CITY OF DOVER

PLANNING TECHNICAL REVIEW COMMITTEE –AGENDA

Meeting Type: Regular Meeting
Meeting Location: Council Conference Room, City Hall, 288 Central Ave, Dover NH 03820
Meeting Date: **Thursday, July 18, 2024**
Meeting Time: **10:30 AM**

1. 10:30 AM – 11:15 AM: Site Review for Allen Majors Associates, Inc., (Owners: 114 Silver Street Group, LLC), Assessor's Map 12, Lot 148, zoned HR, located at 114 Silver Street. (Following subdivision into two lots, the proposal is to convert the existing single-family home into a 4-unit multi-family dwelling on one lot and construct a 3-story 4-unit multi-family dwelling on the other with 8 associated parking stalls for each building.) (SITE-2024-0006)

   *Three (3) related applications will also appear before the Planning Board, SUBM-2024-0001, COND-2024-0011, COND-2024-0012.

2. 11:15 AM – 12:00 PM: Site Review for Berry Surveying & Engineering (Owners: Pillar Imaging, LLC), Assessor's Map 31, Lot 11, zoned CBD-T, located at 1 Grove Street. (Proposal is for the construction of a 25 space parking lot.) (SITE-2024-0007)

3. 12-00 PM -12:45 PM: Amendment for Summit Land Development, LLC (Owners: Pointe West, LLC), Assessor's Map K, Lot 19, zoned IT, located off Northfield Drive. (Proposal is for an amendment to a previously approved Site Plan to change one residential building with 60 units into four (4), 2-story buildings totaling 32 units). (WAIV-2024-0010)

PLAN SNAPSHOT REPORT SITE-2024-0006
FOR CITY OF DOVER, N.H.

Plan Type:	Site Plan - Major	**Project:**		**App Date:**	06/20/2024
Work Class:	New Construction	**District:**	None	**Exp Date:**	08/24/2024
Status:	In Review	**Square Feet:**	0.00	**Completed:**	NOT COMPLETED
Valuation:	$0.00	**Assigned To:**	Blonigen, Rachel	**Approval Expire Date:**	

Description: The project proposes to subdivide the existing lot into two lots that conform to all zoning requirements. The existing single-family home will be converted into a 4 unit, multi-family dwelling on one lot. The second lot proposes a newly constructed 3-story, 4 unit multi-family dwelling. There is 8 parking stalls allocated for each building (2 per unit) that will be connected via a common driveway off of Rutland Street. The existing curb cut along Silver Street is to be closed.

Parcel:	12148-000000 Main	**Address:**	114 Silver St Dover, NH Main	**Zone:**	

Owner
Thomas Toye IV
Home: (603) 413-6175

Applicant
Jared Grondin
400 Harvey Road, Suite D
Manchester, NH 03103
Home: (781) 305-9408
Business: (603) 627-5500
Mobile: (603) 545-1649

Engineer
Michael Malynowski
Home: (603) 627-5500

Plan Custom Fields

Total	0	Total2	0	Total3	2028
Total4	0	Total5	0	Total6	8
Total7	0	Total8	0	Total9	0
Street Classification Type	Municipal	Net Change in # Parking Spaces (+/-)	16	Water Service	Municipal
Recording Number	to be determined	Sewer Service	Municipal	Total Acres (GIS)	0.51
Deed Book	5161	Total SQFT	22215.6	Deed Page	948
Deed Date	1/24/2024	Proposed Property Use	The existing lot is to be subdivided into two conforming lots. The existing home occupying one lot is to be converted to a 4 unit, multi-family building. The second, proposed lot is to be occupied by a newly constructed 3-story, 4 unit, multi-family building.	Area of Parcel to be Developed (SQFT)	17200
Number of Parking Spaces Existing	0	Number of Parking Spaces Proposed	16	Number of Employees Total	0
Number of Employees in Max Shift	0	Distance to City Water	30	Distance to City Sewer	30
Type of Building to be Built	3-story, 4 unit, multi-family building of 1,152+/- sf (36'x32')	Estimated Construction Value	400000.00	Refuse Removal	Public
Is there an existing Conservation Easement?	No	Existing Conservation Easement Details	Not applicable	TotalImpactFeeSDTOD	0.00
TotalImpactFeeTHTOD	0.00	TotalImpactFee23FTOD	0.00	TotalImpactFeeA4TOD	0.00
TotalImpactFeeMHTOD	0.00	TotalImpactFeeADUTOD	0.00	TotalImpactFeeAONRTOD	0.00
TotalImpactFeeAR55TOD	0.00	TotalImpactFeeAR62TOD	0.00	Sub Total Residential	0.00
TotalImpactFeeRIRCTOD	0.00	TotalImpactFeeOCSTOD	0.00	TotalImpactFeeITWCTOD	0.00

PLAN SNAPSHOT REPORT (SITE-2024-0006)

TotalImpactFeeNHALTOD	0.00	TotalImpactFeeOIUTOD	0.00	TotalImpactFeeAFAOTOD	0.00
Sub Total Non-Residential	0.00	Total of Impact Fees to be Assessed	0.00		

Attachment File Name	Added On	Added By	Attachment Group	Notes
Signature_Jared_Grondin_6/20/2024.jpg	06/20/2024 13:55	Grondin, Jared		Uploaded via CSS

Invoice No.	Fee		Fee Amount	Amount Paid
INV-00008370	Planning General Application Fee		$200.00	$200.00
		Total for Invoice INV-00008370	$200.00	$200.00
INV-00008422	Planning Impervious Paved Area Fee		$141.96	$141.96
	Planning Public Notice in Newspaper		$120.00	$120.00
	Planning Residential Fee		$800.00	$800.00
	Planning Certified Mailing to Abutters		$80.00	$80.00
		Total for Invoice INV-00008422	$1,141.96	$1,141.96
		Grand Total for Plan	**$1,341.96**	**$1,341.96**

Meeting Type	Location	Scheduled Date	Subject
Technical Review Committee Meeting v.1	City Hall, Second Floor Conference Room	07/18/2024	Technical Review Committee Meeting

Submittal Name	Status	Received Date	Due Date	Complete Date	Resubmit	Completed
Land Use Plan Technical Review v.1	In Review	06/27/2024	07/25/2024		No	No

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Business Development	Business Development	Burdin, James	In Review	06/27/2024	07/25/2024	
City Engineer	Community Services - Engineering	Mavrogeorge, Kenneth	In Review	06/27/2024	07/25/2024	
IS Building Official	Fire / Inspection Services	Maxfield, Jim	In Review	06/27/2024	07/25/2024	
Planning	Planning	Bassegio, Erin	In Review	06/27/2024	07/25/2024	
Zoning Administrator	Planning	Crouser, Paul	In Review	06/27/2024	07/25/2024	
Traffic Bureau	Police	Speidel, Marn	In Review	06/27/2024	07/25/2024	

Workflow Step / Action Name	Action Type	Start Date	End Date
Review v.1		06/27/2024 10:59	
Confirm application complete v.1	Generic Action		06/27/2024 11:00
Technical Review Committee Meeting Agenda v.1	Task	06/27/2024 10:59	06/27/2024 11:00
Land Use Plan Technical Review v.1	Receive Submittal	06/27/2024 0:00	
Technical Review Committee Meeting v.1	Hold Meeting	06/27/2024 11:00	
Planning Board v.1			
Planning Board Agenda v.1	Task		
Invoice for Notices v.1	Task		

Send Notices v.1	Task
Planner Creates Staff Recommendations v.1	Plan Activity
Distribute Planning Board Materials v.1	Task
Planning Board Hearing v.1	Hold Hearing
Planning Board Decision v.1	Plan Activity
NOD Sent to Applicant v.1	Create Report
Final Plan v.1	
Land Use Plan Stamped and Signed v.1	Generic Action
Recording v.1	Task
Document Archival v.1	Generic Action
Internal Notification of Plan Completion v.1	Generic Action
Building Official Notifies Address v.1	Generic Action
Pre-Con Meeting v.1	Hold Meeting
Create/Link to Records v.1	
Create / Link to Permit - Building Major v.1	Create Sub Permit
Create / Link to Permit - Site Work, Construction v.1	Create Sub Permit

CHRISTOPHER G. PARKER, AICP
Assistant City Manager
Planning & Strategic Initiatives
c.parker@dover.nh.gov

288 Central Avenue
Dover, New Hampshire 03820-4169
(603) 516-6008
Fax: (603) 516-6049
www.dover.nh.gov

City of Dover, New Hampshire

DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT

INSTRUCTIONS TO APPLICANTS TO THE DOVER PLANNING BOARD

IMPORTANT: PLEASE READ ALL INSTRUCTIONS CAREFULLY BEFORE FILLING OUT ATTACHED APPLICATION.
INCOMPLETE APPLICATIONS WILL NOT BE ACCEPTED FOR REVIEW.

Dear Applicant:

This will serve to briefly inform you regarding the process to have the Dover Planning Board (the Board) review a land use application. Please refer to the NH Statutes on Land Use and Regulation the Dover Code, and our Developer's Handbook for more specific information.

The Board primarily reviews 5 types of applications:

1. **Site Plans** - A site plan is a professionally rendered drawing which delineates the proposed development of a site. This plan is required for non-residential development, creation of multi-family residential structures, and for extensions of parking lots and alteration of an acre or more of land. These plans require meeting with the Technical Review Committee before Planning Board review.

2. **Subdivisions** - A subdivision is the division of the lot, tract, or parcel of land into two (2) or more lots, plats, sites or other divisions of land for the purpose, whether immediate or future, of sale, rent, lease or building development. It includes re-subdivision and, when appropriate to the context, relates to the process of subdividing or to the land or territory subdivided. Major subdivision plans (4+) require meeting with the Technical Review Committee before Planning Board review.

3. **Lot Line Adjustments** - A lot line adjustment alters the size of two (2) or more lots, but does not create a new buildable lot.

4. **Conditional Use Permits** - A conditional use permit is required for any alteration of wetlands, wetland buffers or work within the City's conservation district. Additionally, a conditional use permit could be issued as to offer relief in the Central Business District, for plans in the Residential Mixed Use Overlay District, or parking relief. Environmental Conditional Use Permits are acted on after Conservation Commission review.

5. **Excavation Permits** – NH RSA Chapter 155-E grants municipalities the authority to regulate earth excavations within their borders. This authority rests with the Planning Board.

The Board cannot and will not review applications that do not meet zoning requirements. **Please review the need to apply to the Zoning Board of Adjustment prior to applying to the Board.**

Professional agents will prepare your application; however, you may represent yourself or authorize, in writing, someone else to represent you before the Planning Board.

In most cases, 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, and a PDF, need to be provided, along with payment of plan review fees. These meetings occur on Thursday, and materials and payment must be submitted three (3) weeks prior to meeting. Meetings are scheduled, upon receipt of completed applications with the full checklist and payment.

