARE JOINTS	MAXIMUM LENGTH
16'-28'	1'-6"
29'-41'	2'
42'-55'	3'
56'-68'	4'
69'-82'	5'
83'-96'	6'
97'-110'	7'
OVER 110'	8'

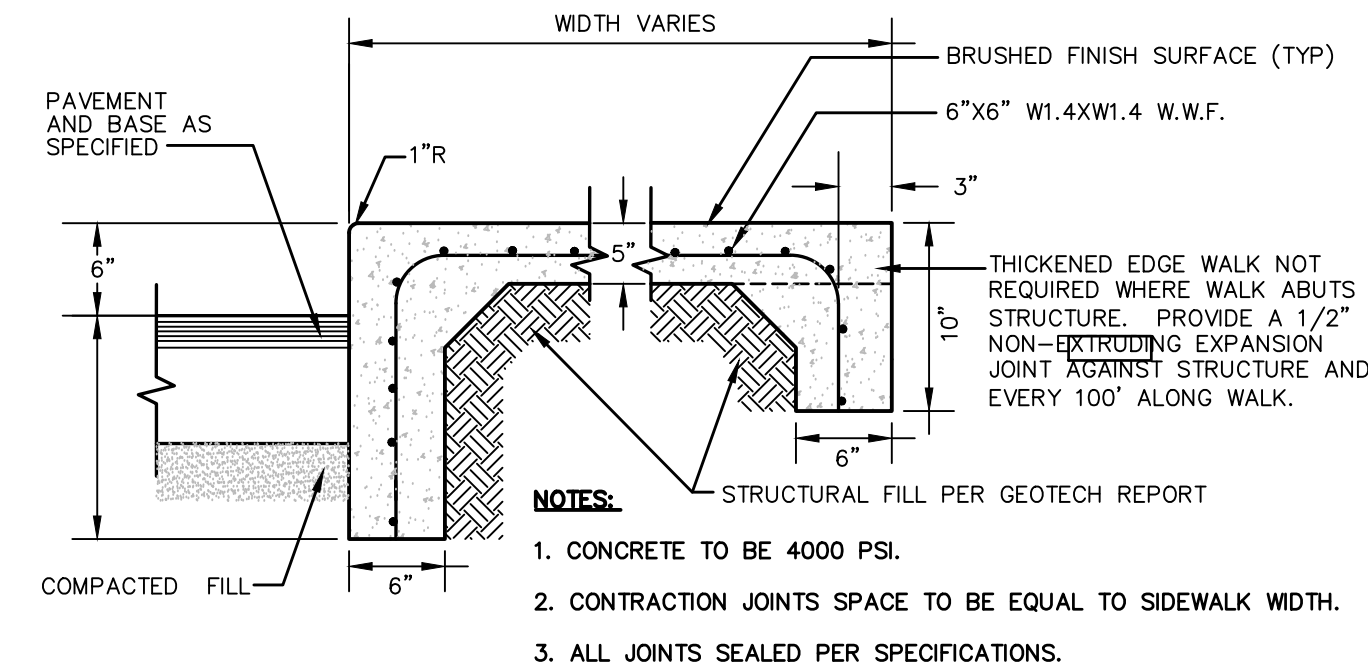
SLOPED GRANITE CURB NOT TO SCALE



ADA ACCESSIBLE ENTRANCE PAD NOT TO SCALE



CURB RAMP (TYPE 'A') NOT TO SCALE

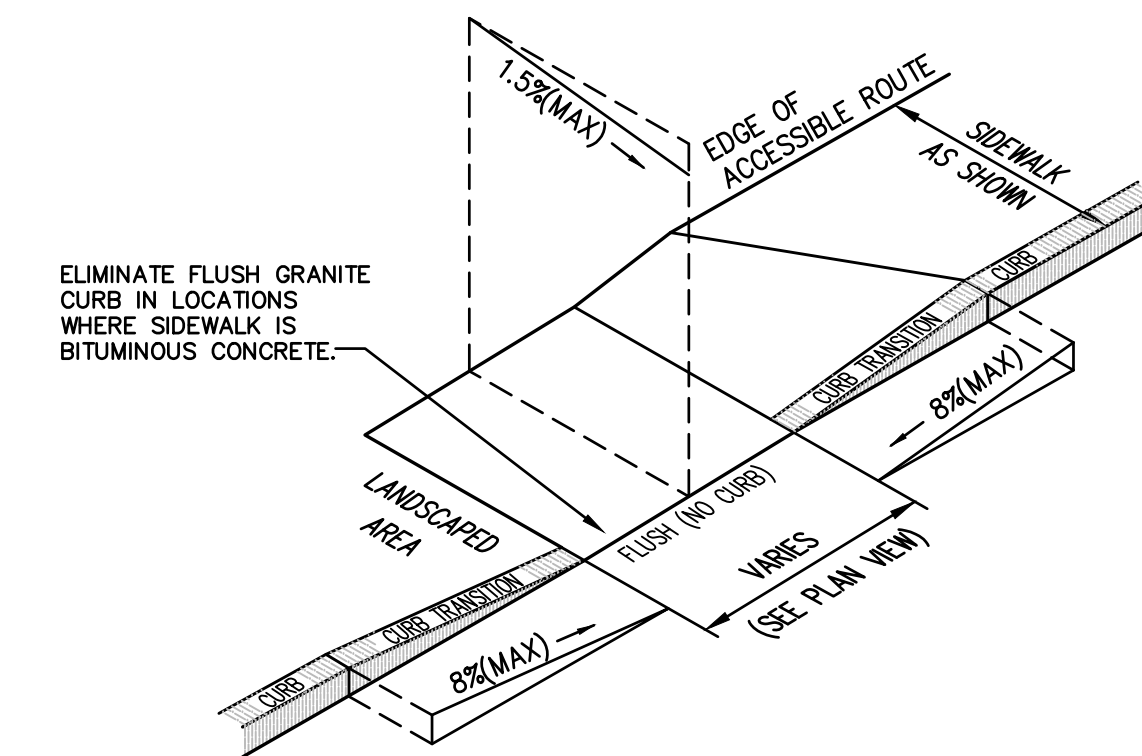


MONOLITHIC CONCRETE CURB NOT TO SCALE

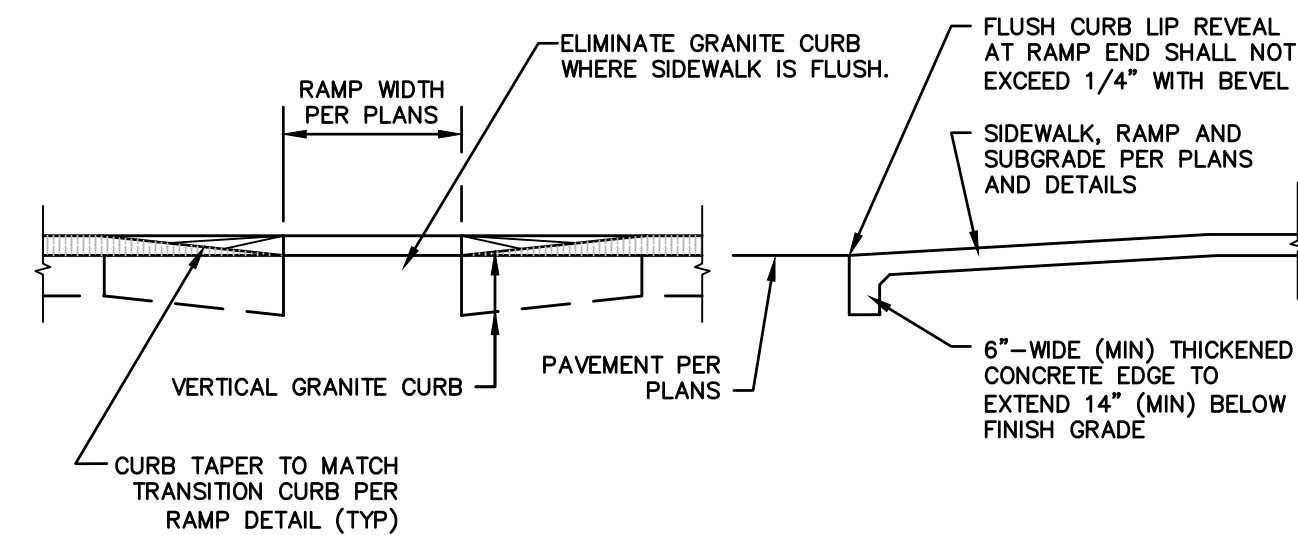
NOTES APPLICABLE TO ALL CURB RAMPS:

- THE MAXIMUM ALLOWABLE CROSS SLOPE OF AN ACCESSIBLE ROUTE (SIDEWALK) AND CURB SHALL BE 1.5%.
- THE MAXIMUM ALLOWABLE RUNNING SLOPE OF AN ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
- THE MAXIMUM ALLOWABLE RUNNING SLOPE OF AN ACCESSIBLE ROUTE (SIDEWALK) CURB RAMP SHALL BE 8.3% FOR A MAXIMUM ELEVATION CHANGE OF 6".
- CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
- BASE OF RAMP SHALL BE GRADED TO PREVENT THE PONDING OF WATER.
- SEE TYPICAL SIDEWALK SECTION FOR RAMP CONSTRUCTION.
- ALL CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH AMERICANS WITH DISABILITIES ACT (ADA) AND ALL APPLICABLE CODES.
- FLUSH CURB SECTIONS SHALL HAVE A MAXIMUM UP REVEAL OF 1/4" WITH A BEVEL AT THE EDGE OF PAVEMENT.
- EDGES OF SIDEWALK FOOTINGS ALONG FLUSH CURBS SHALL BE HAUNCHED SO AS TO EXTEND TO A MINIMUM DEPTH OF 1' BELOW FINISH GRADE.
- NO RAMP SHALL BE LESS THAN 4' IN WIDTH.
- CURB RAMPS SHALL HAVE A FLAT 2% MAX LANDING AT THE TOP AND BOTTOM OF THE RAMPS WHEN THERE IS A CHANGE IN DIRECTION.

CURB RAMP NOTES NOT TO SCALE



CURB RAMP (TYPE 'I') NOT TO SCALE



FLUSH CURB AT RAMP DETAIL NOT TO SCALE



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ISSUED FOR:

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ISSUE DATE:

MAY 5 2022

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DRAWN BY: CDB

APPROVED BY: EDW

DRAWING FILE: 4952-DETAILS.dwg

SCALE: 24"x36" N.T.S.
12"x18" N.T.S.

OWNER:

7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

APPLICANT:

SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

PROJECT:

7 WEST
COMMERCIAL
DEVELOPMENT

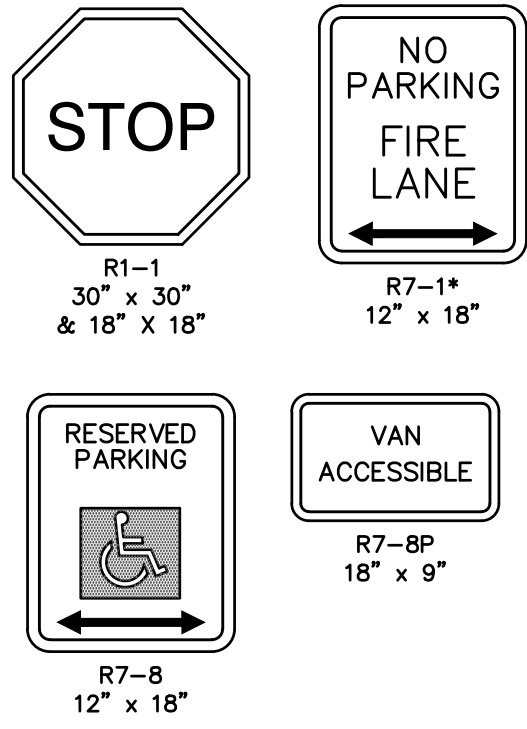
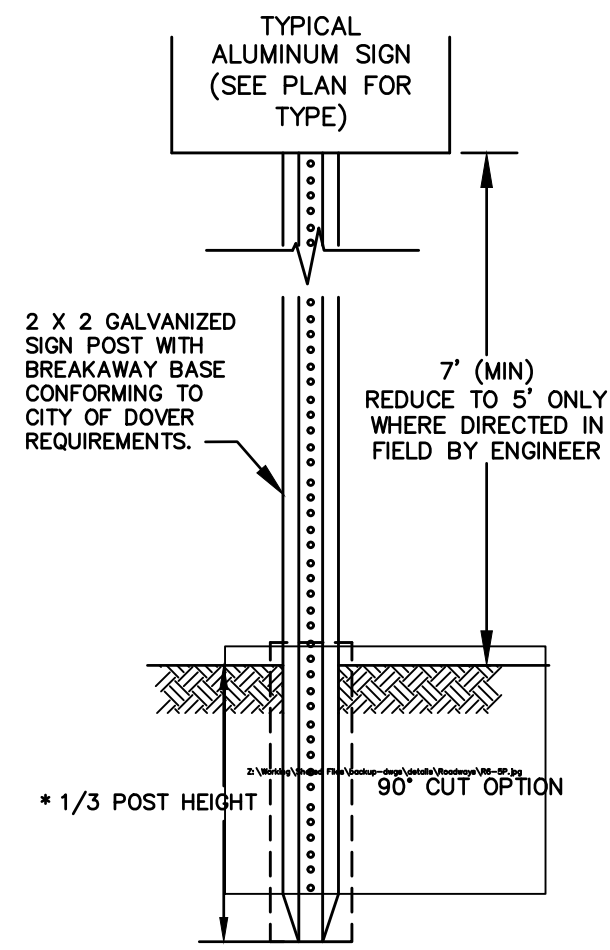
(FILE NO. P22-38)
TAX MAP H, LOT 11
DOVER, NH

TITLE:

DETAILS

SHEET NUMBER:

D-5



NOTES

- ALL SIGNS SHALL MEET THE REQUIREMENTS OF AND BE INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
- ALL SIGN POSTS SHALL BE 2 X 2 GALVANIZED WITH BREAKAWAY BASE.

LENGTH: AS REQUIRED

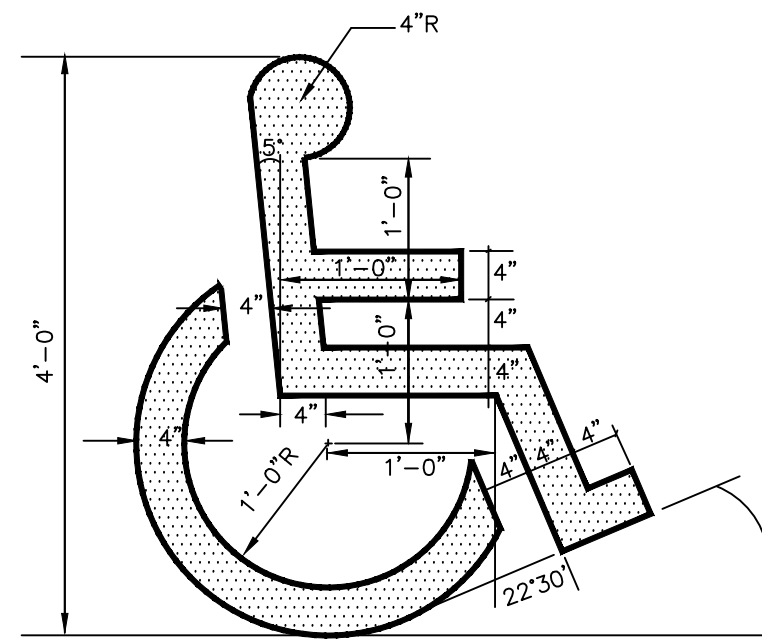
WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)

HOLES: 3/8" DIAMETER, 1" C-C FULL LENGTH

STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASTM A-576 (GRADE 1070 - 1080)

SIGN DETAILS

NOT TO SCALE

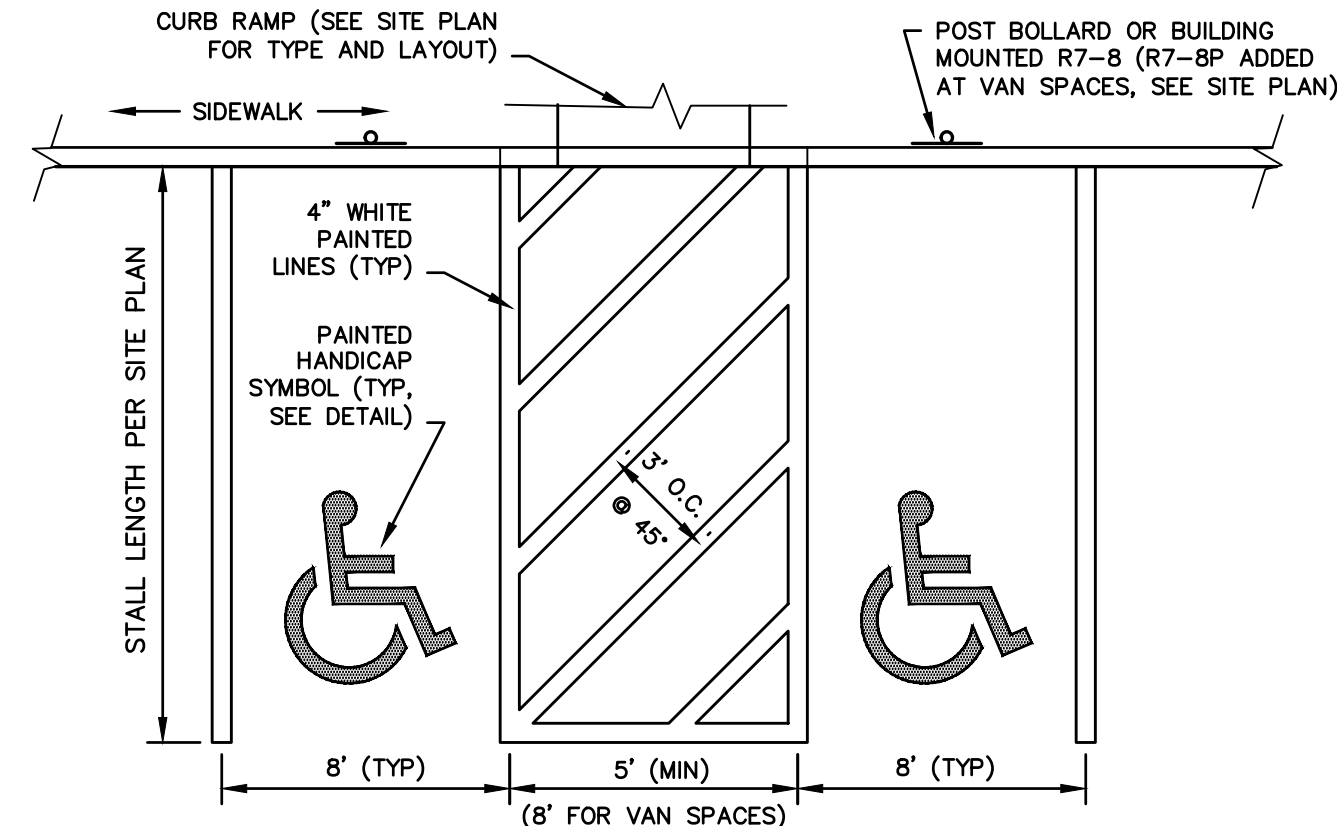


NOTES

- SYMBOL TO BE PAINTED IN ALL HANDICAPPED ACCESSIBLE SPACES IN WHITE PAINT (BLUE-PAINTED SQUARE BACKGROUND OPTIONAL).

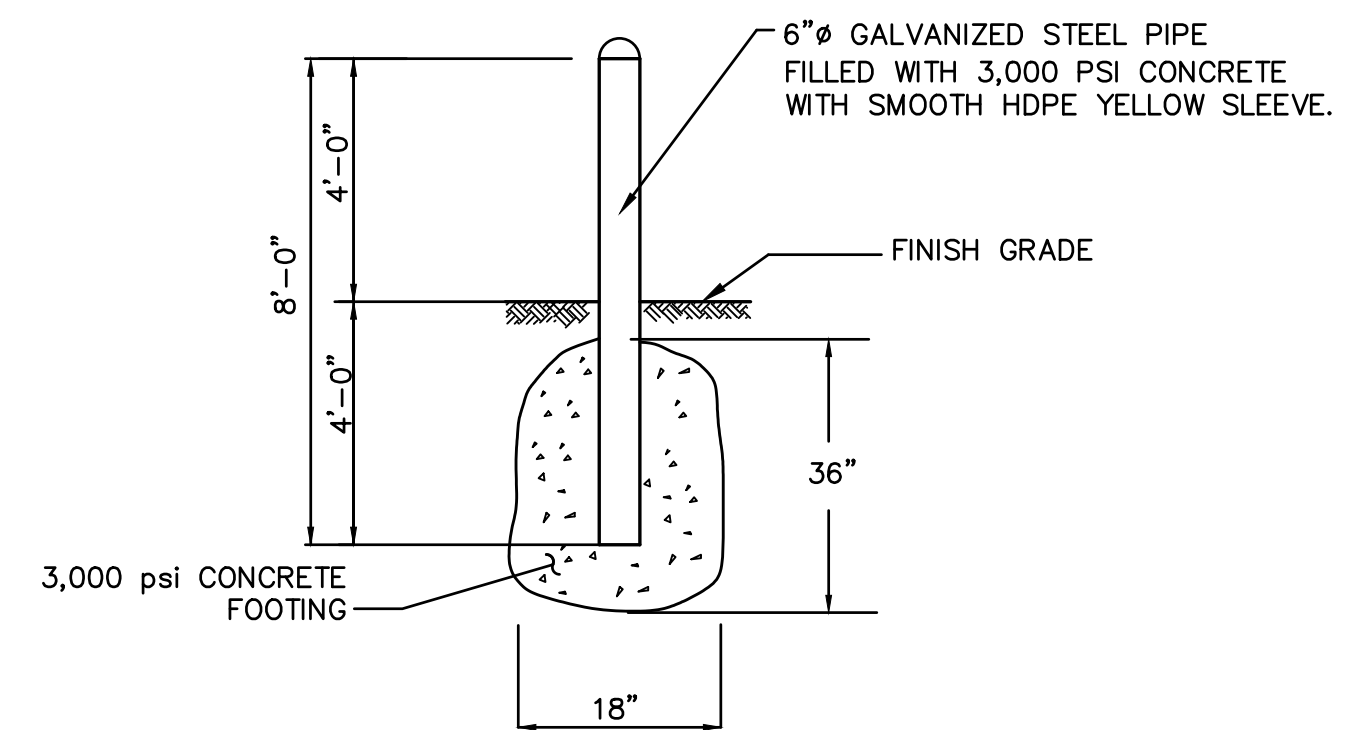
PAINTED HANDICAP SYMBOL

NOT TO SCALE



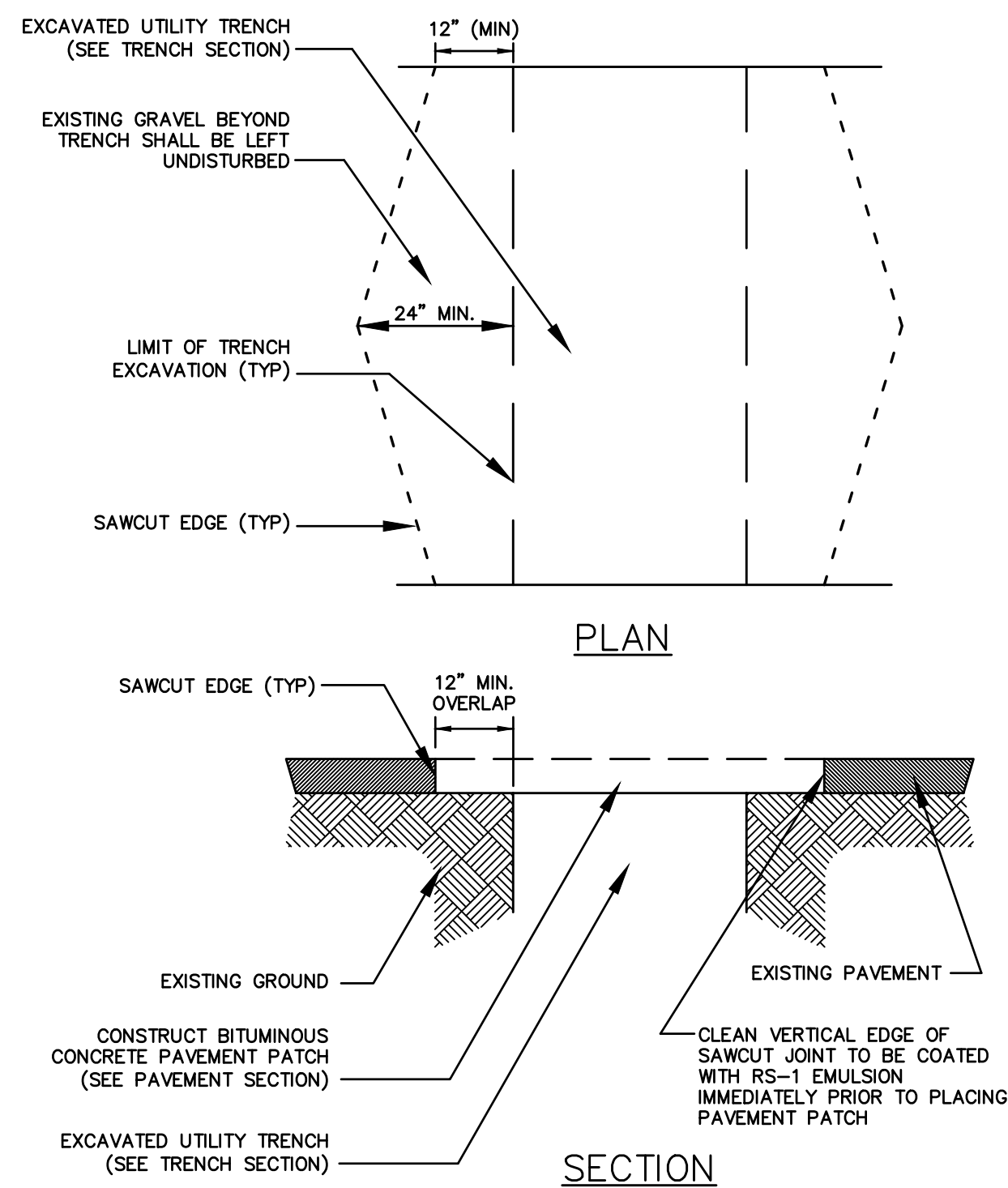
HANDICAP PARKING STALL LAYOUT

NOT TO SCALE



BOLLARD

NOT TO SCALE

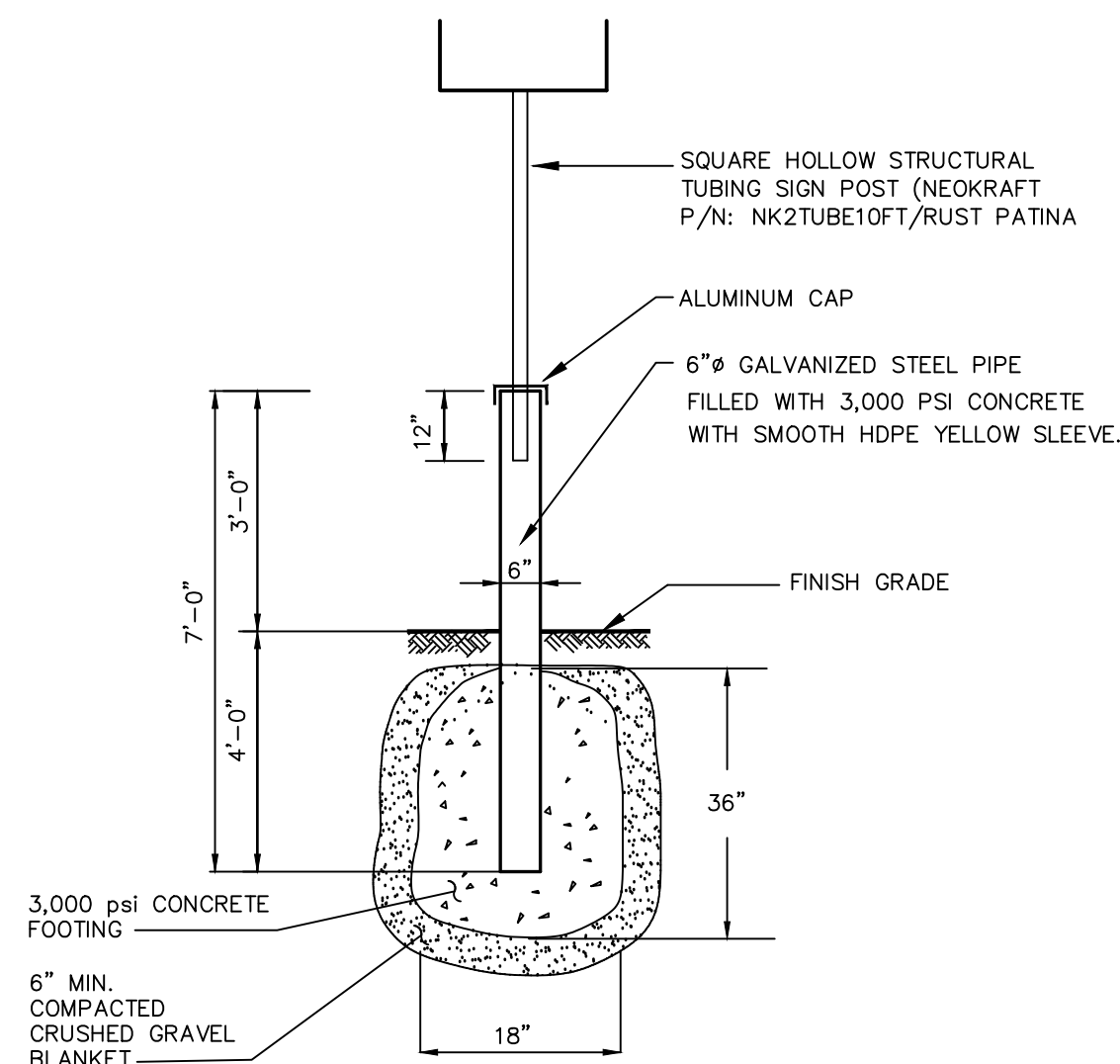


NOTES

- MACHINE CUT EXISTING PAVEMENT.
- ALL TEMPORARY, DAMAGED OR DEFECTIVE PAVEMENT SHALL BE REMOVED PRIOR TO PLACEMENT OF PERMANENT TRENCH REPAIRS.
- DIAMOND PATCHES, SHALL BE REQUIRED FOR ALL TRENCHES CROSSING ROADWAY. DIAMOND PATCHES SHALL MEET NHDOT REQUIREMENTS.

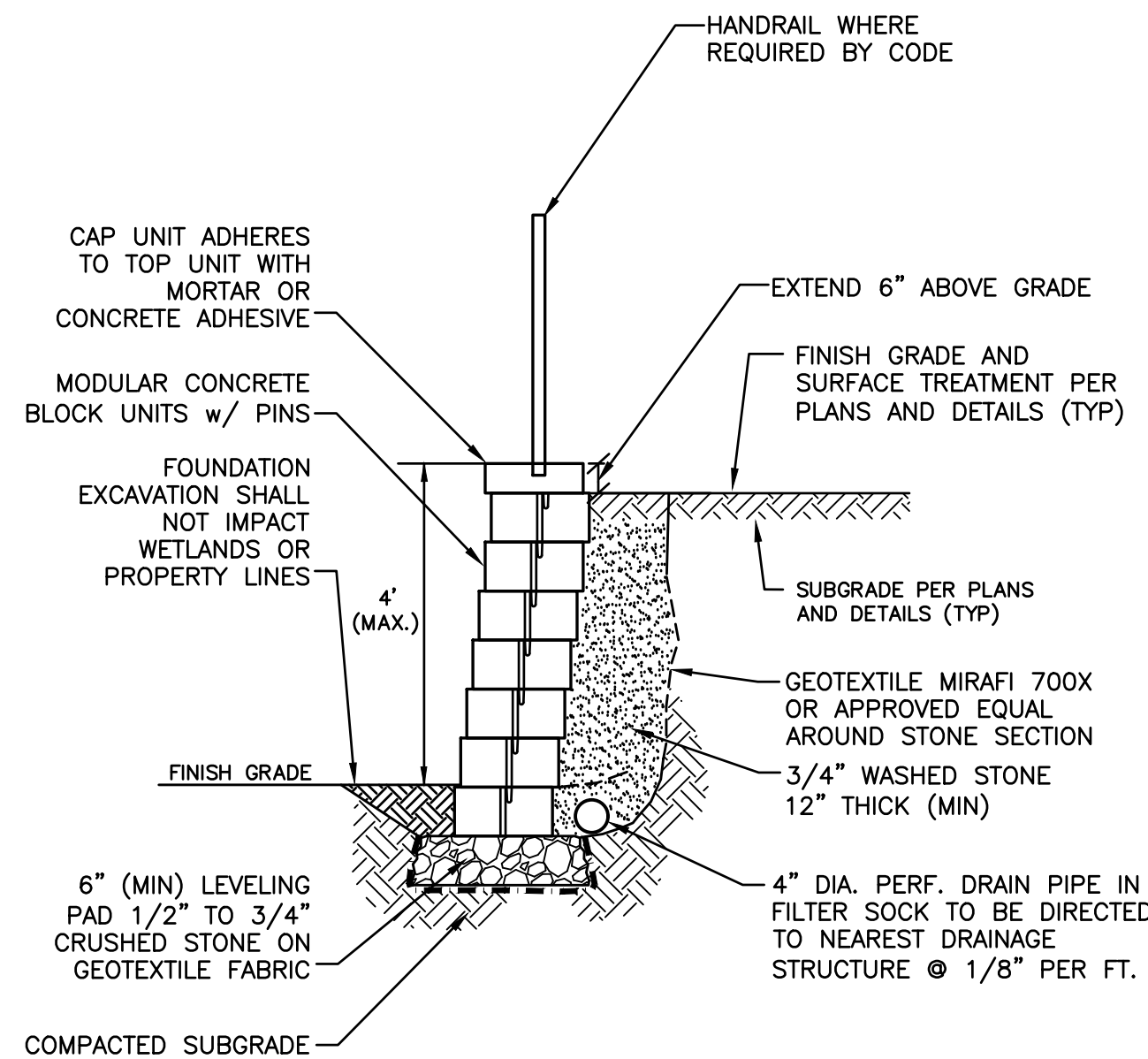
TYPICAL TRENCH PATCH

NOT TO SCALE



SIGN BOLLARD DETAIL

NOT TO SCALE

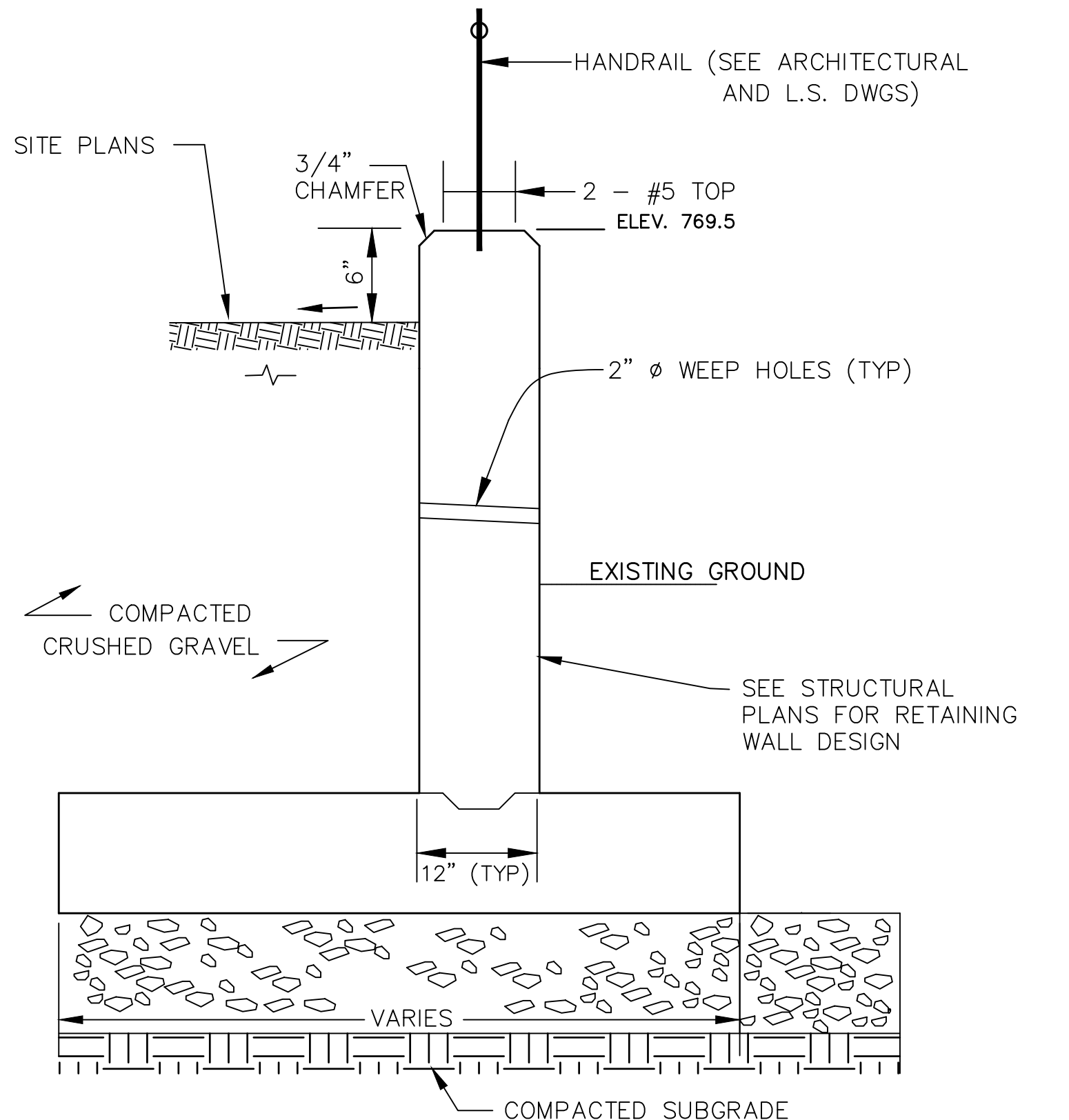


NOTES:

- TYPICAL MODULAR BLOCK SHALL BE PRECAST CONCRETE MEASURING APPROXIMATELY 16"x12"x6". OTHER BLOCK SIZES MAY BE APPROVED BY THE ENGINEER UPON REQUEST. CAP UNITS SHALL BE PER THE STANDARDS OF THE SELECTED MANUFACTURER.
- BLOCK MANUFACTURER SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
- WALL SHALL BE INSTALLED PER THE REQUIREMENTS OF THE MANUFACTURER.
- WALL HEIGHT SHALL NOT EXCEED 4' WITHOUT DESIGN DRAWINGS STAMPED BY A PROFESSIONAL STRUCTURAL ENGINEER.
- LOCKING PINS MAY OR MAY NOT BE REQUIRED BASED ON THE WALL MANUFACTURER APPROVED BY THE ENGINEER.
- WALL SHALL BE EMBEDDED BELOW EXISTING GRADE THE DEPTH OF AT LEAST ONE BLOCK UNLESS OTHERWISE SPECIFIED BY THE WALL MANUFACTURER.
- WALL BATTER SHALL BE PER THE MANUFACTURER'S SPECIFICATIONS.
- BLOCK FINISH SHALL BE AT THE DISCRETION OF THE OWNER.
- MODULAR BLOCK RETAINING WALL SHALL BE VERSA-LOK RETAINING WALL SYSTEMS (OR APPROVED EQUAL).

MODULAR BLOCK RETAINING WALL

NOT TO SCALE

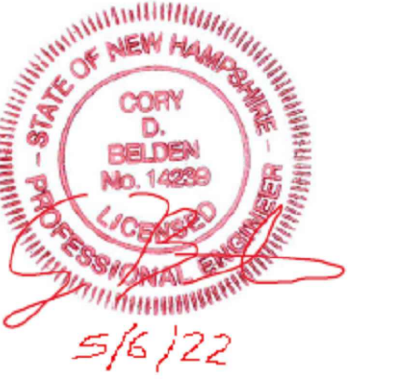


NOTES:

- CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCY BETWEEN PLAN AND FIELD CONDITION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD CONTROL.
- CONTRACTOR SHALL NOT DISTURB WETLANDS TO REMOVE EXISTING WALL OR FOR THE CONSTRUCTION OF THE NEW WALL.
- CONTRACTOR SHALL HAVE A STRUCTURAL ENGINEER STAMP ALL RETAINING WALLS 4 FT HIGH OR GREATER.

CONCRETE RETAINING WALL

NOT TO SCALE



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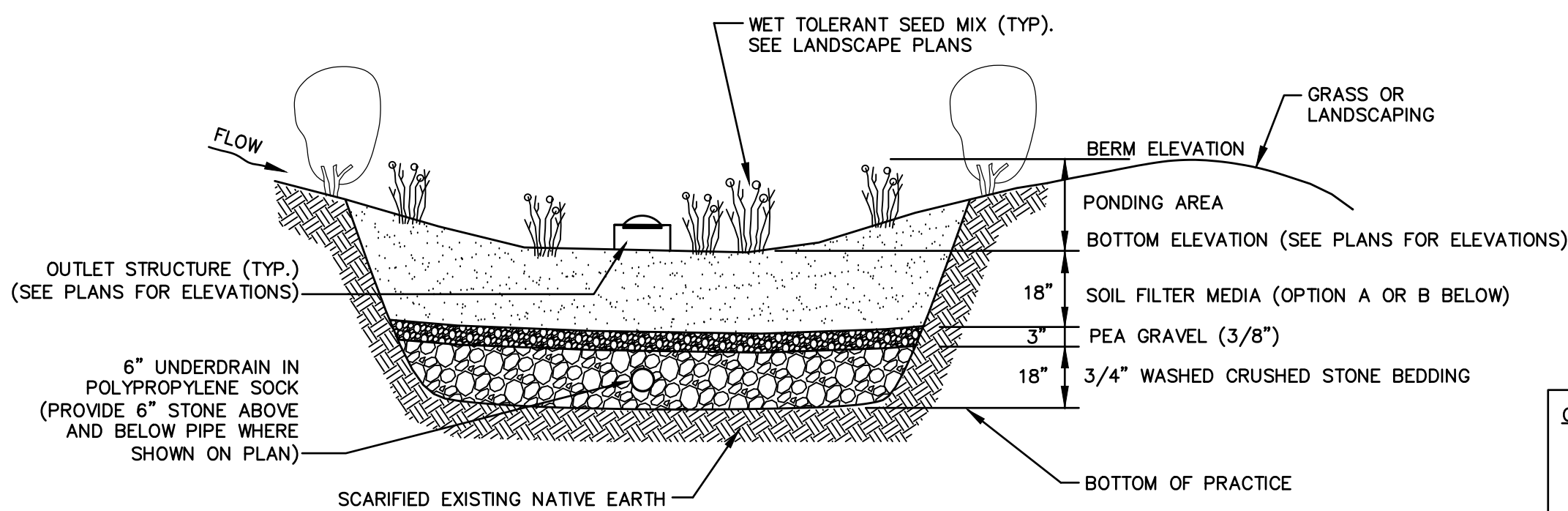
(FILE NO. P22-38)
TAX MAP H, LOT 11
DOVER, NH

TITLE:

DETAILS

SHEET NUMBER:

D-6



- NOTES**
1. WHEN CONTRACTOR EXCAVATES RAIN GARDEN AREA TO SUBGRADE, DESIGN ENGINEER SHALL PERFORM SUBSURFACE EVALUATION PRIOR TO THE PLACEMENT OF ANY SELECT MATERIAL OR OTHER BACKFILL.
 2. SOIL FILTER MEDIA SHALL BE EITHER OPTION A OR OPTION B AT CONTRACTOR'S DISCRETION.
 3. DO NOT PLACE THE RAIN GARDEN INTO SERVICE UNTIL THE BMP HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
 4. DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF, WATER FROM EXCAVATIONS) TO THE RAIN GARDEN AREA DURING ANY STAGE OF CONSTRUCTION.
 5. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.

MAINTENANCE REQUIREMENTS

- SYSTEMS SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EXCEEDING 2.5 INCHES IN A 24-HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS A WARRANTED BY SUCH INSPECTION.
- PRETREATMENT MEASURES SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND CLEANED OF ACCUMULATED SEDIMENT AS WARRANTED BY INSPECTION, BUT NO LESS THAN ONCE ANNUALLY.
- AT LEAST ONCE ANNUALLY, SYSTEM SHOULD BE INSPECTED FOR DRAWDOWN TIME. IF BIORETENTION SYSTEM DOES NOT DRAIN WITHIN 72-HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION FUNCTION OR INFILTRATION FUNCTION (AS APPLICABLE), INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER MEDIA.
- VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING, PRUNING, REMOVAL, AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.

DESIGN REFERENCES

- UNH STORMWATER CENTER
- EPA (1999A)
- NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 2, DECEMBER 2008 AS AMENDED.

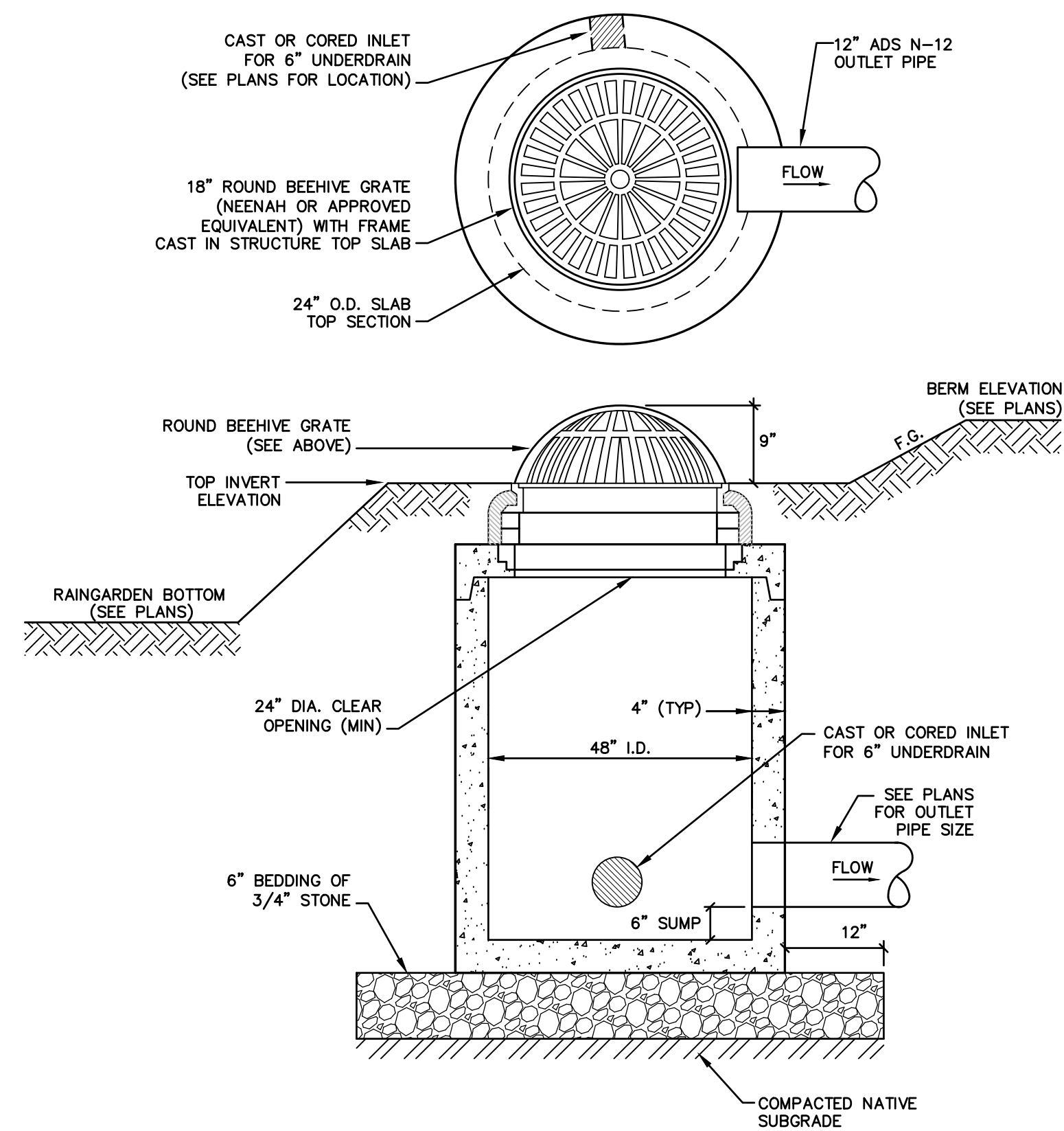
TYPICAL RAINGARDEN

NOT TO SCALE

CRUSHED STONE BEDDING *	
SIEVE SIZE	% PASSING BY WEIGHT
1"	100
3/4"	90 - 100
3/8"	20 - 55
# 4	0 - 10
# 8	0 - 5

* EQUIVALENT TO STANDARD STONE SIZE #67 - SECTION 703 OF NHDOT NHDOT STANDARD SPECIFICATIONS

FILTER MEDIA MIXTURES			
Component Material	Percent of Mixture by Volume	Gradation of material	
		Sieve No.	Percent by Weight Passing Standard Sieve
Filter Media Option A			
ASTM C—33 concrete sand	50 to 55		
Loamy sand topsoil, with fines as indicated	20 to 30	200	15 to 25
Moderately fine shredded bark or wood fiber mulch, with fines as indicated	20 to 30	200	< 5
Filter Media Option B			
Moderately fine shredded bark or wood fiber mulch, with fines as indicated	20 to 30	200	< 5
Loamy coarse sand	70 to 80	10	85 to 100
		20	70 to 100
		60	15 to 40
		200	8 to 15

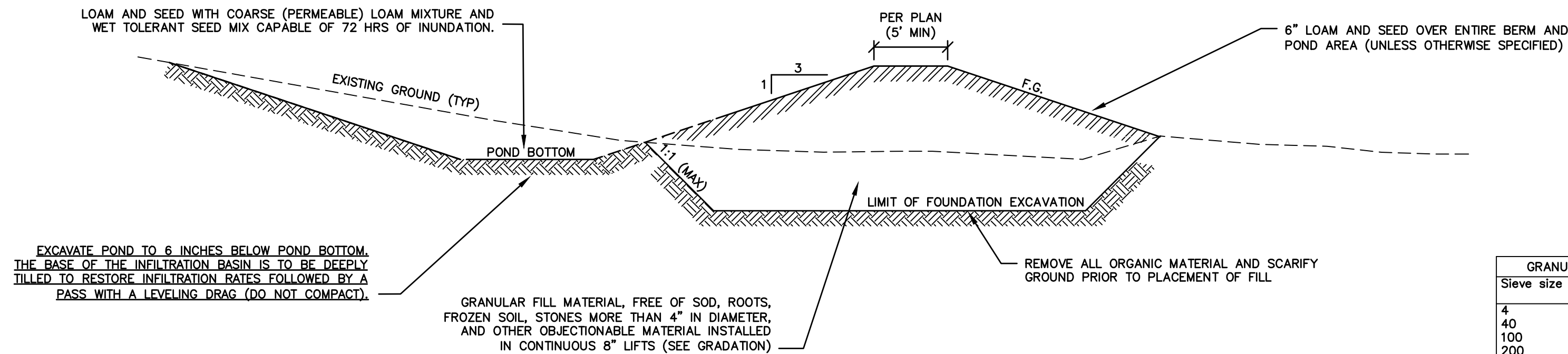


CONSTRUCTION SPECIFICATIONS

1. OUTLET STRUCTURE SHALL BE CONSTRUCTED ONSITE OR PRECAST TO EQUAL DIMENSIONS.
2. ALL JOINTS AND PIPE OPENINGS SHALL BE SEALED WATERTIGHT WITH MORTAR.
3. STRUCTURE IS TO BE BUILT TO WITHSTAND H2O LOADING.
4. SOIL UNDERLYING THE STRUCTURE'S GRAVEL BASE PAD AND THE PAD ITSELF ARE TO BE COMPACTED TO 95% MODIFIED PROCTOR.
5. ALL CONCRETE SHALL BE 4,000 PSI MINIMUM.

OUTLET STRUCTURE DETAIL

NOT TO SCALE



GRANULAR FILL GRADATION	
Sieve size	Embankment Material % Passing sieve
4	90-100%
40	50-80%
100	29-43%
200	15-30%

Berm Construction Criteria

1. Foundation Preparation --- The foundation shall be cleared of trees, logs, stumps, roots, brush, boulders, sod, and rubbish. If suitable for reuse, the topsoil and sod shall be stockpiled and spread on the completed embankment and spillways. Foundation surfaces shall be sloped no steeper than 1:1. The foundation area shall be deeply tilled and scarified before placement of fill material. The surface shall have moisture added and/or it shall be compacted if necessary so that the first layer of fill can be bonded to the foundation.

The cutoff trench and any other required excavations shall be dug to the lines and grades shown on the plans or as staked in the field. If they are suitable, excavated materials shall be used in the permanent fill.

Existing stream channels in the foundation area shall be sloped no steeper than 1:1 and deepened and widened as necessary to remove all stones, gravel, sand, stumps, roots, and other objectionable material and to accommodate compaction equipment.

Foundation areas shall be kept free of standing water when fill is being placed on them.
2. Granular Fill Placement --- The material placed in the fill shall be free of sod, roots, frozen soil, stones more than 4 inches in diameter and other objectionable material.

Selected backfill material shall be placed around structures, pipe conduits, and drainage diaphragm at about the same rate on all sides to prevent damage from unequal loading.

The placing and spreading of fill material shall be started at the lowest point of the foundation and the fill brought up in horizontal layers of such thickness that the required compaction can be obtained. The fill shall be constructed in 8" continuous horizontal layers except where openings or sectionalized fills are required. In those cases, the slope of the bonding surfaces between the embankment in place and the embankment to be placed shall not be steeper than 3 horizontal to 1 vertical. The bonding surface shall be treated the same as that specified for the foundation so as to insure a good bond with the new fill.

- The distribution and gradation of materials shall be such that no lenses, pockets, streaks, or layers of material differ substantially in texture of gradation from the surrounding material. If it is necessary to use materials of varying texture and gradation, the more impervious material shall be placed in the center and upstream parts of the fill. If zoned fills of substantially differing materials are specified, the zones shall be placed according to the lines and grades shown on the drawings. The complete work shall conform to the lines, grades, and elevations shown on the drawings or as staked in the field.
3. Moisture Control --- The moisture content of the fill material shall be adequate for obtaining the required compaction. Material that is too wet shall be dried to meet this requirement, and material that is too dry shall have water added and mixed until the requirement is met.
 4. Compaction of berms --- Construction equipment shall be operated over the areas of each layer of fill to insure that the required compaction is obtained. Special equipment shall be used if needed to obtain the required compaction.

Fill material shall be compacted to not less than 95% of AASHTO T99 Method C compaction method.

Fill adjacent to structures, pipe conduits, and drainage diaphragm shall be compacted to a density equivalent to that of the surrounding fill by means of hand tamping or manually directed power tamper or plate vibrators. Fill adjacent to concrete structures shall not be compacted until the concrete is strong enough to support the load.
 5. Protection --- A protective cover of vegetation shall be established on all exposed surfaces of the embankment, spillway, and borrow area in accordance with the plans. If soil or climatic conditions preclude the use of vegetation and protection is needed, non-vegetative means, such as mulches or gravel, may be used. In some places, temporary vegetation may be used until conditions permit establishment of permanent vegetation.

Maintenance

- Maintenance is necessary if detention/retention basins are to continue to function as originally designed. A local government, a designated group such as a homeowners' association, or an individual must be assigned responsibility for maintaining the structures and the basin area. A maintenance plan should be developed that outlines the maintenance operations and a schedule for carrying out the procedures.
- The following should be considered in formulating a maintenance plan:
1. Embankment --- The embankment should be inspected annually to determine if rodent burrows, wet areas, or erosion of the fill is taking place.
 2. Vegetation --- The vegetated areas of the structure should be protected from damage by fire, grazing, traffic, and dense weed growth. Lime and fertilizer should be applied as necessary as determined by soil tests. Trees and shrubs should be kept off the embankment and emergency spillway areas.
 3. Sediment --- Sediment should be continually checked in the basin. When sediment accumulations reach the predetermined design elevation, then the sediment should be removed and properly disposed of.
 4. Safety Inspections --- All permanent impoundments should be inspected by a qualified professional engineer on a periodic basis. If there is potential for significant damage or loss of life downstream, then the inspection should be carried out annually.