The next step would be to provide, two weeks prior to Planning Board, the final plan sets (three (3) full size and twelve (12) half size (11x 17), folded, copies of the plan), and 15 copies, and a PDF, of all supporting materials, including response to TRC comments. Please print all materials on both sides of paper.

For projects not appearing before the Technical Review Committee, Plan Review Fees are due along with three (3) full size and twelve (12) half size (11x17), folded, copies of the plan set and 15 copies, plus a PDF, of plans and materials, 3 weeks prior to the Planning Board meeting. Please print all materials on both sides of paper.

Staff will generate an abutter list, and Abutter/Notice Fees will be invoiced. They are due 28 hours prior to Planning Board. If they are not paid, the application will not be heard.

Once an item is placed upon an agenda the following process is used:

- The Board will hold a public hearing on your application at a regularly scheduled meeting
    - Typically the second or fourth Tuesday of the Month.
- Public notice of the hearing will be posted at the City Clerk's office and the Planning Department office and printed in the newspaper.
- Certified letters will be mailed to you and to all abutters at least ten days before the date of the hearing.
- 28 hours prior to the meeting, abutter/notice fees must be paid
- At the meeting
    - Staff will introduce your project
    - You and all other parties will be invited to appear in person or by agent or counsel to present your application.
        - Your project will be pre-loaded onto a laptop for review by the Board and public
    - The Board may ask clarifying questions
    - The Board will vote to accept jurisdiction on the application
    - If accepted:
        - The Board will hold a public hearing
        - The Board may ask additional questions
        - The Board will deliberate on your application
            - Typically decisions are made the night of the presentation, but an application may be tabled
        - After deliberation, a decision will be made.
            - You will be sent a notice of the decision.

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: 114 Silver Street Group, LLC Telephone # (603) 412-6175

Address of Applicant: 10 Durham Road, Dover, NH 03820

E-Mail Address: tom@arthurthomasproperties.com

Name of Property Owner (*if different from applicant*): _____ Telephone #_____

Address of Property Owner: _____

PROPERTY INFORMATION

Address of Property: 114 Silver Street, Dover, NH 03820

Assessor's Map # 12 Lot(s) # 148

Zoning District(s) Heritage Residential Overlay District(s) N/A

Size of Parcel: 22,340 sq. ft. 0.51 ac. Property Deed: Book 5161 Page: 948

Existing Use of Property: Single-Family - Residential

SITE PLAN INFORMATION

Describe Proposed Use: Multi-Family - Residential

Area of Parcel to be Developed: 17,200+/- sf sq. ft.

If Multi-family Residential: Number of Units 8 & Buildings Proposed 1 + existing structure

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

Number of Parking Spaces: Existing N/A Proposed 16

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

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

Disposition of Parcel:

Building Footprint 1,152 sq. ft.

Total Building Area 3,456 sq. ft.

Paved Area 876 (additional) sq. ft.

Building Setbacks:

Front Yard Lot 1=14.8, Lot 2=31.2 ft.

Rear Yard Lot 1=73.3, Lot 2=77.0 ft.

Side Yard: Right____ ft. Left_____ ft.
Lot 1=15.1 Lot 1=18.4
Lot 2=24.4 Lot 2=15.2

City Water? ✓ Yes ___ No How far is city water from the property? 30+/- ft

City Sewer? ✓ Yes ___ No How far is city sewer from the property? 30+/- ft

TRANSFER OF DEVELOPMENT RIGHTS INFORMATION

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

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

Relief sought (Check All That Apply):

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

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

_____

_____

_____

BUILDING INFORMATION

Type of Building to be Built: 3-story, multi-family apartment

Height of Building: <40 ft Finished Floor Elevation: 17.5

Number of Seats (where applicable) N/A

Estimated value of construction: TBD Refuse removal: Public/Private (circle one)

WAIVER REQUESTS

Site Review Regulations section(s) to be waived: N/A

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

_____

_____

_____

_____

_____

_____

_____

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) James P. Smith (Allen & Major Associates, inc.)

Address 400 Harvey Road, Suite D, Manchester, NH 03103 Telephone #: (603) 627-5500

Professional License #: 00908 E-mail address: jsmith@allenmajor.com

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) Michael A. Malynowski, PE (Allen & Major Associates, inc.)

Address 400 Harvey Road, Suite D, Manchester, NH 03103 Telephone #: (603) 627-5500

Professional License #: 12205 E-mail address: mmalynowski@allenmajor.com

ARCHITECT INFORMATION

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

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

LANDSCAPE ARCHITECT INFORMATION

Name of Landscape Architect and Company (Licensed in N.H.) Bethany C. Dermody (Allen & Major Associates, inc.)

Address 400 Harvey Road, Suite D, Manchester, NH 03103 Telephone #: (603) 627-5500

Professional License #: 00006 E-mail address: bdermody@allenmajor.com

SOIL SCIENTIST INFORMATION

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

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

CONSERVATION EASEMENT HOLDER

Name of Easement Holder: N/A Telephone #_____

Address Easement Holder: _____

SIGNATURES

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

Signature of Property Owner: _____ Date: 6.18.2024

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: 6.18.2024

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: 6.18.2024

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: 6.18.2024

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
12	128	114 Silver Street Group, LLC	10 Durham Road, Dover, NH 03820

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS
James P. Smith	Allen & Major Associates, inc.	400 Harvey Road, Manchester, NH 03103
Michael A Malynowski, PE	Allen & Major Associates, inc.	400 Harvey Road, Manchester, NH 03103

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

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: _____ File Number: _____

PROJECT TITLE: _____

PROPERTY LOCATION: _____ Tax Map: ____ Lot: ____

	Where/How Provided	Reviewed
1. Completed and signed Application form	attached	
2. Plan Review Fees are provided	attached	
3. Electronic copy of the engineered/surveyed plan layout	flash drive attached	
4. Electronic copy of supplementary materials and application	flash drive attached	
5. Traffic Impact Assessment and Analysis (Standard or Advanced)	not applicable	
6. Waiver requests to the Site Plan Review Regulations, with written justification	not applicable	
7. Conditional Use Permit applications	attached	
8. A colored rendering of the streetscape that will be created along the existing public right-of-way	tbd	
9. A colored architectural plan showing all sides of buildings	tbd	
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:	attached	
Location map at appropriate scale	Existing Conditions	
Proposed Project name and title and Planning File #	Cover Sheet	
Date, north arrow and scale	Site Development Plans	
Names of all abutting property owners	Existing Conditions	
Name and address of owners and/or applicants	Cover Sheet	
Signature & stamp of NH licensed land surveyor and/or engineer	Site Development Plans	
Zoning District boundaries, including any special or overlay districts	Layout & Materials Plan	
Location of Conservation District areas	not applicable	
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	Layout & Materials Plan	
Location and widths of existing & proposed easements & right of ways	Layout & Materials Plan	
Location and width of existing and proposed access/egress ways	Layout & Materials Plan	

	Explain How Provided	Reviewed
Depict pedestrian walkways and accessible access	Layout & Materials 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	Site Development Plans	
Existing and proposed buildings and structure locations	Layout & Materials Plan	
Minimum building setbacks or build to lines on all lots	Layout & Materials Plan	
Location and size of existing and proposed electric, telephone, gas cable and other underground utilities	Existing Conditions & Utilities Plan	
Existing and proposed water lines and fire hydrants, including materials and capacity needed	Existing Conditions & 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 & Drainage Plan	
Lighting plan depicting all existing and proposed exterior light fixtures and a lighting level analysis for parking lots	Building mounted lighting only	
Location of Flood Hazard Zone	not applicable	
Location of all bodies of water and watercourses	not applicable	
Location of wetlands and buffers	not applicable	
Neighborhood plan with aerial underlay showing how project relates to abutting uses within the plan set	Residential neighborhood w/ residential use exiting & proposed	
Existing natural features and/or significant vegetation on property	Existing Conditions Plan	
Depict existing contours up to 100 ft. beyond project limits	Landscape Plans	
Landscape plan depicting existing and proposed landscaping, prepared by a licensed Professional Landscape Architect	Landscape Plans	
Location of parking layout delineating spaces and arrangement; note addressing maximum required spaces	Layout & Materials Plan	
Location, material and size of existing and proposed pavement area	Layout & Materials Plan	
Location of proposed fire lanes	not applicable	
Specify finished floor elevations of buildings	Grading & Drainage Plan	
Location of solid waste disposal facilities (dumpster, pad and screening, etc.), including required screening	not applicable, roll-out containers to be used	
Depict all service, storage, loading bays and utility areas	not applicable	
All applicable Dover Common Site Plan notes	Site Development Plans	
11. Additional Information if appropriate		
Stormwater Management Plan depicting the existing & proposed storm drainage system and engineered drainage analysis	Drainage Report	
Stormwater Management System Operation and Maintenance Plan	Drainage Report	
Letter to Serve from Public and Private Utilities	tbd	
Erosion and Sedimentation Control Plan	Site Preparation Plan	
Landscape Operation and Maintenance Plan	Landscape Plans	
Proposed restrictive covenants or homeowners association documents	not applicable	
Dates and permit numbers of all required state and federal permits	not applicable	
If wetland buffer, indicate placards locations, as applicable	not applicable	
Depict test boring locations, groundwater elevations and soil profiles and/or soils types call-outs	Drainage Report	
Location of proposed drive-in facilities	not applicable	
Provide additional exhibits/technical data determined appropriate by the Planning Board or its staff as required	Additional project design information within the Site Development Plans & Drainage Report	

REVIEWED BY: _____ DATE_____ TRC DATE_____

CITY OF DOVER PLANNING DEPARTMENT
Revised November 28, 2022

APPLICANT: _____ FILE NUMBER: _____

List of Common Site Plan Notes

The following list of commonly required notes is intended to be used as a guide to applicants and should not be construed as a comprehensive note requirement list for all projects. A preapplication conference with the Planning Department is suggested to help determine the actual notes that may be required.

1. The intent of this plan is to *(describe the purpose of the plan).*

2. Owners of Record are: Name
   Street address
   Municipality, State, Zip Code
   _____
   Authorized Signature

3. The parcel(*s*) is (*are*) shown as Lot No. _____, Map ____ of the City of Dover Tax Assessor's Maps.

4. The subject parcel(s) contains ____ acres or _____ sq. ft. area of land.

5. Title reference for the project parcel(*s*) is the Strafford County Registry of Deeds, Book No. ___, Page No. ___.

6. Reference Plans: (*List all reference plans and their SCRD #)*

7. All applicable right-of-way, conservation, slope, construction, power line, cross travel, or other easements shall be referenced in a note.