BERM DETAIL

NOT TO SCALE



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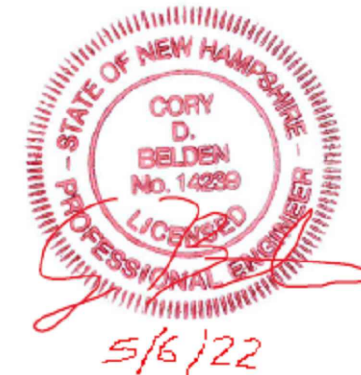
(FILE NO. P22-38)
TAX MAP H, LOT 11
DOVER, NH

TITLE:

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SHEET NUMBER:

D-7



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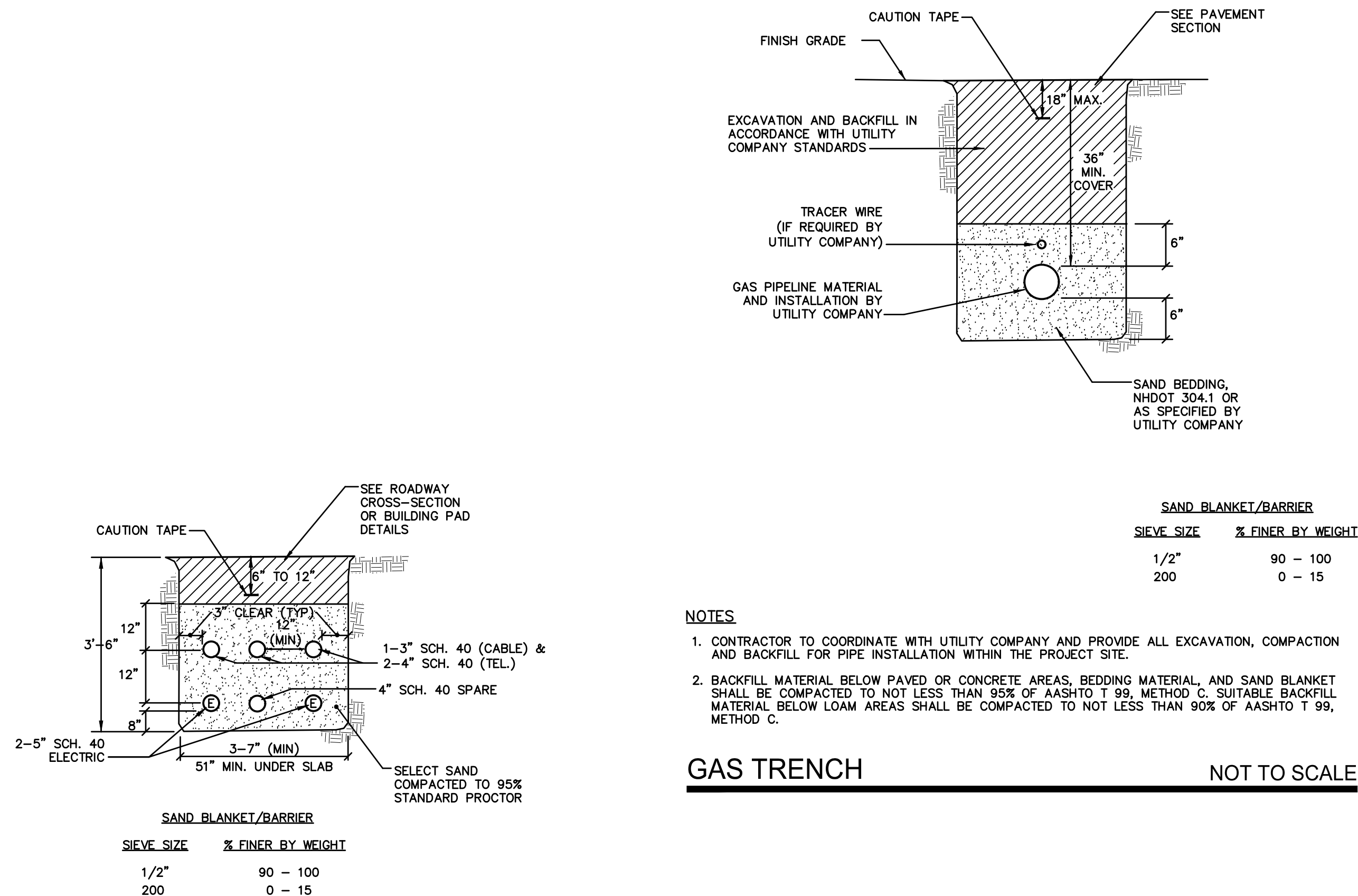
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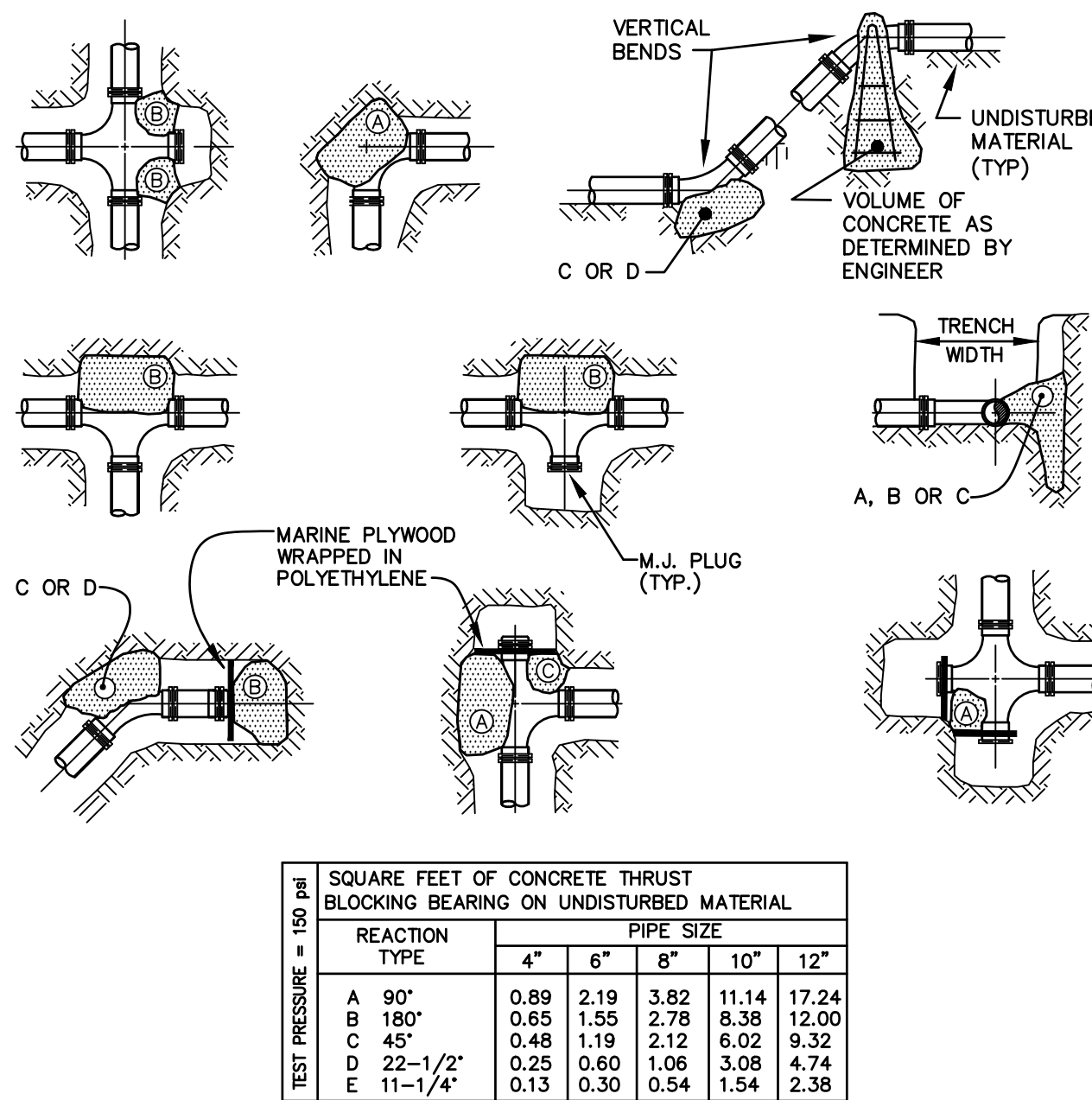
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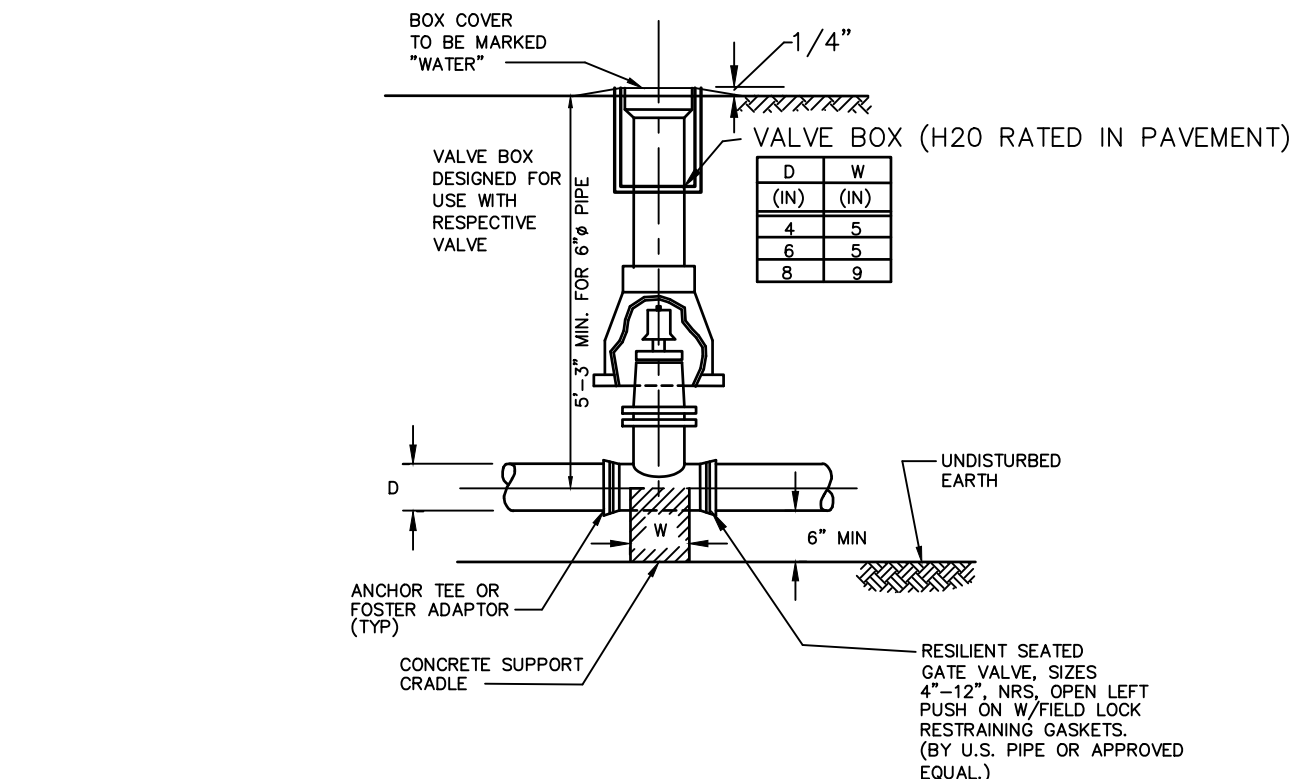
GAS TRENCH

NOT TO SCALE



THRUST BLOCKING

NOT TO SCALE

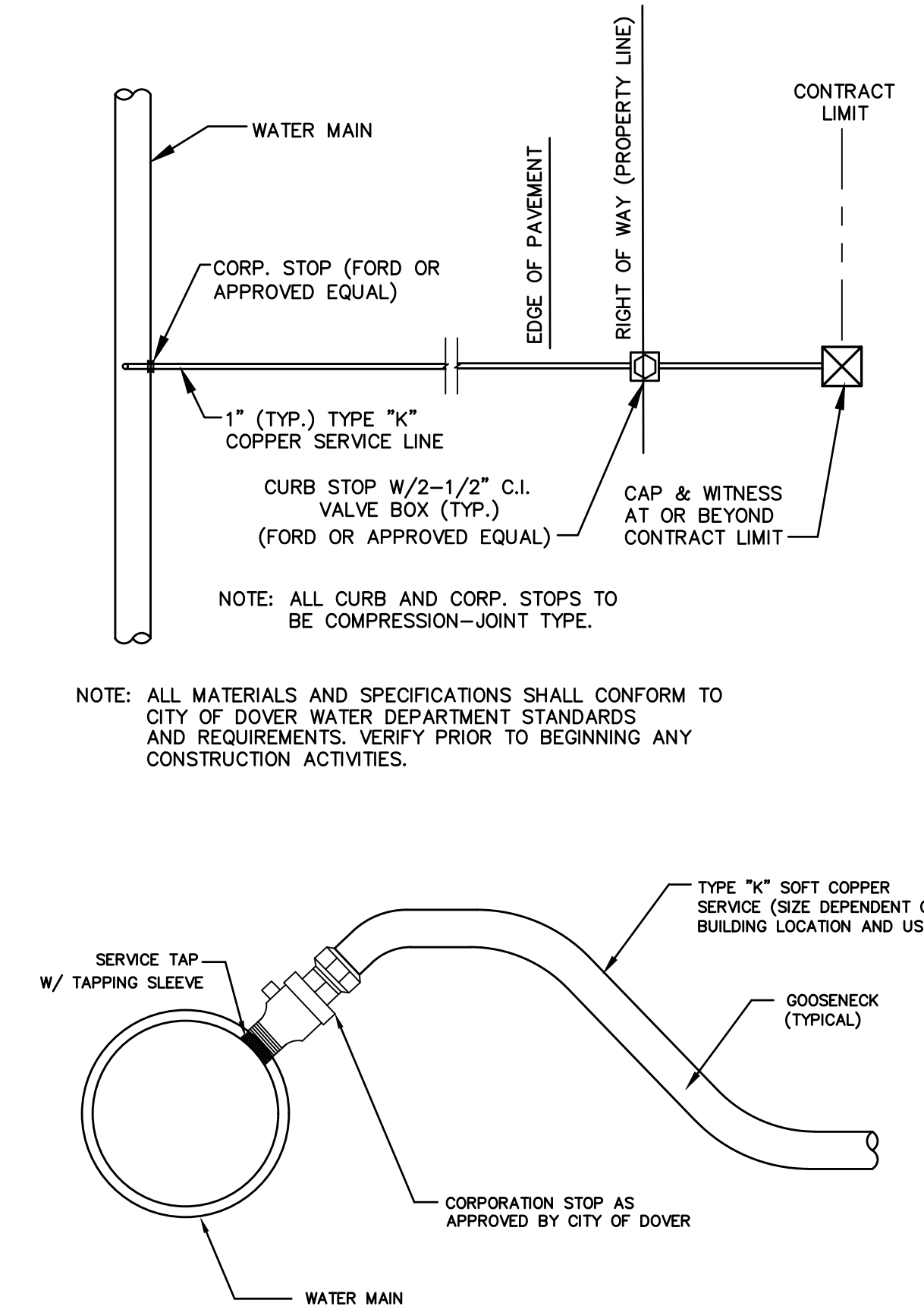


WATER VALVE DETAIL

NOT TO SCALE

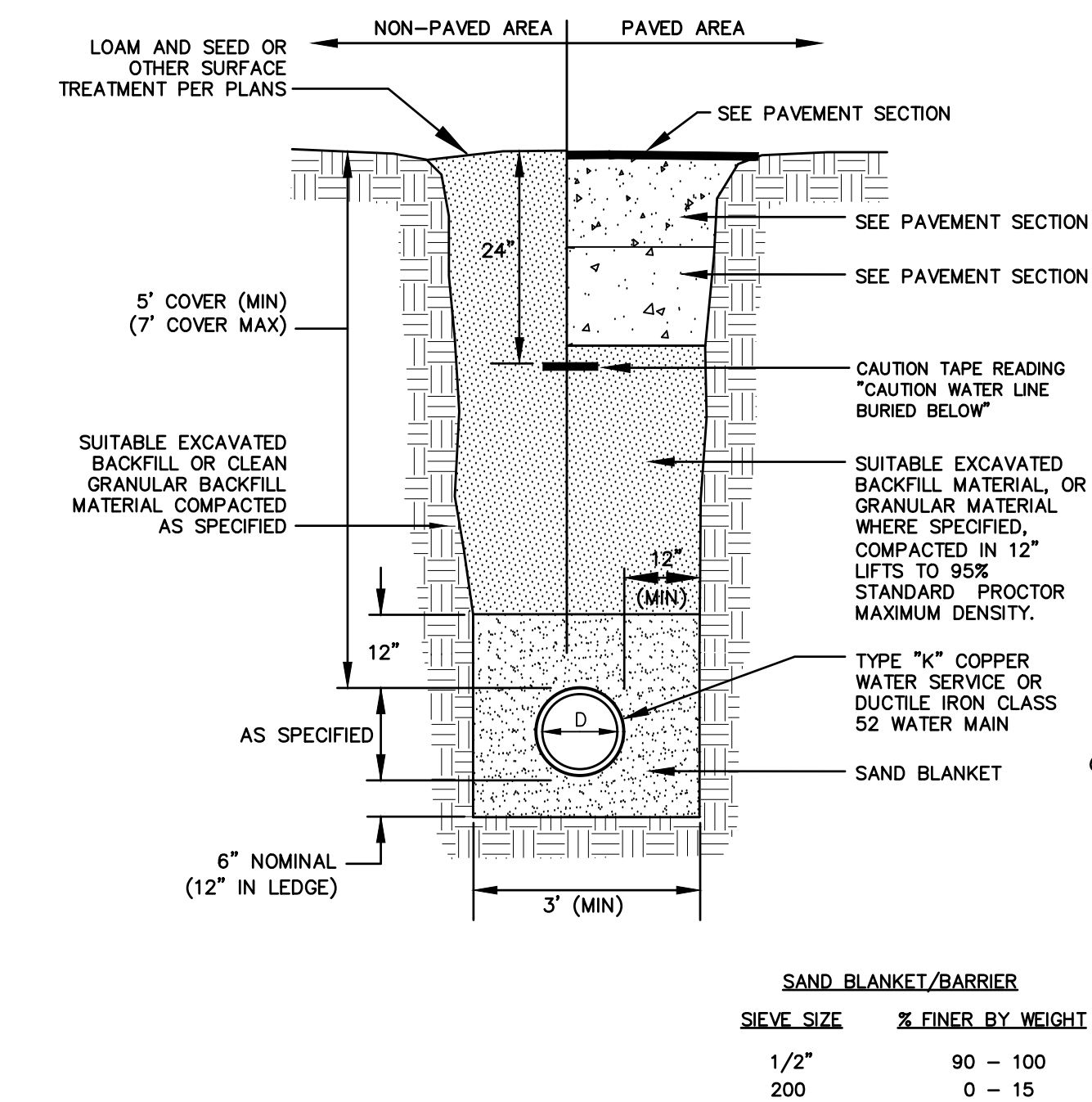
NOTES

- ALL CONDUIT IS TO BE SCHEDULE 40 PVC, ELECTRICAL GRADE, GRAY IN COLOR AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS. A 10-FOOT HORIZONTAL SECTION OF RIGID GALVANIZED STEEL CONDUIT WILL BE REQUIRED AT EACH SWEEP, UNLESS IN THE OPINION OF THE SERVICE PROVIDER DESIGNER, THE SWEEP-PVC JOINT IS NOT SUBJECT TO FAILURE DURING PULLING OF THE CABLE. ALL JOINTS ARE TO BE WATERTIGHT.
- ALL 90 DEGREE SWEEPS WILL BE MADE WITH RIGID GALVANIZED STEEL WITH A MINIMUM RADIUS OF 36 INCHES FOR PRIMARY CABLES AND 24 INCHES FOR SECONDARY CABLES.
- BACKFILL MAY BE MADE WITH EXCAVATED MATERIAL OR COMPARABLE, UNLESS MATERIAL IS DEEMED UNSUITABLE BY SERVICE PROVIDER. BACKFILL SHALL BE FREE OF FROZEN LUMPS, ROCKS, DEBRIS, AND RUBBISH. ORGANIC MATERIAL SHALL NOT BE USED AS BACKFILL. BACKFILL SHALL BE IN 6-INCH LAYERS AND THOROUGHLY COMPACTED.
- A SUITABLE PULLING STRING, CAPABLE OF 300 POUNDS OF PULL, MUST BE INSTALLED IN THE CONDUIT BEFORE SERVICE PROVIDER IS NOTIFIED TO INSTALL CABLE. THE STRING SHOULD BE BLOWN INTO THE CONDUIT AFTER THE RUN IS ASSEMBLED TO AVOID BONDING THE STRING TO THE CONDUIT. A MINIMUM OF TWENTY-FOUR (24") INCHES OF ROPE SLACK SHALL REMAIN AT THE END OF EACH DUCT. PULL ROPE SHALL BE INSTALLED IN ALL CONDUIT FOR FUTURE PULLS. PULL ROPE SHALL BE NYLON ROPE HAVING A MINIMUM TENSILE STRENGTH OF THREE HUNDRED (300#) LBS.
- SERVICE PROVIDER SHALL BE GIVEN THE OPPORTUNITY TO INSPECT ALL CONDUIT PRIOR TO BACKFILL. THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS SHOULD SERVICE PROVIDER BE UNABLE TO INSTALL ITS CABLE IN A SUITABLE MANNER.
- TYPICAL CONDUIT SIZES ARE 3-INCH FOR SINGLE PHASE PRIMARY AND SECONDARY VOLTAGE CABLES, 4-INCH FOR THREE PHASE SECONDARY, AND 5-INCH FOR THREE PHASE PRIMARY. HOWEVER, SERVICE PROVIDERS MAY REQUIRE DIFFERENT NUMBERS, TYPES AND SIZES OF CONDUIT THAN THOSE SHOWN HERE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL CONDUIT SIZES, TYPES AND NUMBERS WITH EACH SERVICE PROVIDER PRIOR TO ORDERING THEM.
- ROUTING OF CONDUIT, LOCATION OF MANHOLES, TRANSFORMERS, CABINETS, HANDHOLES, ETC., SHALL BE DETERMINED BY SERVICE PROVIDER DESIGN PERSONNEL. THE CONTRACTOR SHALL COORDINATE WITH ALL SERVICE PROVIDERS PRIOR TO THE INSTALLATION OF ANY CONDUIT.
- ALL CONDUIT INSTALLATIONS MUST CONFORM TO THE CURRENT EDITION OF THE NATIONAL ELECTRIC SAFETY CODE, STATE AND LOCAL CODES AND ORDINANCES, AND WHERE APPLICABLE, THE NATIONAL ELECTRIC CODE. WHERE REQUIRED BY UTILITY PROVIDER, CONDUIT SHALL BE SUPPORTED IN PLACE USING PIPE STANCHIONS PLACED EVERY FIVE (5') FEET ALONG THE CONDUIT RUN.
- UNDER A BUILDING SLAB THE CONDUIT SHALL BE ENCASED IN 8" OF CONCRETE ON ALL SIDES.
- ALL CONDUIT TERMINATIONS SHALL BE CAPPED TO PREVENT DEBRIS FROM ENTERING CONDUIT.



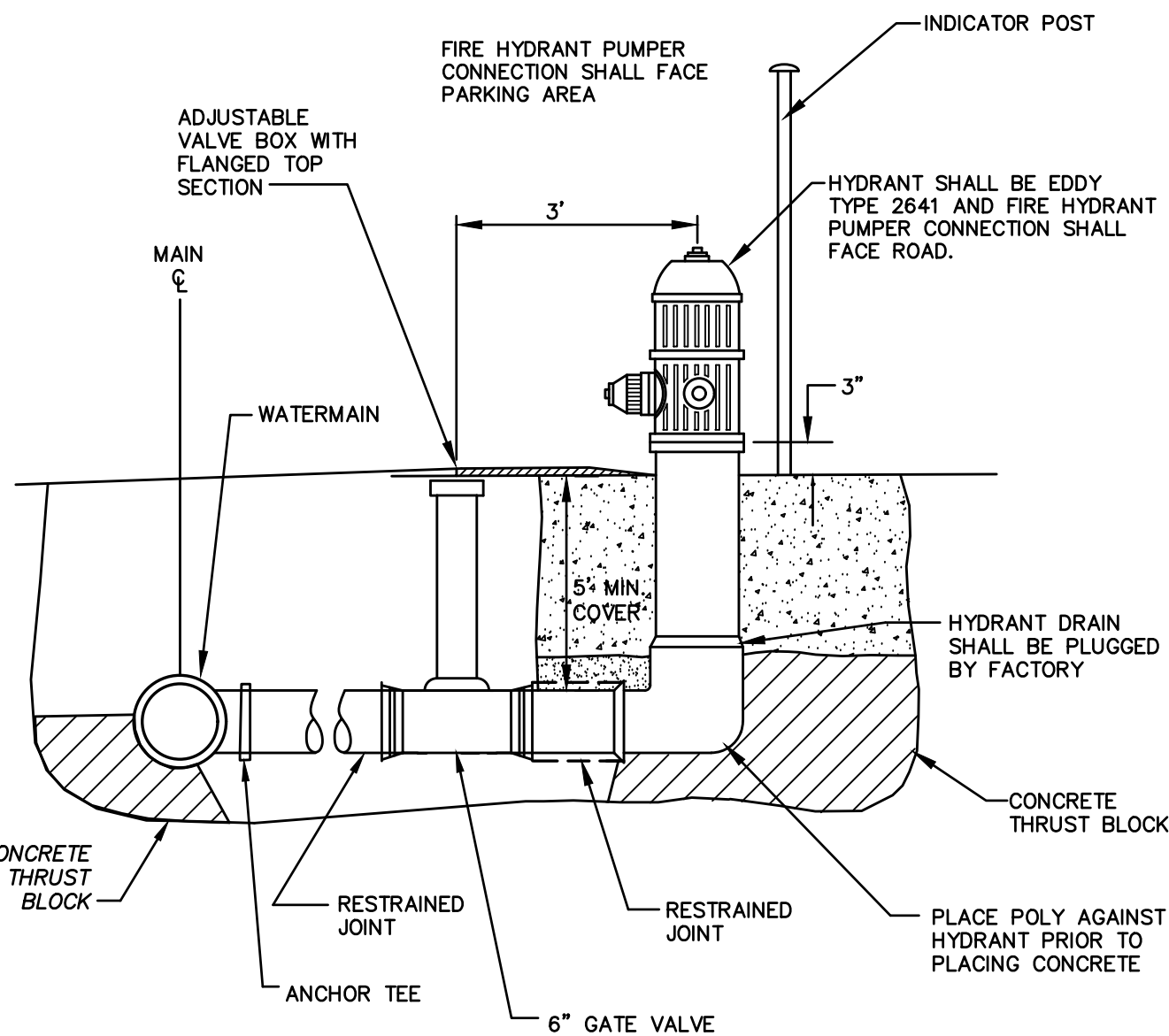
WATER SERVICE CONNECTION

NOT TO SCALE



WATER MAIN TRENCH

NOT TO SCALE



FIRE HYDRANT

NOT TO SCALE

ELECTRIC / COMMUNICATION TRENCH

NOT TO SCALE

MANHOLE NOTES:

1. IT IS THE INTENTION OF THE NHDES WASTEWATER BUREAU THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE, STRENGTH AND LEAKPROOF QUALITIES CONSIDERED NECESSARY BY THE BUREAU FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS, SHALL BE AS SHOWN ON THE DRAWING. MANHOLES SHALL BE AN ASSEMBLY OF PRECAST SECTIONS, WITH STEEL REINFORCEMENT, WITH ADEQUATE JOINTING, OR CONCRETE CAST MONOLITHICALLY IN PLACE WITH REINFORCEMENT IN ANY APPROVED MANHOLE. THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS (H=20 LOADING) WITHOUT FAILURE AND PREVENT LEAKAGE IN EXCESS OF ONE GALLON PER DAY PER VERTICAL FOOT OF MANHOLE CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE, A PERIOD GENERALLY IN EXCESS OF 25 YEARS IS TO BE UNDERSTOOD IN BOTH CASES.

2. BARRELS AND CONE SECTIONS SHALL BE PRECAST REINFORCED.

3. PRECAST CONCRETE BARREL SECTIONS, CONES AND BASES SHALL CONFORM TO ASTM C4706.

4. LEAKAGE TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE NHDES REQUIREMENTS. SEE SEWER SPECIFICATIONS - 02500 SEWERS AND 02550 SEWER MANHOLES.

5. INVERTS AND SHELVES MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW AT CHANGES IN DIRECTION. THE INVERTS SHALL BE LAID OUT IN CURVES, OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY.

6. FRAMES AND COVERS MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. THE MANHOLE COVER SHALL HAVE THE WORD "SEWER" IN 3-INCH LETTERS CAST INTO THE TOP SURFACE.

7. BEDDING SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33.

100%	PASSING 1 INCH SCREEN
90-100%	PASSING 3/4 INCH SCREEN
20-55%	PASSING 3/8 INCH SCREEN
0-10%	PASSING #4 SIEVE
0-5%	PASSING #8 SIEVE

WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR CRUSHED STONE 1-1/2" TO 1/2" SHALL BE USED.

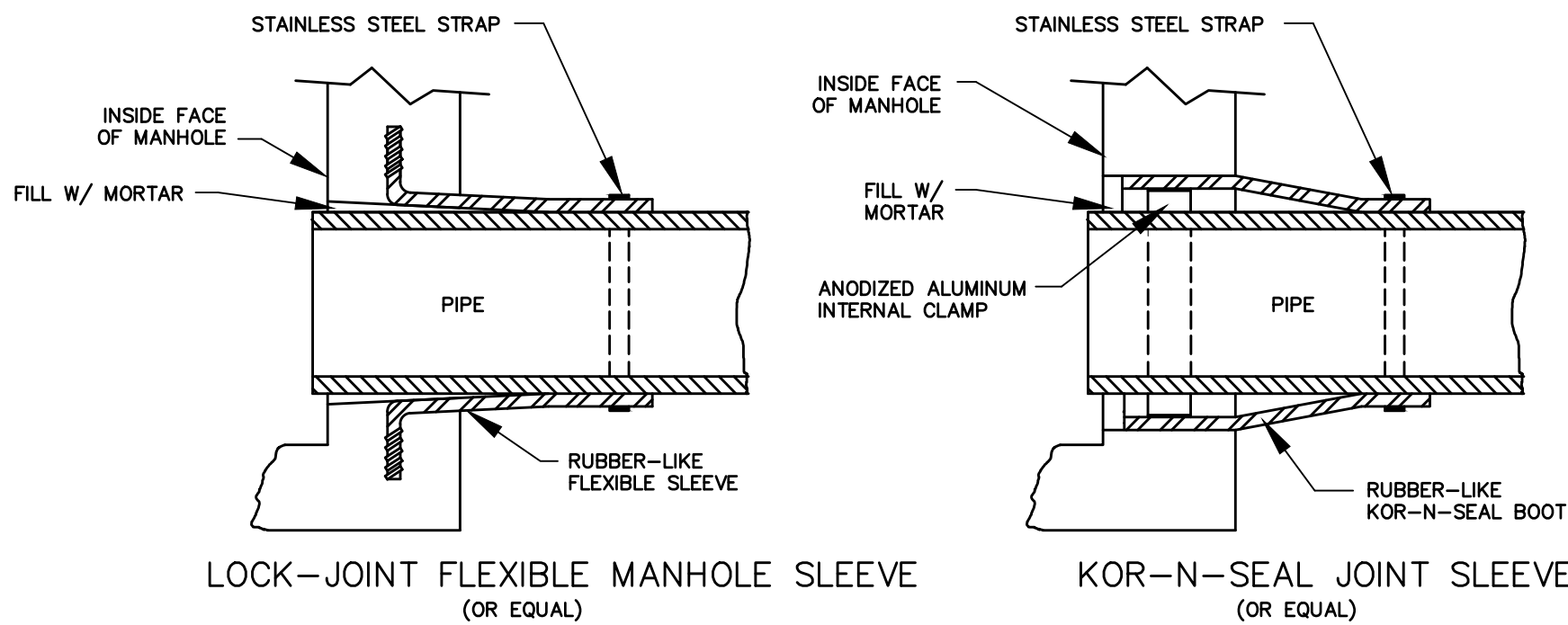
8. CONCRETE FOR DROP SUPPORT SHALL CONFORM TO THE REQUIREMENT FOR CLASS A (3000 LBS.) CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AS FOLLOWS:

CEMENT	6.0 BAGS PER CUBIC YARD
WATER	5.75 GALLONS PER BAG CEMENT
MAXIMUM SIZE OF AGGREGATE	1 INCH

9. FLEXIBLE JOINT A FLEXIBLE JOINT SHALL BE PROVIDED WITHIN THE FOLLOWING DISTANCES:

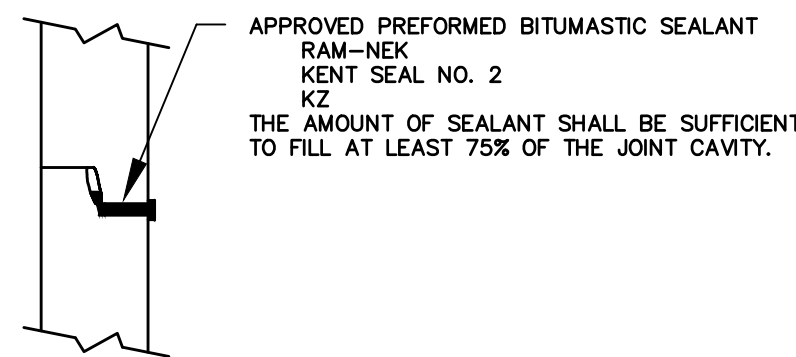
PVC PIPE - 60"	
RCP & CI PIPE - ALL SIZES - 48"	
AC & VC PIPE - UP THROUGH 12" DIAMETER - 18"	
AC & VC PIPE - LARGER THAN 12" DIAMETER - 36"	

10. SHALLOW MANHOLE IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H=20 LOADS.



NOTE: ALL GASKETS, SEALANTS, MORTAR, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.

DETAIL-A

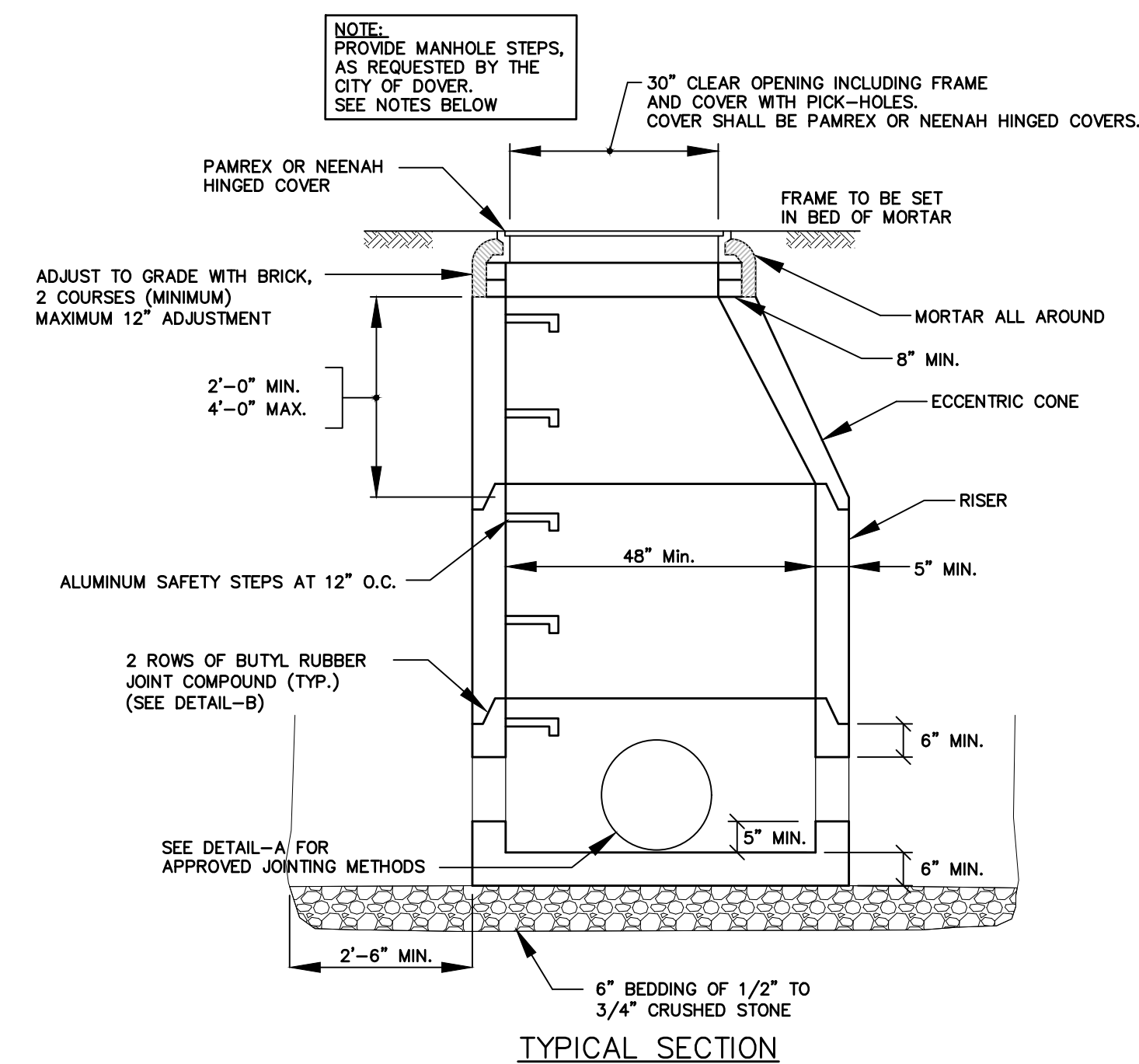


BITUMASTIC

NOTE: ALL GASKETS, SEALANTS, MORTAR, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.

DETAIL-B

(APPROVED MANHOLE SECTION JOINTING METHODS)



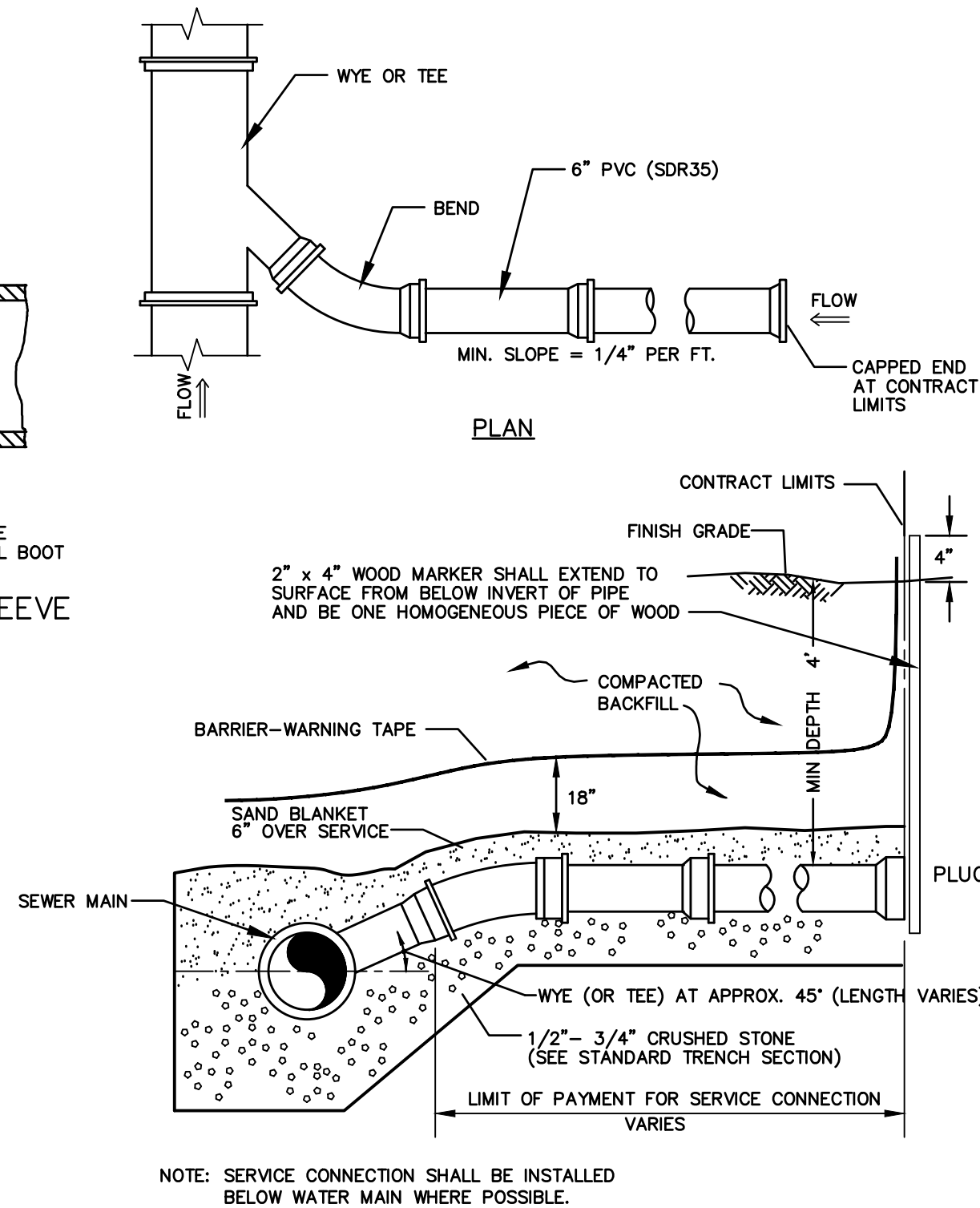
TYPICAL SECTION

MANHOLES STEPS SHALL:

- BE PERMITTED ONLY AT THE REQUEST OF THE SYSTEM OWNER;
- BE MANUFACTURED OF STAINLESS STEEL, PLASTIC-COVERED STEEL, OR PLASTIC;
- BE SHAPED SO THAT THEY CANNOT BE PULLED OUT OF THE CONCRETE WALL INTO WHICH THEY ARE SECURED;
- BE CERTIFIED BY THE MANUFACTURER AS MEETING THE ASTM C478 STANDARD IN EFFECT AT THE TIME THE MANHOLES WERE MANUFACTURED FOR LOAD CARRYING CAPACITY AND PULL-OUT RESISTANCE;
- NOT BE SECURED WITH MORTAR;
- BE APPROXIMATELY 14 INCHES BY 10 INCHES IN DIMENSION;
- HAVE A DROP SECTION OR RAISED ABUTMENTS TO PREVENT SIDEWAYS SLIPPAGE OFF THE STEP; AND
- HAVE NON-SKID SAFETY SERRATIONS ON THE FOOT CONTACT SURFACES.

SEWER MANHOLE DETAILS

NOT TO SCALE



ELEVATION

TYPICAL SERVICE CONNECTION

NOT TO SCALE

NOTES

- A MINIMUM HORIZONTAL DISTANCE OF 10 FEET SHALL BE MAINTAINED BETWEEN WATER AND SEWER MAINS. A MINIMUM VERTICAL DISTANCE WITH WATER ABOVE SEWER SHALL BE MAINTAINED.
- SEWER PIPE JOINTS SHALL BE LOCATED A MINIMUM OF 6 FEET HORIZONTALLY FROM WATER MAIN.
- IF THE REQUIRED CONFIGURATION CANNOT BE MET, THE SEWER MAIN SHALL BE CONSTRUCTED TO MEET THE NHDES REQUIREMENTS FOR FORCE MAIN CONSTRUCTION.
- WATER MAIN MAY REQUIRE INSULATION IF MINIMUM DEPTH IS REDUCED TO CROSS OVER SEWER.

WATER MAIN / SEWER CROSSING

NOT TO SCALE

STANDARD TRENCH NOTES

- ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE: BACKFILL AS STATED IN THE TECHNICAL SPECIFICATIONS OR AS SHOWN ON THE DRAWING.
- BEDDING: SCREENED GRAVEL CONFORMING TO #67 STONE (ASTM C33/C33M).
- SAND BLANKET: CLEAN SAND FREE FROM ORGANIC MATTER MEETING THE GRADATION SHOWN IN THE TRENCH DETAIL. BLANKET MAY BE REPLACED WITH BEDDING MATERIAL FOR CAST-IRON, DUCTILE IRON, AND REINFORCED CONCRETE PIPE PROVIDED THAT NO STONE LARGER THAN 2" IS IN CONTACT WITH THE PIPE AND THE GEOTEXTILE IS RELOCATED ACCORDINGLY.
- SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALKWAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT, OR CLAY, ALL EXCAVATED LEDGE MATERIAL, ALL ROCKS OVER 6 INCHES IN LARGEST DIMENSION, AND ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION. IN CROSS COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK, OR PEAT, IF SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE SEWER FOR MAINTENANCE AND POSSIBLE RECONSTRUCTION WILL BE PRESERVED.
- BASE COURSE AND PAVEMENT SHALL MEET THE REQUIREMENTS OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES - DIVISIONS 300 AND 400 RESPECTIVELY.
- SHEETING, IF REQUIRED: WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID-DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION 1 FOOT ABOVE THE TOP OF PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.
- W = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES IN NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE OUTSIDE DIAMETER (O.D.) ALSO, W SHALL BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.
- FOR CROSS COUNTRY CONSTRUCTION, BACKFILL, FILL AND/OR LOAM SHALL BE MOUNDED TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
- CONCRETE FOR ENCASEMENT SHALL CONFORM TO THE NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS STANDARD SPECIFICATION REQUIREMENTS FOR CLASS A (3000#) CONCRETE AS FOLLOWS:
CEMENT: 6.0 BAGS PER CUBIC YARD
WATER: 5.75 GALLONS PER BAG
CEMENT MAXIMUM SIZE OF AGGREGATE: 1 INCH
CONCRETE ENCASEMENT IS NOT ALLOWED FOR PVC PIPE.
- CONCRETE FULL ENCASEMENT: IF FULL ENCASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MINIMUM). BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS.
- NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES DESIGN STANDARDS REQUIRE TEN FEET (10') SEPARATION BETWEEN WATER AND SEWER. REFER TO DOVER'S STANDARD SPECIFICATIONS FOR METHODS OF PROTECTION IN AREAS THAT CANNOT MEET THESE REQUIREMENTS.

NOTES

- BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.
- INSULATE GRAVITY SEWER AND FORCEMAINS WHERE THERE IS LESS THAN 5'-0" OF COVER WITH 2" THICK CLOSED CELL RIGID BOARD INSULATION, 18" ON EACH SIDE OF PIPE.
- MAINTAIN 12" MINIMUM HORIZONTAL SEPARATION AND WIDEN TRENCH ACCORDINGLY IF MULTIPLE PIPES ARE IN TRENCH.

SAND BLANKET/BARRIER	
SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 - 100
200	0 - 15

SCREENED GRAVEL OR CRUSHED STONE BEDDING*	
SIEVE SIZE	% PASSING BY WEIGHT
1"	100
3/4"	90 - 100
3/8"	20 - 55
# 4	0 - 10
# 8	0 - 5

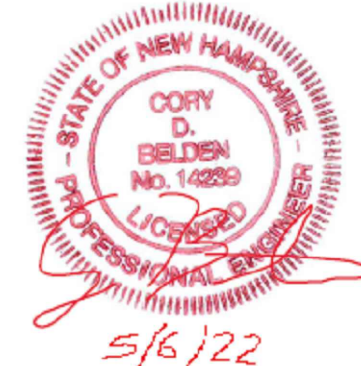
* EQUIVALENT TO STANDARD STONE SIZE #67 (ASTM C33/C33M)
- SECTION 703 OF NHDOT STD SPECIFICATIONS

SEWER TRENCH

NOT TO SCALE

ALTUS
ENGINEERING, INC.

133 COURT STREET PORTSMOUTH, NH 03801
(603) 433-2335 www.ALTUS-ENG.com



THIS DRAWING HAS NOT BEEN
RELEASED FOR CONSTRUCTION

ISSUED FOR:

PLANNING BOARD

ISSUE DATE:

MAY 5 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	05/05/22

DRAWN BY: _____ CDB

APPROVED BY: _____ EDW

DRAWING FILE: _____ 4952-DETAILS.dwg

SCALE: 24"x36" N.T.S.
12"x18" N.T.S.

OWNER:

7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

APPLICANT:

SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

PROJECT:

7 WEST
COMMERCIAL
DEVELOPMENT

(FILE NO. P22-38)
TAX MAP H, LOT 11
DOVER, NH

TITLE:

DETAILS

SHEET NUMBER:

D-9



SC-740 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH SC-740.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 550 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
 - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
 - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
 - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-740 SYSTEM

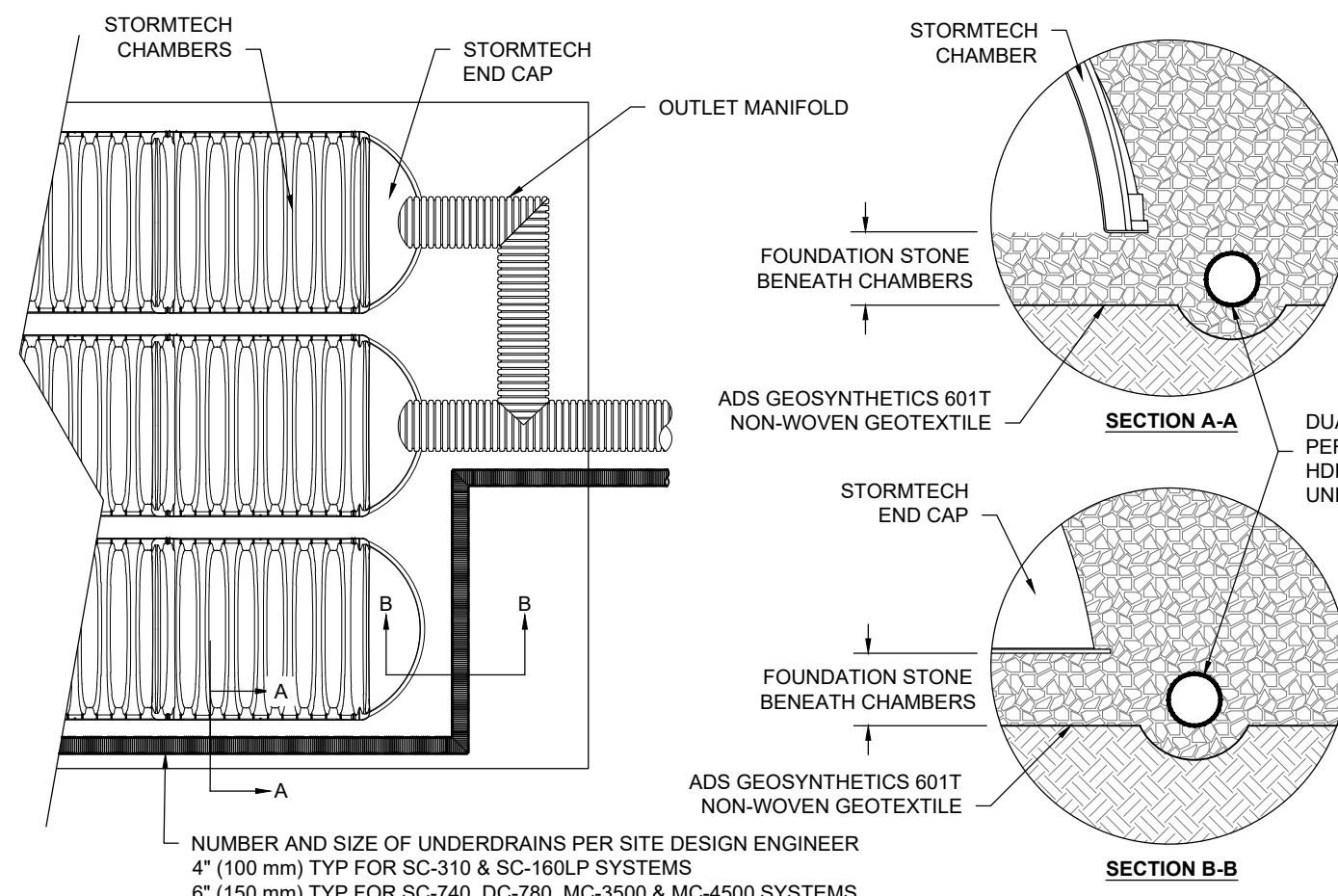
- STORMTECH SC-740 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS.
 - STORMTECH RECOMMENDS 3 BACKFILL METHODS:
 - STONESHOTTER LOCATED OFF THE CHAMBER BED.
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- ADS RECOMMENDS THE USE OF FLEXSTORM CATCH IT™ INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

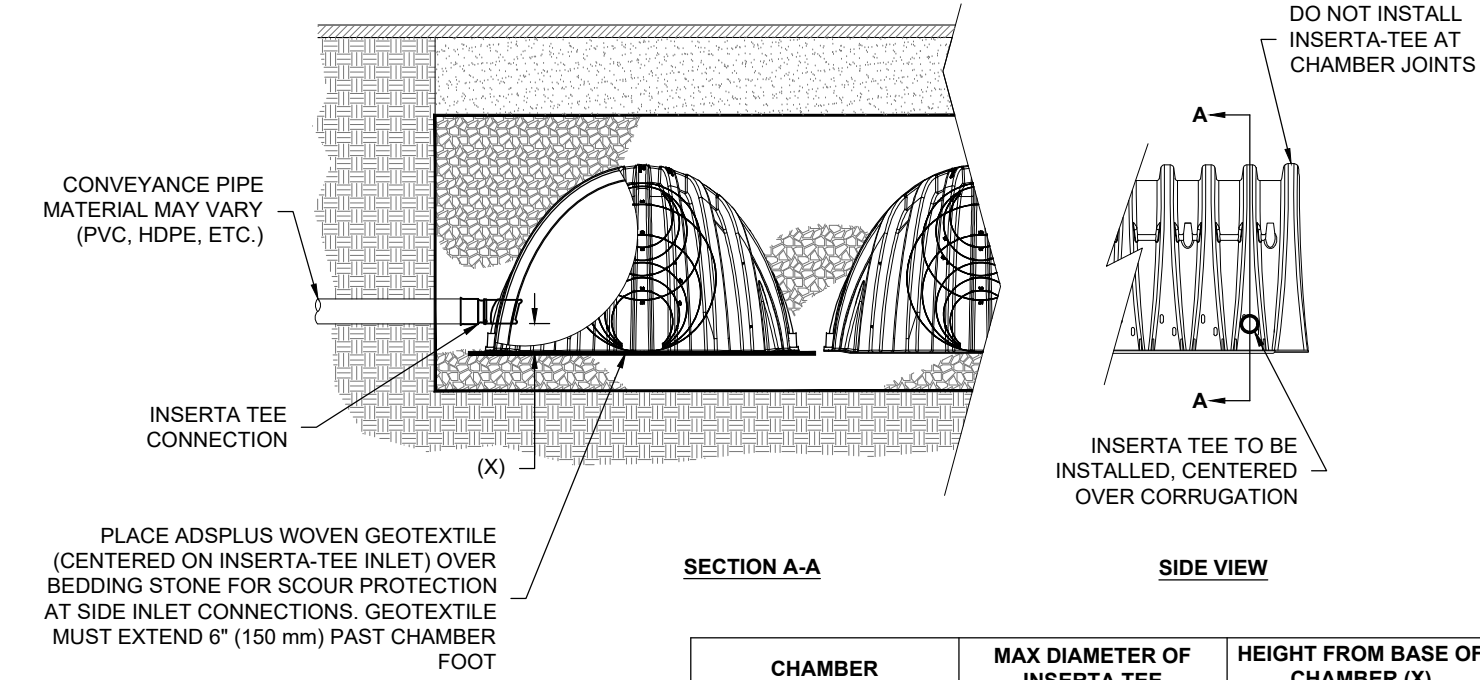
- STORMTECH SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- THE USE OF CONSTRUCTION EQUIPMENT OVER SC-740 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
 - NO RUBBER Tired LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
 - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



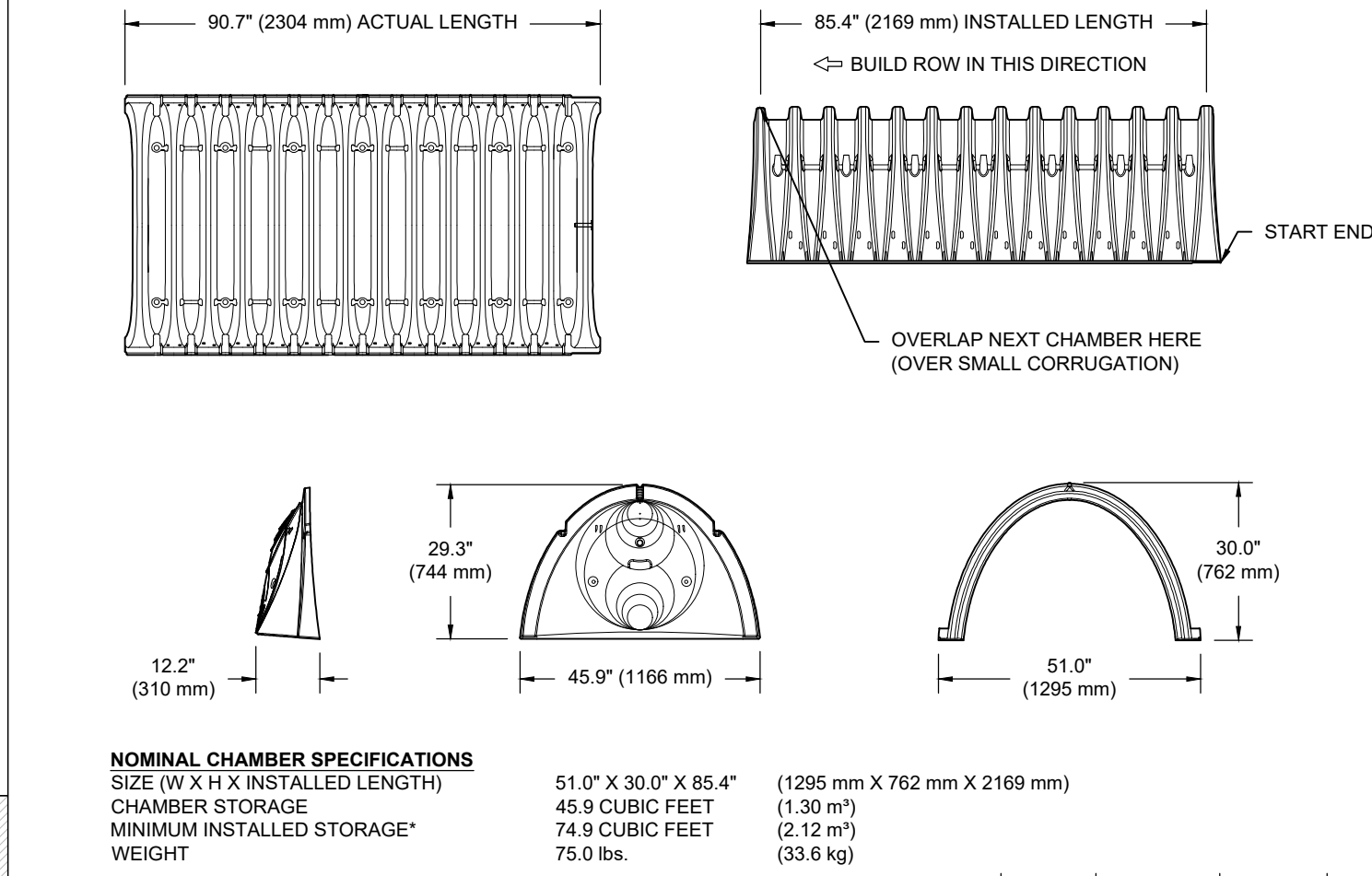
5 UNDERDRAIN DETAIL



CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)

NOTE: PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

6 INSERTA-TEE SIDE INLET DETAIL



NOMINAL CHAMBER SPECIFICATIONS	SIZE (W X H X INSTALLED LENGTH)	WEIGHT
CHAMBER STORAGE	51.0" X 30.0" X 85.4"	45.9 CUBIC FEET (1.30 m³)
MINIMUM INSTALLED STORAGE*	74.9 CUBIC FEET (2.12 m³)	75.0 lbs (33.6 kg)

*ASSUMES 6" (152 mm) STONE ABOVE, BELOW, AND BETWEEN CHAMBERS

PART #	STUB	A	B	C
SC740EPE08T / SC740EPE08TPC	6" (150 mm)	10.9" (277 mm)	18.5" (470 mm)	0.5" (13 mm)
SC740EPE08B / SC740EPE08BPC	8" (200 mm)	12.2" (310 mm)	16.5" (419 mm)	---
SC740EPE08T / SC740EPE08TPC	10" (250 mm)	13.4" (340 mm)	14.5" (368 mm)	0.6" (15 mm)
SC740EPE10T / SC740EPE10TPC	12" (300 mm)	14.7" (373 mm)	12.5" (318 mm)	0.7" (18 mm)
SC740EPE12B / SC740EPE12BPC	15" (375 mm)	18.4" (467 mm)	9.0" (229 mm)	1.2" (30 mm)
SC740EPE15T / SC740EPE15TPC	18" (450 mm)	19.7" (500 mm)	5.0" (127 mm)	1.3" (33 mm)
SC740EPE18B / SC740EPE18BPC	24" (600 mm)	18.5" (470 mm)	---	1.6" (41 mm)
SC740EPE24B / SC740EPE24BPC	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)

ALL STUBS, EXCEPT FOR THE SC740EPE24B/SC740EPE24BR ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

* FOR THE SC740EPE24B/SC740EPE24BR THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL.

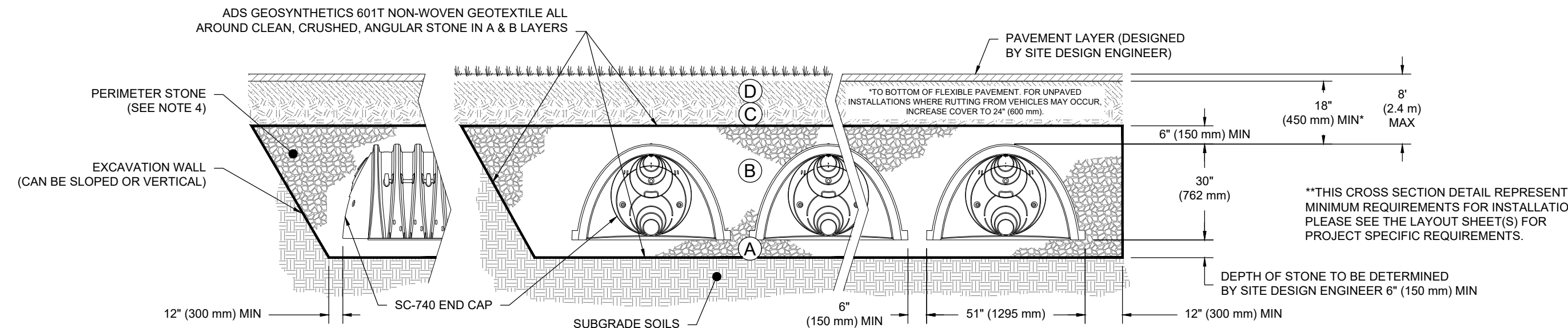
2 SC-740 TECHNICAL SPECIFICATIONS

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED AGGREGATE MIXTURES, <3% FINES OR PROCESSED AGGREGATE. AASHTO M145 ¹ A-1, A-2-4, A-3 OR AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ^{2,3}

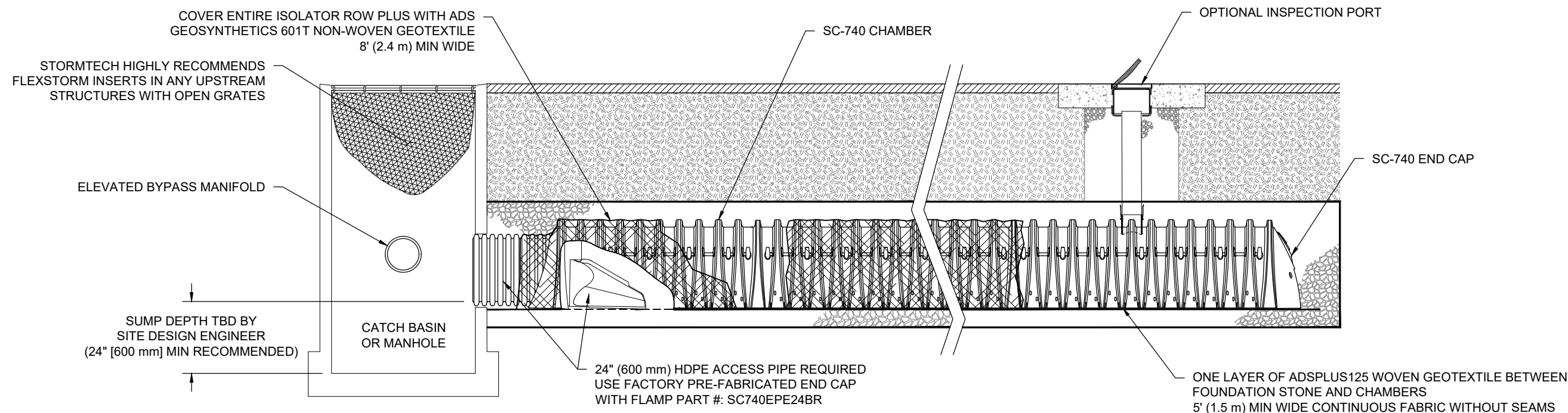
PLEASE NOTE:

- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
- STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
- WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
- ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 550 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.



3 SC-740 ISOLATOR ROW PLUS DETAIL

INSPECTION & MAINTENANCE

- STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT INSPECTION PORTS (IF PRESENT).
- REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
 - REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
 - USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
 - LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
 - IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2; IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROW PLUS
- REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
 - USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
 - MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
 - FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
 - IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2; IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
 - APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
 - VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

- INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
- CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

4 4" PVC INSPECTION PORT DETAIL (SC SERIES CHAMBER)

SC-740 CROSS SECTION DETAIL

DATE:

PROJECT NO.:

NOT TO SCALE

DRAWN:

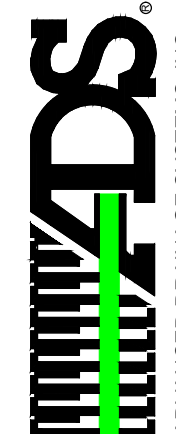
REVIEWED:

REV.:

SC-740
STANDARD DETAILS



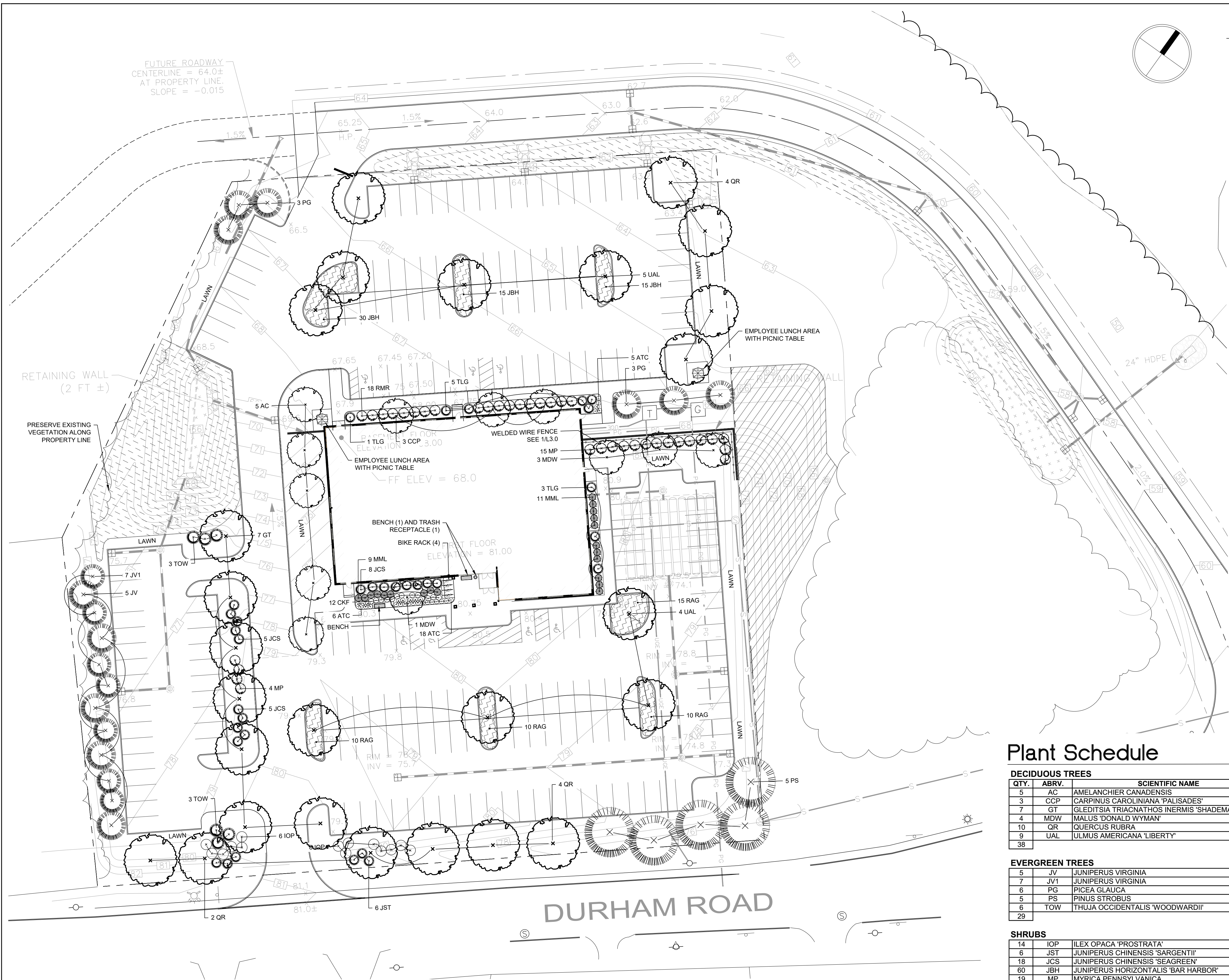
4640 TRUENAM BLVD
HILLIARD, OH 43026



SHEET

ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS DETAIL BASED ON REFERENCED STANDARDS. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT. NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS AND ARE NOT SPECIFIC FOR THIS PROJECT. UNLESS THE PLANS ARE SIGNED AND SEALED BY THE SITE DESIGN ENGINEER, THE SITE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION AND SEALING THE DOCUMENT. IT IS THE SITE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEET OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

V:\21080.0 - 7 West Dover\Drawings\ID-SF_220505.dwg: JRH 5/5/2022 9:07:06 AM



Legend

DECIDUOUS SINGLE-STEMMED TREE PLANTING, SEE 1/L2.0 & 2/L2.0

EVERGREEN TREE PLANTING, SEE 3/L2.0

SHRUB PLANTING, SEE 4/L2.0

PERENNIAL / ORNAMENTAL GRASS PLANTING, SEE 5/L2.0

GROUNDCOVER, SEE 5/L2.0

LAWN

LOAM AND LAWN SEED MIX, SEE 6/L2.0

EROSION CONTROL / RESTORATION SEED MIX, SEE 7/L2.0

WILDFLOWER MEADOW SEED MIX, SEE 8/L2.0

- GENERAL NOTES:
1.