8. Current zoning dimensional and density requirements in effect are as follows:

   Required: Provided:

   a. Zoning district _____ sub-district _____
   b. Minimum lot size: _____ acres (sq. ft.)
   c. Minimum lot frontage: _____ ft.
   d. Minimum yard setbacks/build-to-lines:
      Front _____ft.
      Side _____ft.
      Rear _____ft.
      Abut-a-street _____ ft.
   e. Maximum/minimum lot coverage _____ %
   f. Minimum/maximum bldg. height _____ ft./stories

   This property falls within the following zoning overlay districts: *(List districts)*

9. List any variances or special exceptions granted by the Zoning Board of Adjustment or Conditional Use Permits granted by the Planning Board for the proposed use or structure, including the case number and date of decision and any conditions.

10. Property line information has been obtained from a survey performed by *(surveyor)* on (*date*) with an error not greater than 1 in 10,000 (*or has been obtained from* _____ *Plan, prepared by (surveyor)*).

11. Subject parcel is (*is not*) located within a Federally designated flood hazard area (Community panel number 33017C0xxxD, Effective Date: September 30, 2015).

12. Wetlands were delineated by _____, Certified Wetlands Scientist, Certification Number ____, in accordance with Chapter 170-27.1 of the Zoning Ordinance, on _____, 20___.

13. As-built plans of the subdivision shall be submitted on paper and in digital format AutoCAD DWG, AutoCAD DXF or ESRI format to the City of Dover Engineer's Office upon completion of project if a street is proposed for City acceptance. 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.

14. The installation of electric power, cable television and telephone lines shall be underground throughout the site for which development is proposed.

15. The subject parcel(s) is (are) served by municipal water and sewer (*or is served by on-site well and septic system*).

16. All construction shall conform with the State of New Hampshire Department of Transportation (NHDOT) "Standard Specifications for Road and Bridge Construction" and with the City of Dover Community Services Regulations and standard specification for construction. The more stringent specification shall apply.

17. 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.

18. 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.

19. All treatment swales to be constructed shall have sod bottoms.

20. 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.

21. 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.

22. Site Construction hours shall be limited to Monday-Friday 7 AM-6 PM, Saturday and Sunday 9 AM-4 PM. Hours of construction must be documented on a site construction sign along with the contact information for the general contractor. Said signage must be located and approved by the City Engineer or Planning Director.

23. Building addresses (including apt/unit numbers if applicable) shall be assigned by the Building Official at the time of issuance of a building permit.

24. The proposed use for the site (structure) is _____. (More specific uses are encouraged, such as single family, duplex, multi-family, restaurant, hotel, doctor's office, etc. Should more than one use be proposed, an indication of the percentage of each use is suggested.)

25. The following federal and state permits have been issued for the subject property: (*List permit type, number and date of issuance.)*

26. Commercial vehicle route during construction shall conform to Dover City Code or be coordinated with the Community Services Director.

27. Any retaining wall taller than four feet (4') requires issuance of a building permit from Inspection Services.

28. Any fence taller than seven feet (7') requires the issuance of a building permit from Inspection Services.

29. 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

30. The owner of record shall record at the Registry of Deeds documentation sufficient to provide notice to all persons/entities that may acquire any property subject to the requirements and responsibilities described in the approved STORMWATER Management Plan. The notice shall comply with the applicable requirements for recording contained in RSA 477 and 478. The notice need not set forth the requirements at length, so long as it is sufficient to provide notice to prospective purchasers to the requirements for maintenance and reporting.

31. 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.

32. The maximum parking space calculation is _____ (broken down) and ____ spaces are provided.

33. Exterior lighting shall be cut-off type fixtures per Chapter 153-14-E and shall provide lighting directed on-site only.

34. Topographic survey performed by _____ on *(dates)*.

35. Elevations are based on U.S.G.S. NVD 1988 datum. (**or** Elevations depicted are based on information obtained from the City Engineer's Office and was derived from coordinates for control stations _____ and _____. These coordinates have not been adjusted to 1983 datum).

36. A security system shall be installed as required by Chapter 45, Article I, section 45-2 of the Code of the City of Dover. (*If a business establishment or multi-family dwelling contained in a new, altered or repaired structure*)

37. Approved backflow preventers shall be provided for both fire and domestic water lines.

38. The (*existing or proposed*) structure shall be served by a sprinkler system as required by Chapter 81- 30 of the Code of the City of Dover and the adopted State of NH Building and Fire Codes.

39. 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.

40. 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.

41. 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. (i.e. IBC, ANSI-117.1) and NH RSA 155-A:5.

REMARKS:

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: 114 Silver Street Group, LLC Telephone # (603) 412-6175

Address of Applicant: 10 Durham Road, Dover, NH 03820

E-Mail Address: tom@arthurthomasproperties.com

Name of Property Owner (if different from applicant): _____ Telephone #_____

Address of Property Owner: _____

PROPERTY INFORMATION

Assessor's Map # 12 Lot(s) # 148

Address of Property: 114 Silver Street, Dover, NH 03820

Zoning District(s) Heritage Residential Overlay District(s) N/A

Existing Use of Property: Single-Family - Residential

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:

Conditional use permit required for the conversion of a single-family residential home to multi-family (4 units). As well as the construction of a new 4-unit, multi-family building.

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

Name of Professional That Prepared Plans: Michael A. Malynowski, PE

Address 400 Harvey Road, Suite D, Manchester, NH 03103 Telephone #: (603) 627-5500

Professional License #: 12205 E-mail address: mmalynowski@allenmajor.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: 6/18/2024
THOMAS A. TOYE IV, MEMBER 114 SILVER STREET GROUP, LLC

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

Signature of Agent: _____ Date: _____

AUTHORIZATION TO ENTER SUBJECT PROPERTY

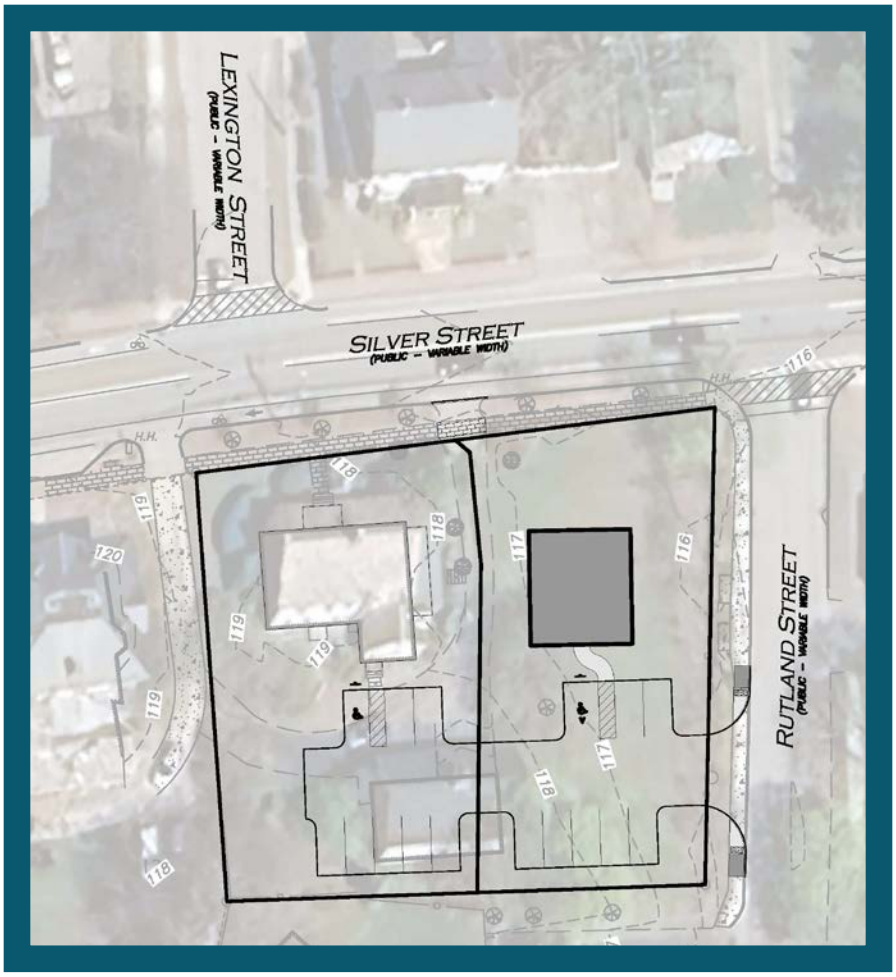
I, and my successors, hereby authorize members of the Dover Planning Board, Planning Department and other pertinent City Departments and boards to enter my property for the purpose of evaluating this application, including performing inspections during the application phase, post-approval phase, construction 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: 6/18/2024
MEMBER: 114 SILVER STREET GROUP, LLC

ALLEN & MAJOR ASSOCIATES, INC.

DRAINAGE REPORT

114 Silver Street – Residential Development
Dover, New Hampshire



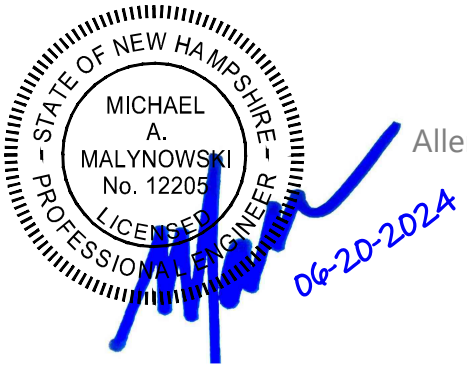
APPLICANT:
114 Silver Street Group, LLC
10 Durham Road
Dover, NH 03820

PREPARED BY:
Allen & Major Associates, Inc.
400 Harvey Road
Manchester, NH 03103

DRAINAGE REPORT

114 Silver Street – Residential Development
Dover, NH

APPLICANT:
114 Silver Street Group, LLC
10 Durham Road
Dover, NH 03820



PREPARED BY:
Allen & Major Associates, Inc.
400 Harvey Road, Suite D
Manchester, NH 03103

ISSUED:
June 20, 2024

A&M PROJECT NO.:
3347-01

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SECTION 1.0 -
OVERVIEW

Executive Summary

The purpose of this drainage report is to provide a detailed review of the stormwater runoff, both quality and quantity, as it pertains to the existing and proposed developed conditions. This report will show by means of narrative, calculations and exhibits that appropriate best management practices have been implemented into the design to mitigate the impacts from the proposed development. The following table demonstrates that there is no increase in total peak rate of runoff and discharge volume from the site for all design storm events.