SEE CIVIL DRAWINGS FOR INFORMATION NOT DEPICTED ON THE LANDSCAPE DRAWINGS.
2.

TREES LOCATED ADJACENT TO BUILDING TO BE ALIGNED BETWEEN WINDOWS.
3.

PLANT LOCATIONS SHOWN ON THE PLANTING PLAN ARE SUBJECT TO FIELD MODIFICATION TO ACCOMMODATE EXISTING CONDITIONS. FIELD ADJUSTMENTS SHALL BE COORDINATED WITH THE LANDSCAPE ARCHITECT.
4.

CONTACT DIGSAFE PRIOR TO BEGINNING WORK.
5.

SEE ADDITIONAL PLANTING NOTES ON L2.1

Plant Schedule

DECIDUOUS TREES					
QTY.	ABRV.	SCIENTIFIC NAME	COMMON NAME	SIZE	REMARKS
5	AC	AMELANCHIER CANADENSIS	SERVICEBERRY	2"-2 1/2" CAL	B&B
3	CCP	CARPINUS CAROLINIANA 'PALISADES'	PALISADE AMERICAN HORNBEAM	3"-3 1/2" CAL	B&B
7	GT	GLEDITSIA TRIACNATHOS INERMIS 'SHADEMASTER'	SHADEMASTER HONEY LOCUST	3"-3 1/2" CAL	B&B
4	MDW	MALUS 'DONALD WYMAN'	DONALD WYMAN CRABAPPLE	2"-2 1/2" CAL	B&B
10	QR	QUERCUS RUBRA	RED OAK	3"-3 1/2" CAL	B&B
9	UAL	ULMUS AMERICANA 'LIBERTY'	LIBERTY ELM	3"-3 1/2" CAL	B&B
38					
EVERGREEN TREES					
5	JV	JUNIPERUS VIRGINIA	EASTERN RED CEDAR	6'-7' HT	B&B
7	JV1	JUNIPERUS VIRGINIA	EASTERN RED CEDAR	5'-6' HT	B&B
6	PG	PICEA GLAUCA	WHITE SPRUCE	7'-8' HT	B&B
5	PS	PINUS STROBUS	WHITE PINE	7'-8' HT	B&B
6	TOW	THUJA OCCIDENTALIS 'WOODWARDII'	WOODWARD GLOBAL ARBORVITAE	5'-6' HT	B&B
29					
SHRUBS					
14	IOP	ILEX OPACA 'PROSTRATA'	PROSTRATE AMERICAN HOLLY	2'-2 1/2' HT	B&B
6	JST	JUNIPERUS CHINENSIS 'SARGENTII'	SARGENT JUNIPER	18"-24" HT	CONTAINER
18	JCS	JUNIPERUS CHINENSIS 'SEAGREEN'	SEAGREEN JUNIPER	2'-2 1/2' HT	CONTAINER
60	JBH	JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR JUNIPER	18"-24" SPD	CONTAINER
19	MP	MYRICA PENNSYLVANICA	NORTHERN BAYBERRY	2'-2 1/2' HT	CONTAINER
45	RAG	RHUS AROMATICA 'GRO LOW'	GROUNDCOVER SUMAC	2'-2 1/2' SPD	CONTAINER
18	RMR	RHODODENDRON MAXIMUM 'ROSEUM'	PINK ROSEBAY RHODODENRON	2'-2 1/2' HT	CONTAINER
9	TLG	THUJA OCCIDENTALIS 'LITTLE GIANT'	LITTLE GIANT ARBORVITAE	2'-2 1/2' HT	CONTAINER
189					
PERENNIALS					
29	ATC	ACHILLEA 'TERRA COTTA'	TERRA COTTA YARROW	#1	CONTAINER
12	CKF	CALAMAGROSTIS 'KARL FOERSTER'	KARL FOESTER FEATHER REED GRASS	#1	CONTAINER
20	MML	MISCANTHUS SINENSIS MORNING LIGHT	MORNING LIGHT GRASS	#2	CONTAINER
61					

DRAWING SUBMITTED FOR CITY REVIEW

Landscape Architecture • Planning

Newmarket, NH | Portland, ME | 603.772.0590 | www.ironwood.com

7 WEST COMMERCIAL DEVELOPMENT

DOVER, NH 03820

SHEET TITLE

LANDSCAPE PLAN

REVISION LOG

REV#

DATE

DESCRIPTION

PROJECT NO.

21060.0

DESIGN BY

J. HYLAND / K. OSGOOD

DRAWN BY

K. OSGOOD

CHECKED BY

J. HYLAND

DATE

MAY 5, 2022

SCALE

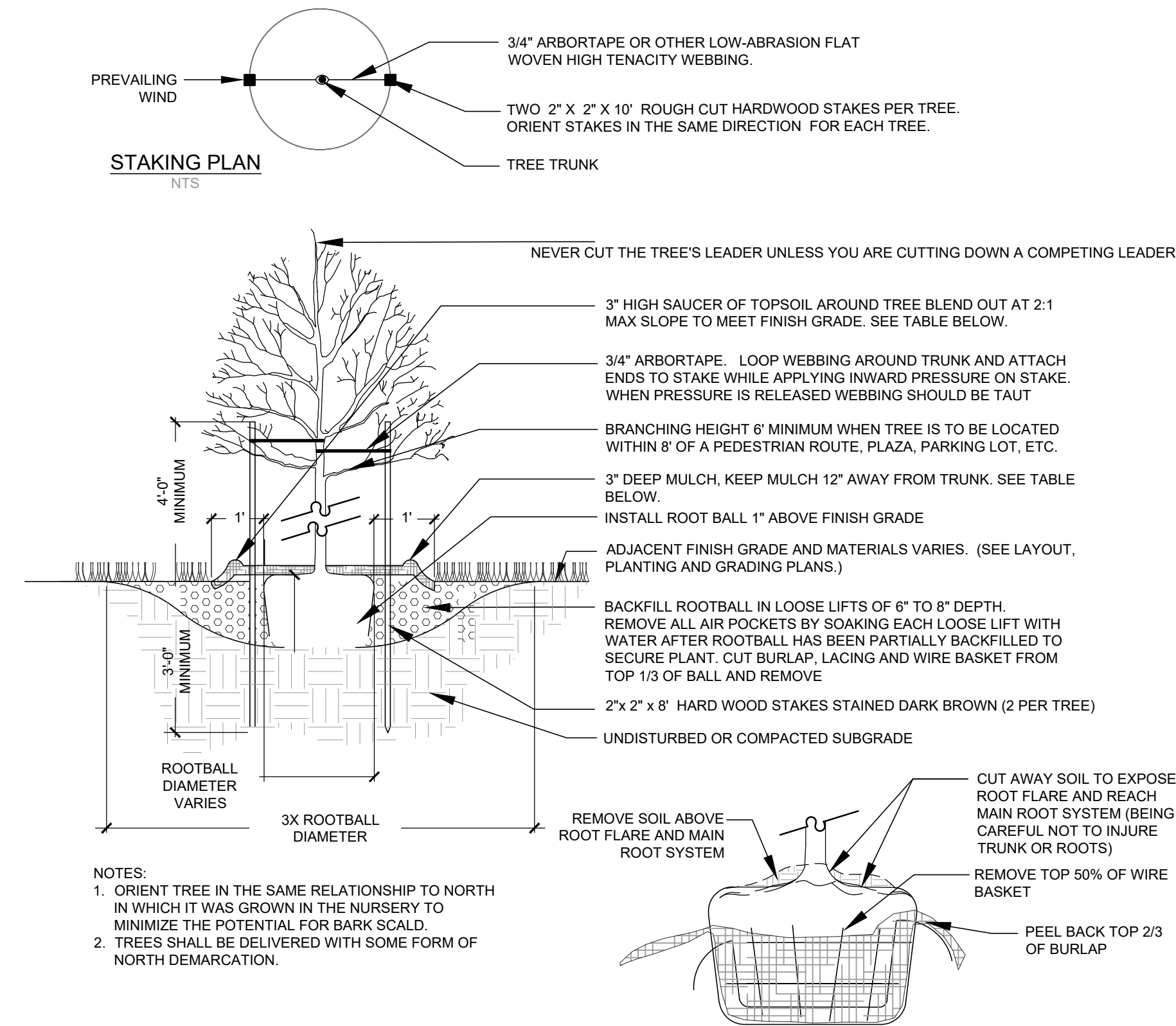
SCALE: 1" = 30'-0"

SEAL

L1.0

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Deciduous Tree Planting

Not to Scale

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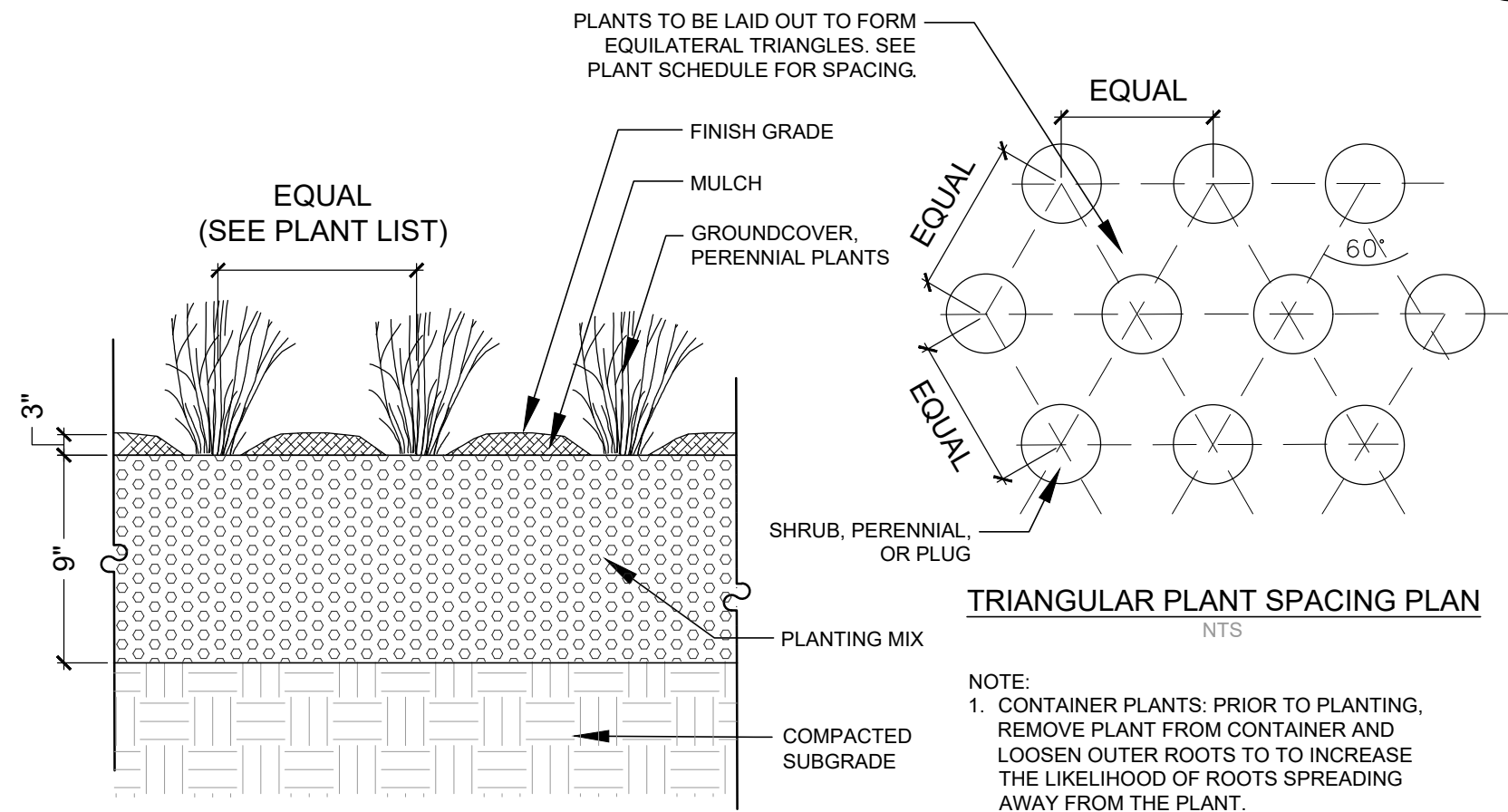
1
L2.0

Deciduous Tree Planting: on Slope

Not to Scale

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2
L2.0

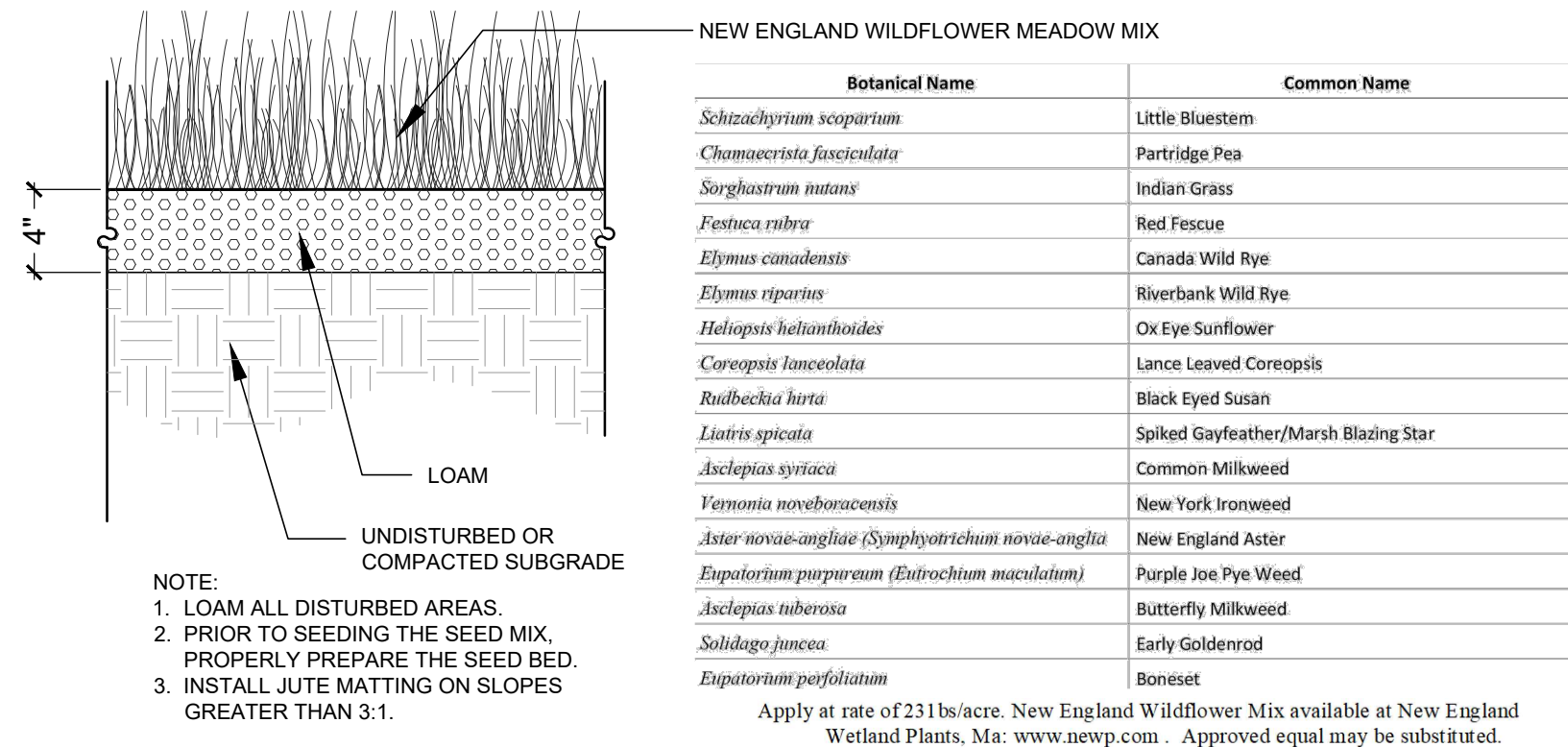


Perennial / Orn. Grass / Ground Cover Planting

Not to Scale

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5
L2.0

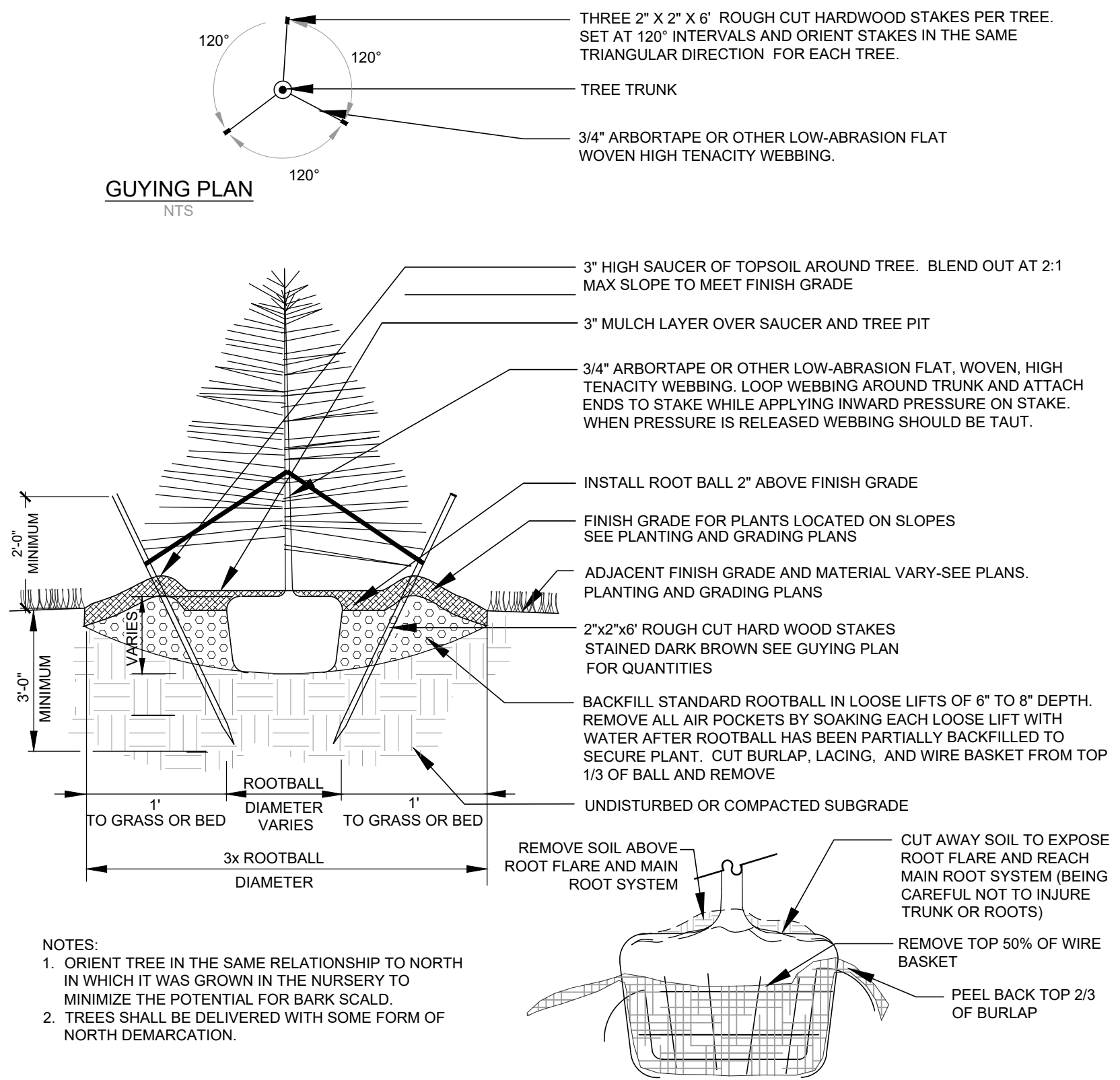


Wildflower Meadow Seed Mix

Not to Scale

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8
L2.0

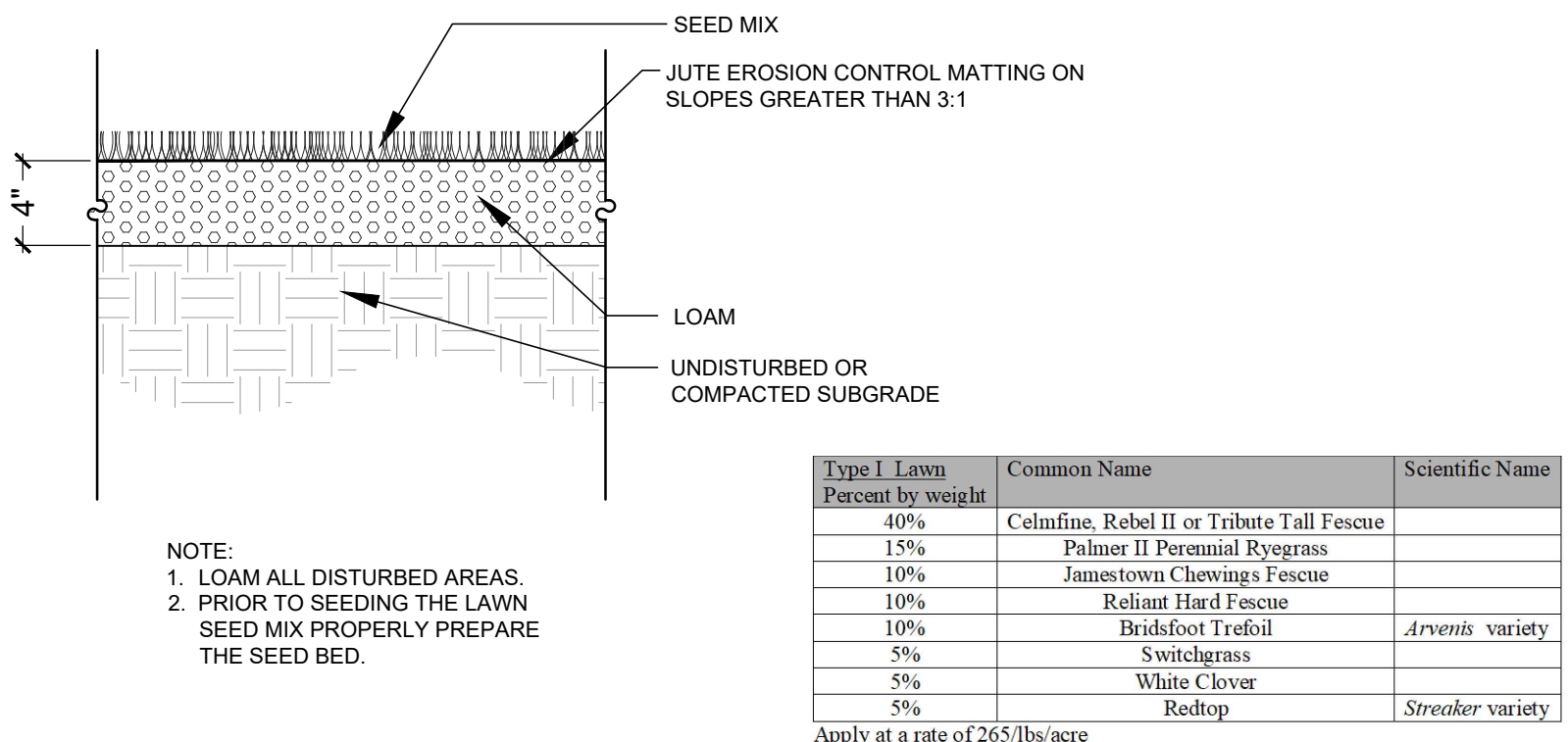


Evergreen Tree Planting

Not to Scale

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3
L2.0

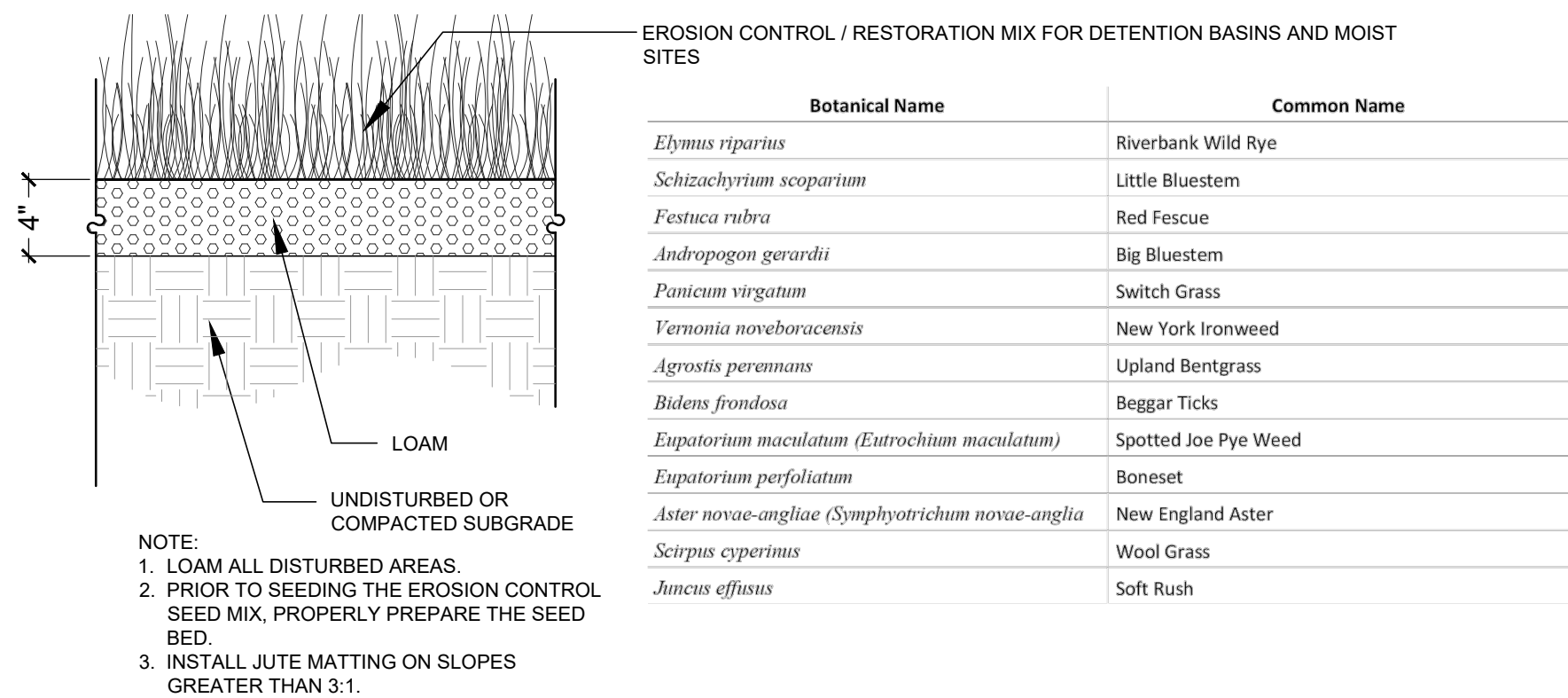


Loam and Lawn Seed Mix

Not to Scale

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6
L2.0



Erosion Control / Restoration Seed Mix

Not to Scale

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7
L2.0

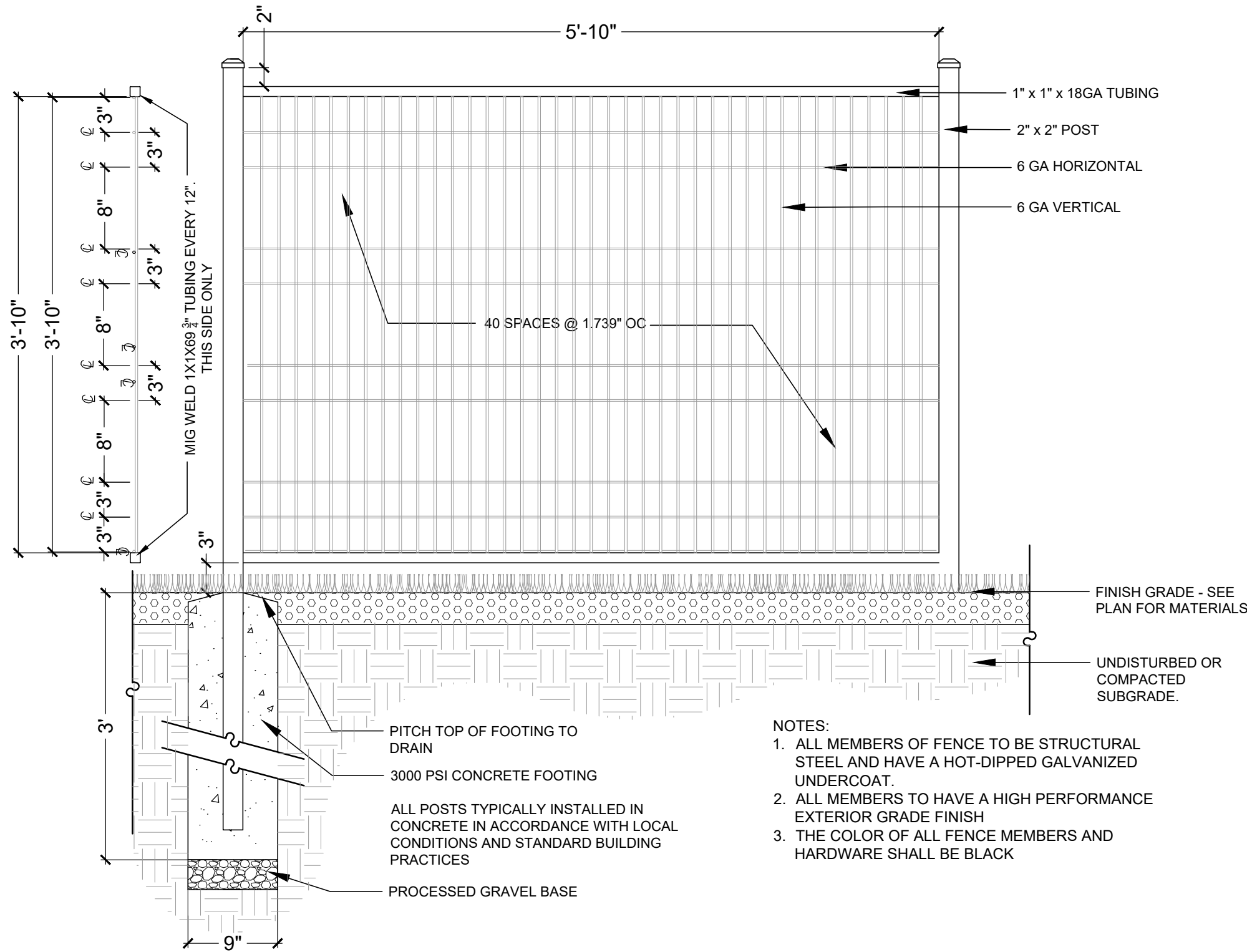
REV#	DATE	DESCRIPTION
1		
2		
3		
4		

REV#	DATE	DESCRIPTION
PROJECT NO.	21060.0	
DESIGN BY	J. HYLAND / K.OSGWOOD	
DRAWN BY	K.OSGWOOD	
CHECKED BY	J. HYLAND	
DATE	MAY 5, 2022	
SCALE		



PLANTING NOTES:

- PLEASE REVIEW AND BECOME FULLY ACQUAINTED WITH THESE NOTES, CONSTRUCTION DETAILS, AND THE PLANTING PLAN.
- THE CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING AND NEW UTILITY LINE LOCATIONS PRIOR TO PLANTING, AND SHALL REPORT ANY CONFLICT TO THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE.
- ALL PLANT MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE "AMERICAN STANDARD FOR NURSERY STOCK" PUBLISHED BY THE AMERICAN SOCIETY OF NURSERY MEN, INC. LATEST EDITION.
- THE CONTRACTOR SHALL STAKE THE LOCATION OF ALL THE PROPOSED PLANT MATERIAL FOR APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING. NO PLANTS SHALL BE PLANTED BEFORE THE ACCEPTANCE OF ROUGH GRADING. THE BASE OF THE FLARE OF THE TREE TRUNK SHALL BE EXPOSED, IF NECESSARY, AND PLACED 2" ABOVE FINISH GRADE.
- ANY PROPOSED SUBSTITUTIONS OF PLANT SPECIES WILL BE PLANTS WITH EQUIVALENT OVERALL FORM, HEIGHT, BRANCHING HABIT, FLOWER COLOR, LEAF COLOR, FRUIT COLOR, AND TIME OF BLOOM, AS APPROVED BY THE LANDSCAPE ARCHITECT.
- EXISTING LOAM: STOCKPILING OF EXISTING LOAM IS SPECIFIED ELSEWHERE. REMOVE CLAY LUMPS, BRUSH, LITTER, ROOTS, STONES 1" AND LARGER, AND OTHER FOREIGN MATERIALS.
- ADDITIONAL LOAM: IF STOCKPILED LOAM QUANTITY IS INSUFFICIENT, PROVIDE LOAM, WHICH IS A "FINE SANDY LOAM", OR A "SANDY LOAM" DETERMINED BY MECHANICAL ANALYSIS AND BASED ON THE "U.S.D.A. CLASSIFICATION SYSTEM." IT SHALL BE OF UNIFORM COMPOSITION, WITHOUT ADMIXTURE OF SUBSOIL. LOAM SHALL HAVE AN ACIDITY RANGE OF PH 5.8 TO PH 7.0 AND SHALL CONTAIN NOT LESS THAN 4% NOR MORE THAN 10% ORGANIC MATTER AS DETERMINED BY THE LOSS OF IGNITION OF OVEN-DRIED SAMPLES. PROVIDE LOAM WHICH IS FERTILE, FRIABLE, NATURAL LOAM FREE FROM SUBSOIL, CLAY LUMPS, BRUSH, LITTER, ROOTS, STONES 1" AND LARGER, AND ANY FOREIGN MATERIALS.
- PINE MULCH: PROVIDE PARTIALLY DECOMPOSED MINIMUM SIX MONTH AGED FINELY SHREDDED PINE BARK MULCH WITH DARK BROWN COLOR AND FREE OF WEEDS, EXCESSIVE FINE PARTICLES, STRINGY MATERIAL, AND CHUNKS OF WOOD THICKER THAN ¼". PROVIDE BARK MULCH APPROVED BY THE LANDSCAPE ARCHITECT. APPLY TACKIFIED MULCH TO ALL SEEDED AREAS.
- ALL PLANTS SHALL BE PLUM VERTICALLY AFTER SETTLING.
- ALL PLANT MATERIAL SHALL BE MULCHED AFTER PLANTING.
- LESS OTHERWISE INDICATED, DICTATED BY CONDITIONS AT THE SITE, AND DIRECTED BY LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE, BACKFILL SHALL CONSIST OF UNAMENDED SOIL EXCAVATED FROM THE PLANTING PIT. BACKFILL IN 3-4" LAYERS AND CONSOLIDATE EACH LAYER WITH WATER TO ELIMINATE VOIDS AND ARE POCKETS BEFORE PLACING SUBSEQUENT LAYERS. CONTINUE UNTIL BACKFILL HAS REACHED FINISHED GRADE. WATER THOROUGHLY WHEN EXCAVATION IS BACK FILLED AND CONTINUE WATERING UNTIL SATURATED. IF EXISTING UNAMENDED SOIL IS NOT ACCEPTED, PROVIDE PLANTING SOIL MIXTURE CONSISTING OF 7 PARTS LOAM AND 1 PART HUMUS. MIX QUANTITY OF FERTILIZER AND SOIL AMENDMENTS AS RECOMMENDED BY SOIL ANALYSIS AND APPROVED BY THE LANDSCAPE ARCHITECT.
- WATERING: FLOOD ALL PLANTS WITH WATER TWICE WITHIN THE FIRST 24 HOURS AFTER PLANTING.
- LOAMING: LOOSEN SUBGRADE AND EXISTING LOAM AREAS BY DISCING OR ROTOTILLING TO MINIMUM DEPTH OF 6". REMOVE STONES GREATER THAN 2" AND ALL RUBBISH AND DEBRIS. PLACE LOAM IN TWO EQUAL LIFTS MIXING FIRST APPLICATION INTO LOOSENED SUBGRADE THEN PLACE SECOND LIFT TO BRING LOAM AFTER SETTLING AND COMPACTING TO THE LINES AND GRADES SHOWN IN THE CONTRACT DOCUMENTS, 6" DEEP MINIMUM. DO NOT HANDLE LOAM OR SUBSOIL IF IT IS WET OR FROZEN.
- AFTER LOAM HAS BEEN SPREAD, IT SHALL BE CAREFULLY PREPARED BY SCARIFYING AND HAND RAKING. ALL LARGE STIFF CLODS, LUMPS, BRUSH, ROOTS, STUMPS, LITTER AND FOREIGN MATTER, AND STONES OVER ONE INCH IN DIAMETER SHALL BE REMOVED FROM THE LOAM. LOAM SHALL ALSO BE FREE OF SMALLER STONES IN EXCESSIVE QUANTITIES AS DETERMINED BY THE LANDSCAPE ARCHITECT.
- FINE GRADING: SET SUFFICIENT GRADE STAKES FOR CHECKING THE FINISHED GRADES. STAKES MUST BE SET AT THE BOTTOM AND TOP OF SLOPES. GRADES SHALL BE ESTABLISHED THAT ARE ACCURATE TO 1/10TH OF A FOOT EITHER WAY. CONNECT CONTOURS AND SPOT ELEVATIONS WITH AN EVEN SLOPE. ALL GRADING WILL INSURE DRAINAGE AWAY FROM STRUCTURES.
- FINE GRADE LAWN AREAS TO SMOOTH, FREE DRAINING, EVEN SURFACES WITH FINE TEXTURE. ROLL, RAKE AND DRAW LAWN AREAS TO FLATTEN RIDGES AND FILL DEPRESSIONS. EXCEPT AT SELECT AREAS SHOW ON THE DRAWINGS. CONTROL MOISTURE CONTENT TO MAINTAIN OPTIMUM CONDITIONS, BUT DO NOT CREATE A MUDDY CONDITION.
- ROLLING - TYPICAL: ROLL THE ENTIRE AREA WITH A HAND ROLLER WEIGHTING NOT MORE THAN 100 POUNDS. DURING THE ROLLING, ALL DEPRESSIONS CAUSED BY SETTLEMENT OF ROLLING SHALL BE FILLED WITH ADDITIONAL LOAM AND THE SURFACE SHALL BE REGARDED AND ROLLED UNTIL PRESENTING A SMOOTH AND EVEN FINISH TO THE REQUIRED GRADE OR TO THE SHAPES AND CONFIGURATIONS AS SHOWN ON THE DETAILS.
- THE SILT FENCE SHALL BE LIMIT OF SEEDING UNLESS OTHERWISE INDICATED ON THE DRAWINGS. ALL AREAS DISTURBED OUTSIDE THE LIMIT OF WORK SHALL BE SEEDED AS INDICATED ON THE DRAWINGS.
- IN CASE OF DISCREPANCIES BETWEEN THE QUANTITIES SHOWN ON THE PLANT SCHEDULE AND THE QUANTITIES SHOWN ON THE PLANTING PLAN, THE QUANTITIES ON THE PLANTING PLAN SHALL BE PROVIDED BY THE CONTRACTOR.



Welded Wire Fence

Not to Scale

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1
L3.1

SHEET TITLE

LANDSCAPE
DETAILS

REVISION LOG

REV#	DATE	DESCRIPTION
1		

PROJECT NO.	21060.0
DESIGN BY	J. HYLAND / K.OSGOOD
DRAWN BY	K.OSGOOD
CHECKED BY	J. HYLAND
DATE	MAY 5, 2022
SCALE	

SEAL



L2.1

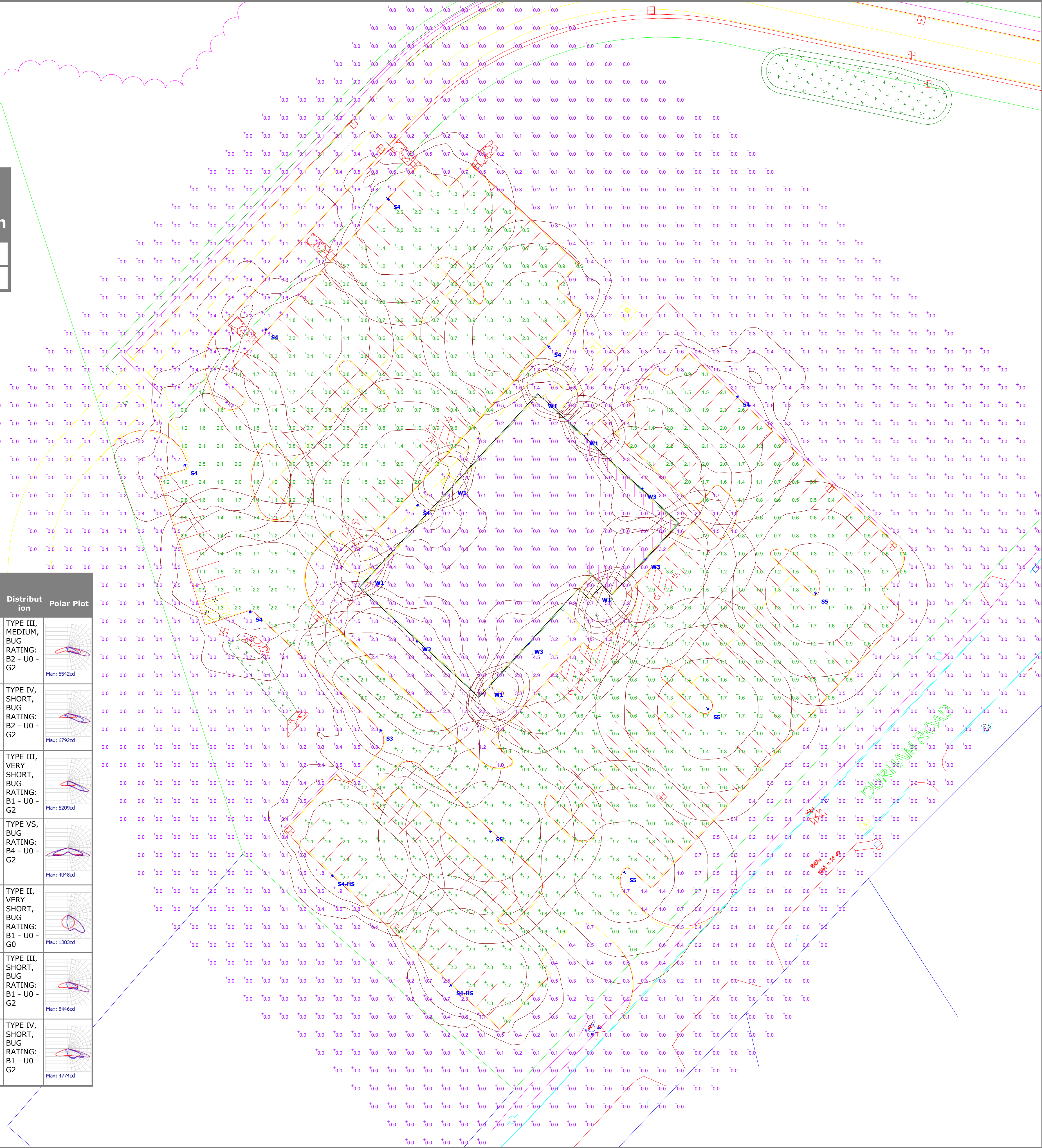
DRAWING SUBMITTED FOR CITY REVIEW

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Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Outside of Parking Lot	+	0.2 fc	7.0 fc	0.0 fc	N/A	N/A
Parking Lot	+	1.2 fc	3.8 fc	0.3 fc	12.7:1	4.0:1

Schedule													
Symbol	Label	Image	QTY	Manufacturer	Catalog Number	Description	Lamp	Filename	Lumens per Lamp	LLF	Wattage	Distribut ion	Polar Plot
	S3		1	Lithonia Lighting	DSX0 LED P4 30K T3M MVOLT SPA DBBXD with SSS 18 4C DM19AS DBBXD	DSX0 LED Area Fixture; mounted at 20ft (18ft pole on 2ft base)	LED	DSX0_LED_P4_30K_T3M_MV OLT.ies	9520	0.9	92	TYPE III, MEDIUM, BUG RATING: B2 - U0 - G2	
	S4		7	Lithonia Lighting	DSX0 LED P4 30K TFTM MVOLT SPA DBBXD with SSS 18 4C DM19AS DBBXD	DSX0 LED Area Fixture; mounted at 20ft (18ft pole on 2ft base)	LED	DSX0_LED_P4_30K_TFTM_M VOLT.ies	9800	0.9	92	TYPE IV, SHORT, BUG RATING: B2 - U0 - G2	
	S4-HS		2	Lithonia Lighting	DSX0 LED P4 30K TFTM MVOLT HS SPA DBBXD with SSS 18 4C DM19AS DBBXD	DSX0 LED Area Fixture with houseside shield; mounted at 20ft (18ft pole on 2ft base)	LED	DSX0_LED_P4_30K_T5M_M VOLT_HS.ies	7652	0.9	92	TYPE III, VERY SHORT, BUG RATING: B1 - U0 - G2	
	S5		4	Lithonia Lighting	DSX0 LED P4 30K T5M MVOLT SPA DBBXD with SSS 18 4C DM19AS DBBXD	DSX0 LED Area Fixture; mounted at 20ft (18ft pole on 2ft base)	LED	DSX0_LED_P4_30K_T5M_MV OLT.ies	10175	0.9	92	TYPE VS, BUG RATING: B4 - U0 - G2	
	W1		6	Lithonia Lighting	WDGE1 LED P2 30K 80CRI VF SRM DBBXD	WDGE1 LED Wallpack; mounted at 10ft	LED	WDGE1_LED_P 2_30K_80CRI_ VF.ies	1872	0.9	15.0178	TYPE II, VERY SHORT, BUG RATING: B1 - U0 - G0	
	W2		1	Lithonia Lighting	WDGE3 LED P2 80CRI R3 30K SRM DBBXD	WDGE3 LED Wallpack; mounted at 18ft	LED	WDGE3_LED_P 2_70CRI_R3_3 0K.ies	7851	0.9	59.2761	TYPE III, SHORT, BUG RATING: B1 - U0 - G2	
	W3		3	Lithonia Lighting	WDGE3 LED P2 80CRI R4 30K SRM DBBXD	WDGE3 LED Wallpack; mounted at 18ft	LED	WDGE3_LED_P 2_70CRI_R4_3 0K.ies	8090	0.9	59.2761	TYPE IV, SHORT, BUG RATING: B1 - U0 - G2	

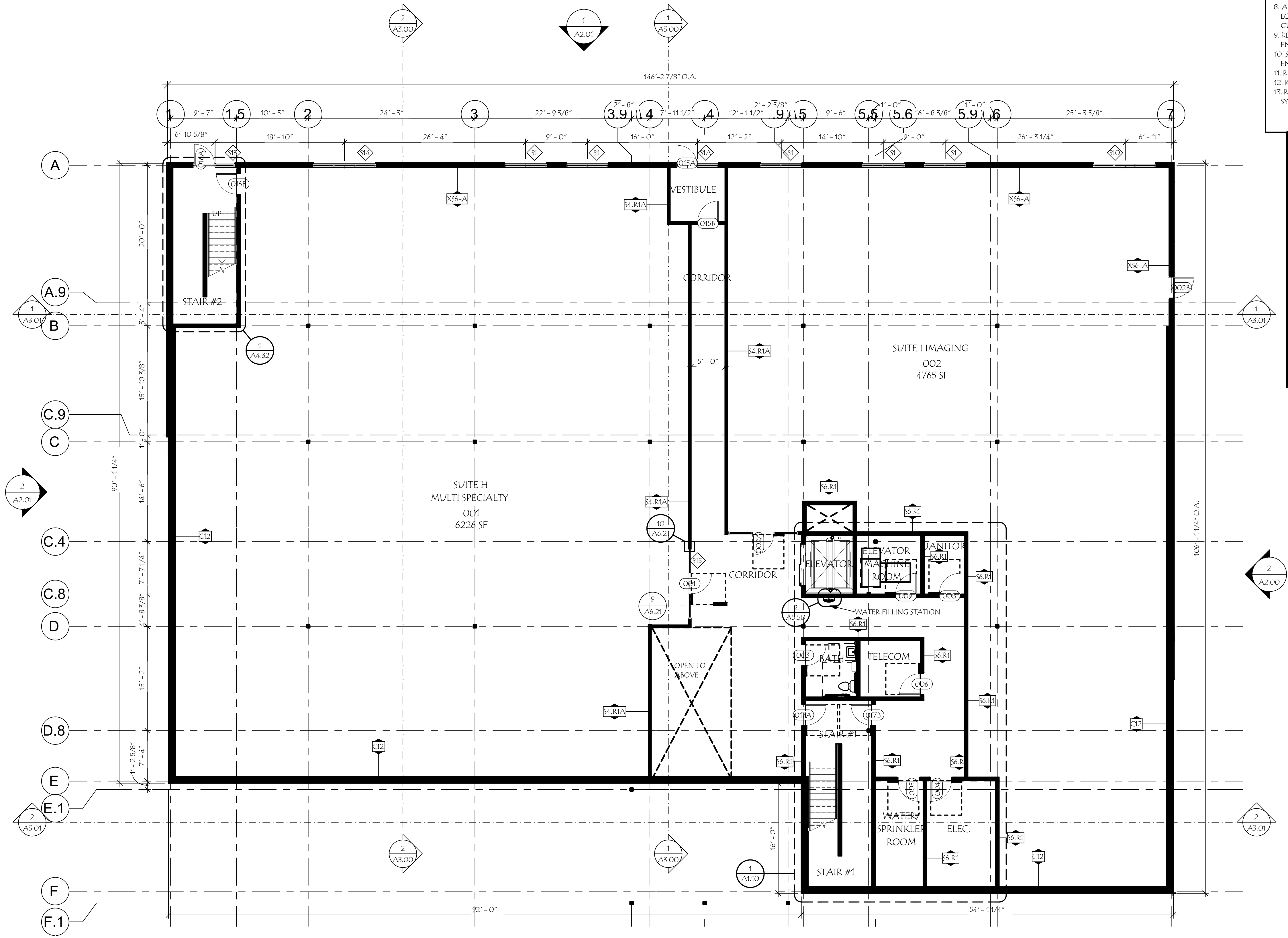


7 WEST - DOYER
Site Lighting Layout

Designer
Heidi G. Connors
Visible Light, Inc.
24 Stickney Terrace
Suite 6
Hampton, NH 03842
Date
05/05/2022
Scale
1"=30'
Drawing No.

Summary





1 LOWER LEVEL
1/8" = 1'-0"

- GENERAL PLAN NOTES
1. GENERAL CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS AND DIMENSIONS. NOTIFY ARCHITECT IF FIELD CONDITIONS ARE DIFFERENT THAN SHOWN IN THE DRAWINGS. REFERENCE LIFE SAFETY DRAWINGS A0.20-A0.2# FOR ADDITIONAL INFORMATION.
 2. REFERENCE DRAWING A0.01 THROUGH A0.04 FOR ROOF-CEILING ASSEMBLIES, FLOOR-CEILING ASSEMBLIES AND EXTERIOR WALL & PARTITION TYPES.
 3. REFERENCE DRAWING A0.01 THROUGH A0.04 FOR PARTITION AND ROOF-CEILING FRAMING DETAILS.
 4. ACCESSIBLE CLEARANCES ARE REQUIRED AT ALL ACCESSIBLE FIXTURES AND EQUIPMENT.
 5. ALL DOORS SHALL BE INSTALLED WITH HINGED SIDE OF FINISHED OPENING 6" FROM ADJACENT WALL, OR CENTERED WITHIN WALL, UNLESS NOTED OTHERWISE.
 6. ALL DOORS INTENDED FOR PASSAGE MUST MEET ACCESSIBILITY MANEUVERING CLEARANCES.
 7. EXTERIOR OPENINGS ARE DIMENSIONED TO CENTER LINE OF OPENING UNLESS NOTED OTHERWISE.
 8. ALL WORK SHALL COMPLY WITH APPLICABLE LOCAL CODES AS WELL AS STATE AND FEDERAL GUIDELINES.
 9. REFER TO A4 SERIES SHEETS FOR UNIT PLANS & ENLARGED PLANS.
 10. SEE DETAIL ON SHEET A#-## FOR TYPICAL UNIT ENTRIES.
 11. REFER TO A6.10 FOR DOOR AND FRAME TYPES.
 12. REFER TO A6.20 FOR WINDOW TYPES.
 13. REFER TO SHEET A0.00 FOR ABBREVIATIONS, SYMBOLS, AND GRAPHIC CONVENTIONS.

GRID LEGEND - NEW

CL	CONTROL GRIDS
CL	SECONDARY GRIDS
CL	CONTROL CENTER NEW STRUCTURE
CL	CENTER NEW STRUCTURE

DOVER MEDICAL OFFICE
BUILDING
DURHAM ROAD
DOVER, NH

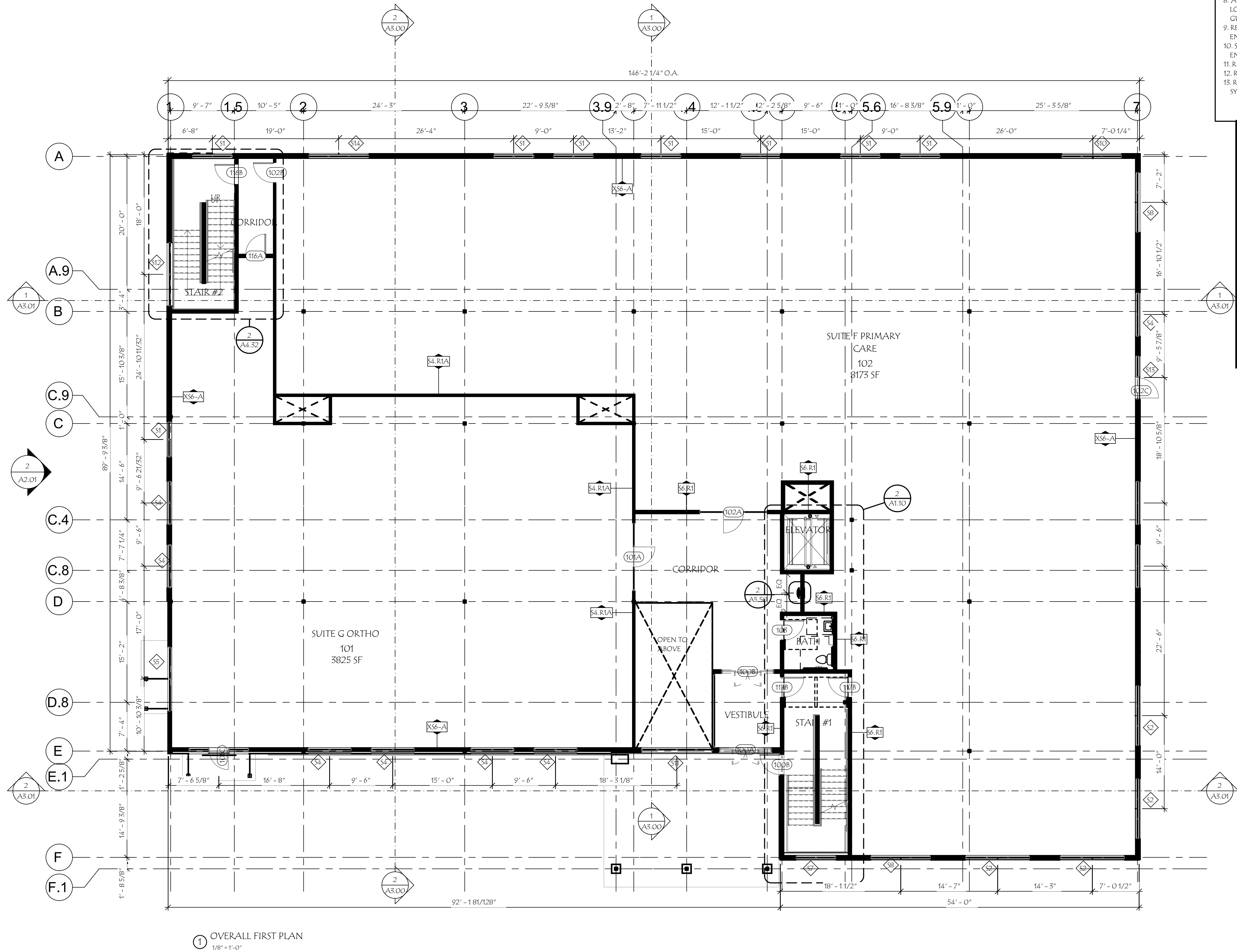
NOT FOR
CONSTRUCTION

Revisions:	As indicated	VA	CMO	2021048	February 25, 2022
Description					
Scale:	Drawn By:	Checked By:	Project No.:	PROGRESS DRAWINGS	Date:

Title:
OVERALL LOWER
LEVEL PLAN

A1.00

104 Congress St., STE. 203
Portsmouth, NH 03801
PH: 603.501.0202

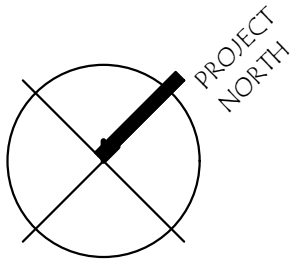


1 OVERALL FIRST PLAN
1/8"=1'-0"

- GENERAL PLAN NOTES
1. GENERAL CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS AND DIMENSIONS. NOTIFY ARCHITECT IF FIELD CONDITIONS ARE DIFFERENT THAN SHOWN IN THE DRAWINGS. REFERENCE LIFE SAFETY DRAWINGS A0.20-A0.24 FOR ADDITIONAL INFORMATION.
 2. REFERENCE DRAWING A0.01 THROUGH A0.04 FOR ROOF-CEILING ASSEMBLIES, FLOOR-CEILING ASSEMBLIES AND EXTERIOR WALL & PARTITION TYPES.
 3. REFERENCE DRAWING A0.01 THROUGH A0.04 FOR PARTITION AND ROOF-CEILING FRAMING DETAILS.
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 12. REFER TO A6.20 FOR WINDOW TYPES.
 13. REFER TO SHEET A0.00 FOR ABBREVIATIONS, SYMBOLS, AND GRAPHIC CONVENTIONS.

GRID LEGEND - NEW

CL CONTROL GRIDS
CL SECONDARY GRIDS
CL CONTROL CENTER NEW STRUCTURE
CL CENTER NEW STRUCTURE



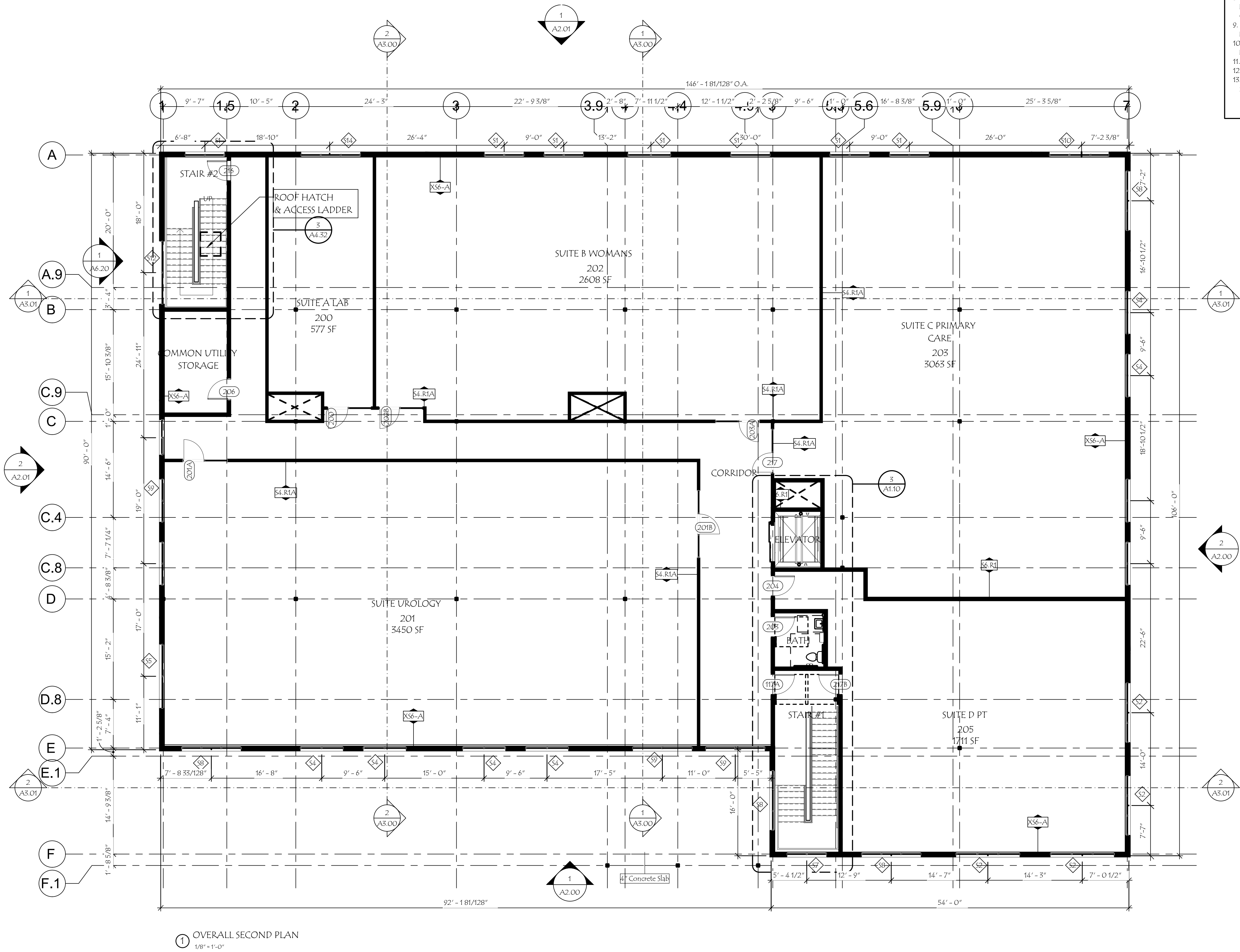
DOVER MEDICAL OFFICE
BUILDING
DURHAM ROAD
DOVER, NH

NOT FOR
CONSTRUCTION

Revisions:	Date
As indicated	VA
CMO	2021048
PROJECT NO.:	PROGRESS DRAWINGS
DATE:	February 25, 2022

Title: OVERALL FIRST FLOOR PLAN

A1.01



1 OVERALL SECOND PLAN
1/8" = 1'-0"

- GENERAL PLAN NOTES
1. GENERAL CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS AND DIMENSIONS. NOTIFY ARCHITECT IF FIELD CONDITIONS ARE DIFFERENT THAN SHOWN IN THE DRAWINGS. REFERENCE LIFE SAFETY DRAWINGS A0.20-A0.2# FOR ADDITIONAL INFORMATION.
 2. REFERENCE DRAWING A0.01 THROUGH A0.04 FOR ROOF-CEILING ASSEMBLIES, FLOOR-CEILING ASSEMBLIES AND EXTERIOR WALL & PARTITION TYPES.
 3. REFERENCE DRAWING A0.01 THROUGH A0.04 FOR PARTITION AND ROOF-CEILING FRAMING DETAILS.
 4. ACCESSIBLE CLEARANCES ARE REQUIRED AT ALL ACCESSIBLE FIXTURES AND EQUIPMENT.
 5. ALL DOORS SHALL BE INSTALLED WITH HINGED SIDE OF FINISHED OPENING 6" FROM ADJACENT WALL, OR CENTERED WITHIN WALL, UNLESS NOTED OTHERWISE.
 6. ALL DOORS INTENDED FOR PASSAGE MUST MEET ACCESSIBILITY MANEUVERING CLEARANCES.
 7. EXTERIOR OPENINGS ARE DIMENSIONED TO CENTER LINE OF OPENING UNLESS NOTED OTHERWISE.
 8. ALL WORK SHALL COMPLY WITH APPLICABLE LOCAL CODES AS WELL AS STATE AND FEDERAL GUIDELINES.
 9. REFER TO A4 SERIES SHEETS FOR UNIT PLANS & ENLARGED PLANS.
 10. SEE DETAIL ON SHEET A#-## FOR TYPICAL UNIT ENTRIES.
 11. REFER TO A6.10 FOR DOOR AND FRAME TYPES.
 12. REFER TO A6.20 FOR WINDOW TYPES.
 13. REFER TO SHEET A0.00 FOR ABBREVIATIONS, SYMBOLS, AND GRAPHIC CONVENTIONS.

GRID LEGEND - NEW

CL CONTROL GRIDS
CL SECONDARY GRIDS
CL CONTROL CENTER NEW STRUCTURE
CL CENTER NEW STRUCTURE

DOVER MEDICAL OFFICE
BUILDING
DURHAM ROAD
DOVER, NH

NOT FOR
CONSTRUCTION

Title: OVERALL SECOND FLOOR PLAN	Date		
	Revisions: Description		
Scale: Drawn By: Checked By: Project No.: PROGRESS DRAWINGS	As indicated	VA	Checker
	2021048	2021048	2021048
A1.02	Date:		February 25, 2022
	3/28/2022 10:03:57 AM		

* 2021 Market Square Architects 3/28/2022 10:03:48 AM

NOT FOR
CONSTRUCTION

Revisions:	Description
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Scale:	1/8" = 1'-0"
Drawn By:	VA
Checked By:	CMO
Project No.:	2021048
PROGRESS DRAWINGS	
Date:	February 25, 2022

A2.00

1. MATERIAL A = ALPOLIC / PE METAL COMPOSITE PANELS, OR EQUIVALENT.
2. MATERIAL B = ALPOLIC / PE METAL COMPOSITE PANELS, OR EQUIVALENT.
3. MATERIAL C = NICHHA HORIZONTAL FIBER CEMENT SIDING, OR EQUIVALENT.



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NOT FOR
CONSTRUCTION

Title: EXTERIOR ELEVATIONS	A2.01
----------------------------------	-------

1. MATERIAL A = ALPOLIC / PE METAL COMPOSITE PANELS, OR EQUIVALENT.
2. MATERIAL B = ALPOLIC / PE METAL COMPOSITE PANELS, OR EQUIVALENT.
3. MATERIAL C = NICHIIHA HORIZONTAL FIBER CEMENT SIDING, OR EQUIVALENT.



DOVER MEDICAL OFFICE
BUILDING
DURHAM ROAD
DOVER, NH

NOT FOR
CONSTRUCTION

Date:

Revisions:
Description

1/8" = 1'-0"	VA	CMO	2021048	09.03.21
Scale:	Drawn By:	Checked By:	Project No.:	PROGRESS DRAWINGS
				Date:

Title:
EXTERIOR
ELEVATIONS

A2.00

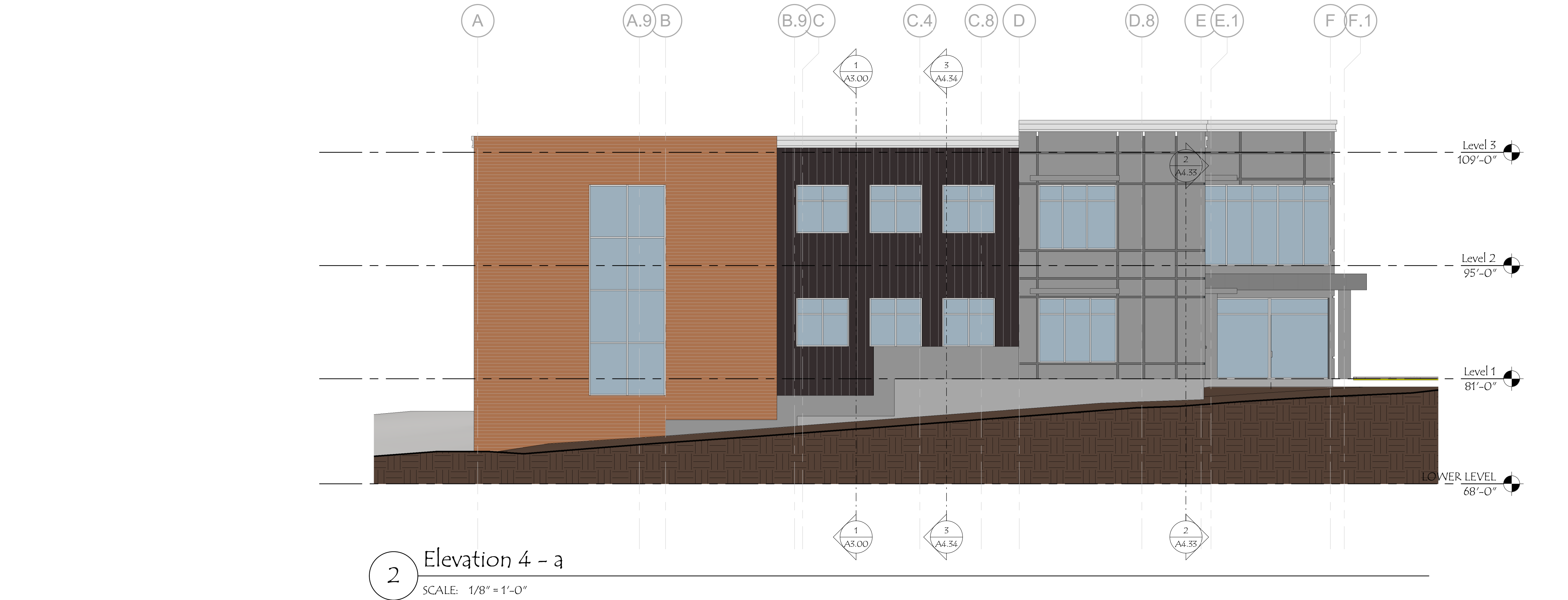
© 2021 Market Square Architects 10/18/2021 10:45:25 AM



2 Elevation 2 - a
SCALE: 1/8" = 1'-0"



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



2 Elevation 4 - a
SCALE: 1/8" = 1'-0"



1 Elevation 3 - a
SCALE: 1/8" = 1'-0"

DOVER MEDICAL OFFICE
BUILDING
DURHAM ROAD
DOVER, NH

NOT FOR
CONSTRUCTION

Title: EXTERIOR ELEVATIONS	Date	
	Revisions:	Description
	1/8" = 1'-0"	VA CMO
Scale:	Drawn By:	Project No.:
Checked By:	2021048	PROGRESS DRAWINGS
Date:	09.03.21	
A2.01		

DRAINAGE STUDY

Applicant:

Summit Land Development

340 Central Ave #202

Dover, New Hampshire

Project:

7 West Commercial Development

Tax Map H, Lot 11

Owner:

7 West, LLC

P.O. Box 728 Dover, NH 03821

Prepared May 5, 2022

By:



133 COURT STREET
(603) 433-2335

PORTSMOUTH, NH 03801
www.ALTUS-ENG.com

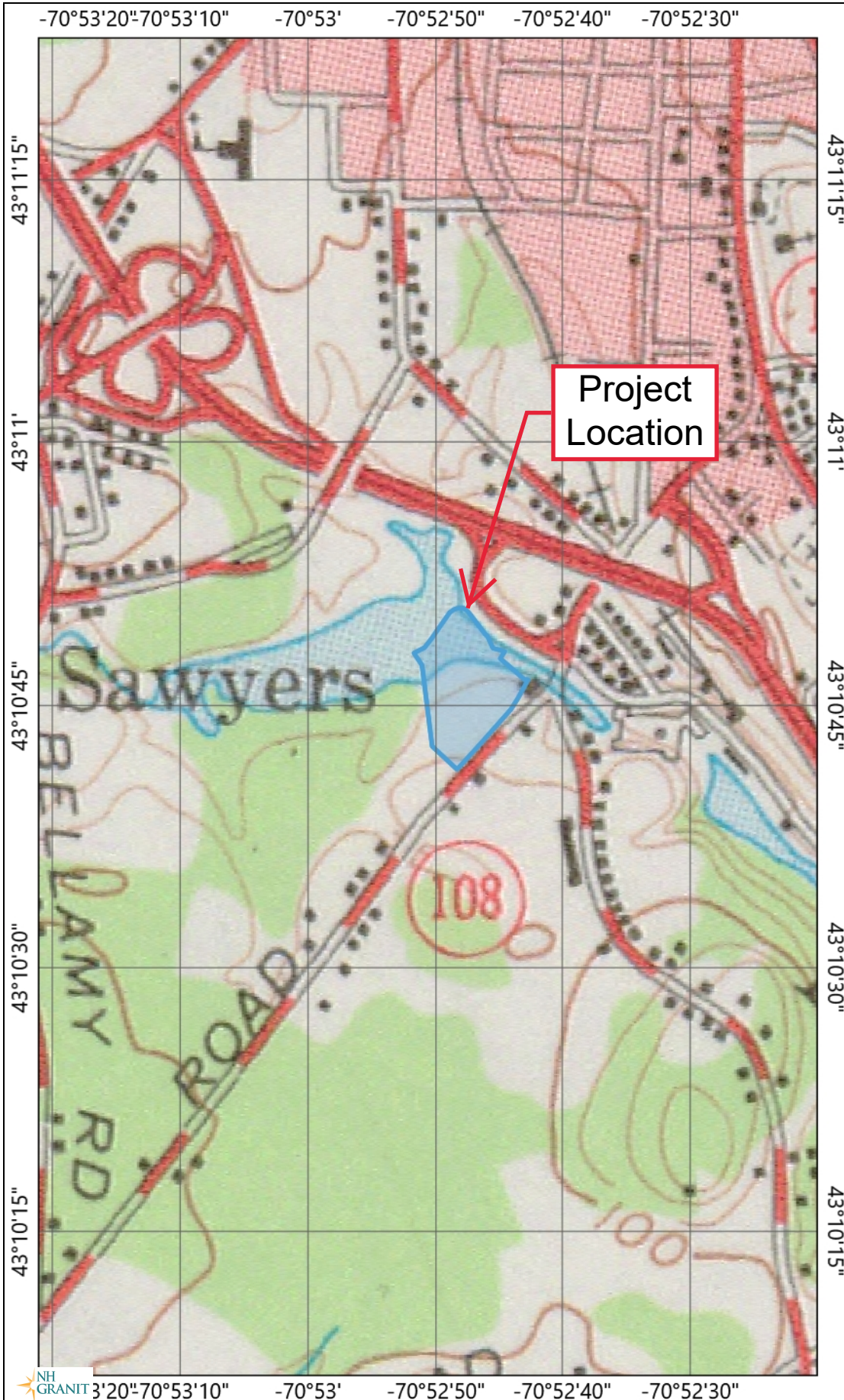
7 West Commercial Development
Dover, NH 03820
(Tax Map H, Lot 11)

TABLE OF CONTENTS

- 1) USGS Site Location Map
- 2) Project Narrative
- 3) NHB Letter
- 4) Web Soils Survey Map
- 5) Aerial Photographs
- 6) BMP Worksheets
- 7) Drainage Analysis
 - Extreme Precipitation Tables
 - Pre-Development Analysis
 - Post Development Analysis
- 8) Riprap / Plunge Pool Calculations
- 9) Site Specific Soil Survey
- 10) StreamStats Results for Bellamy River
- 11) Inspection and Maintenance Manual
(Separate Attachment)

Appendix: Plans: Site Specific Soils Plan
Pre-Development Watershed Plan
Post-Development Watershed Plan
Project Plans (*project plans under separate attachment*)

7 West Commercial Development



Legend

1956 with vegetation

Map Scale

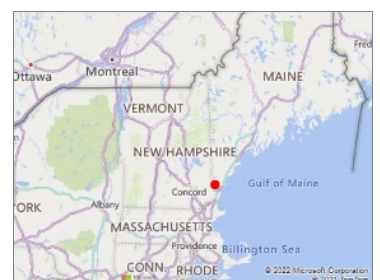
1: 10,000

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Map Generated: 4/12/2022



Notes



SECTION 2

PROJECT NARRATIVE

7 West Commercial Development Dover, NH 03820 (Tax Map H, Lot 11)

Site Overview

The Applicant, Summit Land Development, is proposing to construct a new commercial development at 15 Durham Road in Dover, NH located on Tax Map H, Lot 11. The proposed development is for a medical office building which will be three stories and approximately 14,480 square feet. The existing lot is approximately 8.7 acres in size and abuts the Dover Fire Station and Elementary School to the west, the Bellamy River to the North, and the Spaulding Turnpike (Exit 7) ramps to the east. The project will construct a new roadway connection to the existing signalized intersection at Back River Road. The new roadway will become a City road and serve to reduce traffic on Durham Road by providing an alternate route to the Elementary School. The proposed site has been designed with a stormwater treatment system that consists of deep sump catch basins, raingardens, and a sub-surface chamber system.

Drainage Summary

A complete summary of the drainage model is included later in this report. The following table compares pre- and post-development peak rates of runoff for all analyzed storm events at the Point of Analysis, located downstream from the proposed project:

Stormwater Modeling Summary
Peak Q (cfs) for Type III 24-Hour Storm Events

	2-Yr Storm (3.62 inch)	10-Yr Storm (5.46inch)	25-Yr Storm (6.91 inch)	50-Yr Storm (8.26 inch)
POA #1				
Pre	5.25	13.36	20.68	27.91
Post	5.09	16.02	23.78	30.35
Net Change	-0.16	+2.66	+3.10	+2.44

Note: Includes 15% increase for NH Seacoast communities, per NHDES guidelines.

Per NHDES Env-Wq 1507.06, a project draining to a river may increase the peak flows from the site if no increase is proposed to the river system. See Post-Development narrative below.

Pre-Development (Existing Conditions)

The pre-development site conditions reflect the current conditions of the site, as depicted on the Existing Conditions Plan, prepared by McEneaney Survey Associates (MSA). The existing site is primarily an undeveloped wooded lot and discharges to the Bellamy River to the east by surface runoff. The Sawyer Mill Dam, located on the Bellamy River, just downstream from the project site, was removed in 2020. However, there has not yet been a Letter of Map Revision (LOMR) to adjust the FEMA Flood elevations in the project area. It is understood that Vanesse Hangen Brustlin, Inc. (VHB), who were the engineers for the dam removal project, are working with the State of NH to complete the LOMR.

The Pre-Development analysis models the existing conditions from the site. The soil data from the Site Specific Soil Survey Technical Letter Report (by BAG Land Services) was used to determine the hydrologic soil conditions for the site. The existing conditions survey and soil conditions were used to develop a model of the existing conditions to compare to the post-development conditions.

The study area for this drainage analysis is primarily the 8.7 acre lot parcel for development. Watersheds were extended outside of the lot for the analysis as needed. The existing watershed reflects the existing site conditions. All of the surface water discharges to the Bellamy River located to the north and east. Therefore a single Points of Analysis (POA) was used for comparison of pre to post development conditions.

Site topography, existing features, proposed site improvements, proposed grading, drainage and erosion control measures are shown on the accompanying plans. Recommended erosion control measures are based upon the December 2008 edition of the "New Hampshire Stormwater Manual Volumes I through 3" prepared by NHDES and Comprehensive Environmental, Inc. as amended.

Site Soils

A Site Specific Soils Survey was performed for the project site and indicated the presence of the following soil types:

<u>Soil Series</u>	<u>Description</u>	<u>Hydrologic Soil Group</u>
62	Charlton, well drained	HSG B
86	Hollis, well drained	HSG C
232	Buxton, moderately well drained	HSG C
233/P	Scantic, somewhat poorly drained	HSG D
200	Udorthents	

A copy of Site Specific Soils Report is included in the Appendix of this report.

Post-Development (Proposed Site Design)

The proposed project will construct a new three story medical office building, approximately 14,480 gross square feet. The new paved surfaces (roadways and parking) will be constructed to provide 200 surface parking stalls, driveway aisles, and a new roadway connection to Back River Road. The stormwater management system proposed for the site includes deep sump catch basins, two new raingardens, and a sub-surface chamber system.

The Drainage Summary Table on Page 1 illustrates that the peak flows are managed for the 2-yr-24 hr storm event per Env-Wq 1507.05. Per NHDES Env-Wq 1507.06, this project is exempt from the reduction of the peak flows for the 10 and 50 year 24-hour storm events because it is draining to a waterbody (the Bellamy River) and does not increase the peak flow of the on-site and off-site flows directly downstream of the site.

The StreamStat program was used to analyze the off-site flows and a report is included in the appendix. The point on the Bellamy River just upstream of the Durham Road crossing was used for the analysis. The upstream watershed area contributing to this point is 27.2 square miles (17,408 acres) and the peak flow rates in the river at this location are as shown below:

<u>Storm Event</u>	<u>Peak Flow</u>
10 year	725 cfs
50 year	1120 cfs

The proposed site existing conditions indicate a pre-development peak rate for the 10-year storm of 13.36 cfs and a post-development peak runoff rate of 16.02 for an increase of 2.66 cfs. Similarly, the 50-year storm has pre and post-development runoff rates of 27.91 cfs and 30.35 cfs for an increase of 2.44 cfs. The on-site watershed is approximately 9 acres, which is approximately 0.05% of the total watershed area. Additionally, the on-site flows are at the lower end of the watershed, so the peak flow of the overall watershed will be at a much later time. Therefore, the proposed on-site improvements will not impact the overall peak flows for the watershed, including off-site flows downstream at the downstream location from site.

The "Post-Development Watershed Plan" illustrates the proposed stormwater management system. The original sub-catchment has been divided into numerous smaller areas to emulate the proposed grading and stormwater management system proposed for construction. The post-development conditions were analyzed at the same primary discharge point examined in the pre-development modeling.

Pollutant Removal

Based on the New Hampshire Stormwater Manual – Appendix E, the following pollutant removal rates would be expected from the implementation of the infiltration practices:

<u>Pollutant</u>	<u>Bioretention Raingarden Removal %</u>	<u>Infiltration Practice Removal %</u>
Total Suspended Solids (TSS)	90%	90%
Total Nitrogen (TN)	65%	60%
Total Phosphorus (TP)	65%	65%

CONCLUSION

This proposed development at 15 Durham Road (7 West) in Dover, NH will not have an adverse effect on abutting properties and infrastructure as a result of stormwater runoff. The project will treat all proposed impervious areas with two raingardens and a sub-surface infiltration basin. Pre-treatment will be provided to all paved areas with deep sump catch basins. The post-construction peak rates of runoff from the site will be managed accordingly for the 2, 10, 25, and 50 year storms. Appropriate steps will be taken to properly mitigate erosion and sedimentation through construction with the use of temporary and permanent Best Management Practices for sediment and erosion control.

CALCULATION METHODS

The drainage study was completed using the USDA SCS TR-20 Method within the HydroCAD Stormwater Modeling System. Reservoir routing was performed with the Dynamic Storage Indication method which automates the calculation of Tailwater conditions. A Type III 24-hour rainfall distribution was utilized in analyzing the data for the 2, 10, 25, and 50 yr 24-hour storm events using rainfall data obtained from the Northeast Regional Climate Center (NRCC) Extreme Precipitation Tables.

Disclaimer

Altus Engineering, Inc. notes that stormwater modeling is limited in its capacity to precisely predict peak rates of runoff and flood elevations. Results should not be considered to represent actual storm events due to the number of variables and assumptions involved in the modeling effort. Surface roughness coefficients (n), entrance loss coefficients (k_e), velocity factors (k_v) and times of concentration (T_c) are based on subjective field observations and engineering judgment using available data. For design purposes, curve numbers (C_n) describe the average conditions. However, curve numbers will vary from storm to storm depending on the antecedent runoff conditions (ARC) including saturation and frozen ground. Also, higher water elevations than predicted by modeling could occur if drainage channels, closed drain systems or culverts are not maintained and/or become blocked by debris before and/or during a storm event as this will impact flow capacity of the structures. Structures should be re-evaluated if future changes occur within relevant drainage areas in order to assess any required design modifications.

SECTION 3

National Heritage Bureau (NHB) Letter

New Hampshire Natural Heritage Bureau

NHB DataCheck Results Letter

To: Bruce Gilday, BAG Land Consultants
43 Rockingham Street

Concord, NH 03301

From: NH Natural Heritage Bureau

Date: 4/23/2021 (valid until 4/23/2022)

Re: Review by NH Natural Heritage Bureau of request submitted 4/12/2021

Permits: MUNICIPAL POR - Dover, NH, NHDES - Alteration of Terrain Permit, NHDES - Shoreland Standard Permit, USACE - General Permit, USEPA - Stormwater Pollution Prevention

NHB ID: NHB21-1227

Applicant: Bruce Gilday

Location: Dover
Durham Road

Project Description: Project will be a proposed new office building (w/ access road, parking stalls, and storm water treatment structures) on an existing 6 acre +/- commercial lot in the City of Dover. There will not be any wetland impacts proposed, but there will be an application for DES Alteration of Terrain and a potential Shoreland Protection permit application.

The NH Natural Heritage database has been checked by staff of the NH Natural Heritage Bureau and/or the NH Nongame and Endangered Species Program for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government.

It was determined that, although there was a NHB record (e.g., rare wildlife, plant, and/or natural community) present in the vicinity, we do not expect that it will be impacted by the proposed project. This determination was made based on the project information submitted via the NHB Datacheck Tool on 4/12/2021 12:28:30 PM, and cannot be used for any other project.

New Hampshire Natural Heritage Bureau NHB DataCheck Results Letter

MAP OF PROJECT BOUNDARIES FOR: **NHB21-1227**

NHB21-1227



SECTION 4

Web Soils Survey Map

Soil Map—Strafford County, New Hampshire (7 West)



Soil Map—Strafford County, New Hampshire
(7 West)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BzB	Buxton silt loam, 3 to 8 percent slopes	5.2	74.3%
HcC	Hollis-Charlton fine sandy loams, 8 to 15 percent slopes	1.7	24.3%
W	Water	0.1	1.4%
Totals for Area of Interest		7.1	100.0%

SECTION 5

Aerial Photographs



**Aerial Photograph
7 West Dover, NH**



FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name:

Bioretention (Raingarden) HydroCAD Node 1R

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

	Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).		
0.62	ac	A = Area draining to the practice	
0.36	ac	A_i = Impervious area draining to the practice	
0.58	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.57	unitless	R_v = Runoff coefficient = $0.05 + (0.9 \times I)$	
0.36	ac-in	WQV = $1'' \times R_v \times A$	
1,289	cf	WQV conversion (ac-in $\times$ 43,560 sf/ac $\times$ 1ft/12")	
322	cf	25% $\times$ WQV (check calc for sediment forebay volume)	
966	cf	75% $\times$ WQV (check calc for surface sand filter volume)	
deep sump		Method of Pretreatment? (not required for clean or roof runoff)	
cf		V_{SED} = Sediment forebay volume, if used for pretreatment	$\geq 25\%WQV$
Calculate time to drain if system IS NOT underdrained:			
500	sf	A_{SA} = Surface area of the practice	
-	iph	K_{sat_DESIGN} = Design infiltration rate ¹	
		If K_{sat} (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
yes	Yes/No	(Use the calculations below)	
-	hours	T_{DRAIN} = Drain time = $V / (A_{SA} * I_{DESIGN})$	$\leq 72\text{-hrs}$
Calculate time to drain if system IS underdrained:			
67.20	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
1.88	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
0.38	hours	T_{DRAIN} = Drain time = $2WQV/Q_{WQV}$	$\leq 72\text{-hrs}$
64.50	feet	E_{FC} = Elevation of the bottom of the filter course material ²	
63.25	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
65.50	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
64.00	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.25	feet	$D_{FC \text{ to } UD}$ = Depth to UD from the bottom of the filter course	$\geq 1'$
0.50	feet	$D_{FC \text{ to } ROCK}$ = Depth to bedrock from the bottom of the filter course	$\geq 1'$
(1.00)	feet	$D_{FC \text{ to } SHWT}$ = Depth to SHWT from the bottom of the filter course	$\geq 1'$
67.60	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
69.00	ft	Elevation of the top of the practice	
YES		50 peak elevation $\leq$ Elevation of the top of the practice	$\leftarrow$ yes
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	< 10 ac
	cf	V = Volume of storage ³ (attach a stage-storage table)	$\geq 75\%WQV$
	inches	D_{FC} = Filter course thickness	18", or 24" if within GPA
Sheet		Note what sheet in the plan set contains the filter course specification.	
Yes/No		Access grate provided?	$\leftarrow$ yes

If a bioretention area is proposed:		
YES	ac	Drainage Area no larger than 5 ac?
1,580	cf	$V = \text{Volume of storage}^3$ (attach a stage-storage table)
18.0	inches	D_{FC} = Filter course thickness
Sheet		Note what sheet in the plan set contains the filter course specification
3.0	:1	Pond side slopes
Sheet		Note what sheet in the plan set contains the planting plans and surface cover
If porous pavement is proposed:		
		Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.)
	acres	A_{SA} = Surface area of the pervious pavement
	:1	Ratio of the contributing area to the pervious surface area
	inches	D_{FC} = Filter course thickness
Sheet		Note what sheet in the plan set contains the filter course spec.

← yes
 ≥ WQV
 18", or 24" if
 within GPA
 > 3:1
 ≤ 5:1
 12", or 18" if
 within GPA
 mod. 304.1 (see
 spec)

1. Rate of the limiting layer (either the filter course or the underlying soil). $K_{sat_{design}}$ includes factor of safety. See Env-Wq 1504.14 for guidance on determining the infiltration rate.
2. See lines 34, 40 and 48 for required depths of filter media.
3. Volume without depending on infiltration. The volume includes the storage above the filter (but below the invert of the outlet structure, if any), the filter media voids, and the pretreatment area. The storage above the filter media shall not include the volume above the outlet structure, if any.

Designer's Notes:

4952 Post 03.31.22

Prepared by HP

HydroCAD® 10.00-26 s/n 01222 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=8.26"

Printed 5/2/2022

Stage-Area-Storage for Pond 1R: Raingarden 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
62.75	500	0	68.05	1,384	2,276
62.85	500	20	68.15	1,438	2,417
62.95	500	40	68.25	1,492	2,563
63.05	500	60	68.35	1,546	2,715
63.15	500	80	68.45	1,600	2,873
63.25	500	100	68.55	1,654	3,035
63.35	500	120	68.65	1,708	3,203
63.45	500	140	68.75	1,762	3,377
63.55	500	160	68.85	1,816	3,556
63.65	500	180	68.95	1,870	3,740
63.75	500	200			
63.85	500	220			
63.95	500	240			
64.05	500	260			
64.15	500	280			
64.25	500	300			
64.35	500	316			
64.45	500	333			
64.55	500	342			
64.65	500	345			
64.75	500	348			
64.85	500	350			
64.95	500	353			
65.05	500	355			
65.15	500	358			
65.25	500	360			
65.35	500	362			
65.45	500	365			
65.55	500	367			
65.65	500	370			
65.75	500	373			
65.85	500	375			
65.95	500	378			
66.05	520	404			
66.15	560	458			
66.25	600	516			
66.35	640	578			
66.45	680	644			
66.55	720	714			
66.65	760	788			
66.75	800	866			
66.85	840	948			
66.95	880	1,034			
67.05	923	1,124			
67.15	969	1,219			
67.25	1,014	1,318			
67.35	1,060	1,422			
67.45	1,106	1,530			
67.55	1,151	1,643			
67.65	1,197	1,760			
67.75	1,243	1,882			
67.85	1,288	2,009			
67.95	1,334	2,140			

67.5 = 1580 cf

WQV = 1289 cf

4952 Post 03.31.22

Prepared by HP

HydroCAD® 10.00-26 s/n 01222 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=8.26"

Printed 5/2/2022

Stage-Discharge for Pond 1R: Raingarden 1

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
62.75	0.00	64.87	1.20	66.99	1.83
62.79	0.00	64.91	1.22	67.03	1.84
62.83	0.00	64.95	1.23	67.07	1.85
62.87	0.00	64.99	1.25	67.11	1.86
62.91	0.00	65.03	1.26	67.15	1.87
62.95	0.00	65.07	1.28	67.19	1.88
62.99	0.00	65.11	1.29	67.23	1.89
63.03	0.00	65.15	1.30	67.27	1.90
63.07	0.00	65.19	1.32	67.31	1.90
63.11	0.00	65.23	1.33	67.35	1.91
63.15	0.00	65.27	1.34	67.39	1.92
63.19	0.00	65.31	1.36	67.43	1.93
63.23	0.00	65.35	1.37	67.47	1.94
63.27	0.01	65.39	1.38	67.51	1.97
63.31	0.08	65.43	1.40	67.55	2.13
63.35	0.16	65.47	1.41	67.59	2.39
63.39	0.27	65.51	1.42	67.63	2.70
63.43	0.39	65.55	1.43	67.67	3.07
63.47	0.44	65.59	1.45	67.71	3.48
63.51	0.48	65.63	1.46	67.75	3.93
63.55	0.52	65.67	1.47	67.79	4.42
63.59	0.55	65.71	1.48	67.83	4.94
63.63	0.58	65.75	1.49	67.87	5.50
63.67	0.61	65.79	1.51	67.91	6.09
63.71	0.64	65.83	1.52	67.95	6.42
63.75	0.67	65.87	1.53	67.99	6.44
63.79	0.69	65.91	1.54	68.03	6.46
63.83	0.72	65.95	1.55	68.07	6.49
63.87	0.74	65.99	1.56	68.11	6.51
63.91	0.77	66.03	1.58	68.15	6.53
63.95	0.79	66.07	1.59	68.19	6.56
63.99	0.81	66.11	1.60	68.23	6.58
64.03	0.83	66.15	1.61	68.27	6.60
64.07	0.86	66.19	1.62	68.31	6.63
64.11	0.88	66.23	1.63	68.35	6.65
64.15	0.90	66.27	1.64	68.39	6.67
64.19	0.92	66.31	1.65	68.43	6.69
64.23	0.94	66.35	1.66	68.47	6.72
64.27	0.95	66.39	1.68	68.51	6.74
64.31	0.97	66.43	1.69	68.55	6.76
64.35	0.99	66.47	1.70	68.59	6.78
64.39	1.01	66.51	1.71	68.63	6.81
64.43	1.03	66.55	1.72	68.67	6.83
64.47	1.04	66.59	1.73	68.71	6.85
64.51	1.06	66.63	1.74	68.75	6.87
64.55	1.08	66.67	1.75	68.79	6.89
64.59	1.09	66.71	1.76	68.83	6.92
64.63	1.11	66.75	1.77	68.87	6.94
64.67	1.13	66.79	1.78	68.91	6.96
64.71	1.14	66.83	1.79	68.95	6.98
64.75	1.16	66.87	1.80	68.99	7.00
64.79	1.17	66.91	1.81		
64.83	1.19	66.95	1.82		

WQV



FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name:

Bioretention (Raingarden) HydroCAD Node 1R

Enter the type of filtration practice (e.g., bioretention system) and the node name in the drainage analysis, if applicable.

☐ yes		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.62	ac	A = Area draining to the practice	
0.36	ac	A_i = Impervious area draining to the practice	
0.58	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.57	unitless	R_v = Runoff coefficient = $0.05 + (0.9 \times I)$	
0.36	ac-in	WQV = $1'' \times R_v \times A$	
1,289	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
322	cf	25% x WQV (check calc for sediment forebay volume)	
966	cf	75% x WQV (check calc for surface sand filter volume)	
deep sump		Method of Pretreatment? (not required for clean or roof runoff)	
cf		V_{SED} = Sediment forebay volume, if used for pretreatment	$\geq 25\%WQV$
Calculate time to drain if system IS NOT underdrained:			
500	sf	A_{SA} = Surface area of the practice	
-	iph	K_{sat_DESIGN} = Design infiltration rate ¹	
yes	Yes/No	If K_{sat} (prior to factor of safety) is < 0.50 iph, has an underdrain been provided? (Use the calculations below)	
-	hours	T_{DRAIN} = Drain time = $V / (A_{SA} * I_{DESIGN})$	$\leq 72\text{-hrs}$
Calculate time to drain if system IS underdrained:			
67.20	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
1.88	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
0.38	hours	T_{DRAIN} = Drain time = $2WQV/Q_{WQV}$	$\leq 72\text{-hrs}$
64.50	feet	E_{FC} = Elevation of the bottom of the filter course material ²	
63.25	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
65.50	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
64.00	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.25	feet	$D_{FC \text{ to } UD}$ = Depth to UD from the bottom of the filter course	$\geq 1'$
0.50	feet	$D_{FC \text{ to } ROCK}$ = Depth to bedrock from the bottom of the filter course	$\geq 1'$
(1.00)	feet	$D_{FC \text{ to } SHWT}$ = Depth to SHWT from the bottom of the filter course	$\geq 1'$
67.94	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
69.00	ft	Elevation of the top of the practice	
YES		50 peak elevation $\leq$ Elevation of the top of the practice	$\leftarrow$ yes
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	< 10 ac
cf		V = Volume of storage ³ (attach a stage-storage table)	$\geq 75\%WQV$
inches		D_{FC} = Filter course thickness	18", or 24" if within GPA
Sheet		Note what sheet in the plan set contains the filter course specification.	
Yes/No		Access grate provided?	$\leftarrow$ yes

YES	ac	Drainage Area no larger than 5 ac?	← yes
1,580	cf	V = Volume of storage ³ (attach a stage-storage table)	≥ WQV
18.0	inches	D _{FC} = Filter course thickness	18", or 24" if within GPA
Sheet		Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	≥ 3:1
Sheet		Note what sheet in the plan set contains the planting plans and surface cover	
If porous pavement is proposed:			
	acres	Type of pavement proposed (Concrete? Asphalt? Pavers? Etc.) A _{SA} = Surface area of the pervious pavement	
	:1	Ratio of the contributing area to the pervious surface area	≤ 5:1
	inches	D _{FC} = Filter course thickness	12", or 18" if within GPA
Sheet		Note what sheet in the plan set contains the filter course spec.	mod. 304.1 (see spec)

- Designer's Notes:

Stage-Area-Storage for Pond 2R: Raingarden 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
51.75	3,000	0	57.05	7,100	11,625
51.85	3,000	120	57.15	7,300	12,345
51.95	3,000	240	57.25	7,500	13,085
52.05	3,000	360	57.35	7,700	13,845
52.15	3,000	480	57.45	7,900	14,625
52.25	3,000	600	57.55	8,100	15,425
52.35	3,000	720	57.65	8,300	16,245
52.45	3,000	840	57.75	8,500	17,085
52.55	3,000	960	57.85	8,700	17,945
52.65	3,000	1,080	57.95	8,900	18,825
52.75	3,000	1,200	58.05	9,200	19,727
52.85	3,000	1,320	58.15	9,600	20,667
52.95	3,000	1,440	58.25	10,000	21,648
53.05	3,000	1,560	58.35	10,400	22,668
53.15	3,000	1,680	58.45	10,800	23,728
53.25	3,000	1,800			
53.35	3,000	1,899			
53.45	3,000	1,998			
53.55	3,000	2,055			
53.65	3,000	2,070			
53.75	3,000	2,085			
53.85	3,000	2,100			
53.95	3,000	2,115			
54.05	3,000	2,130			
54.15	3,000	2,145			
54.25	3,000	2,160			
54.35	3,000	2,175			
54.45	3,000	2,190			
54.55	3,000	2,205			
54.65	3,000	2,220			
54.75	3,000	2,235			
54.85	3,000	2,250			
54.95	3,000	2,265			
55.05	3,050	2,424			
55.15	3,150	2,734			
55.25	3,250	3,054			
55.35	3,350	3,384			
55.45	3,450	3,724			
55.55	3,550	4,074			
55.65	3,650	4,434			
55.75	3,750	4,804			
55.85	3,850	5,184			
55.95	3,950	5,574			
56.05	4,150	5,976			
56.15	4,450	6,406			
56.25	4,750	6,866			
56.35	5,050	7,356			
56.45	5,350	7,876			
56.55	5,650	8,426			
56.65	5,950	9,006			
56.75	6,250	9,616			
56.85	6,550	10,256			
56.95	6,850	10,926			

Volume at 56.0 = 5,775
WQV = 4,330 cf

Stage-Area-Storage for Pond 2R: Raingarden 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
51.75	3,000	0	57.05	7,100	11,625
51.85	3,000	120	57.15	7,300	12,345
51.95	3,000	240	57.25	7,500	13,085
52.05	3,000	360	57.35	7,700	13,845
52.15	3,000	480	57.45	7,900	14,625
52.25	3,000	600	57.55	8,100	15,425
52.35	3,000	720	57.65	8,300	16,245
52.45	3,000	840	57.75	8,500	17,085
52.55	3,000	960	57.85	8,700	17,945
52.65	3,000	1,080	57.95	8,900	18,825
52.75	3,000	1,200	58.05	9,200	19,727
52.85	3,000	1,320	58.15	9,600	20,667
52.95	3,000	1,440	58.25	10,000	21,648
53.05	3,000	1,560	58.35	10,400	22,668
53.15	3,000	1,680	58.45	10,800	23,728
53.25	3,000	1,800			
53.35	3,000	1,899			
53.45	3,000	1,998			
53.55	3,000	2,055			
53.65	3,000	2,070			
53.75	3,000	2,085			
53.85	3,000	2,100			
53.95	3,000	2,115			
54.05	3,000	2,130			
54.15	3,000	2,145			
54.25	3,000	2,160			
54.35	3,000	2,175			
54.45	3,000	2,190			
54.55	3,000	2,205			
54.65	3,000	2,220			
54.75	3,000	2,235			
54.85	3,000	2,250			
54.95	3,000	2,265			
55.05	3,050	2,424			
55.15	3,150	2,734			
55.25	3,250	3,054			
55.35	3,350	3,384			
55.45	3,450	3,724			
55.55	3,550	4,074			
55.65	3,650	4,434			
55.75	3,750	4,804			
55.85	3,850	5,184			
55.95	3,950	5,574			
56.05	4,150	5,976			
56.15	4,450	6,406			
56.25	4,750	6,866			
56.35	5,050	7,356			
56.45	5,350	7,876			
56.55	5,650	8,426			
56.65	5,950	9,006			
56.75	6,250	9,616			
56.85	6,550	10,256			
56.95	6,850	10,926			

WQV=4,330 cf

Stage-Discharge for Pond 2R: Raingarden 2

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
51.75	0.00	53.87	1.11	55.99	1.77	58.11	24.21
51.79	0.00	53.91	1.12	56.03	1.88	58.15	24.43
51.83	0.00	53.95	1.14	56.07	2.17	58.19	24.64
51.87	0.00	53.99	1.15	56.11	2.55	58.23	24.85
51.91	0.00	54.03	1.17	56.15	3.00	58.27	25.06
51.95	0.00	54.07	1.18	56.19	3.52	58.31	25.27
51.99	0.00	54.11	1.20	56.23	4.09	58.35	25.48
52.03	0.00	54.15	1.21	56.27	4.72	58.39	25.68
52.07	0.00	54.19	1.23	56.31	5.39	58.43	25.88
52.11	0.00	54.23	1.24	56.35	6.11	58.47	26.08
52.15	0.00	54.27	1.26	56.39	6.87		
52.19	0.00	54.31	1.27	56.43	7.67		
52.23	0.00	54.35	1.29	56.47	8.50		
52.27	0.00	54.39	1.30	56.51	9.38		
52.31	0.01	54.43	1.31	56.55	10.28		
52.35	0.03	54.47	1.33	56.59	11.22		
52.39	0.06	54.51	1.34	56.63	12.20		
52.43	0.09	54.55	1.35	56.67	13.20		
52.47	0.13	54.59	1.37	56.71	14.23		
52.51	0.18	54.63	1.38	56.75	15.05		
52.55	0.23	54.67	1.39	56.79	15.40		
52.59	0.28	54.71	1.41	56.83	15.75		
52.63	0.34	54.75	1.42	56.87	16.09		
52.67	0.39	54.79	1.43	56.91	16.42		
52.71	0.44	54.83	1.44	56.95	16.74		
52.75	0.47	54.87	1.46	56.99	17.05		
52.79	0.51	54.91	1.47	57.03	17.36		
52.83	0.54	54.95	1.48	57.07	17.67		
52.87	0.58	54.99	1.49	57.11	17.97		
52.91	0.61	55.03	1.50	57.15	18.26		
52.95	0.63	55.07	1.52	57.19	18.55		
52.99	0.66	55.11	1.53	57.23	18.83		
53.03	0.69	55.15	1.54	57.27	19.11		
53.07	0.71	55.19	1.55	57.31	19.39		
53.11	0.74	55.23	1.56	57.35	19.66		
53.15	0.76	55.27	1.57	57.39	19.92		
53.19	0.79	55.31	1.58	57.43	20.19		
53.23	0.81	55.35	1.60	57.47	20.45		
53.27	0.83	55.39	1.61	57.51	20.70		
53.31	0.85	55.43	1.62	57.55	20.96		
53.35	0.87	55.47	1.63	57.59	21.21		
53.39	0.89	55.51	1.64	57.63	21.45		
53.43	0.91	55.55	1.65	57.67	21.70		
53.47	0.93	55.59	1.66	57.71	21.94		
53.51	0.95	55.63	1.67	57.75	22.18		
53.55	0.97	55.67	1.68	57.79	22.41		
53.59	0.99	55.71	1.69	57.83	22.65		
53.63	1.00	55.75	1.70	57.87	22.88		
53.67	1.02	55.79	1.71	57.91	23.10		
53.71	1.04	55.83	1.73	57.95	23.33		
53.75	1.06	55.87	1.74	57.99	23.55		
53.79	1.07	55.91	1.75	58.03	23.78		
53.83	1.09	55.95	1.76	58.07	23.99		

WQE = 55.68



INFILTRATION PRACTICE CRITERIA (Env-Wq 1508.06)

Type/Node Name: Storm Water Gallery A (HydroCAD Node D3)

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

yes	Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	← yes
1.18 ac	A = Area draining to the practice	
1.15 ac	A _I = Impervious area draining to the practice	
0.97 decimal	I = Percent impervious area draining to the practice, in decimal form	
0.93 unitless	R _v = Runoff coefficient = 0.05 + (0.9 x I)	
1.09 ac-in	WQV = 1" x R _v x A	
3,971 cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
993 cf	25% x WQV (check calc for sediment forebay volume)	
Deep Sumps		
NA cf	Method of pretreatment? (not required for clean or roof runoff)	
3,997 cf	V _{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
4,023 sf	V = Volume ¹ (attach a stage-storage table)	≥ WQV
2.00 iph	A _{SA} = Surface area of the bottom of the pond	
5.9 hours	K _{sat} _{DESIGN} = Design infiltration rate ²	
72.50 feet	I _{DRAIN} = Drain time = V / (A _{SA} * I _{DESIGN})	≤ 72-hrs
66.00 feet	E _{BTM} = Elevation of the bottom of the basin	
60.00 feet	E _{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
6.50 feet	E _{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
12.5 feet	D _{SHWT} = Separation from SHWT	≥ *³
ft	D _{ROCK} = Separation from bedrock	≥ *³
ft	D _{amend} = Depth of amended soil, if applicable due high infiltration rate	≥ 24"
ft	D _T = Depth of trench, if trench proposed	4 - 10 ft
yes Yes/No	If a trench or underground system is proposed, has observation well been provided?	←yes
	If a trench is proposed, does material meet Env-Wq 1508.06(k)(2) requirements. ⁴	← yes
Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	← yes
:1	If a basin is proposed, pond side slopes.	≥3:1
76.17 ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
76.78 ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
77.00 ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES	10 peak elevation ≤ Elevation of the top of the trench? ⁵	← yes
YES	If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. K_{sat}_{DESIGN} includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Note: Stormwater Gallery is in a fill area and infiltration rate is based on import soils,
which shall include 50% sand and native fill mix for 1 foot below practice.

4952 Post 03.31.22

Prepared by HP

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Type III 24-hr 50-yr Rainfall=8.26"

Printed 5/2/2022

Stage-Area-Storage for Pond D3: ADS Subsurface Storage Units (15 - SC130)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
72.50	2,720	0	75.15	2,720	4,257
72.55	2,720	54	75.20	2,720	4,342
72.60	2,720	109	75.25	2,720	4,425
72.65	2,720	163	75.30	2,720	4,508
72.70	2,720	218	75.35	2,720	4,589
72.75	2,720	272	75.40	2,720	4,669
72.80	2,720	326	75.45	2,720	4,748
72.85	2,720	381	75.50	2,720	4,825
72.90	2,720	435	75.55	2,720	4,900
72.95	2,720	490	75.60	2,720	4,974
73.00	2,720	544	75.65	2,720	5,046
73.05	2,720	598	75.70	2,720	5,115
73.10	2,720	653	75.75	2,720	5,181
73.15	2,720	707	75.80	2,720	5,243
73.20	2,720	761	75.85	2,720	5,303
73.25	2,720	816	75.90	2,720	5,361
73.30	2,720	870	75.95	2,720	5,418
73.35	2,720	925	76.00	2,720	5,473
73.40	2,720	979	76.05	2,720	5,527
73.45	2,720	1,033	76.10	2,720	5,582
73.50	2,720	1,088	76.15	2,720	5,636
73.55	2,720	1,190	76.20	2,720	5,690
73.60	2,720	1,292	76.25	2,720	5,745
73.65	2,720	1,395	76.30	2,720	5,799
73.70	2,720	1,497	76.35	2,720	5,853
73.75	2,720	1,598	76.40	2,720	5,908
73.80	2,720	1,700	76.45	2,720	5,962
73.85	2,720	1,801	76.50	2,720	6,017
73.90	2,720	1,901	76.55	2,720	6,017
73.95	2,720	2,002	76.60	2,720	6,017
74.00	2,720	2,102	76.65	2,720	6,017
74.05	2,720	2,202	76.70	2,720	6,017
74.10	2,720	2,301	76.75	2,720	6,017
74.15	2,720	2,400	76.80	2,720	6,017
74.20	2,720	2,498	76.85	2,720	6,017
74.25	2,720	2,596	76.90	2,720	6,017
74.30	2,720	2,693	76.95	2,720	6,017
74.35	2,720	2,790	77.00	2,720	6,017
74.40	2,720	2,887	77.05	2,720	6,017
74.45	2,720	2,983	77.10	2,720	6,017
74.50	2,720	3,078	77.15	2,720	6,017
74.55	2,720	3,173	77.20	2,720	6,017
74.60	2,720	3,267	77.25	2,720	6,017
74.65	2,720	3,361	77.30	2,720	6,017
74.70	2,720	3,454			
74.75	2,720	3,546			
74.80	2,720	3,638			
74.85	2,720	3,729			
74.90	2,720	3,819			
74.95	2,720	3,908			
75.00	2,720	3,997			
75.05	2,720	4,084			
75.10	2,720	4,171			

WQV = 3971 cf

SECTION 7

Drainage Analysis

- Extreme Precipitation Tables
- Pre-Development
 - Diagram
 - Area and Soils Listings
 - Full Summary (10-Year)
 - Node Listing (2-Year & 50 Year)
- Post Development
 - Diagram
 - Area and Soils Listings
 - Full Summary (10-Year)
 - Node Listing (2-Year, 25-Year, & 50 Year)

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	70.874 degrees West
Latitude	43.198 degrees North
Elevation	0 feet
Date/Time	Thu, 27 May 2021 09:14:57 -0400

Extreme Precipitation Estimates

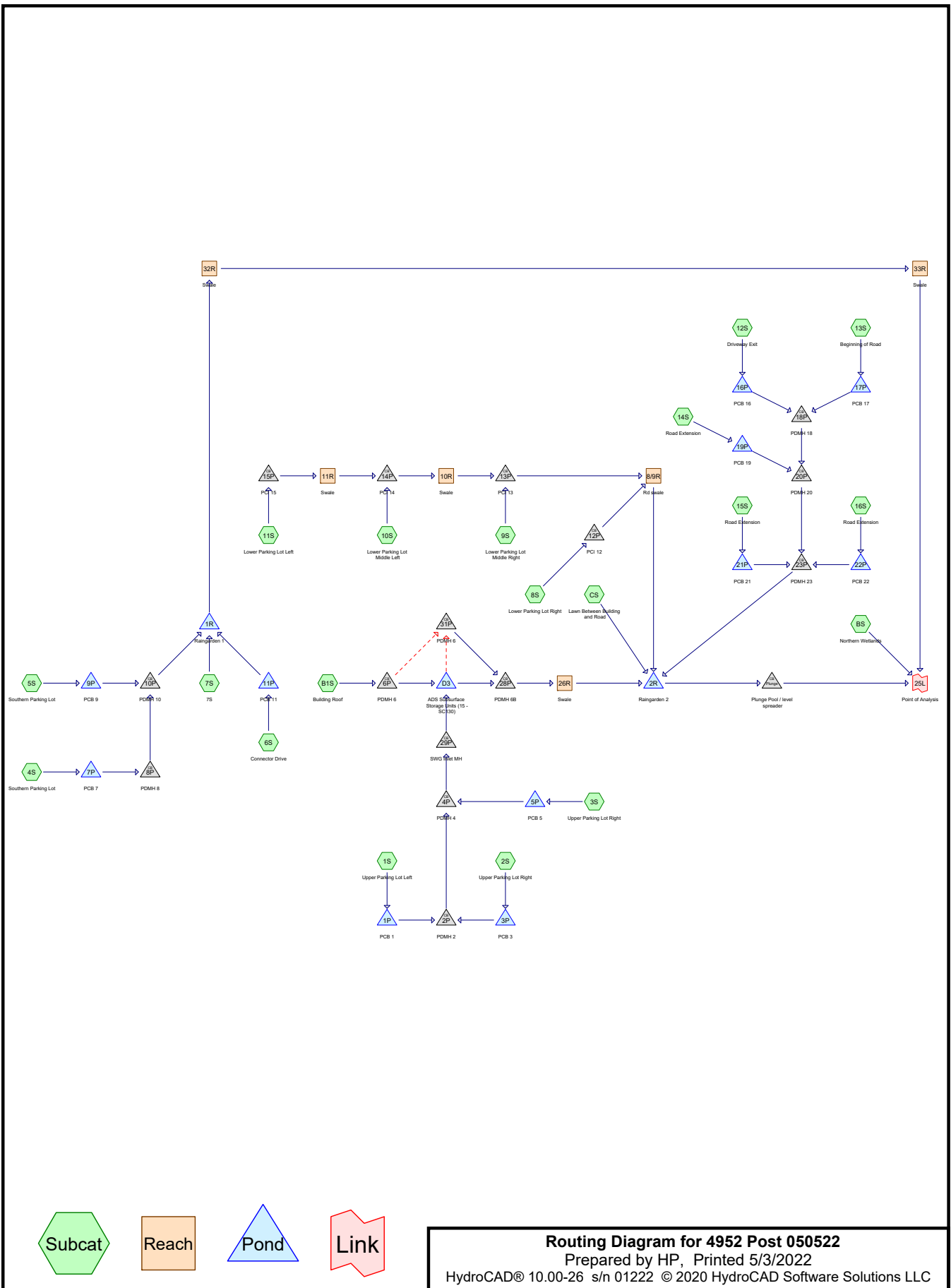
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day
1yr	0.26	0.40	0.50	0.65	0.81	1.03	1yr	0.70	0.98	1.20	1.54	2.00	2.60	2.87	1yr	2.31	2.79
2yr	0.32	0.49	0.61	0.81	1.01	1.29	2yr	0.88	1.17	1.50	1.91	2.45	3.15	3.51	2yr	2.79	3.32
5yr	0.37	0.57	0.72	0.96	1.23	1.58	5yr	1.06	1.44	1.85	2.39	3.08	3.98	4.50	5yr	3.53	4.32
10yr	0.40	0.63	0.80	1.09	1.42	1.85	10yr	1.23	1.69	2.18	2.83	3.66	4.75	5.43	10yr	4.21	5.22
25yr	0.46	0.74	0.94	1.30	1.72	2.27	25yr	1.49	2.09	2.70	3.53	4.61	6.01	6.96	25yr	5.32	6.71
50yr	0.52	0.83	1.06	1.49	2.00	2.67	50yr	1.73	2.46	3.18	4.19	5.49	7.18	8.41	50yr	6.35	8.00
100yr	0.58	0.94	1.21	1.71	2.33	3.13	100yr	2.01	2.89	3.75	4.96	6.53	8.58	10.16	100yr	7.59	9.71
200yr	0.64	1.05	1.36	1.96	2.71	3.68	200yr	2.34	3.40	4.44	5.90	7.80	10.26	12.28	200yr	9.08	11.50
500yr	0.76	1.25	1.63	2.36	3.31	4.55	500yr	2.86	4.22	5.51	7.38	9.82	12.99	16.78	500yr	11.50	15.50

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day
1yr	0.24	0.37	0.45	0.60	0.74	0.90	1yr	0.64	0.88	0.92	1.26	1.58	2.14	2.45	1yr	1.90	2.30
2yr	0.31	0.49	0.60	0.81	1.00	1.18	2yr	0.86	1.16	1.36	1.83	2.35	3.04	3.40	2yr	2.69	3.27
5yr	0.35	0.54	0.67	0.91	1.16	1.40	5yr	1.00	1.37	1.61	2.15	2.77	3.71	4.13	5yr	3.29	3.97
10yr	0.38	0.59	0.73	1.02	1.32	1.60	10yr	1.14	1.56	1.81	2.44	3.12	4.27	4.78	10yr	3.78	4.60
25yr	0.44	0.66	0.83	1.18	1.55	1.91	25yr	1.34	1.87	2.11	2.83	3.64	4.92	5.78	25yr	4.36	5.50
50yr	0.48	0.73	0.91	1.31	1.76	2.19	50yr	1.52	2.14	2.35	3.19	4.09	5.61	6.67	50yr	4.97	6.40
100yr	0.54	0.81	1.01	1.47	2.01	2.51	100yr	1.73	2.45	2.63	3.56	4.56	6.38	7.68	100yr	5.65	7.33
200yr	0.59	0.89	1.13	1.64	2.29	2.87	200yr	1.97	2.80	2.93	3.99	5.09	7.26	8.84	200yr	6.42	8.50
500yr	0.69	1.03	1.33	1.93	2.74	3.45	500yr	2.36	3.37	3.40	4.61	5.89	8.57	10.64	500yr	7.58	10.20

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day
1yr	0.28	0.43	0.53	0.71	0.87	1.08	1yr	0.75	1.05	1.24	1.74	2.21	2.88	3.10	1yr	2.55	2.95
2yr	0.33	0.51	0.62	0.85	1.04	1.25	2yr	0.90	1.22	1.47	1.95	2.51	3.30	3.64	2yr	2.92	3.45



Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.422	61	>75% Grass cover, Good, HSG B (1S, 2S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 13S, 14S, 15S)
1.141	74	>75% Grass cover, Good, HSG C (1S, 6S, 9S, 15S, CS)
2.476	80	Pasture/grassland/range, Good, HSG D (BS)
1.887	98	Paved parking, HSG B (1S, 2S, 3S, 4S, 5S, 6S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S)
0.263	98	Paved parking, HSG C (1S, 2S, 6S, 9S, 15S, 16S)
0.046	98	Roofs, HSG B (B1S)
0.280	98	Roofs, HSG C (B1S)
0.045	98	Unconnected pavement, HSG B (1S, 2S, 3S, 9S)
0.061	98	Unconnected pavement, HSG C (1S, 2S, 9S, 15S)
1.709	55	Woods, Good, HSG B (BS, CS)
0.728	70	Woods, Good, HSG C (BS)
9.059	78	TOTAL AREA

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
4.110	HSG B	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, B1S, BS, CS
2.473	HSG C	1S, 2S, 6S, 9S, 15S, 16S, B1S, BS, CS
2.476	HSG D	BS
0.000	Other	
9.059		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.422	1.141	0.000	0.000	1.563	>75% Grass cover, Good	1S, 2S, 5S, 6S, 7S, 8S, 9S, 10S , 11S , 13S , 14S , 15S , CS
0.000	0.000	0.000	2.476	0.000	2.476	Pasture/grassland/range, Good	BS
0.000	1.887	0.263	0.000	0.000	2.151	Paved parking	1S, 2S, 3S, 4S, 5S, 6S, 8S, 9S, 10S , 11S , 12S , 13S , 14S , 15S , 16S
0.000	0.046	0.280	0.000	0.000	0.325	Roofs	B1S
0.000	0.045	0.061	0.000	0.000	0.107	Unconnected pavement	1S, 2S, 3S, 9S, 15S

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Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	1.709	0.728	0.000	0.000	2.437	Woods, Good	BS, CS
0.000	4.110	2.473	2.476	0.000	9.059	TOTAL AREA	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1P	75.20	74.40	157.8	0.0051	0.012	12.0	0.0	0.0
2	1R	62.75	61.50	140.4	0.0089	0.012	12.0	0.0	0.0
3	2P	74.30	74.00	43.0	0.0070	0.012	12.0	0.0	0.0
4	2R	52.00	51.90	5.0	0.0200	0.012	18.0	0.0	0.0
5	3P	74.60	74.40	23.7	0.0084	0.012	12.0	0.0	0.0
6	4P	73.90	73.60	54.3	0.0055	0.012	12.0	0.0	0.0
7	5P	74.20	74.00	23.7	0.0084	0.012	12.0	0.0	0.0
8	6P	73.60	73.50	5.0	0.0200	0.012	12.0	0.0	0.0
9	6P	75.10	75.00	20.0	0.0050	0.012	12.0	0.0	0.0
10	7P	73.80	73.60	23.7	0.0084	0.012	12.0	0.0	0.0
11	8P	73.50	73.10	75.0	0.0053	0.012	12.0	0.0	0.0
12	9P	72.70	72.50	46.2	0.0043	0.012	12.0	0.0	0.0
13	10P	72.40	66.00	41.0	0.1561	0.012	12.0	0.0	0.0
14	11P	66.60	66.00	35.0	0.0171	0.012	12.0	0.0	0.0
15	16P	59.60	59.50	6.2	0.0161	0.012	12.0	0.0	0.0
16	17P	59.70	59.50	5.7	0.0351	0.012	12.0	0.0	0.0
17	18P	59.40	57.10	172.0	0.0134	0.012	12.0	0.0	0.0
18	19P	57.40	57.30	6.3	0.0159	0.012	12.0	0.0	0.0
19	20P	57.20	56.30	139.2	0.0065	0.012	12.0	0.0	0.0
20	21P	56.40	56.30	8.0	0.0125	0.012	12.0	0.0	0.0
21	22P	56.40	56.30	8.0	0.0125	0.012	12.0	0.0	0.0
22	23P	56.20	56.00	21.0	0.0095	0.012	12.0	0.0	0.0
23	28P	74.70	53.10	185.0	0.1168	0.012	15.0	0.0	0.0
24	29P	73.60	73.50	5.0	0.0200	0.012	12.0	0.0	0.0
25	31P	74.90	74.80	20.0	0.0050	0.012	12.0	0.0	0.0
26	D3	75.00	74.90	5.0	0.0200	0.012	12.0	0.0	0.0
27	D3	75.00	74.90	5.0	0.0200	0.012	12.0	0.0	0.0