STUDY POINT #1 (Municipal Drainage System)			
	2-Year	10-Year	50-Year
Existing Flow (cfs)	0.07	0.63	1.89
Proposed Flow (cfs)	0.00	0.63	1.50
Decrease (cfs)	**0.07**	**0.00**	**0.39**
Existing Volume (cf)	487	1,769	4,616
Proposed Volume (cf)	6	565	2,149
Decrease (cf)	**481**	**1,204**	**2,467**

Site Location and Description

The overall project site is comprised of one lot totaling approximately 0.51 acres. The parcel is listed on the City of Dover Assessors Map 12, as 148, and has the address of 114 Silver Street. The project proposes to subdivide the existing lot into two, converting the existing single-family residence to multi-family on one lot, and constructing a new multi-family building on the other.

The site is located to the east of NH Route 16, accessed from Exit 8E. Currently, the existing parcel is a single-family residential home with barn. The existing tract of land is relatively flat with elevations ranging from 119 around the existing house to 116 along Rutland Street.

The proposed development consists of subdividing the existing lot into two conforming lots. One of the subdivided lots will construct a new 3-story, multi-family residence. The other lot will be composed of the existing residential home that will be converted into a multi-family dwelling. The new development will contain two buildings; the existing building footprint is 1,648± sf and the proposed building footprint is 1,152± sf. Each building will contain four (4) dwelling units, totaling 8 units for the development; 16 surface parking spaces will be provided.

The underlying soils were identified using the USDA Natural Resources Conservation Service (NRCS) soil survey for Strafford County. The site is shown to have a soil type of

Windsor loamy fine sand which is classified as Hydrologic Soil Group "A". A copy of the NRCS Soil Report is included in the Appendix of this report.

WfB	Windsor loamy fine sand	0-8% slopes

The saturated hydraulic conductivity (Ksat) rate of the Windsor soil was used for the infiltration rate on-site. The Ksat value of the Windsor soil is 6.0 inches per hour. This Ksat value is referenced from "Ksat Values for New Hampshire Soils", SSSNNE Special Publication No. 5, September 2009.

A stormwater analysis has been performed for two project site situations. The first analysis consists of the existing site conditions and the second consists of the proposed site conditions. There is one study point located at the municipal drainage system where the stormwater flows were analyzed. The study points and contributing watersheds are further outlined in the accompanying text and calculations.

Site Data for Stormwater Modeling

The proposed project will disturb approximately 17,200± sf of earth. This disturbance includes: site grading & drainage installation, paving, and building construction with associated utility connections.

The proposed watershed analysis is comprised of approximately 8,878± square feet of impervious (an increase of 2,028± square feet from the pre-development conditions), including the new building, parking lot, and sidewalk. Rainfall data used for modeling the stormwater runoff was derived from the "Extreme Precipitation Tables" from the Northeast Regional Climate Center at Cornell University. The storm events were broken down for the 2, 10, and 50-year storms.

Existing Site Conditions

Stormwater runoff exits the site to one study point location. To exhibit no increase in runoff to these points, stormwater runoff flows were analyzed at the study point, being the City's municipal drainage system. The included Pre-Development Watershed Plan (EWS-1) outlines the boundaries and contributing watershed to the study point.

1. Study Point 1: This study point is located at the existing drainage infrastructure within Silver & Rutland Streets. The stormwater flowing from the project site to the street is captured within the existing catch basins and routed through the City's municipal drainage network.

Proposed Site Conditions

The generated stormwater runoff on both lots has been designed to be controlled using a combination of best management practices. The project proposes to construct a rain garden area that will capture lawn and roof runoff. A Stormtech infiltration system with an isolator row composed of filtration media will provide treatment for parking lot runoff prior to infiltration and or discharge.

1. Study Point 1: This study point is located at the existing drainage infrastructure within Silver & Rutland Streets. The stormwater flowing from the project site to the street is captured within the existing catch basins and routed through the City's municipal drainage network.

A hydrologic study of the site was conducted to determine the impact of the proposed development on the existing stormwater runoff. The study determined the rates and volume of runoff at these study points discussed have decreased. The included Proposed Watershed Plan (PWS-1) outlines the boundaries and contributing watershed for the study point.

SECTION 2.0 -
DISCUSSION

Methodology

The peak discharge rates were determined using techniques and data found in the following:

1. Urban Hydrology for Small Watersheds – Technical Release 55 by the United States Department of Agriculture Soils Conservation Service, June 1986. Runoff curve numbers and 24-hour precipitation values were obtained from this reference.
2. HydroCAD© Stormwater Modeling System by HydroCAD Software Solutions, LLC, version 10.20-5a. The HydroCAD program was used to generate the runoff hydrographs for the watershed areas, to determine discharge, stage, and storage characteristics for the rain garden and Stormtech infiltration system, to perform drainage routing and to combine the results of the runoff hydrographs.
3. Soil Survey of Strafford County, New Hampshire by the United States Department of Agriculture, Natural Resources Conservation Services (NRCS). Soil types and boundaries were obtained from this reference.

Peak Discharge Rates

The stormwater runoff analysis of the existing and proposed conditions includes an estimation of the peak discharge rate from various rainfall events. Peak discharge rates were developed using TR-55 Urban Hydrology for Small Watersheds, developed by the United States Department of Commerce, Engineering Division and the HydroCAD 10.20-5a computer program. Further, the analysis has been prepared in accordance with the New Hampshire Stormwater Management Manual and standard engineering practices. The peak discharge rate has been estimated for each watershed during the 2, 10, and 50-year storm events.

The stormwater runoff model shows that the proposed site design results in no increase to the total rate of runoff during all storm events. This is accomplished through the construction of the rain garden and Stormtech infiltration system. The table in *Section 1: Overview* provides a summary of the estimated peak discharge rates for each study point during each of the design storm events. The HydroCAD worksheets for the existing and proposed drainage conditions are included within Sections 3 and 4 of this report.

Performance Standards

Stormwater performance standards have been implemented as part of the overall stormwater management plan for the proposed development. The goal of these standards is to improve water quality and protect the waters of New Hampshire from adverse impacts due to development. The performance standards are met by implementing appropriate Best Management Practices (BMPs). BMPs were designed in accordance with the NH Stormwater Management Manual and Env.Wq. 1500.

BMPs implemented in the design include:

1. Rain garden
2. Stormtech infiltration system

Water Quality Volume (WQV)

The Water Quality Volume (WQV) is the amount of stormwater runoff from a rainfall event that should be captured and treated to remove the majority of stormwater pollutants on an average annual basis. The recommended WQV is the volume of runoff associated with the first one-inch of rainfall, which is equivalent to capturing and treating the runoff from the 90th percentile of all rainfall.

The WQV has been calculated for the proposed site development. Refer to Appendix Section 5 for *NHDES BMP Worksheets* for specific requirements.

Water Quality Flow (WQF)

The Water Quality Flow (WQF) is used to determine a flow rate associated with the WQV, for sizing flow-based treatment and pre-treatment practices.

The WQF has been calculated for the proposed site development. Refer to Appendix Section 5 for *NHDES BMP Worksheets* for specific requirements.

Groundwater Recharge Volume (GRV)

The purpose of the groundwater recharge volume criterion is to protect groundwater resources by minimizing the loss of annual pre-development groundwater recharge as a result of the proposed development.
The required Groundwater Recharge Volume (GRV) should be based on the site soils and the following equation:

$$\mathbf{GRV = (AI)(Rd)}$$

Where:
AI = the total effective area of impervious surfaces that will exist on the site after development

Rd = the groundwater recharge depth based on the USDA/NRCS hydrologic soil group, as follows:

0.05	ac	Area of HSG A soil that was replaced by impervious cover	0.40"
0.4	inches	Rd = weighted groundwater recharge depth	
0.0186	ac-in	GRV = AI * Rd	
68	cf	GRV conversion (ac-in x 43,560 sf/ac x 1ft/12")	

Recharge required = 68 cf

Provided

Recharge provided = 192 cf within Stormtech infiltration system
See the stage storage table within the calculation pages in the appendix of this report.

Explanation of Drainage System

References:

1. **New Hampshire Stormwater Management Manual, Volumes 2 & 3, December 2008 and Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas In New Hampshire**
2. **SCS - TR55** *(Second Ed., 1986) - for runoff curve numbers.*

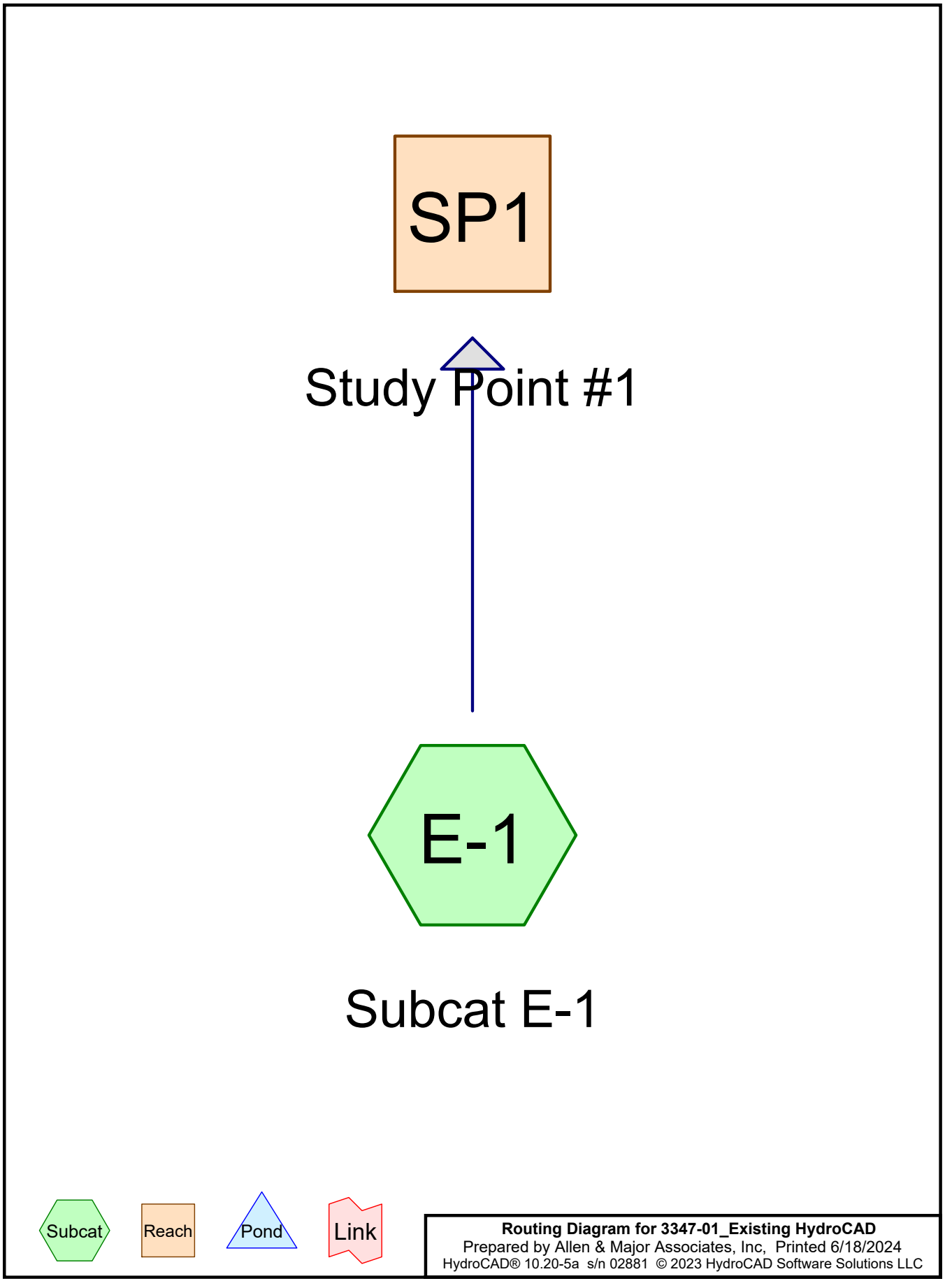
Pavement runoff is collected utilizing deep sump catch basins which route the stormwater to the Stormtech infiltration system with isolator row to be treated and infiltrated to aide in groundwater recharge. Runoff generated from the building's roofs and within portions of the lot's landscape areas will be routed to a rain garden to be infiltrated. Uncaptured runoff within these two systems will drain off site as it does to date.