Time span=1.00-48.00 hrs, dt=0.05 hrs, 941 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Upper Parking Lot Left	Runoff Area=15,579 sf 94.04% Impervious Runoff Depth=5.05" Tc=6.0 min CN=97 Runoff=1.85 cfs 0.150 af
Subcatchment2S: Upper Parking Lot Right	Runoff Area=15,439 sf 98.23% Impervious Runoff Depth=5.15" Tc=6.0 min CN=97 Runoff=1.84 cfs 0.152 af
Subcatchment3S: Upper Parking Lot Right	Runoff Area=6,296 sf 100.00% Impervious Runoff Depth>5.22" Tc=6.0 min CN=98 Runoff=0.75 cfs 0.063 af
Subcatchment4S: Southern Parking Lot	Runoff Area=4,115 sf 100.00% Impervious Runoff Depth>5.22" Tc=6.0 min CN=98 Runoff=0.49 cfs 0.041 af
Subcatchment5S: Southern Parking Lot	Runoff Area=7,631 sf 72.99% Impervious Runoff Depth=4.11" Tc=6.0 min CN=88 Runoff=0.80 cfs 0.060 af
Subcatchment6S: Connector Drive	Runoff Area=9,038 sf 67.82% Impervious Runoff Depth=4.05" Tc=6.0 min CN=87 Runoff=0.94 cfs 0.070 af
Subcatchment7S: 7S	Runoff Area=6,098 sf 0.00% Impervious Runoff Depth=1.65" Tc=6.0 min CN=61 Runoff=0.25 cfs 0.019 af
Subcatchment8S: Lower Parking Lot Right	Runoff Area=8,008 sf 65.30% Impervious Runoff Depth=3.81" Tc=6.0 min CN=85 Runoff=0.79 cfs 0.058 af
Subcatchment9S: Lower Parking Lot	Runoff Area=13,171 sf 91.65% Impervious Runoff Depth=4.93" Tc=6.0 min CN=96 Runoff=1.55 cfs 0.124 af
Subcatchment10S: Lower Parking Lot	Runoff Area=10,699 sf 81.54% Impervious Runoff Depth=4.45" Tc=6.0 min CN=91 Runoff=1.19 cfs 0.091 af
Subcatchment11S: Lower Parking Lot Left	Runoff Area=5,094 sf 94.92% Impervious Runoff Depth=5.00" Tc=6.0 min CN=96 Runoff=0.60 cfs 0.049 af
Subcatchment12S: Driveway Exit	Runoff Area=4,470 sf 100.00% Impervious Runoff Depth>5.22" Tc=6.0 min CN=98 Runoff=0.54 cfs 0.045 af
Subcatchment13S: Beginning of Road	Runoff Area=2,935 sf 67.67% Impervious Runoff Depth=3.90" Tc=6.0 min CN=86 Runoff=0.30 cfs 0.022 af
Subcatchment14S: Road Extension	Runoff Area=5,653 sf 76.97% Impervious Runoff Depth=4.26" Tc=6.0 min CN=89 Runoff=0.61 cfs 0.046 af
Subcatchment15S: Road Extension	Runoff Area=3,148 sf 90.91% Impervious Runoff Depth=4.88" Tc=6.0 min CN=95 Runoff=0.37 cfs 0.029 af
Subcatchment16S: Road Extension	Runoff Area=1,869 sf 100.00% Impervious Runoff Depth>5.22" Tc=6.0 min CN=98 Runoff=0.22 cfs 0.019 af

Subcatchment B1S: Building Roof	Runoff Area=14,178 sf 100.00% Impervious Runoff Depth>5.22" Tc=6.0 min CN=98 Runoff=1.70 cfs 0.142 af
Subcatchment BS: Northern Wetlands	Runoff Area=163,457 sf 0.00% Impervious Runoff Depth=2.77" Flow Length=700' Tc=28.6 min CN=74 Runoff=7.01 cfs 0.867 af
Subcatchment CS: Lawn Between Building	Runoff Area=97,726 sf 0.00% Impervious Runoff Depth=1.90" Flow Length=285' Tc=19.2 min CN=64 Runoff=3.25 cfs 0.355 af
Reach 8/9R: Rd swale	Avg. Flow Depth=0.35' Max Vel=3.80 fps Inflow=4.07 cfs 0.323 af n=0.025 L=233.0' S=0.0258 '/' Capacity=83.37 cfs Outflow=3.87 cfs 0.323 af
Reach 10R: Swale	Avg. Flow Depth=0.26' Max Vel=2.43 fps Inflow=1.77 cfs 0.140 af n=0.025 L=70.0' S=0.0143 '/' Capacity=62.10 cfs Outflow=1.74 cfs 0.140 af
Reach 11R: Swale	Avg. Flow Depth=0.14' Max Vel=1.79 fps Inflow=0.60 cfs 0.049 af n=0.025 L=63.0' S=0.0159 '/' Capacity=65.46 cfs Outflow=0.59 cfs 0.049 af
Reach 26R: Swale	Avg. Flow Depth=0.13' Max Vel=3.32 fps Inflow=4.72 cfs 0.153 af n=0.025 L=100.0' S=0.0500 '/' Capacity=163.50 cfs Outflow=4.61 cfs 0.153 af
Reach 32R: Swale	Avg. Flow Depth=0.19' Max Vel=2.28 fps Inflow=1.70 cfs 0.188 af n=0.040 L=300.0' S=0.0467 '/' Capacity=114.38 cfs Outflow=1.70 cfs 0.188 af
Reach 33R: Swale	Avg. Flow Depth=0.23' Max Vel=0.45 fps Inflow=1.70 cfs 0.188 af n=0.040 L=900.0' S=0.0011 '/' Capacity=110.82 cfs Outflow=1.10 cfs 0.188 af
Pond 1P: PCB 1	Peak Elev=76.03' Storage=0.000 af Inflow=1.85 cfs 0.150 af 12.0" Round Culvert n=0.012 L=157.8' S=0.0051 '/' Outflow=1.85 cfs 0.150 af
Pond 1R: Raingarden 1	Peak Elev=66.49' Storage=675 cf Inflow=2.48 cfs 0.190 af Outflow=1.70 cfs 0.188 af
Pond 2P: PDMH 2	Peak Elev=75.92' Inflow=3.70 cfs 0.302 af 12.0" Round Culvert n=0.012 L=43.0' S=0.0070 '/' Outflow=3.70 cfs 0.302 af
Pond 2R: Raingarden 2	Peak Elev=56.51' Storage=8,202 cf Inflow=12.26 cfs 0.991 af Outflow=9.38 cfs 0.978 af
Pond 3P: PCB 3	Peak Elev=75.43' Storage=0.000 af Inflow=1.84 cfs 0.152 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=1.85 cfs 0.152 af
Pond 4P: PDMH 4	Peak Elev=76.07' Inflow=4.45 cfs 0.365 af 12.0" Round Culvert n=0.012 L=54.3' S=0.0055 '/' Outflow=4.45 cfs 0.365 af
Pond 5P: PCB 5	Peak Elev=74.68' Storage=0.000 af Inflow=0.75 cfs 0.063 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=0.76 cfs 0.063 af
Pond 6P: PDMH 6	Peak Elev=74.40' Inflow=1.70 cfs 0.142 af Primary=1.70 cfs 0.142 af Secondary=0.00 cfs 0.000 af Outflow=1.70 cfs 0.142 af
Pond 7P: PCB 7	Peak Elev=74.18' Storage=0.000 af Inflow=0.49 cfs 0.041 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=0.49 cfs 0.041 af

Pond 8P: PDMH 8

Peak Elev=73.89' Inflow=0.49 cfs 0.041 af
 12.0" Round Culvert n=0.012 L=75.0' S=0.0053 '/' Outflow=0.49 cfs 0.041 af

Pond 9P: PCB 9

Peak Elev=73.24' Storage=0.000 af Inflow=0.80 cfs 0.060 af
 12.0" Round Culvert n=0.012 L=46.2' S=0.0043 '/' Outflow=0.80 cfs 0.060 af

Pond 10P: PDMH 10

Peak Elev=73.00' Inflow=1.30 cfs 0.101 af
 12.0" Round Culvert n=0.012 L=41.0' S=0.1561 '/' Outflow=1.30 cfs 0.101 af

Pond 11P: PCB 11

Peak Elev=67.10' Storage=0.000 af Inflow=0.94 cfs 0.070 af
 12.0" Round Culvert n=0.012 L=35.0' S=0.0171 '/' Outflow=0.94 cfs 0.070 af

Pond 12P: PCI 12

Peak Elev=63.59' Inflow=0.79 cfs 0.058 af
 Outflow=0.79 cfs 0.058 af

Pond 13P: PCI 13

Peak Elev=63.69' Inflow=3.28 cfs 0.264 af
 Outflow=3.28 cfs 0.264 af

Pond 14P: PCI 14

Peak Elev=64.42' Inflow=1.77 cfs 0.140 af
 Outflow=1.77 cfs 0.140 af

Pond 15P: PCI 15

Peak Elev=65.16' Inflow=0.60 cfs 0.049 af
 Outflow=0.60 cfs 0.049 af

Pond 16P: PCB 16

Peak Elev=60.00' Storage=0.000 af Inflow=0.54 cfs 0.045 af
 12.0" Round Culvert n=0.012 L=6.2' S=0.0161 '/' Outflow=0.54 cfs 0.045 af

Pond 17P: PCB 17

Peak Elev=59.97' Storage=0.000 af Inflow=0.30 cfs 0.022 af
 12.0" Round Culvert n=0.012 L=5.7' S=0.0351 '/' Outflow=0.30 cfs 0.022 af

Pond 18P: PDMH 18

Peak Elev=59.87' Inflow=0.83 cfs 0.067 af
 12.0" Round Culvert n=0.012 L=172.0' S=0.0134 '/' Outflow=0.83 cfs 0.067 af

Pond 19P: PCB 19

Peak Elev=57.83' Storage=0.000 af Inflow=0.61 cfs 0.046 af
 12.0" Round Culvert n=0.012 L=6.3' S=0.0159 '/' Outflow=0.61 cfs 0.046 af

Pond 20P: PDMH 20

Peak Elev=57.87' Inflow=1.44 cfs 0.113 af
 12.0" Round Culvert n=0.012 L=139.2' S=0.0065 '/' Outflow=1.44 cfs 0.113 af

Pond 21P: PCB 21

Peak Elev=56.73' Storage=0.000 af Inflow=0.37 cfs 0.029 af
 12.0" Round Culvert n=0.012 L=8.0' S=0.0125 '/' Outflow=0.37 cfs 0.029 af

Pond 22P: PCB 22

Peak Elev=56.65' Storage=0.000 af Inflow=0.22 cfs 0.019 af
 12.0" Round Culvert n=0.012 L=8.0' S=0.0125 '/' Outflow=0.22 cfs 0.019 af

Pond 23P: PDMH 23

Peak Elev=57.08' Inflow=2.04 cfs 0.161 af
 12.0" Round Culvert n=0.012 L=21.0' S=0.0095 '/' Outflow=2.04 cfs 0.161 af

Pond 28P: PDMH 6B

Peak Elev=75.96' Inflow=4.72 cfs 0.153 af
 15.0" Round Culvert n=0.012 L=185.0' S=0.1168 '/' Outflow=4.72 cfs 0.153 af

Pond 29P: SWG Inlet MH

Peak Elev=75.48' Inflow=4.45 cfs 0.365 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=4.45 cfs 0.365 af

Pond 31P: PDMH 6

Peak Elev=75.96' Inflow=2.36 cfs 0.076 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=2.36 cfs 0.076 af

Pond D3: ADS Subsurface Storage Units (15 - Peak Elev=76.00' Storage=5,470 cf Inflow=6.15 cfs 0.507 af
Discarded=0.35 cfs 0.354 af Primary=2.36 cfs 0.076 af Secondary=2.36 cfs 0.076 af Outflow=5.07 cfs 0.507 af

Pond Plunge: Plunge Pool / level spreader

Peak Elev=47.50' Inflow=9.38 cfs 0.978 af
Outflow=9.38 cfs 0.978 af

Link 25L: Point of Analysis

Inflow=16.02 cfs 2.033 af
Primary=16.02 cfs 2.033 af

Total Runoff Area = 9.059 ac Runoff Volume = 2.403 af Average Runoff Depth = 3.18"
71.49% Pervious = 6.476 ac 28.51% Impervious = 2.583 ac

Summary for Subcatchment 1S: Upper Parking Lot Left

Runoff = 1.85 cfs @ 12.09 hrs, Volume= 0.150 af, Depth= 5.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description			
10,819	98	Paved parking, HSG B			
2,621	98	Paved parking, HSG C			
150	98	Unconnected pavement, HSG B			
1,061	98	Unconnected pavement, HSG C			
63	61	>75% Grass cover, Good, HSG B			
865	74	>75% Grass cover, Good, HSG C			
15,579	97	Weighted Average			
928		5.96% Pervious Area			
14,651		94.04% Impervious Area			
1,211		8.27% Unconnected			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 2S: Upper Parking Lot Right

Runoff = 1.84 cfs @ 12.09 hrs, Volume= 0.152 af, Depth= 5.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description			
10,297	98	Paved parking, HSG B			
3,646	98	Paved parking, HSG C			
571	98	Unconnected pavement, HSG B			
651	98	Unconnected pavement, HSG C			
274	61	>75% Grass cover, Good, HSG B			
15,439	97	Weighted Average			
274		1.77% Pervious Area			
15,165		98.23% Impervious Area			
1,222		8.06% Unconnected			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3S: Upper Parking Lot Right

Runoff = 0.75 cfs @ 12.09 hrs, Volume= 0.063 af, Depth> 5.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
5,301	98	Paved parking, HSG B
995	98	Unconnected pavement, HSG B
6,296	98	Weighted Average
6,296		100.00% Impervious Area
995		15.80% Unconnected

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

Summary for Subcatchment 4S: Southern Parking Lot

Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af, Depth> 5.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
4,115	98	Paved parking, HSG B
4,115		100.00% Impervious Area

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

Summary for Subcatchment 5S: Southern Parking Lot

Runoff = 0.80 cfs @ 12.09 hrs, Volume= 0.060 af, Depth= 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
5,570	98	Paved parking, HSG B
2,061	61	>75% Grass cover, Good, HSG B
7,631	88	Weighted Average
2,061		27.01% Pervious Area
5,570		72.99% Impervious Area

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

Summary for Subcatchment 6S: Connector Drive

Runoff = 0.94 cfs @ 12.09 hrs, Volume= 0.070 af, Depth= 4.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
5,097	98	Paved parking, HSG B
1,033	98	Paved parking, HSG C
1,945	61	>75% Grass cover, Good, HSG B
963	74	>75% Grass cover, Good, HSG C
9,038	87	Weighted Average
2,908		32.18% Pervious Area
6,130		67.82% Impervious Area

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

Summary for Subcatchment 7S: 7S

Runoff = 0.25 cfs @ 12.10 hrs, Volume= 0.019 af, Depth= 1.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
6,098	61	>75% Grass cover, Good, HSG B
6,098		100.00% Pervious Area

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

Summary for Subcatchment 8S: Lower Parking Lot Right

Runoff = 0.79 cfs @ 12.09 hrs, Volume= 0.058 af, Depth= 3.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
5,229	98	Paved parking, HSG B
2,779	61	>75% Grass cover, Good, HSG B
8,008	85	Weighted Average
2,779		34.70% Pervious Area
5,229		65.30% Impervious Area

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

Summary for Subcatchment 9S: Lower Parking Lot Middle Right

Runoff = 1.55 cfs @ 12.09 hrs, Volume= 0.124 af, Depth= 4.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
10,057	98	Paved parking, HSG B
1,128	98	Paved parking, HSG C
265	98	Unconnected pavement, HSG B
621	98	Unconnected pavement, HSG C
499	61	>75% Grass cover, Good, HSG B
601	74	>75% Grass cover, Good, HSG C
13,171	96	Weighted Average
1,100		8.35% Pervious Area
12,071		91.65% Impervious Area
886		7.34% Unconnected

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

Summary for Subcatchment 10S: Lower Parking Lot Middle Left

Runoff = 1.19 cfs @ 12.09 hrs, Volume= 0.091 af, Depth= 4.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
8,724	98	Paved parking, HSG B
1,975	61	>75% Grass cover, Good, HSG B
10,699	91	Weighted Average
1,975		18.46% Pervious Area
8,724		81.54% Impervious Area

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

Summary for Subcatchment 11S: Lower Parking Lot Left

Runoff = 0.60 cfs @ 12.09 hrs, Volume= 0.049 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
4,835	98	Paved parking, HSG B
259	61	>75% Grass cover, Good, HSG B
5,094	96	Weighted Average
259		5.08% Pervious Area
4,835		94.92% Impervious Area

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

Summary for Subcatchment 12S: Driveway Exit

Runoff = 0.54 cfs @ 12.09 hrs, Volume= 0.045 af, Depth> 5.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
4,470	98	Paved parking, HSG B
4,470		100.00% Impervious Area

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

Summary for Subcatchment 13S: Beginning of Road

Runoff = 0.30 cfs @ 12.09 hrs, Volume= 0.022 af, Depth= 3.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
1,986	98	Paved parking, HSG B
949	61	>75% Grass cover, Good, HSG B
2,935	86	Weighted Average
949		32.33% Pervious Area
1,986		67.67% Impervious Area

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

Summary for Subcatchment 14S: Road Extension

Runoff = 0.61 cfs @ 12.09 hrs, Volume= 0.046 af, Depth= 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
4,351	98	Paved parking, HSG B
1,302	61	>75% Grass cover, Good, HSG B
5,653	89	Weighted Average
1,302		23.03% Pervious Area
4,351		76.97% Impervious Area

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

Summary for Subcatchment 15S: Road Extension

Runoff = 0.37 cfs @ 12.09 hrs, Volume= 0.029 af, Depth= 4.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
1,355	98	Paved parking, HSG B
1,174	98	Paved parking, HSG C
333	98	Unconnected pavement, HSG C
181	61	>75% Grass cover, Good, HSG B
105	74	>75% Grass cover, Good, HSG C
3,148	95	Weighted Average
286		9.09% Pervious Area
2,862		90.91% Impervious Area
333		11.64% Unconnected

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

Summary for Subcatchment 16S: Road Extension

Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.019 af, Depth> 5.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
1,869	98	Paved parking, HSG C
1,869		100.00% Impervious Area

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

Summary for Subcatchment B1S: Building Roof

Runoff = 1.70 cfs @ 12.09 hrs, Volume= 0.142 af, Depth> 5.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
1,996	98	Roofs, HSG B
12,182	98	Roofs, HSG C
14,178	98	Weighted Average
14,178		100.00% Impervious Area

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

Summary for Subcatchment BS: Northern Wetlands

Runoff = 7.01 cfs @ 12.40 hrs, Volume= 0.867 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
12,110	55	Woods, Good, HSG B
31,711	70	Woods, Good, HSG C
107,856	80	Pasture/grassland/range, Good, HSG D
11,780	55	Woods, Good, HSG B
163,457	74	Weighted Average
163,457		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.9	100	0.0070	0.08		Sheet Flow, Grass: Dense n= 0.240 P2= 3.15"
6.7	600	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
28.6	700	Total			

Summary for Subcatchment CS: Lawn Between Building and Road

Runoff = 3.25 cfs @ 12.29 hrs, Volume= 0.355 af, Depth= 1.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
47,168	74	>75% Grass cover, Good, HSG C
50,558	55	Woods, Good, HSG B
97,726	64	Weighted Average
97,726		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	75	0.0200	0.07		Sheet Flow, n= 0.400 P2= 3.15"
2.0	210	0.1200	1.73		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
19.2	285	Total			

Summary for Reach 8/9R: Rd swale

Inflow Area = 0.849 ac, 83.47% Impervious, Inflow Depth = 4.56" for 10-yr event
Inflow = 4.07 cfs @ 12.10 hrs, Volume= 0.323 af
Outflow = 3.87 cfs @ 12.12 hrs, Volume= 0.323 af, Atten= 5%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.80 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.09 fps, Avg. Travel Time= 3.6 min

Peak Storage= 247 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.35'
Bank-Full Depth= 1.50' Flow Area= 9.8 sf, Capacity= 83.37 cfs

2.00' x 1.50' deep channel, n= 0.025
Side Slope Z-value= 3.0 ' ' Top Width= 11.00'
Length= 233.0' Slope= 0.0258 ' '
Inlet Invert= 62.00', Outlet Invert= 56.00'



Summary for Reach 10R: Swale

Inflow Area = 0.363 ac, 85.85% Impervious, Inflow Depth = 4.63" for 10-yr event
 Inflow = 1.77 cfs @ 12.09 hrs, Volume= 0.140 af
 Outflow = 1.74 cfs @ 12.10 hrs, Volume= 0.140 af, Atten= 2%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.43 fps, Min. Travel Time= 0.5 min
 Avg. Velocity = 0.69 fps, Avg. Travel Time= 1.7 min

Peak Storage= 51 cf @ 12.10 hrs
 Average Depth at Peak Storage= 0.26'
 Bank-Full Depth= 1.50' Flow Area= 9.8 sf, Capacity= 62.10 cfs

2.00' x 1.50' deep channel, n= 0.025
 Side Slope Z-value= 3.0 '/' Top Width= 11.00'
 Length= 70.0' Slope= 0.0143 '/'
 Inlet Invert= 63.00', Outlet Invert= 62.00'



Summary for Reach 11R: Swale

Inflow Area = 0.117 ac, 94.92% Impervious, Inflow Depth = 5.00" for 10-yr event
 Inflow = 0.60 cfs @ 12.09 hrs, Volume= 0.049 af
 Outflow = 0.59 cfs @ 12.10 hrs, Volume= 0.049 af, Atten= 2%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Max. Velocity= 1.79 fps, Min. Travel Time= 0.6 min
 Avg. Velocity = 0.54 fps, Avg. Travel Time= 1.9 min

Peak Storage= 21 cf @ 12.09 hrs
 Average Depth at Peak Storage= 0.14'
 Bank-Full Depth= 1.50' Flow Area= 9.8 sf, Capacity= 65.46 cfs

2.00' x 1.50' deep channel, n= 0.025
 Side Slope Z-value= 3.0 '/' Top Width= 11.00'
 Length= 63.0' Slope= 0.0159 '/'
 Inlet Invert= 64.00', Outlet Invert= 63.00'



Summary for Reach 26R: Swale

[79] Warning: Submerged Pond 28P Primary device # 1 OUTLET by 10.03'

Inflow Area = 1.182 ac, 97.67% Impervious, Inflow Depth = 1.55" for 10-yr event
 Inflow = 4.72 cfs @ 12.15 hrs, Volume= 0.153 af
 Outflow = 4.61 cfs @ 12.17 hrs, Volume= 0.153 af, Atten= 2%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.32 fps, Min. Travel Time= 0.5 min
 Avg. Velocity = 1.16 fps, Avg. Travel Time= 1.4 min

Peak Storage= 142 cf @ 12.16 hrs
 Average Depth at Peak Storage= 0.13'
 Bank-Full Depth= 1.00' Flow Area= 15.0 sf, Capacity= 163.50 cfs

10.00' x 1.00' deep channel, n= 0.025
 Side Slope Z-value= 5.0 '/' Top Width= 20.00'
 Length= 100.0' Slope= 0.0500 '/'
 Inlet Invert= 63.00', Outlet Invert= 58.00'



Summary for Reach 32R: Swale

Inflow Area = 0.617 ac, 58.83% Impervious, Inflow Depth = 3.66" for 10-yr event
 Inflow = 1.70 cfs @ 12.18 hrs, Volume= 0.188 af
 Outflow = 1.70 cfs @ 12.25 hrs, Volume= 0.188 af, Atten= 0%, Lag= 4.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.28 fps, Min. Travel Time= 2.2 min
 Avg. Velocity = 0.78 fps, Avg. Travel Time= 6.4 min

Peak Storage= 224 cf @ 12.21 hrs
 Average Depth at Peak Storage= 0.19'
 Bank-Full Depth= 1.50' Flow Area= 15.8 sf, Capacity= 114.38 cfs

3.00' x 1.50' deep channel, n= 0.040
 Side Slope Z-value= 5.0 '/' Top Width= 18.00'
 Length= 300.0' Slope= 0.0467 '/'
 Inlet Invert= 58.00', Outlet Invert= 44.00'



Summary for Reach 33R: Swale

Inflow Area = 0.617 ac, 58.83% Impervious, Inflow Depth = 3.66" for 10-yr event
 Inflow = 1.70 cfs @ 12.25 hrs, Volume= 0.188 af
 Outflow = 1.10 cfs @ 13.04 hrs, Volume= 0.188 af, Atten= 35%, Lag= 47.4 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.45 fps, Min. Travel Time= 33.6 min
 Avg. Velocity= 0.15 fps, Avg. Travel Time= 102.8 min

Peak Storage= 2,234 cf @ 12.47 hrs
 Average Depth at Peak Storage= 0.23'
 Bank-Full Depth= 3.00' Flow Area= 57.0 sf, Capacity= 110.82 cfs

10.00' x 3.00' deep channel, n= 0.040
 Side Slope Z-value= 3.0 '/' Top Width= 28.00'
 Length= 900.0' Slope= 0.0011 '/'
 Inlet Invert= 43.00', Outlet Invert= 42.00'



Summary for Pond 1P: PCB 1

Inflow Area = 0.358 ac, 94.04% Impervious, Inflow Depth = 5.05" for 10-yr event
 Inflow = 1.85 cfs @ 12.09 hrs, Volume= 0.150 af
 Outflow = 1.85 cfs @ 12.09 hrs, Volume= 0.150 af, Atten= 0%, Lag= 0.1 min
 Primary = 1.85 cfs @ 12.09 hrs, Volume= 0.150 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 76.03' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.3 min calculated for 0.150 af (100% of inflow)
 Center-of-Mass det. time= 0.3 min (757.5 - 757.2)

Volume	Invert	Avail.Storage	Storage Description
#1	75.20'	0.001 af	4.00'D x 3.50'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	75.20'	12.0" Round Culvert L= 157.8' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.20' / 74.40' S= 0.0051 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.80 cfs @ 12.09 hrs HW=76.02' (Free Discharge)

↑**1=Culvert** (Barrel Controls 1.80 cfs @ 3.56 fps)

Summary for Pond 1R: Raingarden 1

[79] Warning: Submerged Pond 10P Primary device # 1 OUTLET by 0.49'

[79] Warning: Submerged Pond 11P Primary device # 1 OUTLET by 0.49'

Inflow Area = 0.617 ac, 58.83% Impervious, Inflow Depth > 3.70" for 10-yr event
 Inflow = 2.48 cfs @ 12.09 hrs, Volume= 0.190 af
 Outflow = 1.70 cfs @ 12.18 hrs, Volume= 0.188 af, Atten= 31%, Lag= 5.3 min
 Primary = 1.70 cfs @ 12.18 hrs, Volume= 0.188 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 66.49' @ 12.18 hrs Surf.Area= 698 sf Storage= 675 cf

Plug-Flow detention time= 16.8 min calculated for 0.188 af (99% of inflow)

Center-of-Mass det. time= 9.2 min (801.9 - 792.6)

Volume	Invert	Avail.Storage	Storage Description
#1	62.75'	3,834 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
62.75	500	0.0	0	0
64.25	500	40.0	300	300
64.50	500	33.0	41	341
66.00	500	5.0	38	379
67.00	900	100.0	700	1,079
68.00	1,357	100.0	1,129	2,207
69.00	1,897	100.0	1,627	3,834

Device	Routing	Invert	Outlet Devices
#1	Primary	62.75'	12.0" Round Culvert-Outlet Structure L= 140.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 62.75' / 61.50' S= 0.0089 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	67.50'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	63.25'	6.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 3	62.75'	10.00 cfs Exfiltration at all elevations

Primary OutFlow Max=1.70 cfs @ 12.18 hrs HW=66.48' (Free Discharge)

↑ **1=Culvert-Outlet Structure** (Passes 1.70 cfs of 5.49 cfs potential flow)

↑ **2=Orifice/Grate** (Controls 0.00 cfs)

↑ **3=Orifice/Grate** (Orifice Controls 1.70 cfs @ 8.66 fps)

↑ **4=Exfiltration** (Passes 1.70 cfs of 10.00 cfs potential flow)

Summary for Pond 2P: PDMH 2

[57] Hint: Peaked at 75.92' (Flood elevation advised)

[79] Warning: Submerged Pond 1P Primary device # 1 INLET by 0.70'

[81] Warning: Exceeded Pond 3P by 0.47' @ 12.10 hrs

Inflow Area = 0.712 ac, 96.12% Impervious, Inflow Depth = 5.10" for 10-yr event
 Inflow = 3.70 cfs @ 12.09 hrs, Volume= 0.302 af
 Outflow = 3.70 cfs @ 12.09 hrs, Volume= 0.302 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.70 cfs @ 12.09 hrs, Volume= 0.302 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 75.92' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.30'	12.0" Round Culvert L= 43.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 74.30' / 74.00' S= 0.0070 ' S= 0.0070 ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.60 cfs @ 12.09 hrs HW=75.87' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 3.60 cfs @ 4.59 fps)

Summary for Pond 2R: Raingarden 2

[62] Hint: Exceeded Reach 8/9R OUTLET depth by 0.28' @ 12.30 hrs

[79] Warning: Submerged Pond 23P Primary device # 1 INLET by 0.31'

Inflow Area = 4.689 ac, 47.33% Impervious, Inflow Depth = 2.54" for 10-yr event
 Inflow = 12.26 cfs @ 12.16 hrs, Volume= 0.991 af
 Outflow = 9.38 cfs @ 12.28 hrs, Volume= 0.978 af, Atten= 23%, Lag= 7.6 min
 Primary = 9.38 cfs @ 12.28 hrs, Volume= 0.978 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 56.51' @ 12.28 hrs Surf.Area= 5,529 sf Storage= 8,202 cf

Plug-Flow detention time= 42.1 min calculated for 0.978 af (99% of inflow)

Center-of-Mass det. time= 32.9 min (838.5 - 805.7)

Volume	Invert	Avail.Storage	Storage Description
#1	51.75'	24,273 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
51.75	3,000	0.0	0	0
53.25	3,000	40.0	1,800	1,800
53.50	3,000	33.0	248	2,048
55.00	3,000	5.0	225	2,273
56.00	4,000	100.0	3,500	5,773
57.00	7,000	100.0	5,500	11,273
58.00	9,000	100.0	8,000	19,273
58.50	11,000	100.0	5,000	24,273

Device	Routing	Invert	Outlet Devices
#1	Primary	52.00'	18.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.00' / 51.90' S= 0.0200 ' /' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	52.25'	6.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	56.00'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 2	51.75'	10.00 cfs Exfiltration at all elevations

Primary OutFlow Max=9.31 cfs @ 12.28 hrs HW=56.51' (Free Discharge)

1=Culvert (Passes 9.31 cfs of 16.49 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 1.89 cfs @ 9.64 fps)
 4=Exfiltration (Passes 1.89 cfs of 10.00 cfs potential flow)
 3=Orifice/Grate (Weir Controls 7.41 cfs @ 2.33 fps)

Summary for Pond 3P: PCB 3

Inflow Area = 0.354 ac, 98.23% Impervious, Inflow Depth = 5.15" for 10-yr event
 Inflow = 1.84 cfs @ 12.09 hrs, Volume= 0.152 af
 Outflow = 1.85 cfs @ 12.09 hrs, Volume= 0.152 af, Atten= 0%, Lag= 0.1 min
 Primary = 1.85 cfs @ 12.09 hrs, Volume= 0.152 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 75.43' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.3 min calculated for 0.152 af (100% of inflow)
 Center-of-Mass det. time= 0.3 min (751.9 - 751.6)

Volume	Invert	Avail.Storage	Storage Description
#1	74.60'	0.001 af	4.00'D x 3.60'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	74.60'	12.0" Round Culvert L= 23.7' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 74.60' / 74.40' S= 0.0084 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.80 cfs @ 12.09 hrs HW=75.42' (Free Discharge)

1=Culvert (Barrel Controls 1.80 cfs @ 3.57 fps)

Summary for Pond 4P: PDMH 4

[57] Hint: Peaked at 76.07' (Flood elevation advised)

[81] Warning: Exceeded Pond 2P by 0.15' @ 12.10 hrs

[81] Warning: Exceeded Pond 5P by 1.37' @ 12.10 hrs

Inflow Area = 0.857 ac, 96.78% Impervious, Inflow Depth > 5.12" for 10-yr event
 Inflow = 4.45 cfs @ 12.09 hrs, Volume= 0.365 af
 Outflow = 4.45 cfs @ 12.09 hrs, Volume= 0.365 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.45 cfs @ 12.09 hrs, Volume= 0.365 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 76.07' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	73.90'	12.0" Round Culvert L= 54.3' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.90' / 73.60' S= 0.0055 ' / Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=4.34 cfs @ 12.09 hrs HW=76.00' (Free Discharge)

↑1=Culvert (Barrel Controls 4.34 cfs @ 5.53 fps)

Summary for Pond 5P: PCB 5

Inflow Area = 0.145 ac, 100.00% Impervious, Inflow Depth > 5.22" for 10-yr event
 Inflow = 0.75 cfs @ 12.09 hrs, Volume= 0.063 af
 Outflow = 0.76 cfs @ 12.09 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.1 min
 Primary = 0.76 cfs @ 12.09 hrs, Volume= 0.063 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 74.68' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.063 af (100% of inflow)

Center-of-Mass det. time= 0.5 min (747.1 - 746.6)

Volume	Invert	Avail.Storage	Storage Description
#1	74.20'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	74.20'	12.0" Round Culvert L= 23.7' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 74.20' / 74.00' S= 0.0084 ' / Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.74 cfs @ 12.09 hrs HW=74.67' (Free Discharge)

↑1=Culvert (Barrel Controls 0.74 cfs @ 2.94 fps)

Summary for Pond 6P: PDMH 6

[57] Hint: Peaked at 74.40' (Flood elevation advised)

Inflow Area = 0.325 ac, 100.00% Impervious, Inflow Depth > 5.22" for 10-yr event
 Inflow = 1.70 cfs @ 12.09 hrs, Volume= 0.142 af
 Outflow = 1.70 cfs @ 12.09 hrs, Volume= 0.142 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.70 cfs @ 12.09 hrs, Volume= 0.142 af
 Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 74.40' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	73.60'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.60' / 73.50' S= 0.0200 ' S= 0.0200 ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	75.10'	12.0" Round Culvert L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.10' / 75.00' S= 0.0050 ' S= 0.0050 ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.65 cfs @ 12.09 hrs HW=74.39' (Free Discharge)
 ↑1=Culvert (Barrel Controls 1.65 cfs @ 3.43 fps)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=73.61' (Free Discharge)
 ↑2=Culvert (Controls 0.00 cfs)

Summary for Pond 7P: PCB 7

Inflow Area = 0.094 ac, 100.00% Impervious, Inflow Depth > 5.22" for 10-yr event
 Inflow = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af
 Outflow = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.1 min
 Primary = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 74.18' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.6 min calculated for 0.041 af (100% of inflow)
 Center-of-Mass det. time= 0.6 min (747.2 - 746.6)

Volume	Invert	Avail.Storage	Storage Description
#1	73.80'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	73.80'	12.0" Round Culvert L= 23.7' Ke= 0.500 Inlet / Outlet Invert= 73.80' / 73.60' S= 0.0084 ' S= 0.0084 ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.48 cfs @ 12.09 hrs HW=74.17' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.48 cfs @ 2.68 fps)

Summary for Pond 8P: PDMH 8

[57] Hint: Peaked at 73.89' (Flood elevation advised)

[79] Warning: Submerged Pond 7P Primary device # 1 INLET by 0.09'

Inflow Area = 0.094 ac, 100.00% Impervious, Inflow Depth > 5.22" for 10-yr event
 Inflow = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af
 Outflow = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 73.89' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	73.50'	12.0" Round Culvert L= 75.0' Ke= 0.500 Inlet / Outlet Invert= 73.50' / 73.10' S= 0.0053 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.48 cfs @ 12.09 hrs HW=73.89' (Free Discharge)↑**1=Culvert** (Barrel Controls 0.48 cfs @ 2.54 fps)**Summary for Pond 9P: PCB 9**

Inflow Area = 0.175 ac, 72.99% Impervious, Inflow Depth = 4.11" for 10-yr event
 Inflow = 0.80 cfs @ 12.09 hrs, Volume= 0.060 af
 Outflow = 0.80 cfs @ 12.09 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.1 min
 Primary = 0.80 cfs @ 12.09 hrs, Volume= 0.060 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 73.24' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.060 af (100% of inflow)
 Center-of-Mass det. time= 0.5 min (795.2 - 794.7)

Volume	Invert	Avail.Storage	Storage Description
#1	72.70'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	72.70'	12.0" Round Culvert L= 46.2' Ke= 0.500 Inlet / Outlet Invert= 72.70' / 72.50' S= 0.0043 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.78 cfs @ 12.09 hrs HW=73.23' (Free Discharge)↑**1=Culvert** (Barrel Controls 0.78 cfs @ 2.67 fps)

Summary for Pond 10P: PDMH 10

[57] Hint: Peaked at 73.00' (Flood elevation advised)

[79] Warning: Submerged Pond 9P Primary device # 1 INLET by 0.30'

Inflow Area = 0.270 ac, 82.45% Impervious, Inflow Depth > 4.50" for 10-yr event
 Inflow = 1.30 cfs @ 12.09 hrs, Volume= 0.101 af
 Outflow = 1.30 cfs @ 12.09 hrs, Volume= 0.101 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.30 cfs @ 12.09 hrs, Volume= 0.101 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 73.00' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	72.40'	12.0" Round Culvert L= 41.0' Ke= 0.500 Inlet / Outlet Invert= 72.40' / 66.00' S= 0.1561 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.27 cfs @ 12.09 hrs HW=72.99' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.27 cfs @ 2.62 fps)**Summary for Pond 11P: PCB 11**

Inflow Area = 0.207 ac, 67.82% Impervious, Inflow Depth = 4.05" for 10-yr event
 Inflow = 0.94 cfs @ 12.09 hrs, Volume= 0.070 af
 Outflow = 0.94 cfs @ 12.09 hrs, Volume= 0.070 af, Atten= 0%, Lag= 0.1 min
 Primary = 0.94 cfs @ 12.09 hrs, Volume= 0.070 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 67.10' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.4 min calculated for 0.070 af (100% of inflow)
 Center-of-Mass det. time= 0.4 min (796.8 - 796.5)

Volume	Invert	Avail.Storage	Storage Description
#1	66.60'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	66.60'	12.0" Round Culvert L= 35.0' Ke= 0.500 Inlet / Outlet Invert= 66.60' / 66.00' S= 0.0171 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.92 cfs @ 12.09 hrs HW=67.09' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.92 cfs @ 2.39 fps)

Summary for Pond 12P: PCI 12

[57] Hint: Peaked at 63.59' (Flood elevation advised)

Inflow Area = 0.184 ac, 65.30% Impervious, Inflow Depth = 3.81" for 10-yr event
 Inflow = 0.79 cfs @ 12.09 hrs, Volume= 0.058 af
 Outflow = 0.79 cfs @ 12.09 hrs, Volume= 0.058 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.79 cfs @ 12.09 hrs, Volume= 0.058 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 63.59' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	63.40'	36.0" W x 16.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.77 cfs @ 12.09 hrs HW=63.59' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.77 cfs @ 1.38 fps)

Summary for Pond 13P: PCI 13

[57] Hint: Peaked at 63.69' (Flood elevation advised)

[63] Warning: Exceeded Reach 10R INLET depth by 0.42' @ 12.10 hrs

Inflow Area = 0.665 ac, 88.49% Impervious, Inflow Depth = 4.77" for 10-yr event
 Inflow = 3.28 cfs @ 12.10 hrs, Volume= 0.264 af
 Outflow = 3.28 cfs @ 12.10 hrs, Volume= 0.264 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.28 cfs @ 12.10 hrs, Volume= 0.264 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 63.69' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	63.20'	36.0" W x 16.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=3.24 cfs @ 12.10 hrs HW=63.68' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 3.24 cfs @ 2.23 fps)

Summary for Pond 14P: PCI 14

[57] Hint: Peaked at 64.42' (Flood elevation advised)

[63] Warning: Exceeded Reach 11R INLET depth by 0.28' @ 12.10 hrs

Inflow Area = 0.363 ac, 85.85% Impervious, Inflow Depth = 4.63" for 10-yr event
 Inflow = 1.77 cfs @ 12.09 hrs, Volume= 0.140 af
 Outflow = 1.77 cfs @ 12.09 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.77 cfs @ 12.09 hrs, Volume= 0.140 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 64.42' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	64.10'	36.0" W x 16.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.74 cfs @ 12.09 hrs HW=64.42' (Free Discharge)

↑**1=Orifice/Grate** (Orifice Controls 1.74 cfs @ 1.82 fps)

Summary for Pond 15P: PCI 15

[57] Hint: Peaked at 65.16' (Flood elevation advised)

Inflow Area = 0.117 ac, 94.92% Impervious, Inflow Depth = 5.00" for 10-yr event
 Inflow = 0.60 cfs @ 12.09 hrs, Volume= 0.049 af
 Outflow = 0.60 cfs @ 12.09 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.60 cfs @ 12.09 hrs, Volume= 0.049 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 65.16' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	36.0" W x 16.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.59 cfs @ 12.09 hrs HW=65.15' (Free Discharge)

↑**1=Orifice/Grate** (Orifice Controls 0.59 cfs @ 1.26 fps)

Summary for Pond 16P: PCB 16

Inflow Area = 0.103 ac, 100.00% Impervious, Inflow Depth > 5.22" for 10-yr event
 Inflow = 0.54 cfs @ 12.09 hrs, Volume= 0.045 af
 Outflow = 0.54 cfs @ 12.09 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.1 min
 Primary = 0.54 cfs @ 12.09 hrs, Volume= 0.045 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 60.00' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.045 af (100% of inflow)
 Center-of-Mass det. time= 0.5 min (747.1 - 746.6)

Volume	Invert	Avail.Storage	Storage Description
#1	59.60'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	59.60'	12.0" Round Culvert L= 6.2' Ke= 0.500 Inlet / Outlet Invert= 59.60' / 59.50' S= 0.0161 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.52 cfs @ 12.09 hrs HW=60.00' (Free Discharge)

↑**1=Culvert** (Barrel Controls 0.52 cfs @ 2.68 fps)

Summary for Pond 17P: PCB 17

Inflow Area = 0.067 ac, 67.67% Impervious, Inflow Depth = 3.90" for 10-yr event
 Inflow = 0.30 cfs @ 12.09 hrs, Volume= 0.022 af
 Outflow = 0.30 cfs @ 12.09 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.1 min
 Primary = 0.30 cfs @ 12.09 hrs, Volume= 0.022 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 59.97' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.6 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 0.6 min (801.6 - 801.0)

Volume	Invert	Avail.Storage	Storage Description
#1	59.70'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	59.70'	12.0" Round Culvert L= 5.7' Ke= 0.500 Inlet / Outlet Invert= 59.70' / 59.50' S= 0.0351 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.29 cfs @ 12.09 hrs HW=59.96' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.29 cfs @ 1.75 fps)

Summary for Pond 18P: PDMH 18

[57] Hint: Peaked at 59.87' (Flood elevation advised)
 [79] Warning: Submerged Pond 16P Primary device # 1 INLET by 0.26'
 [79] Warning: Submerged Pond 17P Primary device # 1 INLET by 0.16'

Inflow Area = 0.170 ac, 87.18% Impervious, Inflow Depth > 4.70" for 10-yr event
 Inflow = 0.83 cfs @ 12.09 hrs, Volume= 0.067 af
 Outflow = 0.83 cfs @ 12.09 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.83 cfs @ 12.09 hrs, Volume= 0.067 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 59.87' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	59.40'	12.0" Round Culvert L= 172.0' Ke= 0.500 Inlet / Outlet Invert= 59.40' / 57.10' S= 0.0134 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.81 cfs @ 12.09 hrs HW=59.86' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.81 cfs @ 2.31 fps)

Summary for Pond 19P: PCB 19

Inflow Area = 0.130 ac, 76.97% Impervious, Inflow Depth = 4.26" for 10-yr event
 Inflow = 0.61 cfs @ 12.09 hrs, Volume= 0.046 af
 Outflow = 0.61 cfs @ 12.09 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.1 min
 Primary = 0.61 cfs @ 12.09 hrs, Volume= 0.046 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 57.83' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.046 af (100% of inflow)
 Center-of-Mass det. time= 0.5 min (790.1 - 789.7)

Volume	Invert	Avail.Storage	Storage Description
#1	57.40'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	57.40'	12.0" Round Culvert L= 6.3' Ke= 0.500 Inlet / Outlet Invert= 57.40' / 57.30' S= 0.0159 1' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.60 cfs @ 12.09 hrs HW=57.83' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.60 cfs @ 2.75 fps)

Summary for Pond 20P: PDMH 20

[57] Hint: Peaked at 57.87' (Flood elevation advised)
 [79] Warning: Submerged Pond 18P Primary device # 1 OUTLET by 0.77'
 [81] Warning: Exceeded Pond 19P by 0.04' @ 12.10 hrs

Inflow Area = 0.300 ac, 82.76% Impervious, Inflow Depth > 4.51" for 10-yr event
 Inflow = 1.44 cfs @ 12.09 hrs, Volume= 0.113 af
 Outflow = 1.44 cfs @ 12.09 hrs, Volume= 0.113 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.44 cfs @ 12.09 hrs, Volume= 0.113 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 57.87' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	57.20'	12.0" Round Culvert L= 139.2' Ke= 0.500 Inlet / Outlet Invert= 57.20' / 56.30' S= 0.0065 1' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.41 cfs @ 12.09 hrs HW=57.86' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.41 cfs @ 3.62 fps)

Summary for Pond 21P: PCB 21

Inflow Area = 0.072 ac, 90.91% Impervious, Inflow Depth = 4.88" for 10-yr event
 Inflow = 0.37 cfs @ 12.09 hrs, Volume= 0.029 af
 Outflow = 0.37 cfs @ 12.09 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.1 min
 Primary = 0.37 cfs @ 12.09 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 56.73' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.6 min calculated for 0.029 af (100% of inflow)
 Center-of-Mass det. time= 0.6 min (766.2 - 765.6)

Volume	Invert	Avail.Storage	Storage Description
#1	56.40'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	56.40'	12.0" Round Culvert L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 56.40' / 56.30' S= 0.0125 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.36 cfs @ 12.09 hrs HW=56.72' (Free Discharge)
 ↗ **1=Culvert** (Barrel Controls 0.36 cfs @ 2.44 fps)

Summary for Pond 22P: PCB 22

Inflow Area = 0.043 ac, 100.00% Impervious, Inflow Depth > 5.22" for 10-yr event
 Inflow = 0.22 cfs @ 12.09 hrs, Volume= 0.019 af
 Outflow = 0.22 cfs @ 12.09 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.2 min
 Primary = 0.22 cfs @ 12.09 hrs, Volume= 0.019 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 56.65' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.7 min calculated for 0.019 af (100% of inflow)
 Center-of-Mass det. time= 0.7 min (747.4 - 746.6)

Volume	Invert	Avail.Storage	Storage Description
#1	56.40'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	56.40'	12.0" Round Culvert L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 56.40' / 56.30' S= 0.0125 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.22 cfs @ 12.09 hrs HW=56.64' (Free Discharge)
 ↗ **1=Culvert** (Barrel Controls 0.22 cfs @ 2.21 fps)

Summary for Pond 23P: PDMH 23

[57] Hint: Peaked at 57.08' (Flood elevation advised)

[79] Warning: Submerged Pond 20P Primary device # 1 OUTLET by 0.78'

[81] Warning: Exceeded Pond 21P by 0.35' @ 12.10 hrs

[81] Warning: Exceeded Pond 22P by 0.43' @ 12.10 hrs

Inflow Area = 0.415 ac, 85.96% Impervious, Inflow Depth > 4.65" for 10-yr event
 Inflow = 2.04 cfs @ 12.09 hrs, Volume= 0.161 af
 Outflow = 2.04 cfs @ 12.09 hrs, Volume= 0.161 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.04 cfs @ 12.09 hrs, Volume= 0.161 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 57.08' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	56.20'	12.0" Round Culvert L= 21.0' Ke= 0.500 Inlet / Outlet Invert= 56.20' / 56.00' S= 0.0095 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.99 cfs @ 12.09 hrs HW=57.06' (Free Discharge)↑**1=Culvert** (Barrel Controls 1.99 cfs @ 3.69 fps)**Summary for Pond 28P: PDMH 6B**

[57] Hint: Peaked at 75.96' (Flood elevation advised)

[79] Warning: Submerged Pond 31P Primary device # 1 INLET by 1.06'

[79] Warning: Submerged Pond D3 Primary device # 1 INLET by 0.96'

Inflow Area = 1.182 ac, 97.67% Impervious, Inflow Depth = 1.55" for 10-yr event
 Inflow = 4.72 cfs @ 12.15 hrs, Volume= 0.153 af
 Outflow = 4.72 cfs @ 12.15 hrs, Volume= 0.153 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.72 cfs @ 12.15 hrs, Volume= 0.153 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 75.96' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.70'	15.0" Round Culvert L= 185.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 74.70' / 53.10' S= 0.1168 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=4.66 cfs @ 12.15 hrs HW=75.95' (Free Discharge)↑**1=Culvert** (Inlet Controls 4.66 cfs @ 3.80 fps)

Summary for Pond 29P: SWG Inlet MH

[57] Hint: Peaked at 75.48' (Flood elevation advised)

[79] Warning: Submerged Pond 4P Primary device # 1 INLET by 1.56'

Inflow Area = 0.857 ac, 96.78% Impervious, Inflow Depth > 5.12" for 10-yr event
 Inflow = 4.45 cfs @ 12.09 hrs, Volume= 0.365 af
 Outflow = 4.45 cfs @ 12.09 hrs, Volume= 0.365 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.45 cfs @ 12.09 hrs, Volume= 0.365 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 75.48' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	73.60'	12.0" Round Culvert L= 5.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.60' / 73.50' S= 0.0200 ' / ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=4.34 cfs @ 12.09 hrs HW=75.42' (Free Discharge)

↑1=Culvert (Inlet Controls 4.34 cfs @ 5.53 fps)

Summary for Pond 31P: PDMH 6

[57] Hint: Peaked at 75.96' (Flood elevation advised)

[81] Warning: Exceeded Pond 6P by 1.70' @ 12.20 hrs

[79] Warning: Submerged Pond D3 Secondary device # 2 INLET by 0.96'

Inflow = 2.36 cfs @ 12.15 hrs, Volume= 0.076 af
 Outflow = 2.36 cfs @ 12.15 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.36 cfs @ 12.15 hrs, Volume= 0.076 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 75.96' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.90'	12.0" Round Culvert L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 74.90' / 74.80' S= 0.0050 ' / ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.33 cfs @ 12.15 hrs HW=75.95' (Free Discharge)

↑1=Culvert (Barrel Controls 2.33 cfs @ 3.50 fps)

Summary for Pond D3: ADS Subsurface Storage Units (15 - SC130)

[81] Warning: Exceeded Pond 6P by 1.74' @ 12.20 hrs

[81] Warning: Exceeded Pond 29P by 1.34' @ 12.60 hrs

Inflow Area = 1.182 ac, 97.67% Impervious, Inflow Depth > 5.15" for 10-yr event
 Inflow = 6.15 cfs @ 12.09 hrs, Volume= 0.507 af
 Outflow = 5.07 cfs @ 12.15 hrs, Volume= 0.507 af, Atten= 18%, Lag= 4.0 min
 Discarded = 0.35 cfs @ 12.15 hrs, Volume= 0.354 af
 Primary = 2.36 cfs @ 12.15 hrs, Volume= 0.076 af
 Secondary = 2.36 cfs @ 12.15 hrs, Volume= 0.076 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 76.00' @ 12.15 hrs Surf.Area= 2,720 sf Storage= 5,470 cf

Plug-Flow detention time= 87.3 min calculated for 0.507 af (100% of inflow)
 Center-of-Mass det. time= 87.3 min (838.8 - 751.5)

Volume	Invert	Avail.Storage	Storage Description
#1	72.50'	3,785 cf	55.50'W x 49.00'L x 4.50'H Prismatoid 12,238 cf Overall - 2,776 cf Embedded = 9,462 cf x 40.0% Voids
#2	73.50'	2,776 cf	ADS_StormTech SC-740 +Cap @ 7.17' L x 60 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.17'L = 46.3 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 60 Chambers in 10 Rows
		6,561 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	75.00'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.00' / 74.90' S= 0.0200 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	75.00'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.00' / 74.90' S= 0.0200 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#3	Discarded	72.50'	3.000 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 66.00'

Discarded OutFlow Max=0.35 cfs @ 12.15 hrs HW=75.99' (Free Discharge)
 ↑ **3=Exfiltration** (Controls 0.35 cfs)

Primary OutFlow Max=2.33 cfs @ 12.15 hrs HW=75.99' (Free Discharge)
 ↑ **1=Culvert** (Barrel Controls 2.33 cfs @ 3.73 fps)

Secondary OutFlow Max=2.33 cfs @ 12.15 hrs HW=75.99' (Free Discharge)
 ↑ **2=Culvert** (Barrel Controls 2.33 cfs @ 3.73 fps)

Summary for Pond Plunge: Plunge Pool / level spreader

[57] Hint: Peaked at 47.50' (Flood elevation advised)

Inflow Area = 4.689 ac, 47.33% Impervious, Inflow Depth = 2.50" for 10-yr event
 Inflow = 9.38 cfs @ 12.28 hrs, Volume= 0.978 af
 Outflow = 9.38 cfs @ 12.28 hrs, Volume= 0.978 af, Atten= 0%, Lag= 0.0 min
 Primary = 9.38 cfs @ 12.28 hrs, Volume= 0.978 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 47.50' @ 12.28 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	10.0' long x 3.0' 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 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=9.32 cfs @ 12.28 hrs HW=47.50' (Free Discharge)

↑1=**Broad-Crested Rectangular Weir** (Weir Controls 9.32 cfs @ 1.86 fps)

Summary for Link 25L: Point of Analysis

Inflow Area = 9.059 ac, 28.51% Impervious, Inflow Depth = 2.69" for 10-yr event
 Inflow = 16.02 cfs @ 12.32 hrs, Volume= 2.033 af
 Primary = 16.02 cfs @ 12.32 hrs, Volume= 2.033 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Time span=1.00-48.00 hrs, dt=0.05 hrs, 941 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Upper Parking Lot Left	Runoff Area=15,579 sf 94.04% Impervious Runoff Depth=3.22" Tc=6.0 min CN=97 Runoff=1.21 cfs 0.096 af
Subcatchment2S: Upper Parking Lot Right	Runoff Area=15,439 sf 98.23% Impervious Runoff Depth=3.31" Tc=6.0 min CN=97 Runoff=1.21 cfs 0.098 af
Subcatchment3S: Upper Parking Lot Right	Runoff Area=6,296 sf 100.00% Impervious Runoff Depth=3.39" Tc=6.0 min CN=98 Runoff=0.50 cfs 0.041 af
Subcatchment4S: Southern Parking Lot	Runoff Area=4,115 sf 100.00% Impervious Runoff Depth=3.39" Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af
Subcatchment5S: Southern Parking Lot	Runoff Area=7,631 sf 72.99% Impervious Runoff Depth=2.38" Tc=6.0 min CN=88 Runoff=0.47 cfs 0.035 af
Subcatchment6S: Connector Drive	Runoff Area=9,038 sf 67.82% Impervious Runoff Depth=2.33" Tc=6.0 min CN=87 Runoff=0.55 cfs 0.040 af
Subcatchment7S: 7S	Runoff Area=6,098 sf 0.00% Impervious Runoff Depth=0.63" Tc=6.0 min CN=61 Runoff=0.08 cfs 0.007 af
Subcatchment8S: Lower Parking Lot Right	Runoff Area=8,008 sf 65.30% Impervious Runoff Depth=2.13" Tc=6.0 min CN=85 Runoff=0.45 cfs 0.033 af
Subcatchment9S: Lower Parking Lot	Runoff Area=13,171 sf 91.65% Impervious Runoff Depth=3.11" Tc=6.0 min CN=96 Runoff=1.00 cfs 0.078 af
Subcatchment10S: Lower Parking Lot	Runoff Area=10,699 sf 81.54% Impervious Runoff Depth=2.67" Tc=6.0 min CN=91 Runoff=0.73 cfs 0.055 af
Subcatchment11S: Lower Parking Lot Left	Runoff Area=5,094 sf 94.92% Impervious Runoff Depth=3.18" Tc=6.0 min CN=96 Runoff=0.39 cfs 0.031 af
Subcatchment12S: Driveway Exit	Runoff Area=4,470 sf 100.00% Impervious Runoff Depth=3.39" Tc=6.0 min CN=98 Runoff=0.35 cfs 0.029 af
Subcatchment13S: Beginning of Road	Runoff Area=2,935 sf 67.67% Impervious Runoff Depth=2.21" Tc=6.0 min CN=86 Runoff=0.17 cfs 0.012 af
Subcatchment14S: Road Extension	Runoff Area=5,653 sf 76.97% Impervious Runoff Depth=2.51" Tc=6.0 min CN=89 Runoff=0.37 cfs 0.027 af
Subcatchment15S: Road Extension	Runoff Area=3,148 sf 90.91% Impervious Runoff Depth=3.06" Tc=6.0 min CN=95 Runoff=0.24 cfs 0.018 af
Subcatchment16S: Road Extension	Runoff Area=1,869 sf 100.00% Impervious Runoff Depth=3.39" Tc=6.0 min CN=98 Runoff=0.15 cfs 0.012 af

Subcatchment B1S: Building Roof	Runoff Area=14,178 sf 100.00% Impervious Runoff Depth=3.39" Tc=6.0 min CN=98 Runoff=1.12 cfs 0.092 af
Subcatchment BS: Northern Wetlands	Runoff Area=163,457 sf 0.00% Impervious Runoff Depth=1.35" Flow Length=700' Tc=28.6 min CN=74 Runoff=3.31 cfs 0.422 af
Subcatchment CS: Lawn Between Building	Runoff Area=97,726 sf 0.00% Impervious Runoff Depth=0.77" Flow Length=285' Tc=19.2 min CN=64 Runoff=1.15 cfs 0.145 af
Reach 8/9R: Rd swale	Avg. Flow Depth=0.27' Max Vel=3.30 fps Inflow=2.53 cfs 0.197 af n=0.025 L=233.0' S=0.0258 '/' Capacity=83.37 cfs Outflow=2.39 cfs 0.197 af
Reach 10R: Swale	Avg. Flow Depth=0.20' Max Vel=2.10 fps Inflow=1.11 cfs 0.086 af n=0.025 L=70.0' S=0.0143 '/' Capacity=62.10 cfs Outflow=1.09 cfs 0.086 af
Reach 11R: Swale	Avg. Flow Depth=0.11' Max Vel=1.55 fps Inflow=0.39 cfs 0.031 af n=0.025 L=63.0' S=0.0159 '/' Capacity=65.46 cfs Outflow=0.38 cfs 0.031 af
Reach 26R: Swale	Avg. Flow Depth=0.06' Max Vel=1.90 fps Inflow=1.09 cfs 0.041 af n=0.025 L=100.0' S=0.0500 '/' Capacity=163.50 cfs Outflow=1.07 cfs 0.041 af
Reach 32R: Swale	Avg. Flow Depth=0.15' Max Vel=2.01 fps Inflow=1.26 cfs 0.107 af n=0.040 L=300.0' S=0.0467 '/' Capacity=114.38 cfs Outflow=1.14 cfs 0.107 af
Reach 33R: Swale	Avg. Flow Depth=0.15' Max Vel=0.34 fps Inflow=1.14 cfs 0.107 af n=0.040 L=900.0' S=0.0011 '/' Capacity=110.82 cfs Outflow=0.55 cfs 0.107 af
Pond 1P: PCB 1	Peak Elev=75.84' Storage=0.000 af Inflow=1.21 cfs 0.096 af 12.0" Round Culvert n=0.012 L=157.8' S=0.0051 '/' Outflow=1.21 cfs 0.096 af
Pond 1R: Raingarden 1	Peak Elev=65.01' Storage=354 cf Inflow=1.43 cfs 0.109 af Outflow=1.26 cfs 0.107 af
Pond 2P: PDMH 2	Peak Elev=75.30' Inflow=2.42 cfs 0.194 af 12.0" Round Culvert n=0.012 L=43.0' S=0.0070 '/' Outflow=2.42 cfs 0.194 af
Pond 2R: Raingarden 2	Peak Elev=55.98' Storage=5,682 cf Inflow=4.10 cfs 0.482 af Outflow=1.76 cfs 0.468 af
Pond 3P: PCB 3	Peak Elev=75.24' Storage=0.000 af Inflow=1.21 cfs 0.098 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=1.21 cfs 0.098 af
Pond 4P: PDMH 4	Peak Elev=75.14' Inflow=2.92 cfs 0.235 af 12.0" Round Culvert n=0.012 L=54.3' S=0.0055 '/' Outflow=2.92 cfs 0.235 af
Pond 5P: PCB 5	Peak Elev=74.58' Storage=0.000 af Inflow=0.50 cfs 0.041 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=0.50 cfs 0.041 af
Pond 6P: PDMH 6	Peak Elev=74.22' Inflow=1.12 cfs 0.092 af Primary=1.12 cfs 0.092 af Secondary=0.00 cfs 0.000 af Outflow=1.12 cfs 0.092 af
Pond 7P: PCB 7	Peak Elev=74.10' Storage=0.000 af Inflow=0.33 cfs 0.027 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=0.33 cfs 0.027 af

Pond 8P: PDMH 8

Peak Elev=73.82' Inflow=0.33 cfs 0.027 af
 12.0" Round Culvert n=0.012 L=75.0' S=0.0053 ' Outflow=0.33 cfs 0.027 af

Pond 9P: PCB 9

Peak Elev=73.11' Storage=0.000 af Inflow=0.47 cfs 0.035 af
 12.0" Round Culvert n=0.012 L=46.2' S=0.0043 ' Outflow=0.48 cfs 0.035 af

Pond 10P: PDMH 10

Peak Elev=72.86' Inflow=0.80 cfs 0.061 af
 12.0" Round Culvert n=0.012 L=41.0' S=0.1561 ' Outflow=0.80 cfs 0.061 af

Pond 11P: PCB 11

Peak Elev=66.97' Storage=0.000 af Inflow=0.55 cfs 0.040 af
 12.0" Round Culvert n=0.012 L=35.0' S=0.0171 ' Outflow=0.55 cfs 0.040 af

Pond 12P: PCI 12

Peak Elev=63.53' Inflow=0.45 cfs 0.033 af
 Outflow=0.45 cfs 0.033 af

Pond 13P: PCI 13

Peak Elev=63.56' Inflow=2.08 cfs 0.164 af
 Outflow=2.08 cfs 0.164 af

Pond 14P: PCI 14

Peak Elev=64.34' Inflow=1.11 cfs 0.086 af
 Outflow=1.11 cfs 0.086 af

Pond 15P: PCI 15

Peak Elev=65.12' Inflow=0.39 cfs 0.031 af
 Outflow=0.39 cfs 0.031 af

Pond 16P: PCB 16

Peak Elev=59.92' Storage=0.000 af Inflow=0.35 cfs 0.029 af
 12.0" Round Culvert n=0.012 L=6.2' S=0.0161 ' Outflow=0.35 cfs 0.029 af

Pond 17P: PCB 17

Peak Elev=59.90' Storage=0.000 af Inflow=0.17 cfs 0.012 af
 12.0" Round Culvert n=0.012 L=5.7' S=0.0351 ' Outflow=0.17 cfs 0.012 af

Pond 18P: PDMH 18

Peak Elev=59.76' Inflow=0.52 cfs 0.041 af
 12.0" Round Culvert n=0.012 L=172.0' S=0.0134 ' Outflow=0.52 cfs 0.041 af

Pond 19P: PCB 19

Peak Elev=57.72' Storage=0.000 af Inflow=0.37 cfs 0.027 af
 12.0" Round Culvert n=0.012 L=6.3' S=0.0159 ' Outflow=0.37 cfs 0.027 af

Pond 20P: PDMH 20

Peak Elev=57.71' Inflow=0.89 cfs 0.069 af
 12.0" Round Culvert n=0.012 L=139.2' S=0.0065 ' Outflow=0.89 cfs 0.069 af

Pond 21P: PCB 21

Peak Elev=56.66' Storage=0.000 af Inflow=0.24 cfs 0.018 af
 12.0" Round Culvert n=0.012 L=8.0' S=0.0125 ' Outflow=0.24 cfs 0.018 af

Pond 22P: PCB 22

Peak Elev=56.60' Storage=0.000 af Inflow=0.15 cfs 0.012 af
 12.0" Round Culvert n=0.012 L=8.0' S=0.0125 ' Outflow=0.15 cfs 0.012 af

Pond 23P: PDMH 23

Peak Elev=56.85' Inflow=1.28 cfs 0.099 af
 12.0" Round Culvert n=0.012 L=21.0' S=0.0095 ' Outflow=1.28 cfs 0.099 af

Pond 28P: PDMH 6B

Peak Elev=75.20' Inflow=1.09 cfs 0.041 af
 15.0" Round Culvert n=0.012 L=185.0' S=0.1168 ' Outflow=1.09 cfs 0.041 af

Pond 29P: SWG Inlet MH

Peak Elev=74.78' Inflow=2.92 cfs 0.235 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=2.92 cfs 0.235 af

Pond 31P: PDMH 6

Peak Elev=75.34' Inflow=0.55 cfs 0.021 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=0.55 cfs 0.021 af

Pond D3: ADS Subsurface Storage Units (15 - Peak Elev=75.40' Storage=4,671 cf Inflow=4.04 cfs 0.326 af
Discarded=0.32 cfs 0.285 af Primary=0.55 cfs 0.021 af Secondary=0.55 cfs 0.021 af Outflow=1.41 cfs 0.326 af

Pond Plunge: Plunge Pool / level spreader

Peak Elev=47.17' Inflow=1.76 cfs 0.468 af
Outflow=1.76 cfs 0.468 af

Link 25L: Point of Analysis

Inflow=5.09 cfs 0.997 af
Primary=5.09 cfs 0.997 af

Total Runoff Area = 9.059 ac Runoff Volume = 1.298 af Average Runoff Depth = 1.72"
71.49% Pervious = 6.476 ac 28.51% Impervious = 2.583 ac

Time span=1.00-48.00 hrs, dt=0.05 hrs, 941 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Upper Parking Lot Left	Runoff Area=15,579 sf 94.04% Impervious Runoff Depth=6.50" Tc=6.0 min CN=97 Runoff=2.35 cfs 0.194 af
Subcatchment2S: Upper Parking Lot Right	Runoff Area=15,439 sf 98.23% Impervious Runoff Depth>6.59" Tc=6.0 min CN=97 Runoff=2.34 cfs 0.195 af
Subcatchment3S: Upper Parking Lot Right	Runoff Area=6,296 sf 100.00% Impervious Runoff Depth>6.67" Tc=6.0 min CN=98 Runoff=0.96 cfs 0.080 af
Subcatchment4S: Southern Parking Lot	Runoff Area=4,115 sf 100.00% Impervious Runoff Depth>6.67" Tc=6.0 min CN=98 Runoff=0.63 cfs 0.053 af
Subcatchment5S: Southern Parking Lot	Runoff Area=7,631 sf 72.99% Impervious Runoff Depth=5.51" Tc=6.0 min CN=88 Runoff=1.06 cfs 0.080 af
Subcatchment6S: Connector Drive	Runoff Area=9,038 sf 67.82% Impervious Runoff Depth=5.45" Tc=6.0 min CN=87 Runoff=1.24 cfs 0.094 af
Subcatchment7S: 7S	Runoff Area=6,098 sf 0.00% Impervious Runoff Depth=2.64" Tc=6.0 min CN=61 Runoff=0.41 cfs 0.031 af
Subcatchment8S: Lower Parking Lot Right	Runoff Area=8,008 sf 65.30% Impervious Runoff Depth=5.18" Tc=6.0 min CN=85 Runoff=1.06 cfs 0.079 af
Subcatchment9S: Lower Parking Lot	Runoff Area=13,171 sf 91.65% Impervious Runoff Depth=6.38" Tc=6.0 min CN=96 Runoff=1.98 cfs 0.161 af
Subcatchment10S: Lower Parking Lot	Runoff Area=10,699 sf 81.54% Impervious Runoff Depth=5.87" Tc=6.0 min CN=91 Runoff=1.54 cfs 0.120 af
Subcatchment11S: Lower Parking Lot Left	Runoff Area=5,094 sf 94.92% Impervious Runoff Depth=6.45" Tc=6.0 min CN=96 Runoff=0.77 cfs 0.063 af
Subcatchment12S: Driveway Exit	Runoff Area=4,470 sf 100.00% Impervious Runoff Depth>6.67" Tc=6.0 min CN=98 Runoff=0.68 cfs 0.057 af
Subcatchment13S: Beginning of Road	Runoff Area=2,935 sf 67.67% Impervious Runoff Depth=5.28" Tc=6.0 min CN=86 Runoff=0.39 cfs 0.030 af
Subcatchment14S: Road Extension	Runoff Area=5,653 sf 76.97% Impervious Runoff Depth=5.68" Tc=6.0 min CN=89 Runoff=0.80 cfs 0.061 af
Subcatchment15S: Road Extension	Runoff Area=3,148 sf 90.91% Impervious Runoff Depth=6.32" Tc=6.0 min CN=95 Runoff=0.47 cfs 0.038 af
Subcatchment16S: Road Extension	Runoff Area=1,869 sf 100.00% Impervious Runoff Depth>6.67" Tc=6.0 min CN=98 Runoff=0.28 cfs 0.024 af

Subcatchment B1S: Building Roof	Runoff Area=14,178 sf 100.00% Impervious Runoff Depth>6.67" Tc=6.0 min CN=98 Runoff=2.15 cfs 0.181 af
Subcatchment BS: Northern Wetlands	Runoff Area=163,457 sf 0.00% Impervious Runoff Depth=4.01" Flow Length=700' Tc=28.6 min CN=74 Runoff=10.16 cfs 1.253 af
Subcatchment CS: Lawn Between Building	Runoff Area=97,726 sf 0.00% Impervious Runoff Depth=2.95" Flow Length=285' Tc=19.2 min CN=64 Runoff=5.20 cfs 0.552 af
Reach 8/9R: Rd swale	Avg. Flow Depth=0.40' Max Vel=4.10 fps Inflow=5.27 cfs 0.423 af n=0.025 L=233.0' S=0.0258 ' Capacity=83.37 cfs Outflow=5.04 cfs 0.423 af
Reach 10R: Swale	Avg. Flow Depth=0.30' Max Vel=2.62 fps Inflow=2.29 cfs 0.183 af n=0.025 L=70.0' S=0.0143 ' Capacity=62.10 cfs Outflow=2.25 cfs 0.183 af
Reach 11R: Swale	Avg. Flow Depth=0.16' Max Vel=1.94 fps Inflow=0.77 cfs 0.063 af n=0.025 L=63.0' S=0.0159 ' Capacity=65.46 cfs Outflow=0.75 cfs 0.063 af
Reach 26R: Swale	Avg. Flow Depth=0.16' Max Vel=3.73 fps Inflow=6.49 cfs 0.251 af n=0.025 L=100.0' S=0.0500 ' Capacity=163.50 cfs Outflow=6.43 cfs 0.251 af
Reach 32R: Swale	Avg. Flow Depth=0.20' Max Vel=2.34 fps Inflow=1.85 cfs 0.256 af n=0.040 L=300.0' S=0.0467 ' Capacity=114.38 cfs Outflow=1.85 cfs 0.256 af
Reach 33R: Swale	Avg. Flow Depth=0.28' Max Vel=0.50 fps Inflow=1.85 cfs 0.256 af n=0.040 L=900.0' S=0.0011 ' Capacity=110.82 cfs Outflow=1.48 cfs 0.256 af
Pond 1P: PCB 1	Peak Elev=76.19' Storage=0.000 af Inflow=2.35 cfs 0.194 af 12.0" Round Culvert n=0.012 L=157.8' S=0.0051 ' Outflow=2.35 cfs 0.194 af
Pond 1R: Raingarden 1	Peak Elev=67.09' Storage=1,160 cf Inflow=3.34 cfs 0.258 af Outflow=1.85 cfs 0.256 af
Pond 2P: PDMH 2	Peak Elev=76.47' Inflow=4.70 cfs 0.388 af 12.0" Round Culvert n=0.012 L=43.0' S=0.0070 ' Outflow=4.70 cfs 0.388 af
Pond 2R: Raingarden 2	Peak Elev=56.75' Storage=9,606 cf Inflow=17.30 cfs 1.436 af Outflow=15.08 cfs 1.422 af
Pond 3P: PCB 3	Peak Elev=75.58' Storage=0.000 af Inflow=2.34 cfs 0.195 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 ' Outflow=2.34 cfs 0.195 af
Pond 4P: PDMH 4	Peak Elev=76.97' Inflow=5.66 cfs 0.469 af 12.0" Round Culvert n=0.012 L=54.3' S=0.0055 ' Outflow=5.66 cfs 0.469 af
Pond 5P: PCB 5	Peak Elev=74.75' Storage=0.000 af Inflow=0.96 cfs 0.080 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 ' Outflow=0.96 cfs 0.080 af
Pond 6P: PDMH 6	Peak Elev=74.54' Inflow=2.15 cfs 0.181 af Primary=2.15 cfs 0.181 af Secondary=0.00 cfs 0.000 af Outflow=2.15 cfs 0.181 af
Pond 7P: PCB 7	Peak Elev=74.23' Storage=0.000 af Inflow=0.63 cfs 0.053 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 ' Outflow=0.63 cfs 0.053 af

Pond 8P: PDMH 8

Peak Elev=73.95' Inflow=0.63 cfs 0.053 af
 12.0" Round Culvert n=0.012 L=75.0' S=0.0053 '/' Outflow=0.63 cfs 0.053 af

Pond 9P: PCB 9

Peak Elev=73.33' Storage=0.000 af Inflow=1.06 cfs 0.080 af
 12.0" Round Culvert n=0.012 L=46.2' S=0.0043 '/' Outflow=1.06 cfs 0.080 af

Pond 10P: PDMH 10

Peak Elev=73.10' Inflow=1.69 cfs 0.133 af
 12.0" Round Culvert n=0.012 L=41.0' S=0.1561 '/' Outflow=1.69 cfs 0.133 af

Pond 11P: PCB 11

Peak Elev=67.19' Storage=0.000 af Inflow=1.24 cfs 0.094 af
 12.0" Round Culvert n=0.012 L=35.0' S=0.0171 '/' Outflow=1.24 cfs 0.094 af

Pond 12P: PCI 12

Peak Elev=63.63' Inflow=1.06 cfs 0.079 af
 Outflow=1.06 cfs 0.079 af

Pond 13P: PCI 13

Peak Elev=63.78' Inflow=4.21 cfs 0.344 af
 Outflow=4.21 cfs 0.344 af

Pond 14P: PCI 14

Peak Elev=64.48' Inflow=2.29 cfs 0.183 af
 Outflow=2.29 cfs 0.183 af

Pond 15P: PCI 15

Peak Elev=65.19' Inflow=0.77 cfs 0.063 af
 Outflow=0.77 cfs 0.063 af

Pond 16P: PCB 16

Peak Elev=60.06' Storage=0.000 af Inflow=0.68 cfs 0.057 af
 12.0" Round Culvert n=0.012 L=6.2' S=0.0161 '/' Outflow=0.68 cfs 0.057 af

Pond 17P: PCB 17

Peak Elev=60.01' Storage=0.000 af Inflow=0.39 cfs 0.030 af
 12.0" Round Culvert n=0.012 L=5.7' S=0.0351 '/' Outflow=0.40 cfs 0.030 af

Pond 18P: PDMH 18

Peak Elev=59.94' Inflow=1.08 cfs 0.087 af
 12.0" Round Culvert n=0.012 L=172.0' S=0.0134 '/' Outflow=1.08 cfs 0.087 af

Pond 19P: PCB 19

Peak Elev=57.91' Storage=0.000 af Inflow=0.80 cfs 0.061 af
 12.0" Round Culvert n=0.012 L=6.3' S=0.0159 '/' Outflow=0.80 cfs 0.061 af

Pond 20P: PDMH 20

Peak Elev=57.99' Inflow=1.88 cfs 0.148 af
 12.0" Round Culvert n=0.012 L=139.2' S=0.0065 '/' Outflow=1.88 cfs 0.148 af

Pond 21P: PCB 21

Peak Elev=56.78' Storage=0.000 af Inflow=0.47 cfs 0.038 af
 12.0" Round Culvert n=0.012 L=8.0' S=0.0125 '/' Outflow=0.47 cfs 0.038 af

Pond 22P: PCB 22

Peak Elev=56.68' Storage=0.000 af Inflow=0.28 cfs 0.024 af
 12.0" Round Culvert n=0.012 L=8.0' S=0.0125 '/' Outflow=0.28 cfs 0.024 af

Pond 23P: PDMH 23

Peak Elev=57.26' Inflow=2.63 cfs 0.210 af
 12.0" Round Culvert n=0.012 L=21.0' S=0.0095 '/' Outflow=2.63 cfs 0.210 af

Pond 28P: PDMH 6B

Peak Elev=76.53' Inflow=6.49 cfs 0.251 af
 15.0" Round Culvert n=0.012 L=185.0' S=0.1168 '/' Outflow=6.49 cfs 0.251 af

Pond 29P: SWG Inlet MH

Peak Elev=76.33' Inflow=5.66 cfs 0.469 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=5.66 cfs 0.469 af

Pond 31P: PDMH 6

Peak Elev=76.35' Inflow=3.25 cfs 0.126 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=3.25 cfs 0.126 af

Pond D3: ADS Subsurface Storage Units (15 - Peak Elev=76.32' Storage=5,817 cf Inflow=7.81 cfs 0.650 af
Discarded=0.37 cfs 0.398 af Primary=3.25 cfs 0.126 af Secondary=3.25 cfs 0.126 af Outflow=6.86 cfs 0.650 af

Pond Plunge: Plunge Pool / level spreader

Peak Elev=47.68' Inflow=15.08 cfs 1.422 af
Outflow=15.08 cfs 1.422 af

Link 25L: Point of Analysis

Inflow=23.78 cfs 2.930 af
Primary=23.78 cfs 2.930 af

Total Runoff Area = 9.059 ac Runoff Volume = 3.345 af Average Runoff Depth = 4.43"
71.49% Pervious = 6.476 ac 28.51% Impervious = 2.583 ac

Time span=1.00-48.00 hrs, dt=0.05 hrs, 941 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Upper Parking Lot Left	Runoff Area=15,579 sf 94.04% Impervious Runoff Depth>7.84" Tc=6.0 min CN=97 Runoff=2.82 cfs 0.234 af
Subcatchment2S: Upper Parking Lot Right	Runoff Area=15,439 sf 98.23% Impervious Runoff Depth>7.94" Tc=6.0 min CN=97 Runoff=2.80 cfs 0.235 af
Subcatchment3S: Upper Parking Lot Right	Runoff Area=6,296 sf 100.00% Impervious Runoff Depth>8.02" Tc=6.0 min CN=98 Runoff=1.14 cfs 0.097 af
Subcatchment4S: Southern Parking Lot	Runoff Area=4,115 sf 100.00% Impervious Runoff Depth>8.02" Tc=6.0 min CN=98 Runoff=0.75 cfs 0.063 af
Subcatchment5S: Southern Parking Lot	Runoff Area=7,631 sf 72.99% Impervious Runoff Depth=6.82" Tc=6.0 min CN=88 Runoff=1.30 cfs 0.100 af
Subcatchment6S: Connector Drive	Runoff Area=9,038 sf 67.82% Impervious Runoff Depth=6.76" Tc=6.0 min CN=87 Runoff=1.52 cfs 0.117 af
Subcatchment7S: 7S	Runoff Area=6,098 sf 0.00% Impervious Runoff Depth=3.64" Tc=6.0 min CN=61 Runoff=0.58 cfs 0.043 af
Subcatchment8S: Lower Parking Lot Right	Runoff Area=8,008 sf 65.30% Impervious Runoff Depth=6.48" Tc=6.0 min CN=85 Runoff=1.31 cfs 0.099 af
Subcatchment9S: Lower Parking Lot	Runoff Area=13,171 sf 91.65% Impervious Runoff Depth=7.72" Tc=6.0 min CN=96 Runoff=2.37 cfs 0.195 af
Subcatchment10S: Lower Parking Lot	Runoff Area=10,699 sf 81.54% Impervious Runoff Depth=7.20" Tc=6.0 min CN=91 Runoff=1.87 cfs 0.147 af
Subcatchment11S: Lower Parking Lot Left	Runoff Area=5,094 sf 94.92% Impervious Runoff Depth>7.79" Tc=6.0 min CN=96 Runoff=0.92 cfs 0.076 af
Subcatchment12S: Driveway Exit	Runoff Area=4,470 sf 100.00% Impervious Runoff Depth>8.02" Tc=6.0 min CN=98 Runoff=0.81 cfs 0.069 af
Subcatchment13S: Beginning of Road	Runoff Area=2,935 sf 67.67% Impervious Runoff Depth=6.59" Tc=6.0 min CN=86 Runoff=0.49 cfs 0.037 af
Subcatchment14S: Road Extension	Runoff Area=5,653 sf 76.97% Impervious Runoff Depth=7.00" Tc=6.0 min CN=89 Runoff=0.97 cfs 0.076 af
Subcatchment15S: Road Extension	Runoff Area=3,148 sf 90.91% Impervious Runoff Depth=7.67" Tc=6.0 min CN=95 Runoff=0.57 cfs 0.046 af
Subcatchment16S: Road Extension	Runoff Area=1,869 sf 100.00% Impervious Runoff Depth>8.02" Tc=6.0 min CN=98 Runoff=0.34 cfs 0.029 af

Subcatchment B1S: Building Roof	Runoff Area=14,178 sf 100.00% Impervious Runoff Depth>8.02" Tc=6.0 min CN=98 Runoff=2.58 cfs 0.217 af
Subcatchment BS: Northern Wetlands	Runoff Area=163,457 sf 0.00% Impervious Runoff Depth=5.21" Flow Length=700' Tc=28.6 min CN=74 Runoff=13.17 cfs 1.628 af
Subcatchment CS: Lawn Between Building	Runoff Area=97,726 sf 0.00% Impervious Runoff Depth=4.01" Flow Length=285' Tc=19.2 min CN=64 Runoff=7.18 cfs 0.750 af
Reach 8/9R: Rd swale	Avg. Flow Depth=0.44' Max Vel=4.33 fps Inflow=6.39 cfs 0.517 af n=0.025 L=233.0' S=0.0258 ' Capacity=83.37 cfs Outflow=6.13 cfs 0.517 af
Reach 10R: Swale	Avg. Flow Depth=0.33' Max Vel=2.77 fps Inflow=2.77 cfs 0.223 af n=0.025 L=70.0' S=0.0143 ' Capacity=62.10 cfs Outflow=2.73 cfs 0.223 af
Reach 11R: Swale	Avg. Flow Depth=0.18' Max Vel=2.05 fps Inflow=0.92 cfs 0.076 af n=0.025 L=63.0' S=0.0159 ' Capacity=65.46 cfs Outflow=0.90 cfs 0.076 af
Reach 26R: Swale	Avg. Flow Depth=0.18' Max Vel=4.00 fps Inflow=7.85 cfs 0.348 af n=0.025 L=100.0' S=0.0500 ' Capacity=163.50 cfs Outflow=7.78 cfs 0.348 af
Reach 32R: Swale	Avg. Flow Depth=0.22' Max Vel=2.45 fps Inflow=2.18 cfs 0.320 af n=0.040 L=300.0' S=0.0467 ' Capacity=114.38 cfs Outflow=2.14 cfs 0.320 af
Reach 33R: Swale	Avg. Flow Depth=0.30' Max Vel=0.52 fps Inflow=2.14 cfs 0.320 af n=0.040 L=900.0' S=0.0011 ' Capacity=110.82 cfs Outflow=1.71 cfs 0.320 af
Pond 1P: PCB 1	Peak Elev=76.38' Storage=0.000 af Inflow=2.82 cfs 0.234 af 12.0" Round Culvert n=0.012 L=157.8' S=0.0051 ' Outflow=2.82 cfs 0.234 af
Pond 1R: Raingarden 1	Peak Elev=67.57' Storage=1,670 cf Inflow=4.15 cfs 0.322 af Outflow=2.18 cfs 0.320 af
Pond 2P: PDMH 2	Peak Elev=77.10' Inflow=5.63 cfs 0.468 af 12.0" Round Culvert n=0.012 L=43.0' S=0.0070 ' Outflow=5.63 cfs 0.468 af
Pond 2R: Raingarden 2	Peak Elev=57.05' Storage=11,597 cf Inflow=21.66 cfs 1.871 af Outflow=17.46 cfs 1.857 af
Pond 3P: PCB 3	Peak Elev=75.73' Storage=0.000 af Inflow=2.80 cfs 0.235 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 ' Outflow=2.80 cfs 0.235 af
Pond 4P: PDMH 4	Peak Elev=78.00' Inflow=6.77 cfs 0.565 af 12.0" Round Culvert n=0.012 L=54.3' S=0.0055 ' Outflow=6.77 cfs 0.565 af
Pond 5P: PCB 5	Peak Elev=74.82' Storage=0.000 af Inflow=1.14 cfs 0.097 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 ' Outflow=1.15 cfs 0.097 af
Pond 6P: PDMH 6	Peak Elev=74.66' Inflow=2.58 cfs 0.217 af Primary=2.58 cfs 0.217 af Secondary=0.00 cfs 0.000 af Outflow=2.58 cfs 0.217 af
Pond 7P: PCB 7	Peak Elev=74.28' Storage=0.000 af Inflow=0.75 cfs 0.063 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 ' Outflow=0.75 cfs 0.063 af

Pond 8P: PDMH 8

Peak Elev=73.99' Inflow=0.75 cfs 0.063 af
 12.0" Round Culvert n=0.012 L=75.0' S=0.0053 '/' Outflow=0.75 cfs 0.063 af

Pond 9P: PCB 9

Peak Elev=73.41' Storage=0.000 af Inflow=1.30 cfs 0.100 af
 12.0" Round Culvert n=0.012 L=46.2' S=0.0043 '/' Outflow=1.30 cfs 0.100 af

Pond 10P: PDMH 10

Peak Elev=73.20' Inflow=2.05 cfs 0.163 af
 12.0" Round Culvert n=0.012 L=41.0' S=0.1561 '/' Outflow=2.05 cfs 0.163 af

Pond 11P: PCB 11

Peak Elev=67.26' Storage=0.000 af Inflow=1.52 cfs 0.117 af
 12.0" Round Culvert n=0.012 L=35.0' S=0.0171 '/' Outflow=1.53 cfs 0.117 af

Pond 12P: PCI 12

Peak Elev=63.66' Inflow=1.31 cfs 0.099 af
 Outflow=1.31 cfs 0.099 af

Pond 13P: PCI 13

Peak Elev=63.85' Inflow=5.08 cfs 0.418 af
 Outflow=5.08 cfs 0.418 af

Pond 14P: PCI 14

Peak Elev=64.54' Inflow=2.77 cfs 0.223 af
 Outflow=2.77 cfs 0.223 af

Pond 15P: PCI 15

Peak Elev=65.21' Inflow=0.92 cfs 0.076 af
 Outflow=0.92 cfs 0.076 af

Pond 16P: PCB 16

Peak Elev=60.11' Storage=0.000 af Inflow=0.81 cfs 0.069 af
 12.0" Round Culvert n=0.012 L=6.2' S=0.0161 '/' Outflow=0.81 cfs 0.069 af

Pond 17P: PCB 17

Peak Elev=60.05' Storage=0.000 af Inflow=0.49 cfs 0.037 af
 12.0" Round Culvert n=0.012 L=5.7' S=0.0351 '/' Outflow=0.49 cfs 0.037 af

Pond 18P: PDMH 18

Peak Elev=60.00' Inflow=1.30 cfs 0.106 af
 12.0" Round Culvert n=0.012 L=172.0' S=0.0134 '/' Outflow=1.30 cfs 0.106 af

Pond 19P: PCB 19

Peak Elev=57.97' Storage=0.000 af Inflow=0.97 cfs 0.076 af
 12.0" Round Culvert n=0.012 L=6.3' S=0.0159 '/' Outflow=0.98 cfs 0.076 af

Pond 20P: PDMH 20

Peak Elev=58.11' Inflow=2.28 cfs 0.181 af
 12.0" Round Culvert n=0.012 L=139.2' S=0.0065 '/' Outflow=2.28 cfs 0.181 af

Pond 21P: PCB 21

Peak Elev=56.82' Storage=0.000 af Inflow=0.57 cfs 0.046 af
 12.0" Round Culvert n=0.012 L=8.0' S=0.0125 '/' Outflow=0.57 cfs 0.046 af

Pond 22P: PCB 22

Peak Elev=56.71' Storage=0.000 af Inflow=0.34 cfs 0.029 af
 12.0" Round Culvert n=0.012 L=8.0' S=0.0125 '/' Outflow=0.34 cfs 0.029 af

Pond 23P: PDMH 23

Peak Elev=57.47' Inflow=3.18 cfs 0.256 af
 12.0" Round Culvert n=0.012 L=21.0' S=0.0095 '/' Outflow=3.18 cfs 0.256 af

Pond 28P: PDMH 6B

Peak Elev=77.09' Inflow=7.85 cfs 0.348 af
 15.0" Round Culvert n=0.012 L=185.0' S=0.1168 '/' Outflow=7.85 cfs 0.348 af

Pond 29P: SWG Inlet MH

Peak Elev=77.30' Inflow=6.77 cfs 0.565 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=6.77 cfs 0.565 af

Pond 31P: PDMH 6

Peak Elev=76.59' Inflow=3.93 cfs 0.174 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=3.93 cfs 0.174 af

Pond D3: ADS Subsurface Storage Units (15 - Peak Elev=76.57' Storage=6,088 cf Inflow=9.35 cfs 0.782 af
Discarded=0.38 cfs 0.434 af Primary=3.93 cfs 0.174 af Secondary=3.93 cfs 0.174 af Outflow=8.23 cfs 0.782 af

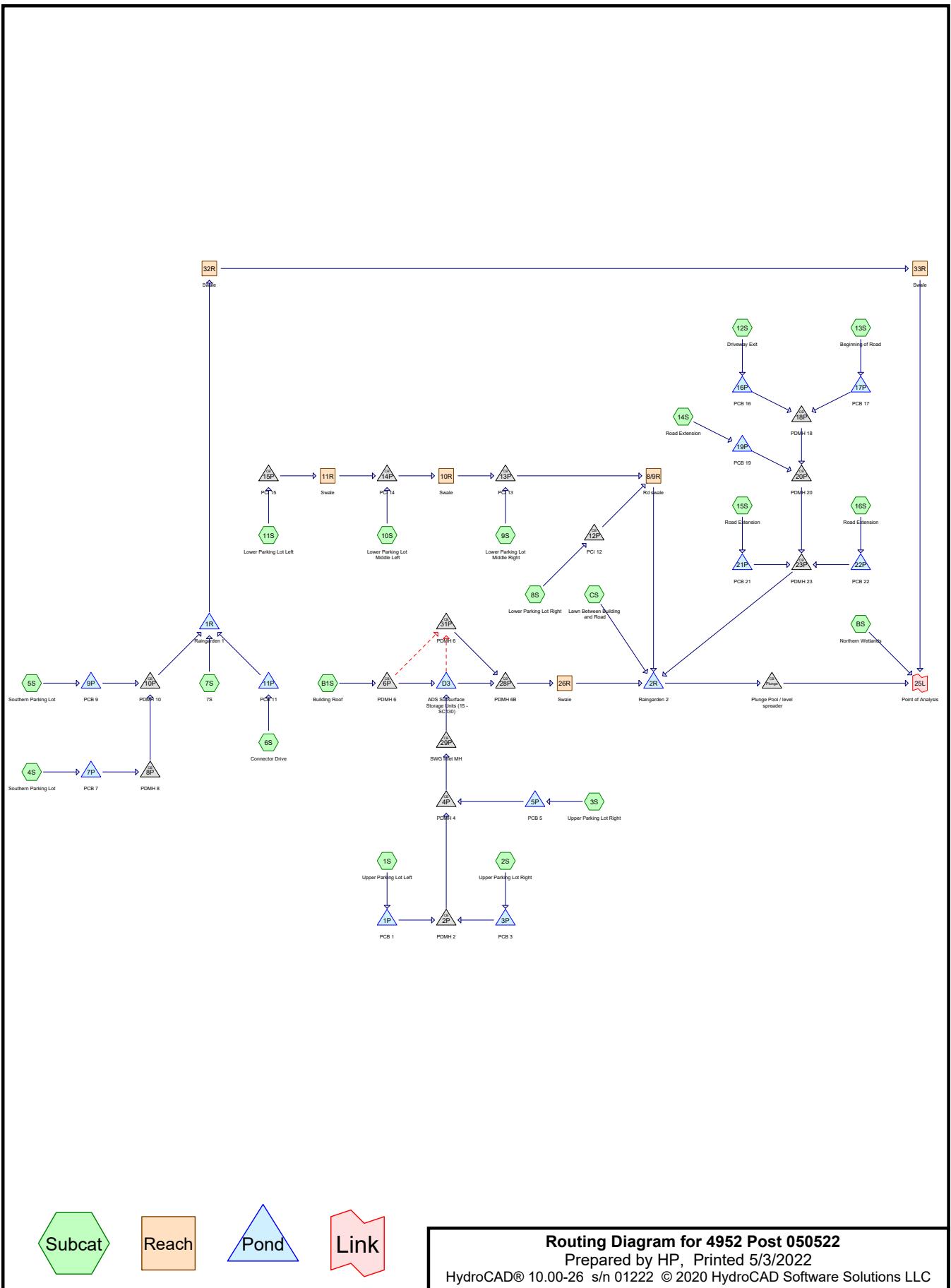
Pond Plunge: Plunge Pool / level spreader

Peak Elev=47.75' Inflow=17.46 cfs 1.857 af
Outflow=17.46 cfs 1.857 af

Link 25L: Point of Analysis

Inflow=30.35 cfs 3.805 af
Primary=30.35 cfs 3.805 af

Total Runoff Area = 9.059 ac Runoff Volume = 4.255 af Average Runoff Depth = 5.64"
71.49% Pervious = 6.476 ac 28.51% Impervious = 2.583 ac



Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.422	61	>75% Grass cover, Good, HSG B (1S, 2S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 13S, 14S, 15S)
1.141	74	>75% Grass cover, Good, HSG C (1S, 6S, 9S, 15S, CS)
2.476	80	Pasture/grassland/range, Good, HSG D (BS)
1.887	98	Paved parking, HSG B (1S, 2S, 3S, 4S, 5S, 6S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S)
0.263	98	Paved parking, HSG C (1S, 2S, 6S, 9S, 15S, 16S)
0.046	98	Roofs, HSG B (B1S)
0.280	98	Roofs, HSG C (B1S)
0.045	98	Unconnected pavement, HSG B (1S, 2S, 3S, 9S)
0.061	98	Unconnected pavement, HSG C (1S, 2S, 9S, 15S)
1.709	55	Woods, Good, HSG B (BS, CS)
0.728	70	Woods, Good, HSG C (BS)
9.059	78	TOTAL AREA

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
4.110	HSG B	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, B1S, BS, CS
2.473	HSG C	1S, 2S, 6S, 9S, 15S, 16S, B1S, BS, CS
2.476	HSG D	BS
0.000	Other	
9.059		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.422	1.141	0.000	0.000	1.563	>75% Grass cover, Good	1S, 2S, 5S, 6S, 7S, 8S, 9S, 10S , 11S , 13S , 14S , 15S , CS
0.000	0.000	0.000	2.476	0.000	2.476	Pasture/grassland/range, Good	BS
0.000	1.887	0.263	0.000	0.000	2.151	Paved parking	1S, 2S, 3S, 4S, 5S, 6S, 8S, 9S, 10S , 11S , 12S , 13S , 14S , 15S , 16S
0.000	0.046	0.280	0.000	0.000	0.325	Roofs	B1S
0.000	0.045	0.061	0.000	0.000	0.107	Unconnected pavement	1S, 2S, 3S, 9S, 15S

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Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	1.709	0.728	0.000	0.000	2.437	Woods, Good	BS, CS
0.000	4.110	2.473	2.476	0.000	9.059	TOTAL AREA	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1P	75.20	74.40	157.8	0.0051	0.012	12.0	0.0	0.0
2	1R	62.75	61.50	140.4	0.0089	0.012	12.0	0.0	0.0
3	2P	74.30	74.00	43.0	0.0070	0.012	12.0	0.0	0.0
4	2R	52.00	51.90	5.0	0.0200	0.012	24.0	0.0	0.0
5	3P	74.60	74.40	23.7	0.0084	0.012	12.0	0.0	0.0
6	4P	73.90	73.60	54.3	0.0055	0.012	12.0	0.0	0.0
7	5P	74.20	74.00	23.7	0.0084	0.012	12.0	0.0	0.0
8	6P	73.60	73.50	5.0	0.0200	0.012	12.0	0.0	0.0
9	6P	75.10	75.00	20.0	0.0050	0.012	12.0	0.0	0.0
10	7P	73.80	73.60	23.7	0.0084	0.012	12.0	0.0	0.0
11	8P	73.50	73.10	75.0	0.0053	0.012	12.0	0.0	0.0
12	9P	72.70	72.50	46.2	0.0043	0.012	12.0	0.0	0.0
13	10P	72.40	66.00	41.0	0.1561	0.012	12.0	0.0	0.0
14	11P	66.60	66.00	35.0	0.0171	0.012	12.0	0.0	0.0
15	16P	59.60	59.50	6.2	0.0161	0.012	12.0	0.0	0.0
16	17P	59.70	59.50	5.7	0.0351	0.012	12.0	0.0	0.0
17	18P	59.40	57.10	172.0	0.0134	0.012	12.0	0.0	0.0
18	19P	57.40	57.30	6.3	0.0159	0.012	12.0	0.0	0.0
19	20P	57.20	56.30	139.2	0.0065	0.012	12.0	0.0	0.0
20	21P	56.40	56.30	8.0	0.0125	0.012	12.0	0.0	0.0
21	22P	56.40	56.30	8.0	0.0125	0.012	12.0	0.0	0.0
22	23P	56.20	56.00	21.0	0.0095	0.012	12.0	0.0	0.0
23	28P	74.70	53.10	185.0	0.1168	0.012	15.0	0.0	0.0
24	29P	73.60	73.50	5.0	0.0200	0.012	12.0	0.0	0.0
25	31P	74.90	74.80	20.0	0.0050	0.012	12.0	0.0	0.0
26	D3	75.00	74.90	5.0	0.0200	0.012	12.0	0.0	0.0
27	D3	75.00	74.90	5.0	0.0200	0.012	12.0	0.0	0.0

Time span=1.00-48.00 hrs, dt=0.05 hrs, 941 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Upper Parking Lot Left	Runoff Area=15,579 sf 94.04% Impervious Runoff Depth=5.05" Tc=6.0 min CN=97 Runoff=1.85 cfs 0.150 af
Subcatchment2S: Upper Parking Lot Right	Runoff Area=15,439 sf 98.23% Impervious Runoff Depth=5.15" Tc=6.0 min CN=97 Runoff=1.84 cfs 0.152 af
Subcatchment3S: Upper Parking Lot Right	Runoff Area=6,296 sf 100.00% Impervious Runoff Depth>5.22" Tc=6.0 min CN=98 Runoff=0.75 cfs 0.063 af
Subcatchment4S: Southern Parking Lot	Runoff Area=4,115 sf 100.00% Impervious Runoff Depth>5.22" Tc=6.0 min CN=98 Runoff=0.49 cfs 0.041 af
Subcatchment5S: Southern Parking Lot	Runoff Area=7,631 sf 72.99% Impervious Runoff Depth=4.11" Tc=6.0 min CN=88 Runoff=0.80 cfs 0.060 af
Subcatchment6S: Connector Drive	Runoff Area=9,038 sf 67.82% Impervious Runoff Depth=4.05" Tc=6.0 min CN=87 Runoff=0.94 cfs 0.070 af
Subcatchment7S: 7S	Runoff Area=6,098 sf 0.00% Impervious Runoff Depth=1.65" Tc=6.0 min CN=61 Runoff=0.25 cfs 0.019 af
Subcatchment8S: Lower Parking Lot Right	Runoff Area=8,008 sf 65.30% Impervious Runoff Depth=3.81" Tc=6.0 min CN=85 Runoff=0.79 cfs 0.058 af
Subcatchment9S: Lower Parking Lot	Runoff Area=13,171 sf 91.65% Impervious Runoff Depth=4.93" Tc=6.0 min CN=96 Runoff=1.55 cfs 0.124 af
Subcatchment10S: Lower Parking Lot	Runoff Area=10,699 sf 81.54% Impervious Runoff Depth=4.45" Tc=6.0 min CN=91 Runoff=1.19 cfs 0.091 af
Subcatchment11S: Lower Parking Lot Left	Runoff Area=5,094 sf 94.92% Impervious Runoff Depth=5.00" Tc=6.0 min CN=96 Runoff=0.60 cfs 0.049 af
Subcatchment12S: Driveway Exit	Runoff Area=4,470 sf 100.00% Impervious Runoff Depth>5.22" Tc=6.0 min CN=98 Runoff=0.54 cfs 0.045 af
Subcatchment13S: Beginning of Road	Runoff Area=2,935 sf 67.67% Impervious Runoff Depth=3.90" Tc=6.0 min CN=86 Runoff=0.30 cfs 0.022 af
Subcatchment14S: Road Extension	Runoff Area=5,653 sf 76.97% Impervious Runoff Depth=4.26" Tc=6.0 min CN=89 Runoff=0.61 cfs 0.046 af
Subcatchment15S: Road Extension	Runoff Area=3,148 sf 90.91% Impervious Runoff Depth=4.88" Tc=6.0 min CN=95 Runoff=0.37 cfs 0.029 af
Subcatchment16S: Road Extension	Runoff Area=1,869 sf 100.00% Impervious Runoff Depth>5.22" Tc=6.0 min CN=98 Runoff=0.22 cfs 0.019 af

Subcatchment B1S: Building Roof	Runoff Area=14,178 sf 100.00% Impervious Runoff Depth>5.22" Tc=6.0 min CN=98 Runoff=1.70 cfs 0.142 af
Subcatchment BS: Northern Wetlands	Runoff Area=163,457 sf 0.00% Impervious Runoff Depth=2.77" Flow Length=700' Tc=28.6 min CN=74 Runoff=7.01 cfs 0.867 af
Subcatchment CS: Lawn Between Building	Runoff Area=97,726 sf 0.00% Impervious Runoff Depth=1.90" Flow Length=285' Tc=19.2 min CN=64 Runoff=3.25 cfs 0.355 af
Reach 8/9R: Rd swale	Avg. Flow Depth=0.35' Max Vel=3.80 fps Inflow=4.07 cfs 0.323 af n=0.025 L=233.0' S=0.0258 '/' Capacity=83.37 cfs Outflow=3.87 cfs 0.323 af
Reach 10R: Swale	Avg. Flow Depth=0.26' Max Vel=2.43 fps Inflow=1.77 cfs 0.140 af n=0.025 L=70.0' S=0.0143 '/' Capacity=62.10 cfs Outflow=1.74 cfs 0.140 af
Reach 11R: Swale	Avg. Flow Depth=0.14' Max Vel=1.79 fps Inflow=0.60 cfs 0.049 af n=0.025 L=63.0' S=0.0159 '/' Capacity=65.46 cfs Outflow=0.59 cfs 0.049 af
Reach 26R: Swale	Avg. Flow Depth=0.13' Max Vel=3.32 fps Inflow=4.72 cfs 0.153 af n=0.025 L=100.0' S=0.0500 '/' Capacity=163.50 cfs Outflow=4.61 cfs 0.153 af
Reach 32R: Swale	Avg. Flow Depth=0.19' Max Vel=2.28 fps Inflow=1.70 cfs 0.188 af n=0.040 L=300.0' S=0.0467 '/' Capacity=114.38 cfs Outflow=1.70 cfs 0.188 af
Reach 33R: Swale	Avg. Flow Depth=0.23' Max Vel=0.45 fps Inflow=1.70 cfs 0.188 af n=0.040 L=900.0' S=0.0011 '/' Capacity=110.82 cfs Outflow=1.10 cfs 0.188 af
Pond 1P: PCB 1	Peak Elev=76.03' Storage=0.000 af Inflow=1.85 cfs 0.150 af 12.0" Round Culvert n=0.012 L=157.8' S=0.0051 '/' Outflow=1.85 cfs 0.150 af
Pond 1R: Raingarden 1	Peak Elev=66.49' Storage=675 cf Inflow=2.48 cfs 0.190 af Outflow=1.70 cfs 0.188 af
Pond 2P: PDMH 2	Peak Elev=75.92' Inflow=3.70 cfs 0.302 af 12.0" Round Culvert n=0.012 L=43.0' S=0.0070 '/' Outflow=3.70 cfs 0.302 af
Pond 2R: Raingarden 2	Peak Elev=56.51' Storage=8,202 cf Inflow=12.26 cfs 0.991 af Outflow=9.38 cfs 0.978 af
Pond 3P: PCB 3	Peak Elev=75.43' Storage=0.000 af Inflow=1.84 cfs 0.152 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=1.85 cfs 0.152 af
Pond 4P: PDMH 4	Peak Elev=76.07' Inflow=4.45 cfs 0.365 af 12.0" Round Culvert n=0.012 L=54.3' S=0.0055 '/' Outflow=4.45 cfs 0.365 af
Pond 5P: PCB 5	Peak Elev=74.68' Storage=0.000 af Inflow=0.75 cfs 0.063 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=0.76 cfs 0.063 af
Pond 6P: PDMH 6	Peak Elev=74.40' Inflow=1.70 cfs 0.142 af Primary=1.70 cfs 0.142 af Secondary=0.00 cfs 0.000 af Outflow=1.70 cfs 0.142 af
Pond 7P: PCB 7	Peak Elev=74.18' Storage=0.000 af Inflow=0.49 cfs 0.041 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=0.49 cfs 0.041 af

Pond 8P: PDMH 8

Peak Elev=73.89' Inflow=0.49 cfs 0.041 af
 12.0" Round Culvert n=0.012 L=75.0' S=0.0053 '/' Outflow=0.49 cfs 0.041 af

Pond 9P: PCB 9

Peak Elev=73.24' Storage=0.000 af Inflow=0.80 cfs 0.060 af
 12.0" Round Culvert n=0.012 L=46.2' S=0.0043 '/' Outflow=0.80 cfs 0.060 af

Pond 10P: PDMH 10

Peak Elev=73.00' Inflow=1.30 cfs 0.101 af
 12.0" Round Culvert n=0.012 L=41.0' S=0.1561 '/' Outflow=1.30 cfs 0.101 af

Pond 11P: PCB 11

Peak Elev=67.10' Storage=0.000 af Inflow=0.94 cfs 0.070 af
 12.0" Round Culvert n=0.012 L=35.0' S=0.0171 '/' Outflow=0.94 cfs 0.070 af

Pond 12P: PCI 12

Peak Elev=63.59' Inflow=0.79 cfs 0.058 af
 Outflow=0.79 cfs 0.058 af

Pond 13P: PCI 13

Peak Elev=63.69' Inflow=3.28 cfs 0.264 af
 Outflow=3.28 cfs 0.264 af

Pond 14P: PCI 14

Peak Elev=64.42' Inflow=1.77 cfs 0.140 af
 Outflow=1.77 cfs 0.140 af

Pond 15P: PCI 15

Peak Elev=65.16' Inflow=0.60 cfs 0.049 af
 Outflow=0.60 cfs 0.049 af

Pond 16P: PCB 16

Peak Elev=60.00' Storage=0.000 af Inflow=0.54 cfs 0.045 af
 12.0" Round Culvert n=0.012 L=6.2' S=0.0161 '/' Outflow=0.54 cfs 0.045 af

Pond 17P: PCB 17

Peak Elev=59.97' Storage=0.000 af Inflow=0.30 cfs 0.022 af
 12.0" Round Culvert n=0.012 L=5.7' S=0.0351 '/' Outflow=0.30 cfs 0.022 af

Pond 18P: PDMH 18

Peak Elev=59.87' Inflow=0.83 cfs 0.067 af
 12.0" Round Culvert n=0.012 L=172.0' S=0.0134 '/' Outflow=0.83 cfs 0.067 af

Pond 19P: PCB 19

Peak Elev=57.83' Storage=0.000 af Inflow=0.61 cfs 0.046 af
 12.0" Round Culvert n=0.012 L=6.3' S=0.0159 '/' Outflow=0.61 cfs 0.046 af

Pond 20P: PDMH 20

Peak Elev=57.87' Inflow=1.44 cfs 0.113 af
 12.0" Round Culvert n=0.012 L=139.2' S=0.0065 '/' Outflow=1.44 cfs 0.113 af

Pond 21P: PCB 21

Peak Elev=56.73' Storage=0.000 af Inflow=0.37 cfs 0.029 af
 12.0" Round Culvert n=0.012 L=8.0' S=0.0125 '/' Outflow=0.37 cfs 0.029 af

Pond 22P: PCB 22

Peak Elev=56.65' Storage=0.000 af Inflow=0.22 cfs 0.019 af
 12.0" Round Culvert n=0.012 L=8.0' S=0.0125 '/' Outflow=0.22 cfs 0.019 af

Pond 23P: PDMH 23

Peak Elev=57.08' Inflow=2.04 cfs 0.161 af
 12.0" Round Culvert n=0.012 L=21.0' S=0.0095 '/' Outflow=2.04 cfs 0.161 af

Pond 28P: PDMH 6B

Peak Elev=75.96' Inflow=4.72 cfs 0.153 af
 15.0" Round Culvert n=0.012 L=185.0' S=0.1168 '/' Outflow=4.72 cfs 0.153 af

Pond 29P: SWG Inlet MH

Peak Elev=75.48' Inflow=4.45 cfs 0.365 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=4.45 cfs 0.365 af

Pond 31P: PDMH 6

Peak Elev=75.96' Inflow=2.36 cfs 0.076 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=2.36 cfs 0.076 af

Pond D3: ADS Subsurface Storage Units (15 - Peak Elev=76.00' Storage=5,470 cf Inflow=6.15 cfs 0.507 af
Discarded=0.35 cfs 0.354 af Primary=2.36 cfs 0.076 af Secondary=2.36 cfs 0.076 af Outflow=5.07 cfs 0.507 af

Pond Plunge: Plunge Pool / level spreader

Peak Elev=47.50' Inflow=9.38 cfs 0.978 af
Outflow=9.38 cfs 0.978 af

Link 25L: Point of Analysis

Inflow=16.02 cfs 2.033 af
Primary=16.02 cfs 2.033 af

Total Runoff Area = 9.059 ac Runoff Volume = 2.403 af Average Runoff Depth = 3.18"
71.49% Pervious = 6.476 ac 28.51% Impervious = 2.583 ac

Summary for Subcatchment 1S: Upper Parking Lot Left

Runoff = 1.85 cfs @ 12.09 hrs, Volume= 0.150 af, Depth= 5.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description			
10,819	98	Paved parking, HSG B			
2,621	98	Paved parking, HSG C			
150	98	Unconnected pavement, HSG B			
1,061	98	Unconnected pavement, HSG C			
63	61	>75% Grass cover, Good, HSG B			
865	74	>75% Grass cover, Good, HSG C			
15,579	97	Weighted Average			
928		5.96% Pervious Area			
14,651		94.04% Impervious Area			
1,211		8.27% Unconnected			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 2S: Upper Parking Lot Right

Runoff = 1.84 cfs @ 12.09 hrs, Volume= 0.152 af, Depth= 5.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description			
10,297	98	Paved parking, HSG B			
3,646	98	Paved parking, HSG C			
571	98	Unconnected pavement, HSG B			
651	98	Unconnected pavement, HSG C			
274	61	>75% Grass cover, Good, HSG B			
15,439	97	Weighted Average			
274		1.77% Pervious Area			
15,165		98.23% Impervious Area			
1,222		8.06% Unconnected			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Subcatchment 3S: Upper Parking Lot Right

Runoff = 0.75 cfs @ 12.09 hrs, Volume= 0.063 af, Depth> 5.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
5,301	98	Paved parking, HSG B
995	98	Unconnected pavement, HSG B
6,296	98	Weighted Average
6,296		100.00% Impervious Area
995		15.80% Unconnected

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

Summary for Subcatchment 4S: Southern Parking Lot

Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af, Depth> 5.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
4,115	98	Paved parking, HSG B
4,115		100.00% Impervious Area

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

Summary for Subcatchment 5S: Southern Parking Lot

Runoff = 0.80 cfs @ 12.09 hrs, Volume= 0.060 af, Depth= 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
5,570	98	Paved parking, HSG B
2,061	61	>75% Grass cover, Good, HSG B
7,631	88	Weighted Average
2,061		27.01% Pervious Area
5,570		72.99% Impervious Area

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

Summary for Subcatchment 6S: Connector Drive

Runoff = 0.94 cfs @ 12.09 hrs, Volume= 0.070 af, Depth= 4.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
5,097	98	Paved parking, HSG B
1,033	98	Paved parking, HSG C
1,945	61	>75% Grass cover, Good, HSG B
963	74	>75% Grass cover, Good, HSG C
9,038	87	Weighted Average
2,908		32.18% Pervious Area
6,130		67.82% Impervious Area

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

Summary for Subcatchment 7S: 7S

Runoff = 0.25 cfs @ 12.10 hrs, Volume= 0.019 af, Depth= 1.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
6,098	61	>75% Grass cover, Good, HSG B
6,098		100.00% Pervious Area

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

Summary for Subcatchment 8S: Lower Parking Lot Right

Runoff = 0.79 cfs @ 12.09 hrs, Volume= 0.058 af, Depth= 3.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
5,229	98	Paved parking, HSG B
2,779	61	>75% Grass cover, Good, HSG B
8,008	85	Weighted Average
2,779		34.70% Pervious Area
5,229		65.30% Impervious Area

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

Summary for Subcatchment 9S: Lower Parking Lot Middle Right

Runoff = 1.55 cfs @ 12.09 hrs, Volume= 0.124 af, Depth= 4.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
10,057	98	Paved parking, HSG B
1,128	98	Paved parking, HSG C
265	98	Unconnected pavement, HSG B
621	98	Unconnected pavement, HSG C
499	61	>75% Grass cover, Good, HSG B
601	74	>75% Grass cover, Good, HSG C
13,171	96	Weighted Average
1,100		8.35% Pervious Area
12,071		91.65% Impervious Area
886		7.34% Unconnected

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

Summary for Subcatchment 10S: Lower Parking Lot Middle Left

Runoff = 1.19 cfs @ 12.09 hrs, Volume= 0.091 af, Depth= 4.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
8,724	98	Paved parking, HSG B
1,975	61	>75% Grass cover, Good, HSG B
10,699	91	Weighted Average
1,975		18.46% Pervious Area
8,724		81.54% Impervious Area

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

Summary for Subcatchment 11S: Lower Parking Lot Left

Runoff = 0.60 cfs @ 12.09 hrs, Volume= 0.049 af, Depth= 5.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
4,835	98	Paved parking, HSG B
259	61	>75% Grass cover, Good, HSG B
5,094	96	Weighted Average
259		5.08% Pervious Area
4,835		94.92% Impervious Area

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

Summary for Subcatchment 12S: Driveway Exit

Runoff = 0.54 cfs @ 12.09 hrs, Volume= 0.045 af, Depth> 5.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
4,470	98	Paved parking, HSG B
4,470		100.00% Impervious Area

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

Summary for Subcatchment 13S: Beginning of Road

Runoff = 0.30 cfs @ 12.09 hrs, Volume= 0.022 af, Depth= 3.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
1,986	98	Paved parking, HSG B
949	61	>75% Grass cover, Good, HSG B
2,935	86	Weighted Average
949		32.33% Pervious Area
1,986		67.67% Impervious Area

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

Summary for Subcatchment 14S: Road Extension

Runoff = 0.61 cfs @ 12.09 hrs, Volume= 0.046 af, Depth= 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
4,351	98	Paved parking, HSG B
1,302	61	>75% Grass cover, Good, HSG B
5,653	89	Weighted Average
1,302		23.03% Pervious Area
4,351		76.97% Impervious Area

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

Summary for Subcatchment 15S: Road Extension

Runoff = 0.37 cfs @ 12.09 hrs, Volume= 0.029 af, Depth= 4.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
1,355	98	Paved parking, HSG B
1,174	98	Paved parking, HSG C
333	98	Unconnected pavement, HSG C
181	61	>75% Grass cover, Good, HSG B
105	74	>75% Grass cover, Good, HSG C
3,148	95	Weighted Average
286		9.09% Pervious Area
2,862		90.91% Impervious Area
333		11.64% Unconnected

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

Summary for Subcatchment 16S: Road Extension

Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.019 af, Depth> 5.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
1,869	98	Paved parking, HSG C
1,869		100.00% Impervious Area

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

Summary for Subcatchment B1S: Building Roof

Runoff = 1.70 cfs @ 12.09 hrs, Volume= 0.142 af, Depth> 5.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
1,996	98	Roofs, HSG B
12,182	98	Roofs, HSG C
14,178	98	Weighted Average
14,178		100.00% Impervious Area

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

Summary for Subcatchment BS: Northern Wetlands

Runoff = 7.01 cfs @ 12.40 hrs, Volume= 0.867 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
12,110	55	Woods, Good, HSG B
31,711	70	Woods, Good, HSG C
107,856	80	Pasture/grassland/range, Good, HSG D
11,780	55	Woods, Good, HSG B
163,457	74	Weighted Average
163,457		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.9	100	0.0070	0.08		Sheet Flow, Grass: Dense n= 0.240 P2= 3.15"
6.7	600	0.0100	1.50		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
28.6	700	Total			

Summary for Subcatchment CS: Lawn Between Building and Road

Runoff = 3.25 cfs @ 12.29 hrs, Volume= 0.355 af, Depth= 1.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.46", Smoothing=On

Area (sf)	CN	Description
47,168	74	>75% Grass cover, Good, HSG C
50,558	55	Woods, Good, HSG B
97,726	64	Weighted Average
97,726		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	75	0.0200	0.07		Sheet Flow, n= 0.400 P2= 3.15"
2.0	210	0.1200	1.73		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
19.2	285	Total			

Summary for Reach 8/9R: Rd swale

Inflow Area = 0.849 ac, 83.47% Impervious, Inflow Depth = 4.56" for 10-yr event
Inflow = 4.07 cfs @ 12.10 hrs, Volume= 0.323 af
Outflow = 3.87 cfs @ 12.12 hrs, Volume= 0.323 af, Atten= 5%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.80 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.09 fps, Avg. Travel Time= 3.6 min

Peak Storage= 247 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.35'
Bank-Full Depth= 1.50' Flow Area= 9.8 sf, Capacity= 83.37 cfs

2.00' x 1.50' deep channel, n= 0.025
Side Slope Z-value= 3.0 ' ' Top Width= 11.00'
Length= 233.0' Slope= 0.0258 ' '
Inlet Invert= 62.00', Outlet Invert= 56.00'



Summary for Reach 10R: Swale

Inflow Area = 0.363 ac, 85.85% Impervious, Inflow Depth = 4.63" for 10-yr event
 Inflow = 1.77 cfs @ 12.09 hrs, Volume= 0.140 af
 Outflow = 1.74 cfs @ 12.10 hrs, Volume= 0.140 af, Atten= 2%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.43 fps, Min. Travel Time= 0.5 min
 Avg. Velocity = 0.69 fps, Avg. Travel Time= 1.7 min

Peak Storage= 51 cf @ 12.10 hrs
 Average Depth at Peak Storage= 0.26'
 Bank-Full Depth= 1.50' Flow Area= 9.8 sf, Capacity= 62.10 cfs

2.00' x 1.50' deep channel, n= 0.025
 Side Slope Z-value= 3.0 '/' Top Width= 11.00'
 Length= 70.0' Slope= 0.0143 '/'
 Inlet Invert= 63.00', Outlet Invert= 62.00'



Summary for Reach 11R: Swale

Inflow Area = 0.117 ac, 94.92% Impervious, Inflow Depth = 5.00" for 10-yr event
 Inflow = 0.60 cfs @ 12.09 hrs, Volume= 0.049 af
 Outflow = 0.59 cfs @ 12.10 hrs, Volume= 0.049 af, Atten= 2%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Max. Velocity= 1.79 fps, Min. Travel Time= 0.6 min
 Avg. Velocity = 0.54 fps, Avg. Travel Time= 1.9 min

Peak Storage= 21 cf @ 12.09 hrs
 Average Depth at Peak Storage= 0.14'
 Bank-Full Depth= 1.50' Flow Area= 9.8 sf, Capacity= 65.46 cfs

2.00' x 1.50' deep channel, n= 0.025
 Side Slope Z-value= 3.0 '/' Top Width= 11.00'
 Length= 63.0' Slope= 0.0159 '/'
 Inlet Invert= 64.00', Outlet Invert= 63.00'



Summary for Reach 26R: Swale

[79] Warning: Submerged Pond 28P Primary device # 1 OUTLET by 10.03'

Inflow Area = 1.182 ac, 97.67% Impervious, Inflow Depth = 1.55" for 10-yr event
 Inflow = 4.72 cfs @ 12.15 hrs, Volume= 0.153 af
 Outflow = 4.61 cfs @ 12.17 hrs, Volume= 0.153 af, Atten= 2%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.32 fps, Min. Travel Time= 0.5 min
 Avg. Velocity = 1.16 fps, Avg. Travel Time= 1.4 min

Peak Storage= 142 cf @ 12.16 hrs
 Average Depth at Peak Storage= 0.13'
 Bank-Full Depth= 1.00' Flow Area= 15.0 sf, Capacity= 163.50 cfs

10.00' x 1.00' deep channel, n= 0.025
 Side Slope Z-value= 5.0 '/' Top Width= 20.00'
 Length= 100.0' Slope= 0.0500 '/'
 Inlet Invert= 63.00', Outlet Invert= 58.00'



Summary for Reach 32R: Swale

Inflow Area = 0.617 ac, 58.83% Impervious, Inflow Depth = 3.66" for 10-yr event
 Inflow = 1.70 cfs @ 12.18 hrs, Volume= 0.188 af
 Outflow = 1.70 cfs @ 12.25 hrs, Volume= 0.188 af, Atten= 0%, Lag= 4.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.28 fps, Min. Travel Time= 2.2 min
 Avg. Velocity = 0.78 fps, Avg. Travel Time= 6.4 min

Peak Storage= 224 cf @ 12.21 hrs
 Average Depth at Peak Storage= 0.19'
 Bank-Full Depth= 1.50' Flow Area= 15.8 sf, Capacity= 114.38 cfs

3.00' x 1.50' deep channel, n= 0.040
 Side Slope Z-value= 5.0 '/' Top Width= 18.00'
 Length= 300.0' Slope= 0.0467 '/'
 Inlet Invert= 58.00', Outlet Invert= 44.00'



Summary for Reach 33R: Swale

Inflow Area = 0.617 ac, 58.83% Impervious, Inflow Depth = 3.66" for 10-yr event
 Inflow = 1.70 cfs @ 12.25 hrs, Volume= 0.188 af
 Outflow = 1.10 cfs @ 13.04 hrs, Volume= 0.188 af, Atten= 35%, Lag= 47.4 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.45 fps, Min. Travel Time= 33.6 min
 Avg. Velocity= 0.15 fps, Avg. Travel Time= 102.8 min

Peak Storage= 2,234 cf @ 12.47 hrs
 Average Depth at Peak Storage= 0.23'
 Bank-Full Depth= 3.00' Flow Area= 57.0 sf, Capacity= 110.82 cfs

10.00' x 3.00' deep channel, n= 0.040
 Side Slope Z-value= 3.0 '/' Top Width= 28.00'
 Length= 900.0' Slope= 0.0011 '/'
 Inlet Invert= 43.00', Outlet Invert= 42.00'



Summary for Pond 1P: PCB 1

Inflow Area = 0.358 ac, 94.04% Impervious, Inflow Depth = 5.05" for 10-yr event
 Inflow = 1.85 cfs @ 12.09 hrs, Volume= 0.150 af
 Outflow = 1.85 cfs @ 12.09 hrs, Volume= 0.150 af, Atten= 0%, Lag= 0.1 min
 Primary = 1.85 cfs @ 12.09 hrs, Volume= 0.150 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 76.03' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.3 min calculated for 0.150 af (100% of inflow)
 Center-of-Mass det. time= 0.3 min (757.5 - 757.2)

Volume	Invert	Avail.Storage	Storage Description
#1	75.20'	0.001 af	4.00'D x 3.50'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	75.20'	12.0" Round Culvert L= 157.8' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.20' / 74.40' S= 0.0051 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.80 cfs @ 12.09 hrs HW=76.02' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 1.80 cfs @ 3.56 fps)

Summary for Pond 1R: Raingarden 1

[79] Warning: Submerged Pond 10P Primary device # 1 OUTLET by 0.49'

[79] Warning: Submerged Pond 11P Primary device # 1 OUTLET by 0.49'

Inflow Area = 0.617 ac, 58.83% Impervious, Inflow Depth > 3.70" for 10-yr event
 Inflow = 2.48 cfs @ 12.09 hrs, Volume= 0.190 af
 Outflow = 1.70 cfs @ 12.18 hrs, Volume= 0.188 af, Atten= 31%, Lag= 5.3 min
 Primary = 1.70 cfs @ 12.18 hrs, Volume= 0.188 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 66.49' @ 12.18 hrs Surf.Area= 698 sf Storage= 675 cf

Plug-Flow detention time= 16.8 min calculated for 0.188 af (99% of inflow)
 Center-of-Mass det. time= 9.2 min (801.9 - 792.6)

Volume	Invert	Avail.Storage	Storage Description
#1	62.75'	3,834 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
62.75	500	0.0	0	0
64.25	500	40.0	300	300
64.50	500	33.0	41	341
66.00	500	5.0	38	379
67.00	900	100.0	700	1,079
68.00	1,357	100.0	1,129	2,207
69.00	1,897	100.0	1,627	3,834

Device	Routing	Invert	Outlet Devices
#1	Primary	62.75'	12.0" Round Culvert-Outlet Structure L= 140.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 62.75' / 61.50' S= 0.0089 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	67.50'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	63.25'	6.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 3	62.75'	10.00 cfs Exfiltration at all elevations

Primary OutFlow Max=1.70 cfs @ 12.18 hrs HW=66.48' (Free Discharge)

↑ **1=Culvert-Outlet Structure** (Passes 1.70 cfs of 5.49 cfs potential flow)

↑ **2=Orifice/Grate** (Controls 0.00 cfs)

↑ **3=Orifice/Grate** (Orifice Controls 1.70 cfs @ 8.66 fps)

↑ **4=Exfiltration** (Passes 1.70 cfs of 10.00 cfs potential flow)