The 2, 10, & 50-year storm events were analyzed for pre versus post development conditions (see Drainage Summary).

See complete results in the Appendix.

SECTION 3.0 -
EXISTING DRAINAGE ANALYSIS

Existing HydroCAD



Routing Diagram for 3347-01_Existing HydroCAD
Prepared by Allen & Major Associates, Inc, Printed 6/18/2024
HydroCAD® 10.20-5a s/n 02881 © 2023 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-year	NRCC 24-hr	A	Default	24.00	1	3.15	2
2	10-year	NRCC 24-hr	A	Default	24.00	1	4.75	2
3	25-year	NRCC 24-hr	A	Default	24.00	1	6.01	2
4	50-year	NRCC 24-hr	A	Default	24.00	1	7.18	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
17,888	39	>75% Grass cover, Good, HSG A (E-1)
3,893	98	Paved parking, HSG A (E-1)
2,957	98	Roofs, HSG A (E-1)
24,739	**55**	**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
17,888	0	0	0	0	17,888	>75% Grass cover, Good	
3,893	0	0	0	0	3,893	Paved parking	
2,957	0	0	0	0	2,957	Roofs	
24,739	**0**	**0**	**0**	**0**	**24,739**	**TOTAL AREA**	

Summary for Subcatchment E-1: Subcat E-1

Runoff = 0.07 cfs @ 12.22 hrs, Volume= 487 cf, Depth= 0.24"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 2-year Rainfall=3.15"

Area (sf)	CN	Description
17,888	39	>75% Grass cover, Good, HSG A
3,893	98	Paved parking, HSG A
2,957	98	Roofs, HSG A
24,739	55	Weighted Average
17,888		72.31% Pervious Area
6,850		27.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 min.**

Summary for Reach SP1: Study Point #1

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

Inflow Area = 24,739 sf, 27.69% Impervious, Inflow Depth = 0.24" for 2-year event
Inflow = 0.07 cfs @ 12.22 hrs, Volume= 487 cf
Outflow = 0.07 cfs @ 12.22 hrs, Volume= 487 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Subcatchment E-1: Subcat E-1

Runoff = 0.63 cfs @ 12.15 hrs, Volume= 1,769 cf, Depth= 0.86"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 10-year Rainfall=4.75"

Area (sf)	CN	Description
17,888	39	>75% Grass cover, Good, HSG A
3,893	98	Paved parking, HSG A
2,957	98	Roofs, HSG A
24,739	55	Weighted Average
17,888		72.31% Pervious Area
6,850		27.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 min.**

Summary for Reach SP1: Study Point #1

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

Inflow Area = 24,739 sf, 27.69% Impervious, Inflow Depth = 0.86" for 10-year event
Inflow = 0.63 cfs @ 12.15 hrs, Volume= 1,769 cf
Outflow = 0.63 cfs @ 12.15 hrs, Volume= 1,769 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Subcatchment E-1: Subcat E-1

Runoff = 1.24 cfs @ 12.14 hrs, Volume= 3,141 cf, Depth= 1.52"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 25-year Rainfall=6.01"

Area (sf)	CN	Description
17,888	39	>75% Grass cover, Good, HSG A
3,893	98	Paved parking, HSG A
2,957	98	Roofs, HSG A
24,739	55	Weighted Average
17,888		72.31% Pervious Area
6,850		27.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 min.**

Summary for Reach SP1: Study Point #1

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

Inflow Area = 24,739 sf, 27.69% Impervious, Inflow Depth = 1.52" for 25-year event
Inflow = 1.24 cfs @ 12.14 hrs, Volume= 3,141 cf
Outflow = 1.24 cfs @ 12.14 hrs, Volume= 3,141 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Subcatchment E-1: Subcat E-1

Runoff = 1.89 cfs @ 12.14 hrs, Volume= 4,616 cf, Depth= 2.24"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 50-year Rainfall=7.18"

Area (sf)	CN	Description
17,888	39	>75% Grass cover, Good, HSG A
3,893	98	Paved parking, HSG A
2,957	98	Roofs, HSG A
24,739	55	Weighted Average
17,888		72.31% Pervious Area
6,850		27.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 min.**

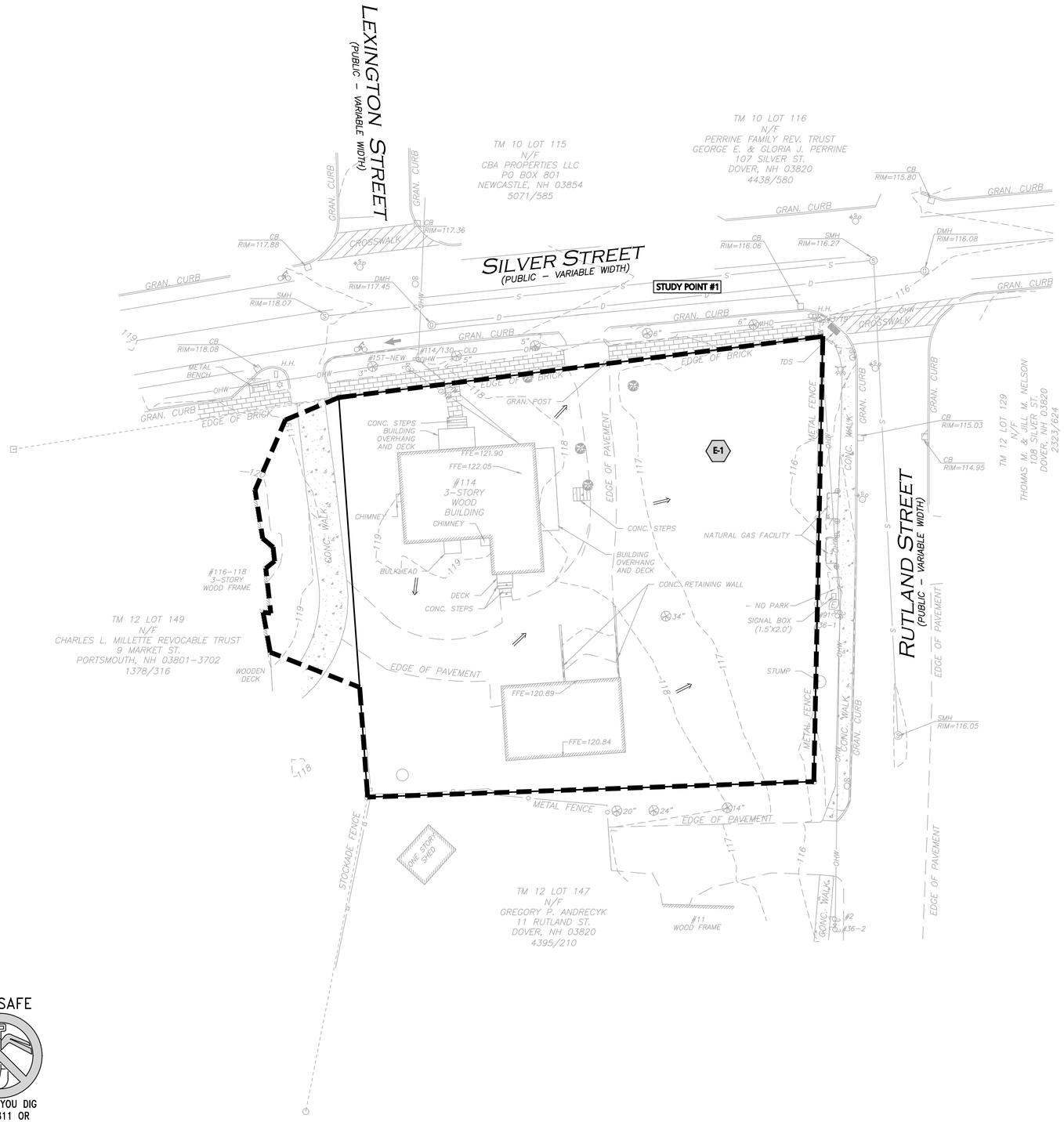
Summary for Reach SP1: Study Point #1

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

Inflow Area = 24,739 sf, 27.69% Impervious, Inflow Depth = 2.24" for 50-year event
Inflow = 1.89 cfs @ 12.14 hrs, Volume= 4,616 cf
Outflow = 1.89 cfs @ 12.14 hrs, Volume= 4,616 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Existing Watershed Plan



LEGEND

SUBCATCHMENT LABEL	E-1
SUBCATCHMENT BOUNDARY	
FLOW DIRECTION	

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

DIG SAFE

BEFORE YOU DIG
CALL 811 OR
1–888–DIG–SAFE
1–888–344–7233

R: \PROJECTS \3347–01 \CIVIL \DRAWINGS \CURRENT \C–3347–01_WATERSHED–EXISTING.DWG

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:

114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:

114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	1" = 20'	DWG. NAME:	C3347-01
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE:

EXISTING WATERSHED PLAN

SHEET No.

EWS-1

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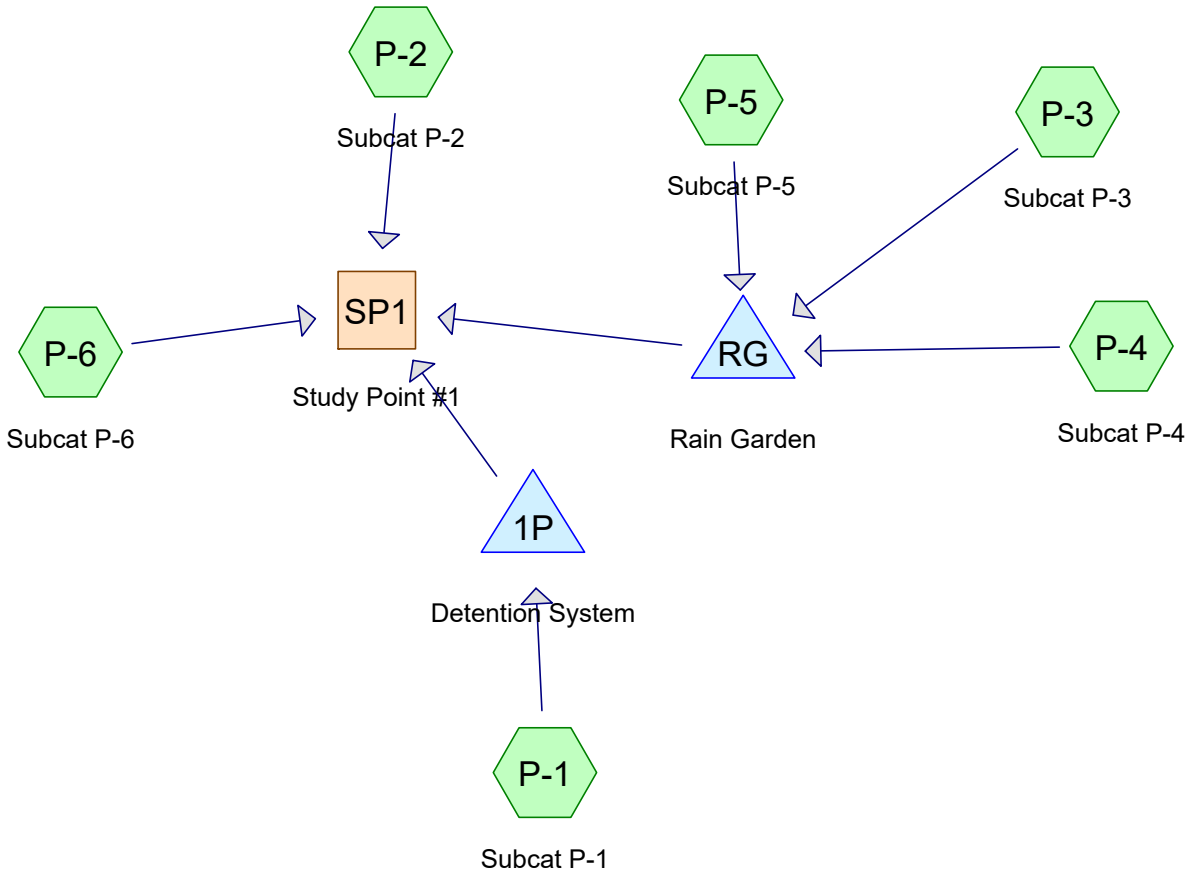
SECTION 4.0 -
PROPOSED DRAINAGE ANALYSIS

Proposed HydroCAD



Subcat Reach Pond Link

Routing Diagram for 3347-01_Proposed HydroCAD
Prepared by Allen & Major Associates, Inc, Printed 6/18/2024
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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-year	NRCC 24-hr	A	Default	24.00	1	3.15	2
2	10-year	NRCC 24-hr	A	Default	24.00	1	4.75	2
3	25-year	NRCC 24-hr	A	Default	24.00	1	6.01	2
4	50-year	NRCC 24-hr	A	Default	24.00	1	7.18	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
15,861	39	>75% Grass cover, Good, HSG A (P-1, P-2, P-4, P-6)
5,786	98	Paved parking, HSG A (P-1, P-2, P-6)
3,092	98	Roofs, HSG A (P-3, P-5)
24,739	**60**	**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
15,861	0	0	0	0	15,861	>75% Grass cover, Good	
5,786	0	0	0	0	5,786	Paved parking	
3,092	0	0	0	0	3,092	Roofs	
24,739	**0**	**0**	**0**	**0**	**24,739**	**TOTAL AREA**	

Summary for Subcatchment P-1: Subcat P-1

Runoff = 0.23 cfs @ 12.15 hrs, Volume= 632 cf, Depth= 0.62"
Routed to Pond 1P : Detention System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 2-year Rainfall=3.15"

Area (sf)	CN	Description
6,732	39	>75% Grass cover, Good, HSG A
5,544	98	Paved parking, HSG A
12,277	66	Weighted Average
6,732		54.84% Pervious Area
5,544		45.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-2: Subcat P-2

Runoff = 0.00 cfs @ 14.45 hrs, Volume= 5 cf, Depth= 0.04"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 2-year Rainfall=3.15"

Area (sf)	CN	Description
1,448	39	>75% Grass cover, Good, HSG A
162	98	Paved parking, HSG A
1,610	45	Weighted Average
1,448		89.93% Pervious Area
162		10.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-3: Subcat P-3

Runoff = 0.10 cfs @ 12.13 hrs, Volume= 280 cf, Depth= 2.92"
Routed to Pond RG : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 2-year Rainfall=3.15"

Area (sf)	CN	Description
1,152	98	Roofs, HSG A
1,152		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-4: Subcat P-4

Runoff = 0.00 cfs @ 24.01 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Pond RG : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 2-year Rainfall=3.15"

Area (sf)	CN	Description
4,181	39	>75% Grass cover, Good, HSG A
4,181		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-5: Subcat P-5

Runoff = 0.17 cfs @ 12.13 hrs, Volume= 472 cf, Depth= 2.92"
Routed to Pond RG : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 2-year Rainfall=3.15"

Area (sf)	CN	Description
1,940	98	Roofs, HSG A
1,940		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-6: Subcat P-6

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0 cf, Depth= 0.00"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 2-year Rainfall=3.15"

Area (sf)	CN	Description
3,499	39	>75% Grass cover, Good, HSG A
80	98	Paved parking, HSG A
3,579	40	Weighted Average
3,499		97.77% Pervious Area
80		2.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Reach SP1: Study Point #1

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

Inflow Area = 24,739 sf, 35.89% Impervious, Inflow Depth = 0.00" for 2-year event
Inflow = 0.00 cfs @ 14.45 hrs, Volume= 6 cf
Outflow = 0.00 cfs @ 14.45 hrs, Volume= 6 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Detention System

Ksat value derived from "Ksat Values for New Hampshire Soils", SSSNNE Special Publication No. 5, September, 2009.

Inflow Area = 12,277 sf, 45.16% Impervious, Inflow Depth = 0.62" for 2-year event
Inflow = 0.23 cfs @ 12.15 hrs, Volume= 632 cf
Outflow = 0.05 cfs @ 12.60 hrs, Volume= 632 cf, Atten= 77%, Lag= 27.4 min
Discarded = 0.05 cfs @ 12.60 hrs, Volume= 632 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach SP1 : Study Point #1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 113.48' @ 12.60 hrs Surf.Area= 279 sf Storage= 142 cf
Flood Elev= 114.50' Surf.Area= 279 sf Storage= 272 cf

Plug-Flow detention time= 19.0 min calculated for 632 cf (100% of inflow)
Center-of-Mass det. time= 19.0 min (892.2 - 873.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	112.50'	190 cf	**6.17'W x 45.19'L x 2.00'H Field A** 557 cf Overall - 82 cf Embedded = 475 cf x 40.0% Voids
#2A	113.00'	82 cf	**ADS_StormTech SC-160LP +Cap** x 12 Inside #1 Effective Size= 18.0"W x 12.0"H => 0.96 sf x 7.12'L = 6.8 cf Overall Size= 25.0"W x 12.0"H x 7.56'L with 0.44' Overlap 12 Chambers in 2 Rows
		272 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	112.50'	**6.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 110.00'
#2	Primary	113.80'	**12.0" Round Culvert** L= 29.0' Ke= 0.500 Inlet / Outlet Invert= 113.80' / 113.22' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.05 cfs @ 12.60 hrs HW=113.48' (Free Discharge)
└**1=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=112.50' (Free Discharge)
└**2=Culvert** (Controls 0.00 cfs)

Summary for Pond RG: Rain Garden

Ksat value derived from "Ksat Values for New Hampshire Soils", SSSNNE Special Publication No. 5, September, 2009.

Inflow Area = 7,273 sf, 42.52% Impervious, Inflow Depth = 1.24" for 2-year event
Inflow = 0.27 cfs @ 12.13 hrs, Volume= 752 cf
Outflow = 0.08 cfs @ 12.34 hrs, Volume= 752 cf, Atten= 72%, Lag= 13.0 min
Discarded = 0.08 cfs @ 12.34 hrs, Volume= 752 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach SP1 : Study Point #1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.38' @ 12.34 hrs Surf.Area= 503 sf Storage= 165 cf

Plug-Flow detention time= 13.4 min calculated for 751 cf (100% of inflow)
Center-of-Mass det. time= 13.4 min (768.9 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1	114.00'	1,486 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.00	374	0	0
115.00	716	545	545
116.00	1,166	941	1,486

Device	Routing	Invert	Outlet Devices
#1	Primary	115.99'	**3.0' 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
#2	Discarded	114.00'	**6.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 110.00'

Discarded OutFlow Max=0.08 cfs @ 12.34 hrs HW=114.38' (Free Discharge)
↑**2=Exfiltration** (Controls 0.08 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.00' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment P-1: Subcat P-1

Runoff = 0.66 cfs @ 12.14 hrs, Volume= 1,596 cf, Depth= 1.56"
Routed to Pond 1P : Detention System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 10-year Rainfall=4.75"

Area (sf)	CN	Description
6,732	39	>75% Grass cover, Good, HSG A
5,544	98	Paved parking, HSG A
12,277	66	Weighted Average
6,732		54.84% Pervious Area
5,544		45.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-2: Subcat P-2

Runoff = 0.01 cfs @ 12.21 hrs, Volume= 49 cf, Depth= 0.37"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 10-year Rainfall=4.75"

Area (sf)	CN	Description
1,448	39	>75% Grass cover, Good, HSG A
162	98	Paved parking, HSG A
1,610	45	Weighted Average
1,448		89.93% Pervious Area
162		10.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-3: Subcat P-3

Runoff = 0.15 cfs @ 12.13 hrs, Volume= 433 cf, Depth= 4.51"
Routed to Pond RG : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 10-year Rainfall=4.75"

Area (sf)	CN	Description
1,152	98	Roofs, HSG A
1,152		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-4: Subcat P-4

Runoff = 0.00 cfs @ 12.55 hrs, Volume= 53 cf, Depth= 0.15"
Routed to Pond RG : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 10-year Rainfall=4.75"

Area (sf)	CN	Description
4,181	39	>75% Grass cover, Good, HSG A
4,181		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-5: Subcat P-5

Runoff = 0.26 cfs @ 12.13 hrs, Volume= 730 cf, Depth= 4.51"
Routed to Pond RG : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 10-year Rainfall=4.75"

Area (sf)	CN	Description
1,940	98	Roofs, HSG A
1,940		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-6: Subcat P-6

Runoff = 0.00 cfs @ 12.54 hrs, Volume= 55 cf, Depth= 0.18"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 10-year Rainfall=4.75"

Area (sf)	CN	Description
3,499	39	>75% Grass cover, Good, HSG A
80	98	Paved parking, HSG A
3,579	40	Weighted Average
3,499		97.77% Pervious Area
80		2.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Reach SP1: Study Point #1

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

Inflow Area = 24,739 sf, 35.89% Impervious, Inflow Depth = 0.27" for 10-year event
Inflow = 0.63 cfs @ 12.17 hrs, Volume= 565 cf
Outflow = 0.63 cfs @ 12.17 hrs, Volume= 565 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Detention System

Ksat value derived from "Ksat Values for New Hampshire Soils", SSSNNE Special Publication No. 5, September, 2009.