Summary for Pond 2P: PDMH 2

[57] Hint: Peaked at 75.92' (Flood elevation advised)

[79] Warning: Submerged Pond 1P Primary device # 1 INLET by 0.70'

[81] Warning: Exceeded Pond 3P by 0.47' @ 12.10 hrs

Inflow Area = 0.712 ac, 96.12% Impervious, Inflow Depth = 5.10" for 10-yr event
 Inflow = 3.70 cfs @ 12.09 hrs, Volume= 0.302 af
 Outflow = 3.70 cfs @ 12.09 hrs, Volume= 0.302 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.70 cfs @ 12.09 hrs, Volume= 0.302 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 75.92' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.30'	12.0" Round Culvert L= 43.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 74.30' / 74.00' S= 0.0070 ' S= 0.0070 ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.60 cfs @ 12.09 hrs HW=75.87' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 3.60 cfs @ 4.59 fps)

Summary for Pond 2R: Raingarden 2

[62] Hint: Exceeded Reach 8/9R OUTLET depth by 0.28' @ 12.30 hrs

[79] Warning: Submerged Pond 23P Primary device # 1 INLET by 0.31'

Inflow Area = 4.689 ac, 47.33% Impervious, Inflow Depth = 2.54" for 10-yr event
 Inflow = 12.26 cfs @ 12.16 hrs, Volume= 0.991 af
 Outflow = 9.38 cfs @ 12.28 hrs, Volume= 0.978 af, Atten= 23%, Lag= 7.6 min
 Primary = 9.38 cfs @ 12.28 hrs, Volume= 0.978 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 56.51' @ 12.28 hrs Surf.Area= 5,529 sf Storage= 8,202 cf

Plug-Flow detention time= 42.1 min calculated for 0.978 af (99% of inflow)

Center-of-Mass det. time= 32.9 min (838.5 - 805.7)

Volume	Invert	Avail.Storage	Storage Description
#1	51.75'	24,273 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
51.75	3,000	0.0	0	0
53.25	3,000	40.0	1,800	1,800
53.50	3,000	33.0	248	2,048
55.00	3,000	5.0	225	2,273
56.00	4,000	100.0	3,500	5,773
57.00	7,000	100.0	5,500	11,273
58.00	9,000	100.0	8,000	19,273
58.50	11,000	100.0	5,000	24,273

Device	Routing	Invert	Outlet Devices
#1	Primary	52.00'	24.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.00' / 51.90' S= 0.0200 ' / Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	52.25'	6.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	56.00'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 2	51.75'	10.00 cfs Exfiltration at all elevations

Primary OutFlow Max=9.31 cfs @ 12.28 hrs HW=56.51' (Free Discharge)

1=Culvert (Passes 9.31 cfs of 28.33 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 1.89 cfs @ 9.64 fps)
 4=Exfiltration (Passes 1.89 cfs of 10.00 cfs potential flow)
 3=Orifice/Grate (Weir Controls 7.41 cfs @ 2.33 fps)

Summary for Pond 3P: PCB 3

Inflow Area = 0.354 ac, 98.23% Impervious, Inflow Depth = 5.15" for 10-yr event
 Inflow = 1.84 cfs @ 12.09 hrs, Volume= 0.152 af
 Outflow = 1.85 cfs @ 12.09 hrs, Volume= 0.152 af, Atten= 0%, Lag= 0.1 min
 Primary = 1.85 cfs @ 12.09 hrs, Volume= 0.152 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 75.43' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.3 min calculated for 0.152 af (100% of inflow)
 Center-of-Mass det. time= 0.3 min (751.9 - 751.6)

Volume	Invert	Avail.Storage	Storage Description
#1	74.60'	0.001 af	4.00'D x 3.60'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	74.60'	12.0" Round Culvert L= 23.7' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 74.60' / 74.40' S= 0.0084 ' / Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.80 cfs @ 12.09 hrs HW=75.42' (Free Discharge)

1=Culvert (Barrel Controls 1.80 cfs @ 3.57 fps)

Summary for Pond 4P: PDMH 4

[57] Hint: Peaked at 76.07' (Flood elevation advised)

[81] Warning: Exceeded Pond 2P by 0.15' @ 12.10 hrs

[81] Warning: Exceeded Pond 5P by 1.37' @ 12.10 hrs

Inflow Area = 0.857 ac, 96.78% Impervious, Inflow Depth > 5.12" for 10-yr event
 Inflow = 4.45 cfs @ 12.09 hrs, Volume= 0.365 af
 Outflow = 4.45 cfs @ 12.09 hrs, Volume= 0.365 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.45 cfs @ 12.09 hrs, Volume= 0.365 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 76.07' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	73.90'	12.0" Round Culvert L= 54.3' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.90' / 73.60' S= 0.0055 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=4.34 cfs @ 12.09 hrs HW=76.00' (Free Discharge)

↑1=Culvert (Barrel Controls 4.34 cfs @ 5.53 fps)

Summary for Pond 5P: PCB 5

Inflow Area = 0.145 ac, 100.00% Impervious, Inflow Depth > 5.22" for 10-yr event
 Inflow = 0.75 cfs @ 12.09 hrs, Volume= 0.063 af
 Outflow = 0.76 cfs @ 12.09 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.1 min
 Primary = 0.76 cfs @ 12.09 hrs, Volume= 0.063 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 74.68' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.063 af (100% of inflow)

Center-of-Mass det. time= 0.5 min (747.1 - 746.6)

Volume	Invert	Avail.Storage	Storage Description
#1	74.20'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	74.20'	12.0" Round Culvert L= 23.7' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 74.20' / 74.00' S= 0.0084 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.74 cfs @ 12.09 hrs HW=74.67' (Free Discharge)

↑1=Culvert (Barrel Controls 0.74 cfs @ 2.94 fps)

Summary for Pond 6P: PDMH 6

[57] Hint: Peaked at 74.40' (Flood elevation advised)

Inflow Area = 0.325 ac, 100.00% Impervious, Inflow Depth > 5.22" for 10-yr event
 Inflow = 1.70 cfs @ 12.09 hrs, Volume= 0.142 af
 Outflow = 1.70 cfs @ 12.09 hrs, Volume= 0.142 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.70 cfs @ 12.09 hrs, Volume= 0.142 af
 Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 74.40' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	73.60'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.60' / 73.50' S= 0.0200 ' S= 0.0200 ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	75.10'	12.0" Round Culvert L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.10' / 75.00' S= 0.0050 ' S= 0.0050 ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.65 cfs @ 12.09 hrs HW=74.39' (Free Discharge)
 ↑1=Culvert (Barrel Controls 1.65 cfs @ 3.43 fps)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=73.61' (Free Discharge)
 ↑2=Culvert (Controls 0.00 cfs)

Summary for Pond 7P: PCB 7

Inflow Area = 0.094 ac, 100.00% Impervious, Inflow Depth > 5.22" for 10-yr event
 Inflow = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af
 Outflow = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.1 min
 Primary = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 74.18' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.6 min calculated for 0.041 af (100% of inflow)
 Center-of-Mass det. time= 0.6 min (747.2 - 746.6)

Volume	Invert	Avail.Storage	Storage Description
#1	73.80'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	73.80'	12.0" Round Culvert L= 23.7' Ke= 0.500 Inlet / Outlet Invert= 73.80' / 73.60' S= 0.0084 ' S= 0.0084 ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.48 cfs @ 12.09 hrs HW=74.17' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.48 cfs @ 2.68 fps)

Summary for Pond 8P: PDMH 8

[57] Hint: Peaked at 73.89' (Flood elevation advised)

[79] Warning: Submerged Pond 7P Primary device # 1 INLET by 0.09'

Inflow Area = 0.094 ac, 100.00% Impervious, Inflow Depth > 5.22" for 10-yr event
 Inflow = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af
 Outflow = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 73.89' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	73.50'	12.0" Round Culvert L= 75.0' Ke= 0.500 Inlet / Outlet Invert= 73.50' / 73.10' S= 0.0053 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.48 cfs @ 12.09 hrs HW=73.89' (Free Discharge)↑**1=Culvert** (Barrel Controls 0.48 cfs @ 2.54 fps)**Summary for Pond 9P: PCB 9**

Inflow Area = 0.175 ac, 72.99% Impervious, Inflow Depth = 4.11" for 10-yr event
 Inflow = 0.80 cfs @ 12.09 hrs, Volume= 0.060 af
 Outflow = 0.80 cfs @ 12.09 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.1 min
 Primary = 0.80 cfs @ 12.09 hrs, Volume= 0.060 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 73.24' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.060 af (100% of inflow)
 Center-of-Mass det. time= 0.5 min (795.2 - 794.7)

Volume	Invert	Avail.Storage	Storage Description
#1	72.70'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	72.70'	12.0" Round Culvert L= 46.2' Ke= 0.500 Inlet / Outlet Invert= 72.70' / 72.50' S= 0.0043 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.78 cfs @ 12.09 hrs HW=73.23' (Free Discharge)↑**1=Culvert** (Barrel Controls 0.78 cfs @ 2.67 fps)

Summary for Pond 10P: PDMH 10

[57] Hint: Peaked at 73.00' (Flood elevation advised)

[79] Warning: Submerged Pond 9P Primary device # 1 INLET by 0.30'

Inflow Area = 0.270 ac, 82.45% Impervious, Inflow Depth > 4.50" for 10-yr event
 Inflow = 1.30 cfs @ 12.09 hrs, Volume= 0.101 af
 Outflow = 1.30 cfs @ 12.09 hrs, Volume= 0.101 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.30 cfs @ 12.09 hrs, Volume= 0.101 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 73.00' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	72.40'	12.0" Round Culvert L= 41.0' Ke= 0.500 Inlet / Outlet Invert= 72.40' / 66.00' S= 0.1561 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.27 cfs @ 12.09 hrs HW=72.99' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.27 cfs @ 2.62 fps)**Summary for Pond 11P: PCB 11**

Inflow Area = 0.207 ac, 67.82% Impervious, Inflow Depth = 4.05" for 10-yr event
 Inflow = 0.94 cfs @ 12.09 hrs, Volume= 0.070 af
 Outflow = 0.94 cfs @ 12.09 hrs, Volume= 0.070 af, Atten= 0%, Lag= 0.1 min
 Primary = 0.94 cfs @ 12.09 hrs, Volume= 0.070 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 67.10' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.4 min calculated for 0.070 af (100% of inflow)
 Center-of-Mass det. time= 0.4 min (796.8 - 796.5)

Volume	Invert	Avail.Storage	Storage Description
#1	66.60'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	66.60'	12.0" Round Culvert L= 35.0' Ke= 0.500 Inlet / Outlet Invert= 66.60' / 66.00' S= 0.0171 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.92 cfs @ 12.09 hrs HW=67.09' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.92 cfs @ 2.39 fps)

Summary for Pond 12P: PCI 12

[57] Hint: Peaked at 63.59' (Flood elevation advised)

Inflow Area = 0.184 ac, 65.30% Impervious, Inflow Depth = 3.81" for 10-yr event
 Inflow = 0.79 cfs @ 12.09 hrs, Volume= 0.058 af
 Outflow = 0.79 cfs @ 12.09 hrs, Volume= 0.058 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.79 cfs @ 12.09 hrs, Volume= 0.058 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 63.59' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	63.40'	36.0" W x 16.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.77 cfs @ 12.09 hrs HW=63.59' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 0.77 cfs @ 1.38 fps)

Summary for Pond 13P: PCI 13

[57] Hint: Peaked at 63.69' (Flood elevation advised)

[63] Warning: Exceeded Reach 10R INLET depth by 0.42' @ 12.10 hrs

Inflow Area = 0.665 ac, 88.49% Impervious, Inflow Depth = 4.77" for 10-yr event
 Inflow = 3.28 cfs @ 12.10 hrs, Volume= 0.264 af
 Outflow = 3.28 cfs @ 12.10 hrs, Volume= 0.264 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.28 cfs @ 12.10 hrs, Volume= 0.264 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 63.69' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	63.20'	36.0" W x 16.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=3.24 cfs @ 12.10 hrs HW=63.68' (Free Discharge)
 ↑1=Orifice/Grate (Orifice Controls 3.24 cfs @ 2.23 fps)

Summary for Pond 14P: PCI 14

[57] Hint: Peaked at 64.42' (Flood elevation advised)

[63] Warning: Exceeded Reach 11R INLET depth by 0.28' @ 12.10 hrs

Inflow Area = 0.363 ac, 85.85% Impervious, Inflow Depth = 4.63" for 10-yr event
 Inflow = 1.77 cfs @ 12.09 hrs, Volume= 0.140 af
 Outflow = 1.77 cfs @ 12.09 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.77 cfs @ 12.09 hrs, Volume= 0.140 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 64.42' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	64.10'	36.0" W x 16.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.74 cfs @ 12.09 hrs HW=64.42' (Free Discharge)

↑**1=Orifice/Grate** (Orifice Controls 1.74 cfs @ 1.82 fps)

Summary for Pond 15P: PCI 15

[57] Hint: Peaked at 65.16' (Flood elevation advised)

Inflow Area = 0.117 ac, 94.92% Impervious, Inflow Depth = 5.00" for 10-yr event
 Inflow = 0.60 cfs @ 12.09 hrs, Volume= 0.049 af
 Outflow = 0.60 cfs @ 12.09 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.60 cfs @ 12.09 hrs, Volume= 0.049 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 65.16' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	36.0" W x 16.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.59 cfs @ 12.09 hrs HW=65.15' (Free Discharge)

↑**1=Orifice/Grate** (Orifice Controls 0.59 cfs @ 1.26 fps)

Summary for Pond 16P: PCB 16

Inflow Area = 0.103 ac, 100.00% Impervious, Inflow Depth > 5.22" for 10-yr event
 Inflow = 0.54 cfs @ 12.09 hrs, Volume= 0.045 af
 Outflow = 0.54 cfs @ 12.09 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.1 min
 Primary = 0.54 cfs @ 12.09 hrs, Volume= 0.045 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 60.00' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.045 af (100% of inflow)
 Center-of-Mass det. time= 0.5 min (747.1 - 746.6)

Volume	Invert	Avail.Storage	Storage Description
#1	59.60'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	59.60'	12.0" Round Culvert L= 6.2' Ke= 0.500 Inlet / Outlet Invert= 59.60' / 59.50' S= 0.0161 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.52 cfs @ 12.09 hrs HW=60.00' (Free Discharge)

↑**1=Culvert** (Barrel Controls 0.52 cfs @ 2.68 fps)

Summary for Pond 17P: PCB 17

Inflow Area = 0.067 ac, 67.67% Impervious, Inflow Depth = 3.90" for 10-yr event
 Inflow = 0.30 cfs @ 12.09 hrs, Volume= 0.022 af
 Outflow = 0.30 cfs @ 12.09 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.1 min
 Primary = 0.30 cfs @ 12.09 hrs, Volume= 0.022 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 59.97' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.6 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 0.6 min (801.6 - 801.0)

Volume	Invert	Avail.Storage	Storage Description
#1	59.70'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	59.70'	12.0" Round Culvert L= 5.7' Ke= 0.500 Inlet / Outlet Invert= 59.70' / 59.50' S= 0.0351 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.29 cfs @ 12.09 hrs HW=59.96' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.29 cfs @ 1.75 fps)

Summary for Pond 18P: PDMH 18

[57] Hint: Peaked at 59.87' (Flood elevation advised)
 [79] Warning: Submerged Pond 16P Primary device # 1 INLET by 0.26'
 [79] Warning: Submerged Pond 17P Primary device # 1 INLET by 0.16'

Inflow Area = 0.170 ac, 87.18% Impervious, Inflow Depth > 4.70" for 10-yr event
 Inflow = 0.83 cfs @ 12.09 hrs, Volume= 0.067 af
 Outflow = 0.83 cfs @ 12.09 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.83 cfs @ 12.09 hrs, Volume= 0.067 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 59.87' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	59.40'	12.0" Round Culvert L= 172.0' Ke= 0.500 Inlet / Outlet Invert= 59.40' / 57.10' S= 0.0134 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.81 cfs @ 12.09 hrs HW=59.86' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 0.81 cfs @ 2.31 fps)

Summary for Pond 19P: PCB 19

Inflow Area = 0.130 ac, 76.97% Impervious, Inflow Depth = 4.26" for 10-yr event
 Inflow = 0.61 cfs @ 12.09 hrs, Volume= 0.046 af
 Outflow = 0.61 cfs @ 12.09 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.1 min
 Primary = 0.61 cfs @ 12.09 hrs, Volume= 0.046 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 57.83' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.046 af (100% of inflow)
 Center-of-Mass det. time= 0.5 min (790.1 - 789.7)

Volume	Invert	Avail.Storage	Storage Description
#1	57.40'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	57.40'	12.0" Round Culvert L= 6.3' Ke= 0.500 Inlet / Outlet Invert= 57.40' / 57.30' S= 0.0159 1' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.60 cfs @ 12.09 hrs HW=57.83' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.60 cfs @ 2.75 fps)

Summary for Pond 20P: PDMH 20

[57] Hint: Peaked at 57.87' (Flood elevation advised)
 [79] Warning: Submerged Pond 18P Primary device # 1 OUTLET by 0.77'
 [81] Warning: Exceeded Pond 19P by 0.04' @ 12.10 hrs

Inflow Area = 0.300 ac, 82.76% Impervious, Inflow Depth > 4.51" for 10-yr event
 Inflow = 1.44 cfs @ 12.09 hrs, Volume= 0.113 af
 Outflow = 1.44 cfs @ 12.09 hrs, Volume= 0.113 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.44 cfs @ 12.09 hrs, Volume= 0.113 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 57.87' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	57.20'	12.0" Round Culvert L= 139.2' Ke= 0.500 Inlet / Outlet Invert= 57.20' / 56.30' S= 0.0065 1' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.41 cfs @ 12.09 hrs HW=57.86' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 1.41 cfs @ 3.62 fps)

Summary for Pond 21P: PCB 21

Inflow Area = 0.072 ac, 90.91% Impervious, Inflow Depth = 4.88" for 10-yr event
 Inflow = 0.37 cfs @ 12.09 hrs, Volume= 0.029 af
 Outflow = 0.37 cfs @ 12.09 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.1 min
 Primary = 0.37 cfs @ 12.09 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 56.73' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.6 min calculated for 0.029 af (100% of inflow)
 Center-of-Mass det. time= 0.6 min (766.2 - 765.6)

Volume	Invert	Avail.Storage	Storage Description
#1	56.40'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	56.40'	12.0" Round Culvert L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 56.40' / 56.30' S= 0.0125 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.36 cfs @ 12.09 hrs HW=56.72' (Free Discharge)
 ↗ **1=Culvert** (Barrel Controls 0.36 cfs @ 2.44 fps)

Summary for Pond 22P: PCB 22

Inflow Area = 0.043 ac, 100.00% Impervious, Inflow Depth > 5.22" for 10-yr event
 Inflow = 0.22 cfs @ 12.09 hrs, Volume= 0.019 af
 Outflow = 0.22 cfs @ 12.09 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.2 min
 Primary = 0.22 cfs @ 12.09 hrs, Volume= 0.019 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 56.65' @ 12.09 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.7 min calculated for 0.019 af (100% of inflow)
 Center-of-Mass det. time= 0.7 min (747.4 - 746.6)

Volume	Invert	Avail.Storage	Storage Description
#1	56.40'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	56.40'	12.0" Round Culvert L= 8.0' Ke= 0.500 Inlet / Outlet Invert= 56.40' / 56.30' S= 0.0125 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.22 cfs @ 12.09 hrs HW=56.64' (Free Discharge)
 ↗ **1=Culvert** (Barrel Controls 0.22 cfs @ 2.21 fps)

Summary for Pond 23P: PDMH 23

[57] Hint: Peaked at 57.08' (Flood elevation advised)

[79] Warning: Submerged Pond 20P Primary device # 1 OUTLET by 0.78'

[81] Warning: Exceeded Pond 21P by 0.35' @ 12.10 hrs

[81] Warning: Exceeded Pond 22P by 0.43' @ 12.10 hrs

Inflow Area = 0.415 ac, 85.96% Impervious, Inflow Depth > 4.65" for 10-yr event
 Inflow = 2.04 cfs @ 12.09 hrs, Volume= 0.161 af
 Outflow = 2.04 cfs @ 12.09 hrs, Volume= 0.161 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.04 cfs @ 12.09 hrs, Volume= 0.161 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 57.08' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	56.20'	12.0" Round Culvert L= 21.0' Ke= 0.500 Inlet / Outlet Invert= 56.20' / 56.00' S= 0.0095 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.99 cfs @ 12.09 hrs HW=57.06' (Free Discharge)↑**1=Culvert** (Barrel Controls 1.99 cfs @ 3.69 fps)**Summary for Pond 28P: PDMH 6B**

[57] Hint: Peaked at 75.96' (Flood elevation advised)

[79] Warning: Submerged Pond 31P Primary device # 1 INLET by 1.06'

[79] Warning: Submerged Pond D3 Primary device # 1 INLET by 0.96'

Inflow Area = 1.182 ac, 97.67% Impervious, Inflow Depth = 1.55" for 10-yr event
 Inflow = 4.72 cfs @ 12.15 hrs, Volume= 0.153 af
 Outflow = 4.72 cfs @ 12.15 hrs, Volume= 0.153 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.72 cfs @ 12.15 hrs, Volume= 0.153 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 75.96' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.70'	15.0" Round Culvert L= 185.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 74.70' / 53.10' S= 0.1168 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=4.66 cfs @ 12.15 hrs HW=75.95' (Free Discharge)↑**1=Culvert** (Inlet Controls 4.66 cfs @ 3.80 fps)

Summary for Pond 29P: SWG Inlet MH

[57] Hint: Peaked at 75.48' (Flood elevation advised)

[79] Warning: Submerged Pond 4P Primary device # 1 INLET by 1.56'

Inflow Area = 0.857 ac, 96.78% Impervious, Inflow Depth > 5.12" for 10-yr event
 Inflow = 4.45 cfs @ 12.09 hrs, Volume= 0.365 af
 Outflow = 4.45 cfs @ 12.09 hrs, Volume= 0.365 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.45 cfs @ 12.09 hrs, Volume= 0.365 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 75.48' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	73.60'	12.0" Round Culvert L= 5.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.60' / 73.50' S= 0.0200 ' / ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=4.34 cfs @ 12.09 hrs HW=75.42' (Free Discharge)
 ↑1=Culvert (Inlet Controls 4.34 cfs @ 5.53 fps)

Summary for Pond 31P: PDMH 6

[57] Hint: Peaked at 75.96' (Flood elevation advised)

[81] Warning: Exceeded Pond 6P by 1.70' @ 12.20 hrs

[79] Warning: Submerged Pond D3 Secondary device # 2 INLET by 0.96'

Inflow = 2.36 cfs @ 12.15 hrs, Volume= 0.076 af
 Outflow = 2.36 cfs @ 12.15 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.36 cfs @ 12.15 hrs, Volume= 0.076 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 75.96' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.90'	12.0" Round Culvert L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 74.90' / 74.80' S= 0.0050 ' / ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.33 cfs @ 12.15 hrs HW=75.95' (Free Discharge)
 ↑1=Culvert (Barrel Controls 2.33 cfs @ 3.50 fps)

Summary for Pond D3: ADS Subsurface Storage Units (15 - SC130)

[81] Warning: Exceeded Pond 6P by 1.74' @ 12.20 hrs

[81] Warning: Exceeded Pond 29P by 1.34' @ 12.60 hrs

Inflow Area = 1.182 ac, 97.67% Impervious, Inflow Depth > 5.15" for 10-yr event
 Inflow = 6.15 cfs @ 12.09 hrs, Volume= 0.507 af
 Outflow = 5.07 cfs @ 12.15 hrs, Volume= 0.507 af, Atten= 18%, Lag= 4.0 min
 Discarded = 0.35 cfs @ 12.15 hrs, Volume= 0.354 af
 Primary = 2.36 cfs @ 12.15 hrs, Volume= 0.076 af
 Secondary = 2.36 cfs @ 12.15 hrs, Volume= 0.076 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 76.00' @ 12.15 hrs Surf.Area= 2,720 sf Storage= 5,470 cf

Plug-Flow detention time= 87.3 min calculated for 0.507 af (100% of inflow)
 Center-of-Mass det. time= 87.3 min (838.8 - 751.5)

Volume	Invert	Avail.Storage	Storage Description
#1	72.50'	3,785 cf	55.50'W x 49.00'L x 4.50'H Prismatoid 12,238 cf Overall - 2,776 cf Embedded = 9,462 cf x 40.0% Voids
#2	73.50'	2,776 cf	ADS_StormTech SC-740 +Cap @ 7.17' L x 60 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.17'L = 46.3 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 60 Chambers in 10 Rows
		6,561 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	75.00'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.00' / 74.90' S= 0.0200 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Secondary	75.00'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.00' / 74.90' S= 0.0200 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#3	Discarded	72.50'	3.000 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 66.00'

Discarded OutFlow Max=0.35 cfs @ 12.15 hrs HW=75.99' (Free Discharge)
 ↑ **3=Exfiltration** (Controls 0.35 cfs)

Primary OutFlow Max=2.33 cfs @ 12.15 hrs HW=75.99' (Free Discharge)
 ↑ **1=Culvert** (Barrel Controls 2.33 cfs @ 3.73 fps)

Secondary OutFlow Max=2.33 cfs @ 12.15 hrs HW=75.99' (Free Discharge)
 ↑ **2=Culvert** (Barrel Controls 2.33 cfs @ 3.73 fps)

Summary for Pond Plunge: Plunge Pool / level spreader

[57] Hint: Peaked at 47.50' (Flood elevation advised)

Inflow Area = 4.689 ac, 47.33% Impervious, Inflow Depth = 2.50" for 10-yr event
 Inflow = 9.38 cfs @ 12.28 hrs, Volume= 0.978 af
 Outflow = 9.38 cfs @ 12.28 hrs, Volume= 0.978 af, Atten= 0%, Lag= 0.0 min
 Primary = 9.38 cfs @ 12.28 hrs, Volume= 0.978 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 47.50' @ 12.28 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	10.0' long x 3.0' 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 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=9.32 cfs @ 12.28 hrs HW=47.50' (Free Discharge)

↑1=**Broad-Crested Rectangular Weir** (Weir Controls 9.32 cfs @ 1.86 fps)

Summary for Link 25L: Point of Analysis

Inflow Area = 9.059 ac, 28.51% Impervious, Inflow Depth = 2.69" for 10-yr event
 Inflow = 16.02 cfs @ 12.32 hrs, Volume= 2.033 af
 Primary = 16.02 cfs @ 12.32 hrs, Volume= 2.033 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Time span=1.00-48.00 hrs, dt=0.05 hrs, 941 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Upper Parking Lot Left	Runoff Area=15,579 sf 94.04% Impervious Runoff Depth=3.22" Tc=6.0 min CN=97 Runoff=1.21 cfs 0.096 af
Subcatchment2S: Upper Parking Lot Right	Runoff Area=15,439 sf 98.23% Impervious Runoff Depth=3.31" Tc=6.0 min CN=97 Runoff=1.21 cfs 0.098 af
Subcatchment3S: Upper Parking Lot Right	Runoff Area=6,296 sf 100.00% Impervious Runoff Depth=3.39" Tc=6.0 min CN=98 Runoff=0.50 cfs 0.041 af
Subcatchment4S: Southern Parking Lot	Runoff Area=4,115 sf 100.00% Impervious Runoff Depth=3.39" Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af
Subcatchment5S: Southern Parking Lot	Runoff Area=7,631 sf 72.99% Impervious Runoff Depth=2.38" Tc=6.0 min CN=88 Runoff=0.47 cfs 0.035 af
Subcatchment6S: Connector Drive	Runoff Area=9,038 sf 67.82% Impervious Runoff Depth=2.33" Tc=6.0 min CN=87 Runoff=0.55 cfs 0.040 af
Subcatchment7S: 7S	Runoff Area=6,098 sf 0.00% Impervious Runoff Depth=0.63" Tc=6.0 min CN=61 Runoff=0.08 cfs 0.007 af
Subcatchment8S: Lower Parking Lot Right	Runoff Area=8,008 sf 65.30% Impervious Runoff Depth=2.13" Tc=6.0 min CN=85 Runoff=0.45 cfs 0.033 af
Subcatchment9S: Lower Parking Lot	Runoff Area=13,171 sf 91.65% Impervious Runoff Depth=3.11" Tc=6.0 min CN=96 Runoff=1.00 cfs 0.078 af
Subcatchment10S: Lower Parking Lot	Runoff Area=10,699 sf 81.54% Impervious Runoff Depth=2.67" Tc=6.0 min CN=91 Runoff=0.73 cfs 0.055 af
Subcatchment11S: Lower Parking Lot Left	Runoff Area=5,094 sf 94.92% Impervious Runoff Depth=3.18" Tc=6.0 min CN=96 Runoff=0.39 cfs 0.031 af
Subcatchment12S: Driveway Exit	Runoff Area=4,470 sf 100.00% Impervious Runoff Depth=3.39" Tc=6.0 min CN=98 Runoff=0.35 cfs 0.029 af
Subcatchment13S: Beginning of Road	Runoff Area=2,935 sf 67.67% Impervious Runoff Depth=2.21" Tc=6.0 min CN=86 Runoff=0.17 cfs 0.012 af
Subcatchment14S: Road Extension	Runoff Area=5,653 sf 76.97% Impervious Runoff Depth=2.51" Tc=6.0 min CN=89 Runoff=0.37 cfs 0.027 af
Subcatchment15S: Road Extension	Runoff Area=3,148 sf 90.91% Impervious Runoff Depth=3.06" Tc=6.0 min CN=95 Runoff=0.24 cfs 0.018 af
Subcatchment16S: Road Extension	Runoff Area=1,869 sf 100.00% Impervious Runoff Depth=3.39" Tc=6.0 min CN=98 Runoff=0.15 cfs 0.012 af

Subcatchment B1S: Building Roof	Runoff Area=14,178 sf 100.00% Impervious Runoff Depth=3.39" Tc=6.0 min CN=98 Runoff=1.12 cfs 0.092 af
Subcatchment BS: Northern Wetlands	Runoff Area=163,457 sf 0.00% Impervious Runoff Depth=1.35" Flow Length=700' Tc=28.6 min CN=74 Runoff=3.31 cfs 0.422 af
Subcatchment CS: Lawn Between Building	Runoff Area=97,726 sf 0.00% Impervious Runoff Depth=0.77" Flow Length=285' Tc=19.2 min CN=64 Runoff=1.15 cfs 0.145 af
Reach 8/9R: Rd swale	Avg. Flow Depth=0.27' Max Vel=3.30 fps Inflow=2.53 cfs 0.197 af n=0.025 L=233.0' S=0.0258 '/' Capacity=83.37 cfs Outflow=2.39 cfs 0.197 af
Reach 10R: Swale	Avg. Flow Depth=0.20' Max Vel=2.10 fps Inflow=1.11 cfs 0.086 af n=0.025 L=70.0' S=0.0143 '/' Capacity=62.10 cfs Outflow=1.09 cfs 0.086 af
Reach 11R: Swale	Avg. Flow Depth=0.11' Max Vel=1.55 fps Inflow=0.39 cfs 0.031 af n=0.025 L=63.0' S=0.0159 '/' Capacity=65.46 cfs Outflow=0.38 cfs 0.031 af
Reach 26R: Swale	Avg. Flow Depth=0.06' Max Vel=1.90 fps Inflow=1.09 cfs 0.041 af n=0.025 L=100.0' S=0.0500 '/' Capacity=163.50 cfs Outflow=1.07 cfs 0.041 af
Reach 32R: Swale	Avg. Flow Depth=0.15' Max Vel=2.01 fps Inflow=1.26 cfs 0.107 af n=0.040 L=300.0' S=0.0467 '/' Capacity=114.38 cfs Outflow=1.14 cfs 0.107 af
Reach 33R: Swale	Avg. Flow Depth=0.15' Max Vel=0.34 fps Inflow=1.14 cfs 0.107 af n=0.040 L=900.0' S=0.0011 '/' Capacity=110.82 cfs Outflow=0.55 cfs 0.107 af
Pond 1P: PCB 1	Peak Elev=75.84' Storage=0.000 af Inflow=1.21 cfs 0.096 af 12.0" Round Culvert n=0.012 L=157.8' S=0.0051 '/' Outflow=1.21 cfs 0.096 af
Pond 1R: Raingarden 1	Peak Elev=65.01' Storage=354 cf Inflow=1.43 cfs 0.109 af Outflow=1.26 cfs 0.107 af
Pond 2P: PDMH 2	Peak Elev=75.30' Inflow=2.42 cfs 0.194 af 12.0" Round Culvert n=0.012 L=43.0' S=0.0070 '/' Outflow=2.42 cfs 0.194 af
Pond 2R: Raingarden 2	Peak Elev=55.98' Storage=5,682 cf Inflow=4.10 cfs 0.482 af Outflow=1.76 cfs 0.468 af
Pond 3P: PCB 3	Peak Elev=75.24' Storage=0.000 af Inflow=1.21 cfs 0.098 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=1.21 cfs 0.098 af
Pond 4P: PDMH 4	Peak Elev=75.14' Inflow=2.92 cfs 0.235 af 12.0" Round Culvert n=0.012 L=54.3' S=0.0055 '/' Outflow=2.92 cfs 0.235 af
Pond 5P: PCB 5	Peak Elev=74.58' Storage=0.000 af Inflow=0.50 cfs 0.041 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=0.50 cfs 0.041 af
Pond 6P: PDMH 6	Peak Elev=74.22' Inflow=1.12 cfs 0.092 af Primary=1.12 cfs 0.092 af Secondary=0.00 cfs 0.000 af Outflow=1.12 cfs 0.092 af
Pond 7P: PCB 7	Peak Elev=74.10' Storage=0.000 af Inflow=0.33 cfs 0.027 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=0.33 cfs 0.027 af

Pond 8P: PDMH 8

Peak Elev=73.82' Inflow=0.33 cfs 0.027 af
 12.0" Round Culvert n=0.012 L=75.0' S=0.0053 ' Outflow=0.33 cfs 0.027 af

Pond 9P: PCB 9

Peak Elev=73.11' Storage=0.000 af Inflow=0.47 cfs 0.035 af
 12.0" Round Culvert n=0.012 L=46.2' S=0.0043 ' Outflow=0.48 cfs 0.035 af

Pond 10P: PDMH 10

Peak Elev=72.86' Inflow=0.80 cfs 0.061 af
 12.0" Round Culvert n=0.012 L=41.0' S=0.1561 ' Outflow=0.80 cfs 0.061 af

Pond 11P: PCB 11

Peak Elev=66.97' Storage=0.000 af Inflow=0.55 cfs 0.040 af
 12.0" Round Culvert n=0.012 L=35.0' S=0.0171 ' Outflow=0.55 cfs 0.040 af

Pond 12P: PCI 12

Peak Elev=63.53' Inflow=0.45 cfs 0.033 af
 Outflow=0.45 cfs 0.033 af

Pond 13P: PCI 13

Peak Elev=63.56' Inflow=2.08 cfs 0.164 af
 Outflow=2.08 cfs 0.164 af

Pond 14P: PCI 14

Peak Elev=64.34' Inflow=1.11 cfs 0.086 af
 Outflow=1.11 cfs 0.086 af

Pond 15P: PCI 15

Peak Elev=65.12' Inflow=0.39 cfs 0.031 af
 Outflow=0.39 cfs 0.031 af

Pond 16P: PCB 16

Peak Elev=59.92' Storage=0.000 af Inflow=0.35 cfs 0.029 af
 12.0" Round Culvert n=0.012 L=6.2' S=0.0161 ' Outflow=0.35 cfs 0.029 af

Pond 17P: PCB 17

Peak Elev=59.90' Storage=0.000 af Inflow=0.17 cfs 0.012 af
 12.0" Round Culvert n=0.012 L=5.7' S=0.0351 ' Outflow=0.17 cfs 0.012 af

Pond 18P: PDMH 18

Peak Elev=59.76' Inflow=0.52 cfs 0.041 af
 12.0" Round Culvert n=0.012 L=172.0' S=0.0134 ' Outflow=0.52 cfs 0.041 af

Pond 19P: PCB 19

Peak Elev=57.72' Storage=0.000 af Inflow=0.37 cfs 0.027 af
 12.0" Round Culvert n=0.012 L=6.3' S=0.0159 ' Outflow=0.37 cfs 0.027 af

Pond 20P: PDMH 20

Peak Elev=57.71' Inflow=0.89 cfs 0.069 af
 12.0" Round Culvert n=0.012 L=139.2' S=0.0065 ' Outflow=0.89 cfs 0.069 af

Pond 21P: PCB 21

Peak Elev=56.66' Storage=0.000 af Inflow=0.24 cfs 0.018 af
 12.0" Round Culvert n=0.012 L=8.0' S=0.0125 ' Outflow=0.24 cfs 0.018 af

Pond 22P: PCB 22

Peak Elev=56.60' Storage=0.000 af Inflow=0.15 cfs 0.012 af
 12.0" Round Culvert n=0.012 L=8.0' S=0.0125 ' Outflow=0.15 cfs 0.012 af

Pond 23P: PDMH 23

Peak Elev=56.85' Inflow=1.28 cfs 0.099 af
 12.0" Round Culvert n=0.012 L=21.0' S=0.0095 ' Outflow=1.28 cfs 0.099 af

Pond 28P: PDMH 6B

Peak Elev=75.20' Inflow=1.09 cfs 0.041 af
 15.0" Round Culvert n=0.012 L=185.0' S=0.1168 ' Outflow=1.09 cfs 0.041 af

Pond 29P: SWG Inlet MH

Peak Elev=74.78' Inflow=2.92 cfs 0.235 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=2.92 cfs 0.235 af

Pond 31P: PDMH 6

Peak Elev=75.34' Inflow=0.55 cfs 0.021 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=0.55 cfs 0.021 af

Pond D3: ADS Subsurface Storage Units (15 - Peak Elev=75.40' Storage=4,671 cf Inflow=4.04 cfs 0.326 af
Discarded=0.32 cfs 0.285 af Primary=0.55 cfs 0.021 af Secondary=0.55 cfs 0.021 af Outflow=1.41 cfs 0.326 af

Pond Plunge: Plunge Pool / level spreader

Peak Elev=47.17' Inflow=1.76 cfs 0.468 af
Outflow=1.76 cfs 0.468 af

Link 25L: Point of Analysis

Inflow=5.09 cfs 0.997 af
Primary=5.09 cfs 0.997 af

Time span=1.00-48.00 hrs, dt=0.05 hrs, 941 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Upper Parking Lot Left	Runoff Area=15,579 sf 94.04% Impervious Runoff Depth=6.50" Tc=6.0 min CN=97 Runoff=2.35 cfs 0.194 af
Subcatchment2S: Upper Parking Lot Right	Runoff Area=15,439 sf 98.23% Impervious Runoff Depth>6.59" Tc=6.0 min CN=97 Runoff=2.34 cfs 0.195 af
Subcatchment3S: Upper Parking Lot Right	Runoff Area=6,296 sf 100.00% Impervious Runoff Depth>6.67" Tc=6.0 min CN=98 Runoff=0.96 cfs 0.080 af
Subcatchment4S: Southern Parking Lot	Runoff Area=4,115 sf 100.00% Impervious Runoff Depth>6.67" Tc=6.0 min CN=98 Runoff=0.63 cfs 0.053 af
Subcatchment5S: Southern Parking Lot	Runoff Area=7,631 sf 72.99% Impervious Runoff Depth=5.51" Tc=6.0 min CN=88 Runoff=1.06 cfs 0.080 af
Subcatchment6S: Connector Drive	Runoff Area=9,038 sf 67.82% Impervious Runoff Depth=5.45" Tc=6.0 min CN=87 Runoff=1.24 cfs 0.094 af
Subcatchment7S: 7S	Runoff Area=6,098 sf 0.00% Impervious Runoff Depth=2.64" Tc=6.0 min CN=61 Runoff=0.41 cfs 0.031 af
Subcatchment8S: Lower Parking Lot Right	Runoff Area=8,008 sf 65.30% Impervious Runoff Depth=5.18" Tc=6.0 min CN=85 Runoff=1.06 cfs 0.079 af
Subcatchment9S: Lower Parking Lot	Runoff Area=13,171 sf 91.65% Impervious Runoff Depth=6.38" Tc=6.0 min CN=96 Runoff=1.98 cfs 0.161 af
Subcatchment10S: Lower Parking Lot	Runoff Area=10,699 sf 81.54% Impervious Runoff Depth=5.87" Tc=6.0 min CN=91 Runoff=1.54 cfs 0.120 af
Subcatchment11S: Lower Parking Lot Left	Runoff Area=5,094 sf 94.92% Impervious Runoff Depth=6.45" Tc=6.0 min CN=96 Runoff=0.77 cfs 0.063 af
Subcatchment12S: Driveway Exit	Runoff Area=4,470 sf 100.00% Impervious Runoff Depth>6.67" Tc=6.0 min CN=98 Runoff=0.68 cfs 0.057 af
Subcatchment13S: Beginning of Road	Runoff Area=2,935 sf 67.67% Impervious Runoff Depth=5.28" Tc=6.0 min CN=86 Runoff=0.39 cfs 0.030 af
Subcatchment14S: Road Extension	Runoff Area=5,653 sf 76.97% Impervious Runoff Depth=5.68" Tc=6.0 min CN=89 Runoff=0.80 cfs 0.061 af
Subcatchment15S: Road Extension	Runoff Area=3,148 sf 90.91% Impervious Runoff Depth=6.32" Tc=6.0 min CN=95 Runoff=0.47 cfs 0.038 af
Subcatchment16S: Road Extension	Runoff Area=1,869 sf 100.00% Impervious Runoff Depth>6.67" Tc=6.0 min CN=98 Runoff=0.28 cfs 0.024 af

Subcatchment B1S: Building Roof	Runoff Area=14,178 sf 100.00% Impervious Runoff Depth>6.67" Tc=6.0 min CN=98 Runoff=2.15 cfs 0.181 af
Subcatchment BS: Northern Wetlands	Runoff Area=163,457 sf 0.00% Impervious Runoff Depth=4.01" Flow Length=700' Tc=28.6 min CN=74 Runoff=10.16 cfs 1.253 af
Subcatchment CS: Lawn Between Building	Runoff Area=97,726 sf 0.00% Impervious Runoff Depth=2.95" Flow Length=285' Tc=19.2 min CN=64 Runoff=5.20 cfs 0.552 af
Reach 8/9R: Rd swale	Avg. Flow Depth=0.40' Max Vel=4.10 fps Inflow=5.27 cfs 0.423 af n=0.025 L=233.0' S=0.0258 '/' Capacity=83.37 cfs Outflow=5.04 cfs 0.423 af
Reach 10R: Swale	Avg. Flow Depth=0.30' Max Vel=2.62 fps Inflow=2.29 cfs 0.183 af n=0.025 L=70.0' S=0.0143 '/' Capacity=62.10 cfs Outflow=2.25 cfs 0.183 af
Reach 11R: Swale	Avg. Flow Depth=0.16' Max Vel=1.94 fps Inflow=0.77 cfs 0.063 af n=0.025 L=63.0' S=0.0159 '/' Capacity=65.46 cfs Outflow=0.75 cfs 0.063 af
Reach 26R: Swale	Avg. Flow Depth=0.16' Max Vel=3.73 fps Inflow=6.49 cfs 0.251 af n=0.025 L=100.0' S=0.0500 '/' Capacity=163.50 cfs Outflow=6.43 cfs 0.251 af
Reach 32R: Swale	Avg. Flow Depth=0.20' Max Vel=2.34 fps Inflow=1.85 cfs 0.256 af n=0.040 L=300.0' S=0.0467 '/' Capacity=114.38 cfs Outflow=1.85 cfs 0.256 af
Reach 33R: Swale	Avg. Flow Depth=0.28' Max Vel=0.50 fps Inflow=1.85 cfs 0.256 af n=0.040 L=900.0' S=0.0011 '/' Capacity=110.82 cfs Outflow=1.48 cfs 0.256 af
Pond 1P: PCB 1	Peak Elev=76.19' Storage=0.000 af Inflow=2.35 cfs 0.194 af 12.0" Round Culvert n=0.012 L=157.8' S=0.0051 '/' Outflow=2.35 cfs 0.194 af
Pond 1R: Raingarden 1	Peak Elev=67.09' Storage=1,160 cf Inflow=3.34 cfs 0.258 af Outflow=1.85 cfs 0.256 af
Pond 2P: PDMH 2	Peak Elev=76.47' Inflow=4.70 cfs 0.388 af 12.0" Round Culvert n=0.012 L=43.0' S=0.0070 '/' Outflow=4.70 cfs 0.388 af
Pond 2R: Raingarden 2	Peak Elev=56.75' Storage=9,606 cf Inflow=17.30 cfs 1.436 af Outflow=15.08 cfs 1.422 af
Pond 3P: PCB 3	Peak Elev=75.58' Storage=0.000 af Inflow=2.34 cfs 0.195 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=2.34 cfs 0.195 af
Pond 4P: PDMH 4	Peak Elev=76.97' Inflow=5.66 cfs 0.469 af 12.0" Round Culvert n=0.012 L=54.3' S=0.0055 '/' Outflow=5.66 cfs 0.469 af
Pond 5P: PCB 5	Peak Elev=74.75' Storage=0.000 af Inflow=0.96 cfs 0.080 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=0.96 cfs 0.080 af
Pond 6P: PDMH 6	Peak Elev=74.54' Inflow=2.15 cfs 0.181 af Primary=2.15 cfs 0.181 af Secondary=0.00 cfs 0.000 af Outflow=2.15 cfs 0.181 af
Pond 7P: PCB 7	Peak Elev=74.23' Storage=0.000 af Inflow=0.63 cfs 0.053 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=0.63 cfs 0.053 af

Pond 8P: PDMH 8

Peak Elev=73.95' Inflow=0.63 cfs 0.053 af
 12.0" Round Culvert n=0.012 L=75.0' S=0.0053 '/' Outflow=0.63 cfs 0.053 af

Pond 9P: PCB 9

Peak Elev=73.33' Storage=0.000 af Inflow=1.06 cfs 0.080 af
 12.0" Round Culvert n=0.012 L=46.2' S=0.0043 '/' Outflow=1.06 cfs 0.080 af

Pond 10P: PDMH 10

Peak Elev=73.10' Inflow=1.69 cfs 0.133 af
 12.0" Round Culvert n=0.012 L=41.0' S=0.1561 '/' Outflow=1.69 cfs 0.133 af

Pond 11P: PCB 11

Peak Elev=67.19' Storage=0.000 af Inflow=1.24 cfs 0.094 af
 12.0" Round Culvert n=0.012 L=35.0' S=0.0171 '/' Outflow=1.24 cfs 0.094 af

Pond 12P: PCI 12

Peak Elev=63.63' Inflow=1.06 cfs 0.079 af
 Outflow=1.06 cfs 0.079 af

Pond 13P: PCI 13

Peak Elev=63.78' Inflow=4.21 cfs 0.344 af
 Outflow=4.21 cfs 0.344 af

Pond 14P: PCI 14

Peak Elev=64.48' Inflow=2.29 cfs 0.183 af
 Outflow=2.29 cfs 0.183 af

Pond 15P: PCI 15

Peak Elev=65.19' Inflow=0.77 cfs 0.063 af
 Outflow=0.77 cfs 0.063 af

Pond 16P: PCB 16

Peak Elev=60.06' Storage=0.000 af Inflow=0.68 cfs 0.057 af
 12.0" Round Culvert n=0.012 L=6.2' S=0.0161 '/' Outflow=0.68 cfs 0.057 af

Pond 17P: PCB 17

Peak Elev=60.01' Storage=0.000 af Inflow=0.39 cfs 0.030 af
 12.0" Round Culvert n=0.012 L=5.7' S=0.0351 '/' Outflow=0.40 cfs 0.030 af

Pond 18P: PDMH 18

Peak Elev=59.94' Inflow=1.08 cfs 0.087 af
 12.0" Round Culvert n=0.012 L=172.0' S=0.0134 '/' Outflow=1.08 cfs 0.087 af

Pond 19P: PCB 19

Peak Elev=57.91' Storage=0.000 af Inflow=0.80 cfs 0.061 af
 12.0" Round Culvert n=0.012 L=6.3' S=0.0159 '/' Outflow=0.80 cfs 0.061 af

Pond 20P: PDMH 20

Peak Elev=57.99' Inflow=1.88 cfs 0.148 af
 12.0" Round Culvert n=0.012 L=139.2' S=0.0065 '/' Outflow=1.88 cfs 0.148 af

Pond 21P: PCB 21

Peak Elev=56.78' Storage=0.000 af Inflow=0.47 cfs 0.038 af
 12.0" Round Culvert n=0.012 L=8.0' S=0.0125 '/' Outflow=0.47 cfs 0.038 af

Pond 22P: PCB 22

Peak Elev=56.68' Storage=0.000 af Inflow=0.28 cfs 0.024 af
 12.0" Round Culvert n=0.012 L=8.0' S=0.0125 '/' Outflow=0.28 cfs 0.024 af

Pond 23P: PDMH 23

Peak Elev=57.26' Inflow=2.63 cfs 0.210 af
 12.0" Round Culvert n=0.012 L=21.0' S=0.0095 '/' Outflow=2.63 cfs 0.210 af

Pond 28P: PDMH 6B

Peak Elev=76.53' Inflow=6.49 cfs 0.251 af
 15.0" Round Culvert n=0.012 L=185.0' S=0.1168 '/' Outflow=6.49 cfs 0.251 af

Pond 29P: SWG Inlet MH

Peak Elev=76.33' Inflow=5.66 cfs 0.469 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=5.66 cfs 0.469 af

Pond 31P: PDMH 6

Peak Elev=76.35' Inflow=3.25 cfs 0.126 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=3.25 cfs 0.126 af

Pond D3: ADS Subsurface Storage Units (15 - Peak Elev=76.32' Storage=5,817 cf Inflow=7.81 cfs 0.650 af
Discarded=0.37 cfs 0.398 af Primary=3.25 cfs 0.126 af Secondary=3.25 cfs 0.126 af Outflow=6.86 cfs 0.650 af

Pond Plunge: Plunge Pool / level spreader

Peak Elev=47.68' Inflow=15.08 cfs 1.422 af
Outflow=15.08 cfs 1.422 af

Link 25L: Point of Analysis

Inflow=23.78 cfs 2.930 af
Primary=23.78 cfs 2.930 af

Time span=1.00-48.00 hrs, dt=0.05 hrs, 941 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Upper Parking Lot Left	Runoff Area=15,579 sf 94.04% Impervious Runoff Depth>7.84" Tc=6.0 min CN=97 Runoff=2.82 cfs 0.234 af
Subcatchment2S: Upper Parking Lot Right	Runoff Area=15,439 sf 98.23% Impervious Runoff Depth>7.94" Tc=6.0 min CN=97 Runoff=2.80 cfs 0.235 af
Subcatchment3S: Upper Parking Lot Right	Runoff Area=6,296 sf 100.00% Impervious Runoff Depth>8.02" Tc=6.0 min CN=98 Runoff=1.14 cfs 0.097 af
Subcatchment4S: Southern Parking Lot	Runoff Area=4,115 sf 100.00% Impervious Runoff Depth>8.02" Tc=6.0 min CN=98 Runoff=0.75 cfs 0.063 af
Subcatchment5S: Southern Parking Lot	Runoff Area=7,631 sf 72.99% Impervious Runoff Depth=6.82" Tc=6.0 min CN=88 Runoff=1.30 cfs 0.100 af
Subcatchment6S: Connector Drive	Runoff Area=9,038 sf 67.82% Impervious Runoff Depth=6.76" Tc=6.0 min CN=87 Runoff=1.52 cfs 0.117 af
Subcatchment7S: 7S	Runoff Area=6,098 sf 0.00% Impervious Runoff Depth=3.64" Tc=6.0 min CN=61 Runoff=0.58 cfs 0.043 af
Subcatchment8S: Lower Parking Lot Right	Runoff Area=8,008 sf 65.30% Impervious Runoff Depth=6.48" Tc=6.0 min CN=85 Runoff=1.31 cfs 0.099 af
Subcatchment9S: Lower Parking Lot	Runoff Area=13,171 sf 91.65% Impervious Runoff Depth=7.72" Tc=6.0 min CN=96 Runoff=2.37 cfs 0.195 af
Subcatchment10S: Lower Parking Lot	Runoff Area=10,699 sf 81.54% Impervious Runoff Depth=7.20" Tc=6.0 min CN=91 Runoff=1.87 cfs 0.147 af
Subcatchment11S: Lower Parking Lot Left	Runoff Area=5,094 sf 94.92% Impervious Runoff Depth>7.79" Tc=6.0 min CN=96 Runoff=0.92 cfs 0.076 af
Subcatchment12S: Driveway Exit	Runoff Area=4,470 sf 100.00% Impervious Runoff Depth>8.02" Tc=6.0 min CN=98 Runoff=0.81 cfs 0.069 af
Subcatchment13S: Beginning of Road	Runoff Area=2,935 sf 67.67% Impervious Runoff Depth=6.59" Tc=6.0 min CN=86 Runoff=0.49 cfs 0.037 af
Subcatchment14S: Road Extension	Runoff Area=5,653 sf 76.97% Impervious Runoff Depth=7.00" Tc=6.0 min CN=89 Runoff=0.97 cfs 0.076 af
Subcatchment15S: Road Extension	Runoff Area=3,148 sf 90.91% Impervious Runoff Depth=7.67" Tc=6.0 min CN=95 Runoff=0.57 cfs 0.046 af
Subcatchment16S: Road Extension	Runoff Area=1,869 sf 100.00% Impervious Runoff Depth>8.02" Tc=6.0 min CN=98 Runoff=0.34 cfs 0.029 af

Subcatchment B1S: Building Roof	Runoff Area=14,178 sf 100.00% Impervious Runoff Depth>8.02" Tc=6.0 min CN=98 Runoff=2.58 cfs 0.217 af
Subcatchment BS: Northern Wetlands	Runoff Area=163,457 sf 0.00% Impervious Runoff Depth=5.21" Flow Length=700' Tc=28.6 min CN=74 Runoff=13.17 cfs 1.628 af
Subcatchment CS: Lawn Between Building	Runoff Area=97,726 sf 0.00% Impervious Runoff Depth=4.01" Flow Length=285' Tc=19.2 min CN=64 Runoff=7.18 cfs 0.750 af
Reach 8/9R: Rd swale	Avg. Flow Depth=0.44' Max Vel=4.33 fps Inflow=6.39 cfs 0.517 af n=0.025 L=233.0' S=0.0258 '/' Capacity=83.37 cfs Outflow=6.13 cfs 0.517 af
Reach 10R: Swale	Avg. Flow Depth=0.33' Max Vel=2.77 fps Inflow=2.77 cfs 0.223 af n=0.025 L=70.0' S=0.0143 '/' Capacity=62.10 cfs Outflow=2.73 cfs 0.223 af
Reach 11R: Swale	Avg. Flow Depth=0.18' Max Vel=2.05 fps Inflow=0.92 cfs 0.076 af n=0.025 L=63.0' S=0.0159 '/' Capacity=65.46 cfs Outflow=0.90 cfs 0.076 af
Reach 26R: Swale	Avg. Flow Depth=0.18' Max Vel=4.00 fps Inflow=7.85 cfs 0.348 af n=0.025 L=100.0' S=0.0500 '/' Capacity=163.50 cfs Outflow=7.78 cfs 0.348 af
Reach 32R: Swale	Avg. Flow Depth=0.22' Max Vel=2.45 fps Inflow=2.18 cfs 0.320 af n=0.040 L=300.0' S=0.0467 '/' Capacity=114.38 cfs Outflow=2.14 cfs 0.320 af
Reach 33R: Swale	Avg. Flow Depth=0.30' Max Vel=0.52 fps Inflow=2.14 cfs 0.320 af n=0.040 L=900.0' S=0.0011 '/' Capacity=110.82 cfs Outflow=1.71 cfs 0.320 af
Pond 1P: PCB 1	Peak Elev=76.38' Storage=0.000 af Inflow=2.82 cfs 0.234 af 12.0" Round Culvert n=0.012 L=157.8' S=0.0051 '/' Outflow=2.82 cfs 0.234 af
Pond 1R: Raingarden 1	Peak Elev=67.57' Storage=1,670 cf Inflow=4.15 cfs 0.322 af Outflow=2.18 cfs 0.320 af
Pond 2P: PDMH 2	Peak Elev=77.10' Inflow=5.63 cfs 0.468 af 12.0" Round Culvert n=0.012 L=43.0' S=0.0070 '/' Outflow=5.63 cfs 0.468 af
Pond 2R: Raingarden 2	Peak Elev=57.05' Storage=11,594 cf Inflow=21.66 cfs 1.871 af Outflow=17.48 cfs 1.857 af
Pond 3P: PCB 3	Peak Elev=75.73' Storage=0.000 af Inflow=2.80 cfs 0.235 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=2.80 cfs 0.235 af
Pond 4P: PDMH 4	Peak Elev=78.00' Inflow=6.77 cfs 0.565 af 12.0" Round Culvert n=0.012 L=54.3' S=0.0055 '/' Outflow=6.77 cfs 0.565 af
Pond 5P: PCB 5	Peak Elev=74.82' Storage=0.000 af Inflow=1.14 cfs 0.097 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=1.15 cfs 0.097 af
Pond 6P: PDMH 6	Peak Elev=74.66' Inflow=2.58 cfs 0.217 af Primary=2.58 cfs 0.217 af Secondary=0.00 cfs 0.000 af Outflow=2.58 cfs 0.217 af
Pond 7P: PCB 7	Peak Elev=74.28' Storage=0.000 af Inflow=0.75 cfs 0.063 af 12.0" Round Culvert n=0.012 L=23.7' S=0.0084 '/' Outflow=0.75 cfs 0.063 af

Pond 8P: PDMH 8

Peak Elev=73.99' Inflow=0.75 cfs 0.063 af
 12.0" Round Culvert n=0.012 L=75.0' S=0.0053 ' Outflow=0.75 cfs 0.063 af

Pond 9P: PCB 9

Peak Elev=73.41' Storage=0.000 af Inflow=1.30 cfs 0.100 af
 12.0" Round Culvert n=0.012 L=46.2' S=0.0043 ' Outflow=1.30 cfs 0.100 af

Pond 10P: PDMH 10

Peak Elev=73.20' Inflow=2.05 cfs 0.163 af
 12.0" Round Culvert n=0.012 L=41.0' S=0.1561 ' Outflow=2.05 cfs 0.163 af

Pond 11P: PCB 11

Peak Elev=67.26' Storage=0.000 af Inflow=1.52 cfs 0.117 af
 12.0" Round Culvert n=0.012 L=35.0' S=0.0171 ' Outflow=1.53 cfs 0.117 af

Pond 12P: PCI 12

Peak Elev=63.66' Inflow=1.31 cfs 0.099 af
 Outflow=1.31 cfs 0.099 af

Pond 13P: PCI 13

Peak Elev=63.85' Inflow=5.08 cfs 0.418 af
 Outflow=5.08 cfs 0.418 af

Pond 14P: PCI 14

Peak Elev=64.54' Inflow=2.77 cfs 0.223 af
 Outflow=2.77 cfs 0.223 af

Pond 15P: PCI 15

Peak Elev=65.21' Inflow=0.92 cfs 0.076 af
 Outflow=0.92 cfs 0.076 af

Pond 16P: PCB 16

Peak Elev=60.11' Storage=0.000 af Inflow=0.81 cfs 0.069 af
 12.0" Round Culvert n=0.012 L=6.2' S=0.0161 ' Outflow=0.81 cfs 0.069 af

Pond 17P: PCB 17

Peak Elev=60.05' Storage=0.000 af Inflow=0.49 cfs 0.037 af
 12.0" Round Culvert n=0.012 L=5.7' S=0.0351 ' Outflow=0.49 cfs 0.037 af

Pond 18P: PDMH 18

Peak Elev=60.00' Inflow=1.30 cfs 0.106 af
 12.0" Round Culvert n=0.012 L=172.0' S=0.0134 ' Outflow=1.30 cfs 0.106 af

Pond 19P: PCB 19

Peak Elev=57.97' Storage=0.000 af Inflow=0.97 cfs 0.076 af
 12.0" Round Culvert n=0.012 L=6.3' S=0.0159 ' Outflow=0.98 cfs 0.076 af

Pond 20P: PDMH 20

Peak Elev=58.11' Inflow=2.28 cfs 0.181 af
 12.0" Round Culvert n=0.012 L=139.2' S=0.0065 ' Outflow=2.28 cfs 0.181 af

Pond 21P: PCB 21

Peak Elev=56.82' Storage=0.000 af Inflow=0.57 cfs 0.046 af
 12.0" Round Culvert n=0.012 L=8.0' S=0.0125 ' Outflow=0.57 cfs 0.046 af

Pond 22P: PCB 22

Peak Elev=56.71' Storage=0.000 af Inflow=0.34 cfs 0.029 af
 12.0" Round Culvert n=0.012 L=8.0' S=0.0125 ' Outflow=0.34 cfs 0.029 af

Pond 23P: PDMH 23

Peak Elev=57.47' Inflow=3.18 cfs 0.256 af
 12.0" Round Culvert n=0.012 L=21.0' S=0.0095 ' Outflow=3.18 cfs 0.256 af

Pond 28P: PDMH 6B

Peak Elev=77.09' Inflow=7.85 cfs 0.348 af
 15.0" Round Culvert n=0.012 L=185.0' S=0.1168 ' Outflow=7.85 cfs 0.348 af

Pond 29P: SWG Inlet MH

Peak Elev=77.30' Inflow=6.77 cfs 0.565 af
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=6.77 cfs 0.565 af

Pond 31P: PDMH 6

Peak Elev=76.59' Inflow=3.93 cfs 0.174 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=3.93 cfs 0.174 af

Pond D3: ADS Subsurface Storage Units (15 - Peak Elev=76.57' Storage=6,088 cf Inflow=9.35 cfs 0.782 af
Discarded=0.38 cfs 0.434 af Primary=3.93 cfs 0.174 af Secondary=3.93 cfs 0.174 af Outflow=8.23 cfs 0.782 af

Pond Plunge: Plunge Pool / level spreader

Peak Elev=47.75' Inflow=17.48 cfs 1.857 af
Outflow=17.48 cfs 1.857 af

Link 25L: Point of Analysis

Inflow=30.35 cfs 3.805 af
Primary=30.35 cfs 3.805 af

SECTION 8

Riprap / Plunge Pool Calculations

OUTLET PROTECTION FOR A PIPE FLOWING FULL WITH LOW TAILWATER

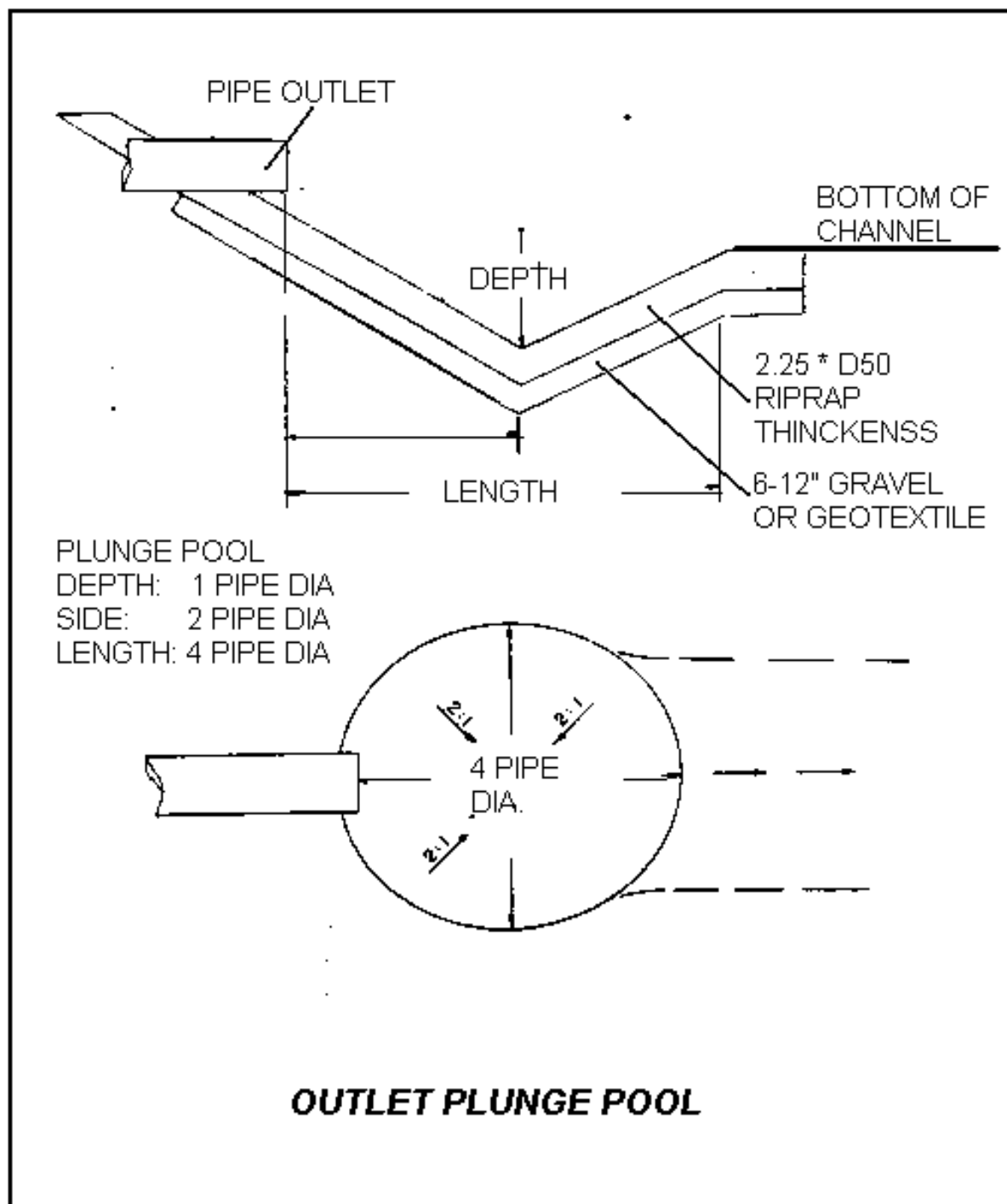
		RIPRAP SIZE - D50 (inches)											
		PIPE DIAMETER											
		12"	15"	18"	21"	24"	27"	30"	36"	42"	48"	54"	60"
DISCHARGE	3cfs	4											
	5cfs	4											
	8cfs	5	4										
	10cfs	6	5	4									
	12cfs	8	6	6									
	15cfs	8	6	8	5								
	17cfs		8	8	5								
	20cfs		10	10	6	5							
	25cfs		12	12	6	6							
	30cfs				8	8	6						
	40cfs				12	10	8	6					
	50cfs				16	12	10	8	6				
	60cfs				18	16	12	10	8				
	70cfs					18	15	12	8				
	80cfs					20	16	15	10	8			
	90cfs						18	16	12	10			
	100cfs						20	18	12	10			
	125cfs						24	20	16	12	10		
	150cfs							24	20	16	12	10	
	200cfs								24	20	18	15	12

PP#1 = 18" Pipe
9.38 cfs

		MINIMUM LENGTH OF APRON (FEET)											
		PIPE DIAMETER											
		12"	15"	18"	21"	24"	27"	30"	36"	42"	48"	54"	60"
DISCHARGE	3cfs	8											
	5cfs	8											
	8cfs	11	10										
	10cfs	14	12	10									
	15cfs	18	16	14	12								
	20cfs		18	18	16	12							
	30cfs			22	20	18	16						
	40cfs			26	24	24	20	18					
	50cfs				26	26	24	22	18				
	70cfs					30	30	28	25				
	100cfs						36	36	33	27			
	150cfs						42	42	42	38	33	28	
	200cfs							48	45	42	37	32	

PP#1 = 18" pipe
9.38 cfs

From USDA Soil Conservation Service



SECTION 9

Site Specific Soil Survey Report



LAND CONSULTANTS

July 26, 2021

Chad Kageleiry
7 West, LLC
340 Central Avenue, Ste 202
Dover, NH 03820

RE: Medical Office Building Project [6 Ac. +/-]
11 Durham Road - Dover, NH

Dear Chad:

Site Specific Soil Survey Technical Letter Report

At your request, we visited the above-referenced property to document onsite conditions for the purpose of preparing a Site-Specific Soil Map (SSSM) that would assist in the planning / design of your proposed subdivision of land. Below is a summary report that details the standards utilized, soil descriptions, and any limiting soil features encountered on the property.