[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 12,277 sf, 45.16% Impervious, Inflow Depth = 1.56" for 10-year event
Inflow = 0.66 cfs @ 12.14 hrs, Volume= 1,596 cf
Outflow = 0.69 cfs @ 12.17 hrs, Volume= 1,596 cf, Atten= 0%, Lag= 1.6 min
Discarded = 0.07 cfs @ 12.17 hrs, Volume= 1,134 cf
Primary = 0.62 cfs @ 12.17 hrs, Volume= 461 cf
Routed to Reach SP1 : Study Point #1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.22' @ 12.17 hrs Surf.Area= 279 sf Storage= 241 cf
Flood Elev= 114.50' Surf.Area= 279 sf Storage= 272 cf

Plug-Flow detention time= 20.3 min calculated for 1,595 cf (100% of inflow)
Center-of-Mass det. time= 20.3 min (865.7 - 845.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	112.50'	190 cf	**6.17'W x 45.19'L x 2.00'H Field A** 557 cf Overall - 82 cf Embedded = 475 cf x 40.0% Voids
#2A	113.00'	82 cf	**ADS_StormTech SC-160LP +Cap** x 12 Inside #1 Effective Size= 18.0"W x 12.0"H => 0.96 sf x 7.12'L = 6.8 cf Overall Size= 25.0"W x 12.0"H x 7.56'L with 0.44' Overlap 12 Chambers in 2 Rows
		272 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	112.50'	**6.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 110.00'
#2	Primary	113.80'	**12.0" Round Culvert** L= 29.0' Ke= 0.500 Inlet / Outlet Invert= 113.80' / 113.22' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.06 cfs @ 12.17 hrs HW=114.17' (Free Discharge)
↑**1=Exfiltration** (Controls 0.06 cfs)

Primary OutFlow Max=0.54 cfs @ 12.17 hrs HW=114.17' (Free Discharge)
↑**2=Culvert** (Inlet Controls 0.54 cfs @ 2.07 fps)

Summary for Pond RG: Rain Garden

Ksat value derived from "Ksat Values for New Hampshire Soils", SSSNNE Special Publication No. 5, September, 2009.

Inflow Area = 7,273 sf, 42.52% Impervious, Inflow Depth = 2.01" for 10-year event
Inflow = 0.41 cfs @ 12.13 hrs, Volume= 1,216 cf
Outflow = 0.09 cfs @ 12.41 hrs, Volume= 1,216 cf, Atten= 77%, Lag= 16.9 min
Discarded = 0.09 cfs @ 12.41 hrs, Volume= 1,216 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach SP1 : Study Point #1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.64' @ 12.41 hrs Surf.Area= 593 sf Storage= 310 cf

Plug-Flow detention time= 22.2 min calculated for 1,215 cf (100% of inflow)
Center-of-Mass det. time= 22.2 min (781.5 - 759.3)

Volume	Invert	Avail.Storage	Storage Description
#1	114.00'	1,486 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.00	374	0	0
115.00	716	545	545
116.00	1,166	941	1,486

Device	Routing	Invert	Outlet Devices
#1	Primary	115.99'	**3.0' 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
#2	Discarded	114.00'	**6.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 110.00'

Discarded OutFlow Max=0.09 cfs @ 12.41 hrs HW=114.64' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.09 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.00' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment P-1: Subcat P-1

Runoff = 1.05 cfs @ 12.14 hrs, Volume= 2,504 cf, Depth= 2.45"
Routed to Pond 1P : Detention System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 25-year Rainfall=6.01"

Area (sf)	CN	Description
6,732	39	>75% Grass cover, Good, HSG A
5,544	98	Paved parking, HSG A
12,277	66	Weighted Average
6,732		54.84% Pervious Area
5,544		45.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-2: Subcat P-2

Runoff = 0.03 cfs @ 12.16 hrs, Volume= 108 cf, Depth= 0.81"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 25-year Rainfall=6.01"

Area (sf)	CN	Description
1,448	39	>75% Grass cover, Good, HSG A
162	98	Paved parking, HSG A
1,610	45	Weighted Average
1,448		89.93% Pervious Area
162		10.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-3: Subcat P-3

Runoff = 0.19 cfs @ 12.13 hrs, Volume= 554 cf, Depth= 5.77"
Routed to Pond RG : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 25-year Rainfall=6.01"

Area (sf)	CN	Description
1,152	98	Roofs, HSG A
1,152		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-4: Subcat P-4

Runoff = 0.02 cfs @ 12.22 hrs, Volume= 156 cf, Depth= 0.45"
Routed to Pond RG : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 25-year Rainfall=6.01"

Area (sf)	CN	Description
4,181	39	>75% Grass cover, Good, HSG A
4,181		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-5: Subcat P-5

Runoff = 0.33 cfs @ 12.13 hrs, Volume= 933 cf, Depth= 5.77"
Routed to Pond RG : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 25-year Rainfall=6.01"

Area (sf)	CN	Description
1,940	98	Roofs, HSG A
1,940		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-6: Subcat P-6

Runoff = 0.03 cfs @ 12.19 hrs, Volume= 150 cf, Depth= 0.50"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 25-year Rainfall=6.01"

Area (sf)	CN	Description
3,499	39	>75% Grass cover, Good, HSG A
80	98	Paved parking, HSG A
3,579	40	Weighted Average
3,499		97.77% Pervious Area
80		2.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Reach SP1: Study Point #1

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

Inflow Area = 24,739 sf, 35.89% Impervious, Inflow Depth = 0.64" for 25-year event
Inflow = 1.02 cfs @ 12.14 hrs, Volume= 1,312 cf
Outflow = 1.02 cfs @ 12.14 hrs, Volume= 1,312 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Detention System

Ksat value derived from "Ksat Values for New Hampshire Soils", SSSNNE Special Publication No. 5, September, 2009.

Inflow Area = 12,277 sf, 45.16% Impervious, Inflow Depth = 2.45" for 25-year event
Inflow = 1.05 cfs @ 12.14 hrs, Volume= 2,504 cf
Outflow = 1.03 cfs @ 12.14 hrs, Volume= 2,504 cf, Atten= 2%, Lag= 0.4 min
Discarded = 0.07 cfs @ 12.14 hrs, Volume= 1,450 cf
Primary = 0.96 cfs @ 12.14 hrs, Volume= 1,054 cf
Routed to Reach SP1 : Study Point #1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.30' @ 12.14 hrs Surf.Area= 279 sf Storage= 250 cf
Flood Elev= 114.50' Surf.Area= 279 sf Storage= 272 cf

Plug-Flow detention time= 17.5 min calculated for 2,502 cf (100% of inflow)
Center-of-Mass det. time= 17.5 min (851.2 - 833.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	112.50'	190 cf	**6.17'W x 45.19'L x 2.00'H Field A** 557 cf Overall - 82 cf Embedded = 475 cf x 40.0% Voids
#2A	113.00'	82 cf	**ADS_StormTech SC-160LP +Cap** x 12 Inside #1 Effective Size= 18.0"W x 12.0"H => 0.96 sf x 7.12'L = 6.8 cf Overall Size= 25.0"W x 12.0"H x 7.56'L with 0.44' Overlap 12 Chambers in 2 Rows
		272 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	112.50'	**6.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 110.00'
#2	Primary	113.80'	**12.0" Round Culvert** L= 29.0' Ke= 0.500 Inlet / Outlet Invert= 113.80' / 113.22' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.07 cfs @ 12.14 hrs HW=114.30' (Free Discharge)
1=Exfiltration (Controls 0.07 cfs)

Primary OutFlow Max=0.94 cfs @ 12.14 hrs HW=114.30' (Free Discharge)
2=Culvert (Inlet Controls 0.94 cfs @ 2.40 fps)

Summary for Pond RG: Rain Garden

Ksat value derived from "Ksat Values for New Hampshire Soils", SSSNNE Special Publication No. 5, September, 2009.

Inflow Area = 7,273 sf, 42.52% Impervious, Inflow Depth = 2.71" for 25-year event
Inflow = 0.54 cfs @ 12.13 hrs, Volume= 1,643 cf
Outflow = 0.11 cfs @ 12.53 hrs, Volume= 1,643 cf, Atten= 80%, Lag= 23.8 min
Discarded = 0.11 cfs @ 12.53 hrs, Volume= 1,643 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach SP1 : Study Point #1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.87' @ 12.53 hrs Surf.Area= 672 sf Storage= 455 cf

Plug-Flow detention time= 30.1 min calculated for 1,643 cf (100% of inflow)
Center-of-Mass det. time= 30.1 min (792.8 - 762.7)

Volume	Invert	Avail.Storage	Storage Description
#1	114.00'	1,486 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.00	374	0	0
115.00	716	545	545
116.00	1,166	941	1,486

Device	Routing	Invert	Outlet Devices
#1	Primary	115.99'	**3.0' 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
#2	Discarded	114.00'	**6.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 110.00'

Discarded OutFlow Max=0.11 cfs @ 12.53 hrs HW=114.87' (Free Discharge)
↑**2=Exfiltration** (Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.00' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment P-1: Subcat P-1

Runoff = 1.43 cfs @ 12.13 hrs, Volume= 3,424 cf, Depth= 3.35"
Routed to Pond 1P : Detention System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 50-year Rainfall=7.18"

Area (sf)	CN	Description
6,732	39	>75% Grass cover, Good, HSG A
5,544	98	Paved parking, HSG A
12,277	66	Weighted Average
6,732		54.84% Pervious Area
5,544		45.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-2: Subcat P-2