Standards

The criteria under which the soil map was prepared is the *Site-specific Soil Mapping Standards for New Hampshire and Vermont*, Version 7.0, March 2021. The standards apply the very latest knowledge of soils and provide the public with the most advanced soil resource information available today. The standards are based on a universally recognized taxonomic system of soil classification and are supported by national soil mapping standards established by the USDA National Cooperative Soil Survey. They allow for the development of multi-purpose soil map products that are carefully controlled and monitored through a state, regional and national quality assessment program. The SSSM's have been developed by the Society of Soil Scientists of Northern New England (SSSNNE) in cooperation with the USDA Natural Resources Conservation Service (NRCS). Their development responded to the need to provide regulatory agencies, local officials, and land use planners with consistent high-quality large scale soil resource information.

The Site-specific Soil Map Units identified on this property come from the *New Hampshire State-wide Numerical Soils Legend*, Issue 10, January 2011. This document

represents the latest release of the permanent New Hampshire State-Wide Numerical Soils Legend since originally developed and adopted by the NRCS of NH in 1985.

Base Map

The soil map was developed on a base map of 1"= 40', with contour intervals of two (2') feet, and ground control indicators provided with wetland flags, existing utility poles, underground drainage structures, and strategically placed survey traverse stations. Topographic & boundary survey information was compiled onto our base map by McEaney Survey Associates, Inc; Dover, NH.

Location

The project site is located on the north side of Durham Road (Route 108) in the City of Dover. The subject parcel study area is approximately 6.0 Ac.+/- and has greater than 800 feet of frontage directly on the south side of the Bellamy River. The City of Dover has a south end fire station building that abuts the southwest corner of our property.

Geomorphology

The site is situated in an area of predominant upland glacial till (ice dropped) parent materials. We did encounter large areas where the moderately-well drained soils showed evidence of weak restrictive (hardpan) layers in the subsoil. There is evidence of marine / lacustrine based parent material near and surrounding both sides of the Bellamey River.

Legend

The following is the soil identification legend for the site-specific soil map units used in the preparation of the map.

SITE SPECIFIC SOIL MAP UNIT KEY

<u>SYMBOL</u>	<u>SOIL TAXONOMIC NAME</u>	<u>HSG CLASS</u>	<u>DRAINAGE CLASS</u>
62	Charlton	B	Well Drained
86	Hollis	C	Well Drained
232	Buxton	C	Moderately Well-drained
233/P	Scantic	D	Poorly Drained (P)
200/daade	Udorthents	-	Smooth Fill Refuse Material
[d-moderately well drained / a-no natural soil within 60"/ a-no restrictive layers / d- no Ksat / e- No HSG]			

Slope

The following slope phases are used to designate the percent slope of the individual soil map units. Map units not having a slope designation typically are assumed to be nearly level over most of the map unit.

<u>Slope Designation</u>	<u>Percent Slope</u>
B	0 to 8%
C	8 to 15%
D	15 to 25%
E	> 25%

Limiting Soil Features

The majority of the upland soils on this property are well suited for commercial development and the placement of structures and associated parking and access roads. The most prominent soil is well drained Charlton (62) which has moderate infiltration rates when thoroughly wetted and has moderate to moderately rapid permeability throughout all horizons. This soil would be given a HSG 'B' hydrologic grouping assignment. The Charlton soils we observed on this property are derived from firm glacial till uplands with massive structure characteristics in the substratum layers. The other well drained soils found on the higher elevations were mapped Hollis (86) which was given a HSG 'C' hydrologic grouping due to its shallow to ledge characteristics.

The moderately well drained Buxton (232) soils have slow infiltration rates when thoroughly wetted and very slow permeability in the substratum. This soil was given a HSG 'C' hydrologic grouping assignment. In the lowest elevations, in close proximity to the Bellamy River, we mapped areas of poorly drained (P) soils. These Scantic (233/P) soils would fall into a HSG 'D' category. These soils have slow to very slow permeability from subsoil down through the substratum. The Udorthents (200) soils have no clear, natural horizons to describe - they are fill material that was deposited when the old structure onsite was razed. No HSG assignment.

Sincerely,

Bruce A. Gilday

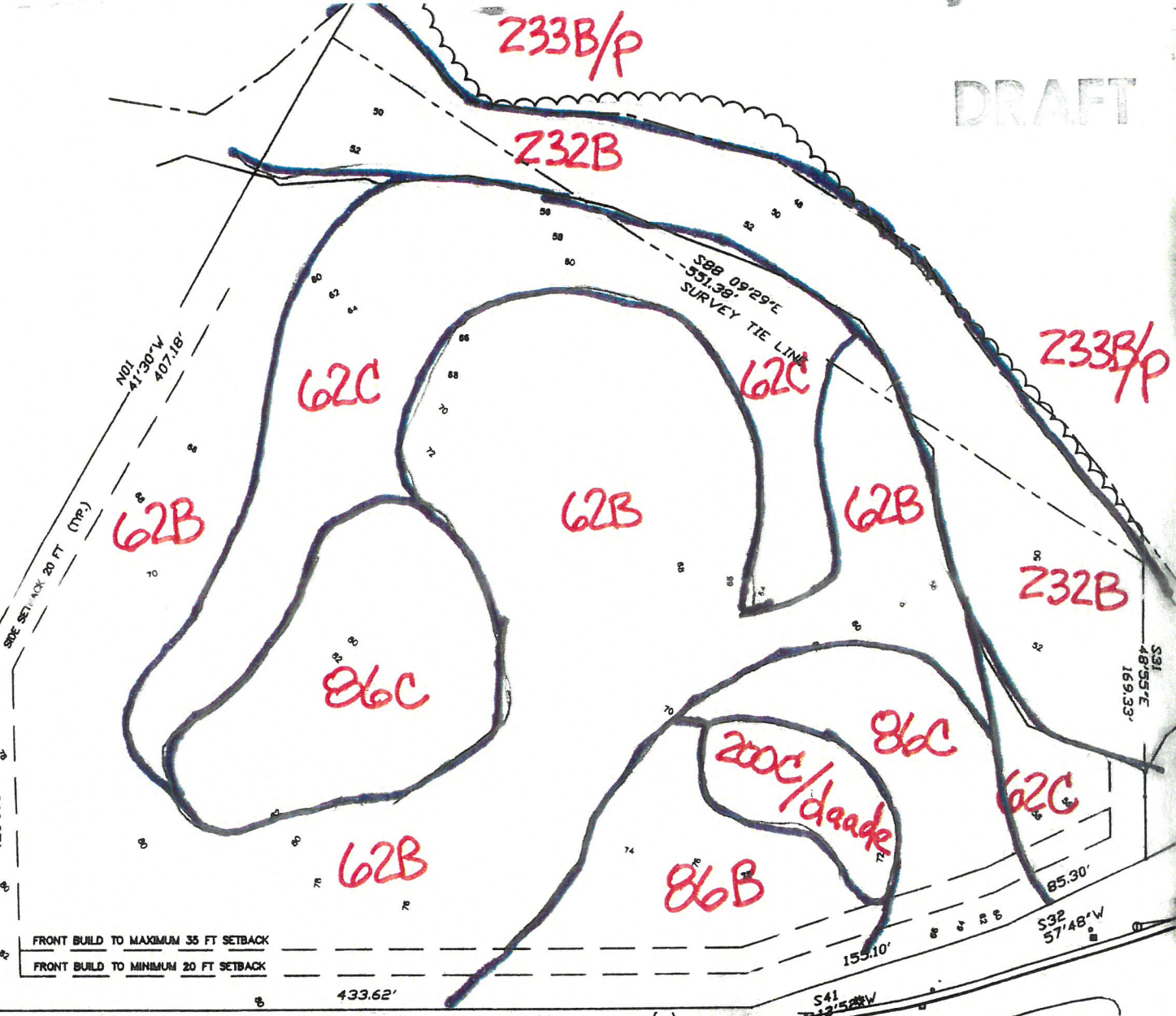
Bruce A. Gilday
Certified Soil Scientist
BAG:3238B
Attachment: NCSS Soil Map



DRAFT

CITY OF DOVER MIDDLE SCHOOL

DOVER SOUTH END
FIRE STATION



DURHAM ROAD (ROUTE 108)

DRAFT

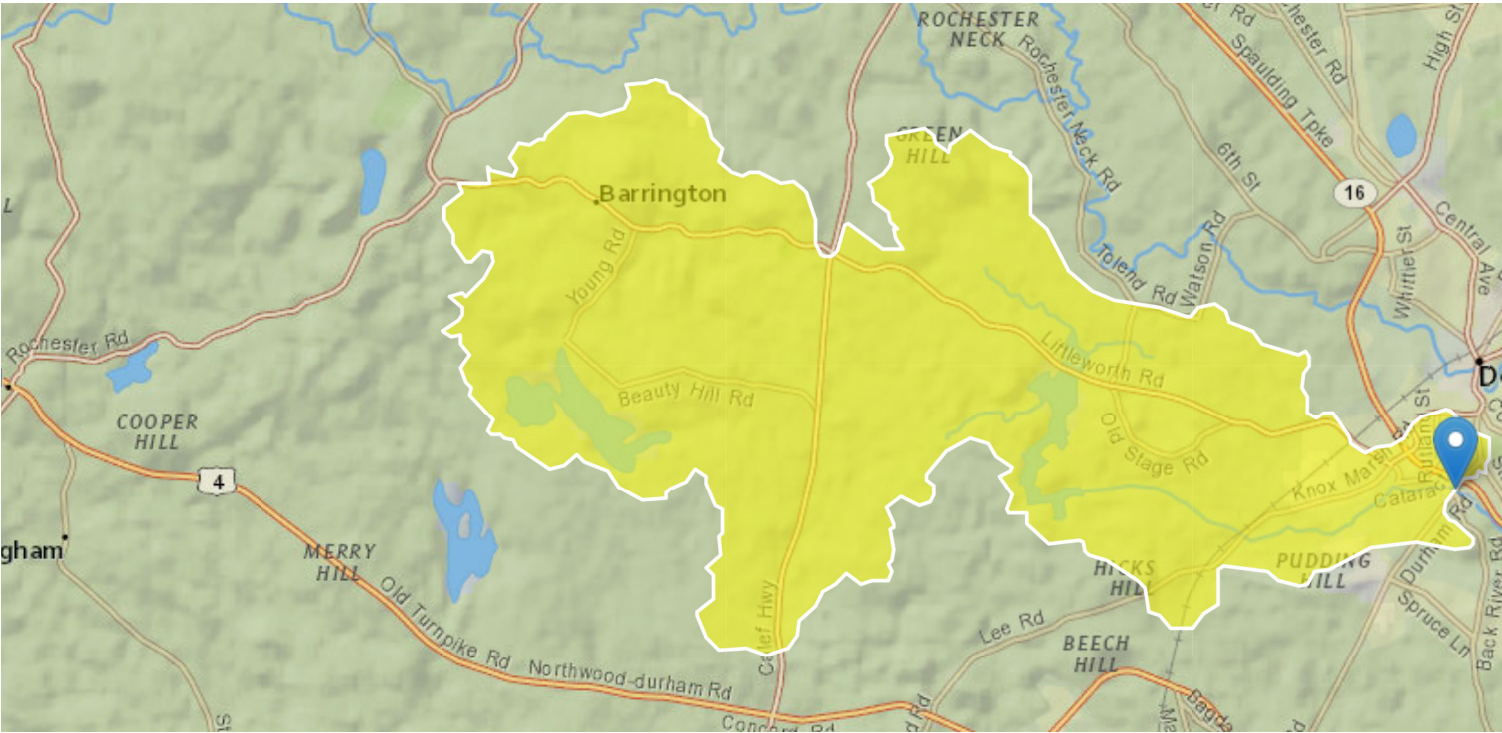
NO.	DATE	DESCRIPTION	BY	CHK
10-2188		WORK SHEET		
PROJECT NO.		TITLE	FIELDBOOK & PAGE	

SECTION 10

StreamStats Results for Bellamy River

StreamStats Report - Bellamy River

Region ID: NH
Workspace ID: NH20220503021953247000
Clicked Point (Latitude, Longitude): 43.17996, -70.87840
Time: 2022-05-02 22:20:13 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
APRAVPRE	Mean April Precipitation	4.23	inches
BSLDEM30M	Mean basin slope computed from 30 m DEM	4.06	percent
CONIF	Percentage of land surface covered by coniferous forest	15.1759	percent
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	12.4	feet per mi
DRNAREA	Area that drains to a point on a stream	27.2	square miles
ELEVMAX	Maximum basin elevation	513.485	feet
MINTEMP_W	Mean winter minimum air temperature over basin surface area	16.403	degrees F
MIXFOR	Percentage of land area covered by mixed deciduous and coniferous forest	26.1062	percent
PREBC0103	Mean annual precipitation of basin centroid for January 1 to March 15 winter period	7.68	inches
PREBC_1112	Mean annual precipitation of basin centroid for November 1 to December 31 period	8.86	inches

Parameter Code	Parameter Description	Value	Unit
PRECIPCENT	Mean Annual Precip at Basin Centroid	42.8	inches
PRECIPOUT	Mean annual precip at the stream outlet (based on annual PRISM precip data in inches from 1971-2000)	43.2	inches
PREG_03_05	Mean precipitation at gaging station location for March 16 to May 31 spring period	9.3	inches
PREG_06_10	Mean precipitation at gaging station location for June to October summer period	16.9	inches
SNOFALL	Mean Annual Snowfall	60.646	inches
TEMP	Mean Annual Temperature	46.742	degrees F
TEMP_06_10	Basinwide average temperature for June to October summer period	62.546	degrees F
WETLAND	Percentage of Wetlands	16.7571	percent

Peak-Flow Statistics Parameters [Peak Flow Statewide SIR2008 5206]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	27.2	square miles	0.7	1290
APRAVPRE	Mean April Precipitation	4.23	inches	2.79	6.23
WETLAND	Percent Wetlands	16.7571	percent	0	21.8
CSL10_85	Stream Slope 10 and 85 Method	12.4	feet per mi	5.43	543

Peak-Flow Statistics Flow Report [Peak Flow Statewide SIR2008 5206]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	Plu	ASEp	Equiv. Yrs.
50-percent AEP flood	349	ft^3/s	213	571	30.1	3.2
20-percent AEP flood	557	ft^3/s	336	922	31.1	4.7
10-percent AEP flood	725	ft^3/s	429	1220	32.3	6.2
4-percent AEP flood	944	ft^3/s	541	1650	34.3	8
2-percent AEP flood	1120	ft^3/s	622	2020	36.4	9
1-percent AEP flood	1340	ft^3/s	719	2500	38.6	9.8
0.2-percent AEP flood	1860	ft^3/s	921	3760	44.1	11

Peak-Flow Statistics Citations

Olson, S.A.,2009, Estimation of flood discharges at selected recurrence intervals for streams in New Hampshire: U.S.Geological Survey Scientific Investigations Report 2008-5206, 57 p. (<http://pubs.usgs.gov/sir/2008/5206/>)

Low-Flow Statistics Parameters [Low Flow Statewide]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	27.2	square miles	3.26	689
TEMP	Mean Annual Temperature	46.742	degrees F	36	48.7
PREG_06_10	Jun to Oct Gage Precipitation	16.9	inches	16.5	23.1

Low-Flow Statistics Flow Report [Low Flow Statewide]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	Plu	SE	ASEp
7 Day 2 Year Low Flow	1.41	ft^3/s	0.518	2.93	55.7	55.7
7 Day 10 Year Low Flow	0.558	ft^3/s	0.134	1.42	79.4	79.4

Low-Flow Statistics Citations

Flynn, R.H. and Tasker, G.D.,2002, Development of Regression Equations to Estimate Flow Durations and Low-Flow-Frequency Statistics in New Hampshire Streams: U.S.Geological Survey Scientific Investigations Report 02-4298, 66 p. (<http://pubs.water.usgs.gov/wrir02-4298>)

Recharge Statistics Parameters [Groundwater Recharge Statewide 2004 5019]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
PRECIPOUT	Mean Annual Precip at Gage	43.2	inches	35.83	53.11
TEMP	Mean Annual Temperature	46.742	degrees F	36.05	48.69
MINTEMP_W	Mean Winter Min Temperature	16.403	degrees F	0.8	19.88
CONIF	Percent Coniferous Forest	15.1759	percent	3.07	56.18
PREG_03_05	Mar to May Gage Precipitation	9.3	inches	6.83	11.54
SNOFALL	Mean Annual Snowfall	60.646	inches	54.46	219.07
PREG_06_10	Jun to Oct Gage Precipitation	16.9	inches	16.46	23.11
MIXFOR	Percent Mixed Forest	26.1062	percent	6.21	46.13
PREBC_1112	Nov to Dec Basin Centroid Precip	8.86	inches	6.57	15.2
PRECIPCENT	Mean Annual Precip at Basin Centroid	42.8	inches	37.44	75.91

Recharge Statistics Flow Report [Groundwater Recharge Statewide 2004 5019]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
GW_Recharge_Jan_to_Mar15	5.56	in	15.5
GW_Recharge_Mar16_to_May	7.4	in	12.4

Statistic	Value	Unit	ASEp
GW_Recharge_Jun_to_Oct	1.97	in	26.5
GW_Recharge_Nov_to_Dec	4.07	in	15.8
GW_Recharge_Ann	20.6	in	12.4
<i>Recharge Statistics Citations</i>			
Flynn, R.H. and Tasker, G.D.,2004, Generalized Estimates from Streamflow Data of Annual and Seasonal Ground-Water-Recharge Rates for Drainage Basins in New Hampshire, U.S. Geological Survey Scientific Investigations Report 2004-5019, 67 p. (http://pubs.usgs.gov/sir/2004/5019/http://pubs.usgs.gov/sir/2004/5019/)			

Bankfull Statistics Parameters [Appalachian Highlands D Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	27.2	square miles	0.07722	940.1535

Bankfull Statistics Parameters [New England P Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	27.2	square miles	3.799224	138.999861

Bankfull Statistics Parameters [USA Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	27.2	square miles	0.07722	59927.7393

Bankfull Statistics Flow Report [Appalachian Highlands D Bieger 2015]

Statistic	Value	Unit
Bieger_D_channel_width	59.8	ft
Bieger_D_channel_depth	2.89	ft
Bieger_D_channel_cross_sectional_area	176	ft^2

Bankfull Statistics Flow Report [New England P Bieger 2015]

Statistic	Value	Unit
Bieger_P_channel_width	63.7	ft
Bieger_P_channel_depth	2.84	ft
Bieger_P_channel_cross_sectional_area	187	ft^2

Bankfull Statistics Flow Report [USA Bieger 2015]

Statistic	Value	Unit
Bieger_USA_channel_width	39.6	ft

Statistic	Value	Unit
Bieger_USA_channel_depth	2.44	ft
Bieger_USA_channel_cross_sectional_area	102	ft^2
Bankfull Statistics Flow Report [Area-Averaged]		
Statistic	Value	Unit
Bieger_D_channel_width	59.8	ft
Bieger_D_channel_depth	2.89	ft
Bieger_D_channel_cross_sectional_area	176	ft^2
Bieger_P_channel_width	63.7	ft
Bieger_P_channel_depth	2.84	ft
Bieger_P_channel_cross_sectional_area	187	ft^2
Bieger_USA_channel_width	39.6	ft
Bieger_USA_channel_depth	2.44	ft
Bieger_USA_channel_cross_sectional_area	102	ft^2
Bankfull Statistics Citations		
Bieger, Katrin; Rathjens, Hendrik; Allen, Peter M.; and Arnold, Jeffrey G.,2015, Development and Evaluation of Bankfull Hydraulic Geometry Relationships for the Physiographic Regions of the United States, Publications from USDA-ARS / UNL Faculty, 17p. (https://digitalcommons.unl.edu/usdaarsfacpub/1515?utm_source=digitalcommons.unl.edu%2Fusdaarsfacpub%2F1515&utm_medium=PDF&utm_campaign=PDFCoverPages)		

Seasonal Flow Statistics Parameters [Low Flow Statewide]					
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	27.2	square miles	3.26	689
CONIF	Percent Coniferous Forest	15.1759	percent	3.07	56.2
PREBC0103	Jan to Mar Basin Centroid Precip	7.68	inches	5.79	15.1
BSLDEM30M	Mean Basin Slope from 30m DEM	4.06	percent	3.19	38.1
MIXFOR	Percent Mixed Forest	26.1062	percent	6.21	46.1
PREG_03_05	Mar to May Gage Precipitation	9.3	inches	6.83	11.5
TEMP	Mean Annual Temperature	46.742	degrees F	36	48.7
TEMP_06_10	Jun to Oct Mean Basinwide Temp	62.546	degrees F	52.9	64.4
PREG_06_10	Jun to Oct Gage Precipitation	16.9	inches	16.5	23.1
ELEVMAX	Maximum Basin Elevation	513.485	feet	260	6290
Seasonal Flow Statistics Flow Report [Low Flow Statewide]					
PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE:					

Standard Error (other -- see report)

Statistic	Value	Unit	Pll	Plu	SE	ASEp
Jan to Mar15 60 Percent Flow	21.2	ft^3/s	14.7	29.3	21.2	21.2
Jan to Mar15 70 Percent Flow	18.2	ft^3/s	12.8	25	20.7	20.7
Jan to Mar15 80 Percent Flow	15.2	ft^3/s	11.1	20.2	18.2	18.2
Jan to Mar15 90 Percent Flow	11.6	ft^3/s	8.34	15.6	19.3	19.3
Jan to Mar15 95 Percent Flow	9.13	ft^3/s	6.41	12.5	20.7	20.7
Jan to Mar15 98 Percent Flow	7.17	ft^3/s	4.49	10.7	27.1	27.1
Jan to Mar15 7 Day 2 Year Low Flow	15	ft^3/s	11.2	19.5	17.2	17.2
Jan to Mar15 7 Day 10 Year Low Flow	8.69	ft^3/s	6.01	12	21.5	21.5
Mar16 to May 60 Percent Flow	44.3	ft^3/s	35.4	54.6	12.2	12.2
Mar16 to May 70 Percent Flow	36.1	ft^3/s	29.4	43.8	11.4	11.4
Mar16 to May 80 Percent Flow	29	ft^3/s	23.2	35.8	12.4	12.4
Mar16 to May 90 Percent Flow	22.2	ft^3/s	17.3	28	13.7	13.7
Mar16 to May 95 Percent Flow	17.4	ft^3/s	13.3	22.3	14.8	14.8
Mar16 to May 98 Percent Flow	12.4	ft^3/s	8.93	16.8	18.1	18.1
Mar16 to May 7 Day 2 Year Low Flow	20.9	ft^3/s	16.3	26.2	14.5	14.5
Mar16 to May 7 Day 10 Year Low Flow	11.9	ft^3/s	9.02	15.3	16.2	16.2
Jun to Oct 60 Percent Flow	3.69	ft^3/s	1.95	6.33	36.7	36.7
Jun to Oct 70 Percent Flow	2.66	ft^3/s	1.33	4.75	39.9	39.9
Jun to Oct 80 Percent Flow	1.92	ft^3/s	0.878	3.63	44.5	44.5
Jun to Oct 90 Percent Flow	1.18	ft^3/s	0.483	2.39	50.7	50.7
Jun to Oct 95 Percent Flow	0.828	ft^3/s	0.304	1.79	57	57
Jun to Oct 98 Percent Flow	0.629	ft^3/s	0.215	1.42	61.1	61.1
Jun to Oct 7 Day 2 Year Low Flow	1.37	ft^3/s	0.5	2.87	55.6	55.6
Jun to Oct 7 Day 10 Year Low Flow	0.538	ft^3/s	0.132	1.35	78.5	78.5
Nov to Dec 60 Percent Flow	17.8	ft^3/s	11.7	25.9	23.3	23.3
Nov to Dec 70 Percent Flow	12.6	ft^3/s	7.88	19	25.9	25.9
Nov to Dec 80 Percent Flow	8.47	ft^3/s	5.12	13.1	27.8	27.8
Nov to Dec 90 Percent Flow	5.06	ft^3/s	2.85	8.27	31.6	31.6
Nov to Dec 95 Percent Flow	3.24	ft^3/s	1.61	5.78	38.3	38.3
Nov to Dec 98 Percent Flow	1.93	ft^3/s	0.761	3.97	50.6	50.6
Oct to Nov 7 Day 2 Year Low Flow	8.83	ft^3/s	5.67	13	23.3	23.3
Oct to Nov 7 Day 10 Year Low Flow	2.83	ft^3/s	1.4	5.03	36.6	36.6

Seasonal Flow Statistics Citations

Flynn, R.H. and Tasker, G.D., 2002, Development of Regression Equations to Estimate Flow Durations and Low-

Flow-Duration Statistics Parameters [Low Flow Statewide]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	27.2	square miles	3.26	689
PREG_06_10	Jun to Oct Gage Precipitation	16.9	inches	16.5	23.1
TEMP	Mean Annual Temperature	46.742	degrees F	36	48.7

Flow-Duration Statistics Flow Report [Low Flow Statewide]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	Plu	SE	ASEp
60 Percent Duration	14.3	ft^3/s	10.5	19	18	18
70 Percent Duration	8.97	ft^3/s	6.27	12.4	20.6	20.6
80 Percent Duration	5.05	ft^3/s	3.09	7.75	28	28
90 Percent Duration	2.45	ft^3/s	1.26	4.26	37.5	37.5
95 Percent Duration	1.47	ft^3/s	0.674	2.76	44.1	44.1
98 Percent Duration	0.917	ft^3/s	0.351	1.93	54.3	54.3

Flow-Duration Statistics Citations

Flynn, R.H. and Tasker, G.D.,2002, Development of Regression Equations to Estimate Flow Durations and Low-Flow-Frequency Statistics in New Hampshire Streams: U.S.Geological Survey Scientific Investigations Report 02-4298, 66 p. (<http://pubs.water.usgs.gov/wrir02-4298>)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

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SECTION 11

Stormwater Inspection and Maintenance Manual

INSPECTION AND MAINTENANCE MANUAL FOR STORMWATER MANAGEMENT / BMP FACILITIES

7 West Commercial Development

**15 Durham Road
Dover, New Hampshire 03820
Tax Map H, Lot 11**

Proper inspection, maintenance, and repair are key elements in maintaining a successful stormwater management program on a developed property. Routine inspections ensure permit compliance and reduce the potential for deterioration of infrastructure or reduced water quality. The following responsible parties shall be in charge of managing the stormwater facilities:

RESPONSIBLE PARTIES:

Owner / : _____ ***Summit Land Development*** _____
Permittee *Name* *Company* *Phone*

Inspection/ : _____
Maintenance *Name* *Company* *Phone*

NOTE: Inspection and maintenance responsibilities transfer to future property owners.

Included in this Inspection and Maintenance Manual are the following components:

- Drainage Features and Site BMP Functions and Maintenance Descriptions
- Guidelines for Control of Invasive Species
- Regular Inspection and Maintenance Guidance for Bioretention Systems
- Checklists for Inspection of Bioretention Systems
- Inspection and Maintenance Checklist
- Stormwater System Operations and Maintenance Report Form
- Site Drainage Plan

RAINGARDENS AND FILTRATION BASINS

Function – Raingardens and filtration ponds provide treatment to runoff prior to directing it to stormwater systems by filtering sediment and suspended solids, trapping them in the bottom of the garden and in the filter media itself. Additional treatment is provided by the native water-tolerant vegetation which removes nutrients and other pollutants through bio-uptake. Stormwater detention and infiltration can also be provided as the filtering process slows runoff, decreases the peak rate of discharge and promotes groundwater recharge.

Detention ponds temporarily store runoff and allow for its controlled release during and after a storm event, decreasing peak rates of runoff and minimizing flooding.

Raingardens, infiltration ponds, and detention ponds shall be managed (Per AGR 3800 and RSA 430:53) to: prevent and control the spread of invasive plant, insect, and fungal species; minimize the adverse environmental and economic effects invasive species cause to agriculture, forests, wetlands, wildlife, and other natural resources of the state; and protect the public from potential health problems attributed to certain invasive species.

Maintenance

- Inspect annually and after significant rainfall event.
- If a raingarden does not completely drain within 72-hours following a rainfall event, then a qualified professional should assess the condition of the facility to determine measures required to restore its filtration and/or infiltration function(s), including but not limited to removal of accumulated sediments and/or replacement or reconstruction of the filter media.
- Replace any riprap dislodged from spillways, inlets and outlets.
- Remove any obstructions, litter and accumulated sediment or debris as warranted but no less than once a year.
- Mowing of any grassed area in or adjacent to a raingarden shall be performed on a monthly basis (when areas are not inundated) to keep the vegetation in vigorous condition. The cut grass shall be removed to prevent the decaying organic litter from clogging the filter media or choking other vegetation.
- Select vegetation should be maintained in healthy condition. This may include pruning, removal and replacement of dead or diseased vegetation.
- Remove any invasive species, Per AGR 3800 and RSA 430:53.

(See Control of Invasive Plants, pg 7)

SUB-SURFACE STORMWATER TREATMENT SYSTEM

Function – Sub-Surface treatment systems treat runoff prior to directing it to surface stormwater systems by filtering sediment and suspended solids, trapping them in the isolation rows and in the filter rock. Stormwater detention and infiltration can also be provided as the filtering process slows runoff, decreases the peak rate of discharge and promotes groundwater recharge.

The Sub-Surface Stormwater Treatment System shall be inspected and maintained at a minimum of every 6 months for the first year and annually thereafter. Inspections shall comply with the requirements of the manufacturer. At a minimum, the following inspection and maintenance requirements are included:

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT

- A. Inspection ports (if present)
 - a.1. Remove/open lid on nyloplast inline drain
 - a.2. Remove and clean flexstorm filter if installed
 - a.3. Using a flashlight and stadia rod, measure depth of sediment and record on maintenance log
 - a.4. Lower a camera into isolator row for visual inspection of sediment levels (optional)
 - a.5. If sediment is at, or above, 3" (80 mm) proceed to step 2. if not, proceed to step 3.
- B. All isolator rows
 - b.1. Remove cover from structure at upstream end of isolator row
 - b.2. using a flashlight, inspect down the isolator row through outlet pipe
 - i) Mirrors on poles or cameras may be used to avoid a confined space entry
 - ii) Follow osha regulations for confined space entry if entering manhole
 - b.3. If sediment is at, or above, 3" (80 mm) proceed to step 2. if not, proceed to step 3.

STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS

- A. *A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED*
- B. *APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN*
- C. *VACUUM STRUCTURE SUMP AS REQUIRED*

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION AND ANNUALLY EVERY YEAR THEREAFTER. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

CULVERTS AND DRAINAGE PIPES

Function – Culverts and drainage pipes convey stormwater away from buildings, walkways, and parking areas and to surface waters or closed drainage systems.

Maintenance

- Culverts and drainage pipes shall be inspected semi-annually, or more often as needed, for accumulation of debris and structural integrity. Leaves and other debris shall be removed from the inlet and outlet to insure the functionality of drainage structures. Debris shall be disposed of on site where it will not concentrate back at the drainage structures or at a solid waste disposal facility.
- Riprap Areas - Culvert outlets and inlets shall be inspected during annual maintenance and operations for erosion and scour. If scour or creek erosion is identified, the outlet owner shall take appropriate means to prevent further erosion. Increased lengths of riprap may require a NHDES Wetlands Permit modification.

CATCH BASINS

Function – Catch basins collect stormwater, primarily from paved surfaces and roofs. Stormwater from paved areas often contains sediment and contaminants. Catch basin sumps serve to trap sediment, trace metals, nutrients and debris. Hooded catch basins trap hydrocarbons and floating debris.

Maintenance

- Remove leaves and debris from structure grates on an as-needed basis.
- Sumps shall be inspected and cleaned (as needed) on an annual basis to protect water quality and infiltration capacity. Catch basin debris shall be disposed of at a solid waste disposal facility.

VEGETATIVE SWALES

Function – Vegetative swales filter sediment from stormwater, promote infiltration, and the uptake of contaminants. They are designed to treat runoff and dispose of it safely into the natural drainage system.

Maintenance

- Timely maintenance is important to keep a swale in good working condition. Mowing of grassed swales shall be monthly to keep the vegetation in vigorous condition. The cut vegetation shall be removed to prevent the decaying organic litter from adding pollutants to the discharge from the swale.
- Fertilizing shall be bi-annual or as recommended from soil testing.

- Inspect swales following significant rainfall events.
- Woody vegetation shall not be allowed to become established in the swales or rock riprap outlet protection and if present shall be removed.
- Accumulated debris disrupts flow and leads to clogging and erosion. Remove debris and litter as necessary.
- Inspect for eroded areas. Determine cause of erosion and correct deficiency as required. Monitor repaired areas.

LEVEL SPREADERS AND PLUNGE POOLS

Function – Level spreaders and plunge pools covert concentrated stormwater flows into less-erosive sheet flow, minimizing erosion and maximizing the treatment capabilities of associated buffers. Vegetated buffers, either forested or meadow, slow runoff which promotes and reduced peak rates of runoff. The reduced velocities and the presence of vegetation encourage the filtration of sediment and the limited bio-uptake of nutrients.

Maintenance

- Inspect level spreaders and buffers at least annually for signs of erosion, sediment buildup, or vegetation loss.
- If a meadow buffer, provide periodic mowing as needed to maintain a healthy stand of herbaceous vegetation.
- If a forested buffer, then the buffer should be maintained in an undisturbed condition, unless erosion occurs.
- If erosion of the buffer (forested or meadow) occurs, eroded areas should be repaired and replanted with vegetation similar to the remaining buffer. Corrective action should include eliminating the source of the erosion problem and may require retrofit or reconstruction of the level spreader.
- Remove debris and accumulated sediment and dispose of properly.

LANDSCAPED AREAS - FERTILIZER MANAGEMENT

Function – Fertilizer management involves controlling the rate, timing and method of fertilizer application so that the nutrients are taken up by the plants thereby reducing the chance of polluting the surface and ground waters. Fertilizer management can be effective in reducing the amounts of phosphorus and nitrogen in runoff from landscaped areas, particularly lawns.

Maintenance

- Have the soil tested by your landscaper or local Soil Conservation Service for nutrient requirements and follow the recommendations.

- Do not apply fertilizer to frozen ground.
- Clean up any fertilizer spills.
- Do not allow fertilizer to be broadcast into water bodies.
- When fertilizing a lawn, water thoroughly, but do not create a situation where water runs off the surface of the lawn.

LANDSCAPED AREAS - LITTER CONTROL

Function – Landscaped areas tend to filter debris and contaminants that may block drainage systems and pollute the surface and ground waters.

Maintenance

- Litter Control and lawn maintenance involves removing litter such as trash, leaves, lawn clippings, pet wastes, oil and chemicals from streets, parking lots, and lawns before materials are transported into surface waters.
- Litter control shall be implemented as part of the grounds maintenance program.

DE-ICING CHEMICAL USE AND STORAGE

Function – Sand and salt are used for de-icing of drives.

The project is located within a watershed of a chloride-impaired waterbody. Therefore,

Salt use shall be minimized for de-icing activities.

The responsible party shall employ a New Hampshire Certified Salt Applicator for winter snow and ice management activities.

Maintenance

- **Salt use shall be minimized.** Sand shall be used for de-icing activities when possible. Salt is highly water-soluble. Contamination of fresh water wetlands and other sensitive areas can occur when salt is stored in open areas. Owner shall not store salt piles on site.

CONTROL OF INVASIVE PLANTS

Function – Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some exotic plants are imported for human use such as landscaping, erosion control, or food crops. They also can arrive as "hitchhikers" among shipments of other plants, seeds, packing materials, or fresh produce. Some exotic plants become invasive and cause harm by:

- becoming weedy and overgrown;
- killing established shade trees;
- obstructing pipes and drainage systems;
- forming dense beds in water;
- lowering water levels in lakes, streams, and wetlands;
- destroying natural communities;
- promoting erosion on stream banks and hillsides; and
- resisting control except by hazardous chemical.

Maintenance

During maintenance activities, check for the presence of invasive plants and remove in a safe manner as described in the attached “Methods for Disposing Non-Native Invasive Plant” prepared by the UNH cooperative Extension.

GENERAL CLEAN UP

Upon completion of the project, the contractor shall remove all temporary stormwater structures (i.e., temporary stone check dams, silt fence, temporary diversion swales, catch basin inlet basket, etc.). Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform to the existing grade, prepared, and seeded. Remove any sediment in catch basins and clean drain pipes that may have accumulated during construction.

Once in operation, all paved areas of the site should be swept at least once annually, preferably at the end of winter prior to significant spring rains.

CONTROL OF INVASIVE PLANTS

During maintenance activities, check for the presence of invasive plants and remove in a safe manner as described on the following pages. They should be controlled as described on the following pages.

Background:

Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some exotic plants are imported for human use such as landscaping, erosion control, or food crops. They also can arrive as "hitchhikers" among shipments of other plants, seeds, packing materials, or fresh produce. Some exotic plants become invasive and cause harm by:

- becoming weedy and overgrown;
- killing established shade trees;
- obstructing pipes and drainage systems;
- forming dense beds in water;
- lowering water levels in lakes, streams, and wetlands;
- destroying natural communities;
- promoting erosion on stream banks and hillsides; and
- resisting control except by hazardous chemical.



Methods for Disposing Non-Native Invasive Plants

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



Tatarian honeysuckle

Lonicera tatarica

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

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

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

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

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

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

New Hampshire Regulations

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

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

How and When to Dispose of Invasives?

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

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

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

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

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

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

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

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



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

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

Suggested Disposal Methods for Non-Native Invasive Plants

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

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

Non-Woody Plants	Method of Reproducing	Methods of Disposal
garlic mustard (<i>Alliaria petiolata</i>) spotted knapweed (<i>Centaurea maculosa</i>) ▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling. black swallow-wort (<i>Cynanchum nigrum</i>) ▪ May cause skin rash. Wear gloves and long sleeves when handling. pale swallow-wort (<i>Cynanchum rossicum</i>) giant hogweed (<i>Heracleum mantegazzianum</i>) ▪ Can cause major skin rash. Wear gloves and long sleeves when handling. dame's rocket (<i>Hesperis matronalis</i>) perennial pepperweed (<i>Lepidium latifolium</i>) purple loosestrife (<i>Lythrum salicaria</i>) Japanese stilt grass (<i>Microstegium vimineum</i>) mile-a-minute weed (<i>Polygonum perfoliatum</i>)	Fruits and Seeds 	Prior to flowering Depends on scale of infestation Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material. During and following flowering Do nothing until the following year or remove flowering heads and bag and let rot. Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material.
common reed (<i>Phragmites australis</i>) Japanese knotweed (<i>Polygonum cuspidatum</i>) Bohemian knotweed (<i>Polygonum x bohemicum</i>)	Fruits, Seeds, Plant Fragments Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn't materially influence disposal activities.	Small infestation ▪ Bag all plant material and let rot. ▪ Never pile and use resulting material as compost. ▪ Burn. Large infestation ▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile. ▪ Monitor and remove any sprouting material. ▪ Pile, let dry, and burn.

January 2010

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Regular Inspection and Maintenance Guidance for Bioretention Systems / Tree Filters

Maintenance of bioretention systems and tree filters can typically be performed as part of standard landscaping. Regular inspection and maintenance is critical to the effective operation of bioretention systems and tree filters to insure they remain clear of leaves and debris and free draining. This page provides guidance on maintenance activities that are typically required for these systems, along with the suggested frequency for each activity. Individual systems may have more, or less frequent maintenance needs depending on a variety of factors including but not limited to: the occurrence of large storm events, overly wet or dry periods, regional hydrologic conditions, and the upstream land use.

ACTIVITIES

The most common maintenance activity is the removal of sediment and organic debris from the system and bypass structures. Visual inspections are routine for system maintenance. This includes looking for standing water, accumulated leaves, holes in the soil media, signs of plant distress, and debris and sediment accumulation in the system. Vegetation coverage is integral to the performance of the system, including infiltration rate and nutrient uptake. Vegetation care is important to system productivity and health.

ACTIVITY

FREQUENCY

CLOGGING AND SYSTEM PERFORMANCE

A record should be kept of the time to drain for the system completely after a storm event. The system should drain completely within 72 hours.

Check to insure the filter surface remains well draining after storm events.

Remedy: If filter bed is clogged, draining poorly, or standing water covers more than 50% of the surface 48 hours after a precipitation event, then remove top few inches of discolored material. Till, or rake remaining material as needed.

After every major storm in the first few months, then annually at minimum.

Check inlets and outlets for leaves and debris.

Remedy: Rake in and around the system to clear it of debris. Also, clear the inlet and overflow if obstructed.

Check for animal burrows and short-circuiting in the system.

Remedy: Soil erosion from short circuiting or animal borrows should be repaired when they occur. The holes should be filled and lightly compacted

Inspect inlets and outlets to ensure good condition and no evidence of deterioration. Check to see if high-flow bypass is functioning.

Remedy: Repair or replace any damaged structural parts, inlets, outlets, sidewalls.

Quarterly initially, annually as a minimum thereafter.

VEGETATION

Check for robust vegetation coverage throughout the system and dead or dying plants.

Remedy: Vegetation should cover > 75% of the system and should be cared for as needed.

Annually or as needed

CHECKLIST FOR INSPECTION OF BIORETENTION SYSTEM / TREE FILTERS

Location:

Inspector:

Date:

Time:

Site Conditions:

Days Since Last Rain Event:

Inspection Items	Satisfactory (S) or Unsatisfactory (U)	Comments/Corrective Action
1. Initial Inspection After Planting and Mulching		
Plants are stable, roots not exposed	S U	
Surface is at design level, no evidence of preferential flow/shoving	S U	
Inlet and outlet/bypass are functional	S U	
2. Debris Cleanup (1 time/year minimum, Spring/Fall)		
Litter, leaves, and dead vegetation removed from the system	S U	
Prune/mow vegetation	S U	
3. Standing Water (1 time/year and/or after large storm events)		
No evidence of standing water after 24-48 hours since rainfall	S U	
4. Vegetation Condition and Coverage		
Vegetation condition good with good coverage (typically > 75%)	S U	
5. Other Issues		
Note any additional issues not previously covered.	S U	
Corrective Action Needed		Due Date
1.		
2.		
3.		
Inspector Signature		Date

Inspection & Maintenance Checklist

BMP / System	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance/Cleanout Threshold
Paved surfaces:			
Pavement Sweeping	Routinely	N/A	N/A
Litter & Trash Removal	Routinely	N/A	Parcel will be free of litter/trash.
Deicing Agents	N/A	Keep De-Icing Log	<u>Low Salt</u>
Closed Drainage System:			
Drainage Pipes	1 time per 2 years	Check for sediment accumulation & clogging.	Less than 2" sediment depth
Catch Basins	Annually	Check for sediment accumulation (Less than 24" sediment), blocked hood, and floating debris.	Clean Sumps. Remove all floating debris.
Drain Manhole	Annually	Check for sediment, debris, and obstructions.	Remove all Obstructions.

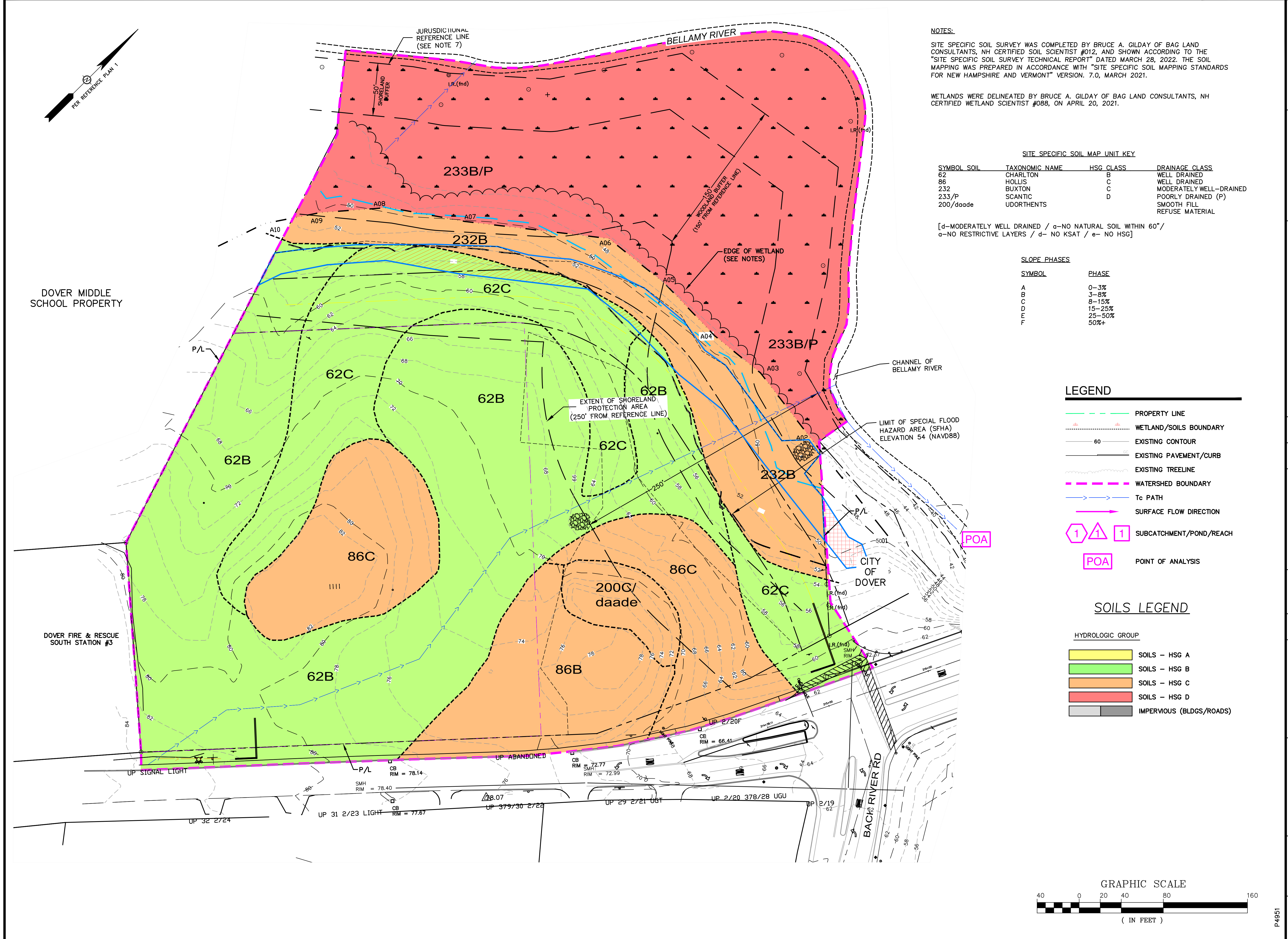
BMP / System	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
BMPs:			
Raingardens or Infiltration Pond	Annually	• Check infiltration rates and filter media. • Check for trash & debris. • Check for sediment buildup. • Check for vegetation stability. • Check for excess woody vegetation growth. • Check for invasive species.	Remove trash & debris, sediment, woody vegetation, and invasive species. Side slopes and berm are to be mowed. Replant vegetation if required.
Vegetated Swale	Annually	Check for sediment buildup, vegetation loss and invasive species, debris, and damage.	Remove sediment, debris and invasive species, repair damage, and mow grass monthly to a depth of 4 inches.
Riprap Outlet Protection	Annually	Check for sediment buildup and structure damage.	Remove excess sediment and repair damage.
Stone Berm Level Spreader	Annually	Check for sediment buildup, debris and signs of erosion.	Remove sediment and debris. Immediately repair.

STORM WATER SYSTEM OPERATION AND MAINTENANCE REPORT

General Information		
Project Name		
Owner		
Inspector's Name(s)		
Inspector's Contact Information		
Date of Inspection	Start Time:	End Time:
Type of Inspection: ☐ Annual Report ☐ Post-storm event ☐ Due to a discharge of significant amounts of sediment		
Notes:		

General Site Questions and Discharges of Significant Amounts of Sediment			
	Subject	Status	Notes
<i>A discharge of significant amounts of sediment may be indicated by (but is not limited to) observations of the following. Note whether any are observed during this inspection:</i>			
<i>Notes/ Action taken:</i>			
1	Do the current site conditions reflect the attached site plan?	☐ Yes ☐ No	
2	Is the site permanently stabilized, temporary erosion and sediment controls are removed, and stormwater discharges from construction activity are eliminated?	☐ Yes ☐ No	
3	Is there evidence of the discharge of significant amounts of sediment to surface waters, or conveyance systems leading to surface waters?	☐ Yes ☐ No	
4	Is there evidence of concentrated flows of stormwater such as rills or channels that cause erosion when such flows are not filtered, settled or otherwise treated to remove sediment?	☐ Yes ☐ No	
5	Is there evidence of deposits of sediment from the site on any adjacent property or stormwater system.	☐ Yes ☐ No	
6	Is there evidence of discharges from the site to streams running through or along the site where visual observations indicate significant amounts of sediment present in them.	☐ Yes ☐ No	
7	Is there evidence of invasive species within the stormwater treatment areas?	☐ Yes ☐ No	

[illegible]



NOTES:

SITE SPECIFIC SOIL SURVEY WAS COMPLETED BY BRUCE A. GILDAY OF BAG LAND CONSULTANTS, NH CERTIFIED SOIL SCIENTIST #012, AND SHOWN ACCORDING TO THE "SITE SPECIFIC SOIL SURVEY TECHNICAL REPORT" DATED MARCH 28, 2022. THE SOIL MAPPING WAS PREPARED IN ACCORDANCE WITH "SITE SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT" VERSION: 7.0, MARCH 2021.

WETLANDS WERE DELINEATED BY BRUCE A. GILDAY OF BAG LAND CONSULTANTS, NH CERTIFIED WETLAND SCIENTIST #088, ON APRIL 20, 2021.

SITE SPECIFIC SOIL MAP UNIT KEY			
SYMBOL	SOIL	TAXONOMIC NAME	HSG CLASS
62	CHARLTON		B
86	HOLLIS		C
232	BUXTON		C
233/P	SCANTIC		D
200/daade	UDORTHENTS		
DRAINAGE CLASS			
			WELL DRAINED
			WELL DRAINED
			MODERATELY WELL-DRAINED
			POORLY DRAINED (P)
			SMOOTH FILL
			REFUSE MATERIAL

[d-MODERATELY WELL DRAINED / a-NO NATURAL SOIL WITHIN 60" / a-NO RESTRICTIVE LAYERS / d- NO KSAT / e- NO HSG]

SLOPE PHASES

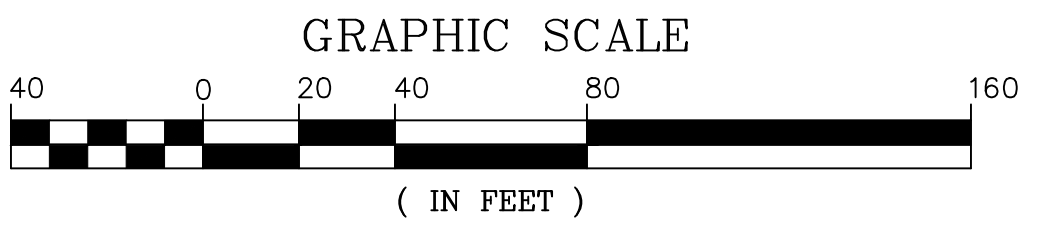
SYMBOL	PHASE
A	0-3%
B	3-8%
C	8-15%
D	15-25%
E	25-50%
F	50%+

LEGEND

- PROPERTY LINE
- WETLAND/SOILS BOUNDARY
- EXISTING CONTOUR
- EXISTING PAVEMENT/CURB
- EXISTING TREELINE
- WATERSHED BOUNDARY
- Tc PATH
- SURFACE FLOW DIRECTION
- SUBCATCHMENT/POND/REACH
- POINT OF ANALYSIS

SOILS LEGEND

HYDROLOGIC GROUP	
SOILS - HSG A	
SOILS - HSG B	
SOILS - HSG C	
SOILS - HSG D	
IMPERVIOUS (BLDGS/ROADS)	



LAND CONSULTANTS

43 ROCKINGHAM ST
CONCORD, NH 03301

(603)228-5775

Ecosystems Land Planning

36 DUNKLEE STREET
CONCORD, NH 03301

(603)224-6244

ALTUS
ENGINEERING, INC.

133 COURT STREET PORTSMOUTH, NH 03801
(603) 433-2355 www.ALTUS-ENG.com

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ISSUED FOR: DRAINAGE DESIGN

ISSUE DATE: May 5, 2022

REVISIONS	NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL		CDB	05/05/22

DRAWN BY: CDB

APPROVED BY: EDW

DRAWING FILE: 4952-SITE_C010.dwg

SCALE: 24"x36" 1" = 40'
12"x18" 1" = 80'

OWNER: 7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

APPLICANT: SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

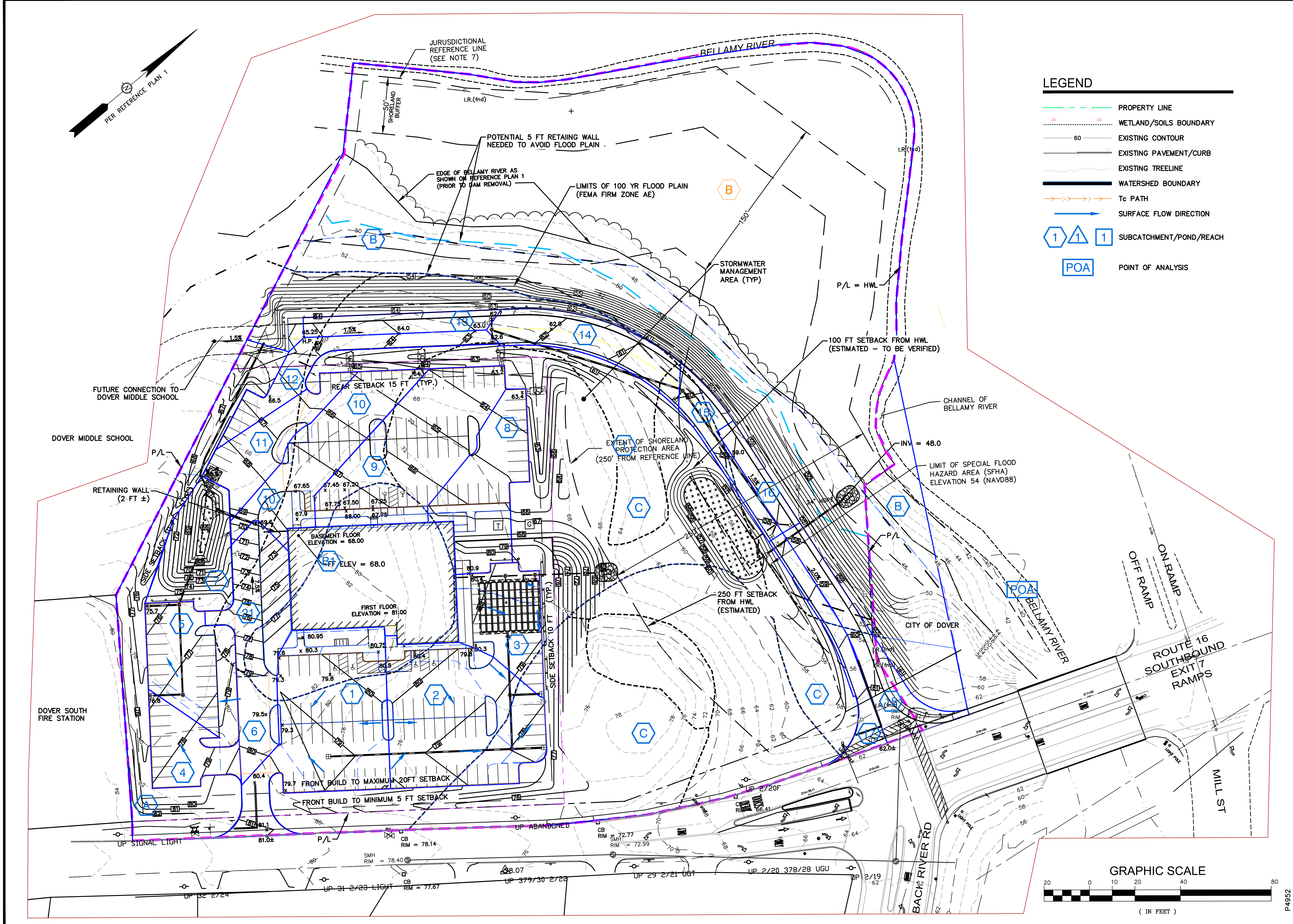
PROJECT: 7 WEST COMMERCIAL DEVELOPMENT

TAX MAP H, LOT 11
DOVER, NH

TITLE:

PRE-DEVELOPMENT

SHEET NUMBER: DA-1



ENGINEER:

ALTUS

ENGINEERING, INC.

133 COURT STREET
(603) 433-2335

PORTSMOUTH, NH 03801
www.ALTUS-ENG.com

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ISSUED FOR:

DRAINAGE DESIGN

ISSUE DATE:

MAY 5, 2022

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMITTAL	CDB	05/05/22

DRAWN BY:

CDB

APPROVED BY:

EDW

DRAWING FILE:

4390-DESIGN.dwg

SCALE:

24"x36" 1" = 40'

12"x18" 1" = 80'

OWNER:

7 WEST, LLC
P.O. BOX 728
DOVER, NH 03821

APPLICANT:

SUMMIT LAND DEVELOPMENT
340 CENTRAL AVE., #202
DOVER, NH 03820

PROJECT:

7 WEST
COMMERCIAL
DEVELOPMENT

(FILE NO. P18-___)
TAX MAP H, LOT 11-C
DOVER, NH

TITLE:

POST DEVELOPMENT
DRAINAGE AREA PLAN

SHEET NUMBER:

DA-2