Runoff = 0.06 cfs @ 12.15 hrs, Volume= 177 cf, Depth= 1.32"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 50-year Rainfall=7.18"

Area (sf)	CN	Description
1,448	39	>75% Grass cover, Good, HSG A
162	98	Paved parking, HSG A
1,610	45	Weighted Average
1,448		89.93% Pervious Area
162		10.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-3: Subcat P-3

Runoff = 0.23 cfs @ 12.13 hrs, Volume= 666 cf, Depth= 6.94"
Routed to Pond RG : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 50-year Rainfall=7.18"

Area (sf)	CN	Description
1,152	98	Roofs, HSG A
1,152		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-4: Subcat P-4

Runoff = 0.08 cfs @ 12.16 hrs, Volume= 290 cf, Depth= 0.83"
Routed to Pond RG : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 50-year Rainfall=7.18"

Area (sf)	CN	Description
4,181	39	>75% Grass cover, Good, HSG A
4,181		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-5: Subcat P-5

Runoff = 0.39 cfs @ 12.13 hrs, Volume= 1,122 cf, Depth= 6.94"
Routed to Pond RG : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 50-year Rainfall=7.18"

Area (sf)	CN	Description
1,940	98	Roofs, HSG A
1,940		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Subcatchment P-6: Subcat P-6

Runoff = 0.08 cfs @ 12.16 hrs, Volume= 272 cf, Depth= 0.91"
Routed to Reach SP1 : Study Point #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NRCC 24-hr A 50-year Rainfall=7.18"

Area (sf)	CN	Description
3,499	39	>75% Grass cover, Good, HSG A
80	98	Paved parking, HSG A
3,579	40	Weighted Average
3,499		97.77% Pervious Area
80		2.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR 55 min.**

Summary for Reach SP1: Study Point #1

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

Inflow Area = 24,739 sf, 35.89% Impervious, Inflow Depth = 1.04" for 50-year event
Inflow = 1.50 cfs @ 12.14 hrs, Volume= 2,149 cf
Outflow = 1.50 cfs @ 12.14 hrs, Volume= 2,149 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Detention System

Ksat value derived from "Ksat Values for New Hampshire Soils", SSSNNE Special Publication No. 5, September, 2009.

Inflow Area = 12,277 sf, 45.16% Impervious, Inflow Depth = 3.35" for 50-year event
Inflow = 1.43 cfs @ 12.13 hrs, Volume= 3,424 cf
Outflow = 1.43 cfs @ 12.14 hrs, Volume= 3,424 cf, Atten= 0%, Lag= 0.5 min
Discarded = 0.07 cfs @ 12.14 hrs, Volume= 1,723 cf
Primary = 1.36 cfs @ 12.14 hrs, Volume= 1,700 cf
Routed to Reach SP1 : Study Point #1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.42' @ 12.14 hrs Surf.Area= 279 sf Storage= 263 cf
Flood Elev= 114.50' Surf.Area= 279 sf Storage= 272 cf

Plug-Flow detention time= 16.1 min calculated for 3,421 cf (100% of inflow)
Center-of-Mass det. time= 16.1 min (842.0 - 825.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	112.50'	190 cf	**6.17'W x 45.19'L x 2.00'H Field A** 557 cf Overall - 82 cf Embedded = 475 cf x 40.0% Voids
#2A	113.00'	82 cf	**ADS_StormTech SC-160LP +Cap** x 12 Inside #1 Effective Size= 18.0"W x 12.0"H => 0.96 sf x 7.12'L = 6.8 cf Overall Size= 25.0"W x 12.0"H x 7.56'L with 0.44' Overlap 12 Chambers in 2 Rows
		272 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	112.50'	**6.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 110.00'
#2	Primary	113.80'	**12.0" Round Culvert** L= 29.0' Ke= 0.500 Inlet / Outlet Invert= 113.80' / 113.22' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.07 cfs @ 12.14 hrs HW=114.41' (Free Discharge)
1=Exfiltration (Controls 0.07 cfs)

Primary OutFlow Max=1.33 cfs @ 12.14 hrs HW=114.41' (Free Discharge)
2=Culvert (Inlet Controls 1.33 cfs @ 2.66 fps)

Summary for Pond RG: Rain Garden

Ksat value derived from "Ksat Values for New Hampshire Soils", SSSNNE Special Publication No. 5, September, 2009.

Inflow Area = 7,273 sf, 42.52% Impervious, Inflow Depth = 3.43" for 50-year event
Inflow = 0.69 cfs @ 12.13 hrs, Volume= 2,079 cf
Outflow = 0.13 cfs @ 12.57 hrs, Volume= 2,079 cf, Atten= 82%, Lag= 26.2 min
Discarded = 0.13 cfs @ 12.57 hrs, Volume= 2,079 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Reach SP1 : Study Point #1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 115.10' @ 12.57 hrs Surf.Area= 763 sf Storage= 622 cf

Plug-Flow detention time= 37.9 min calculated for 2,079 cf (100% of inflow)
Center-of-Mass det. time= 37.9 min (802.9 - 765.0)

Volume	Invert	Avail.Storage	Storage Description
#1	114.00'	1,486 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

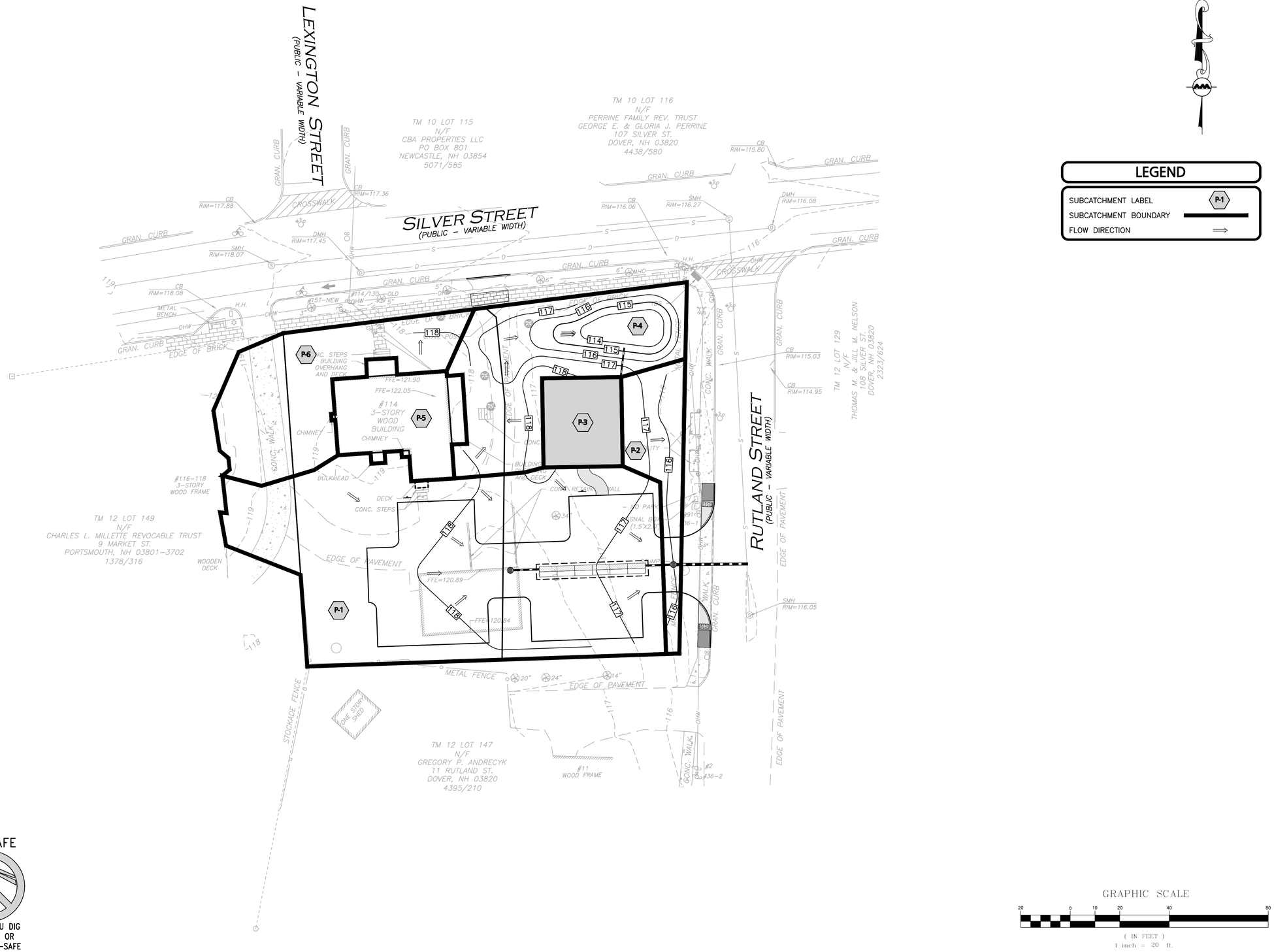
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.00	374	0	0
115.00	716	545	545
116.00	1,166	941	1,486

Device	Routing	Invert	Outlet Devices
#1	Primary	115.99'	**3.0' 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
#2	Discarded	114.00'	**6.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 110.00'

Discarded OutFlow Max=0.13 cfs @ 12.57 hrs HW=115.10' (Free Discharge)
↑**2=Exfiltration** (Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.00' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Proposed Watershed Plan



LEGEND

SUBCATCHMENT LABEL	P-1
SUBCATCHMENT BOUNDARY	
FLOW DIRECTION	⟹

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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R:\PROJECTS\3347–01\CIVIL\DRAWINGS\CURRENT\C–3347–01_WATERSHED–PROPOSED.DWG

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:

114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:

114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	1" = 20'	DWG. NAME:	C3347-01
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501

WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE:

PROPOSED WATERSHED PLAN

SHEET No.

PWS-1

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SECTION 5.0 -
APPENDIX

Extreme Precipitation Tables

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Metadata for Point

Smoothing	Yes
State	
Location	
Latitude	43.191 degrees North
Longitude	70.882 degrees West
Elevation	30 feet
Date/Time	Mon Jun 10 2024 13:34:38 GMT-0400 (Eastern Daylight Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.03	**1yr**	0.70	0.98	1.20	1.54	2.00	2.60	2.87	**1yr**	2.31	2.76	3.15	3.88	4.45	**1yr**
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	3.50	**2yr**	2.79	3.37	3.86	4.60	5.23	**2yr**
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	4.49	**5yr**	3.52	4.32	4.94	5.81	6.57	**5yr**
10yr	0.40	0.63	0.80	1.09	1.42	1.85	**10yr**	1.22	1.69	2.18	2.83	3.66	4.75	5.42	**10yr**	4.20	5.21	5.95	6.93	7.80	**10yr**
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	6.95	**25yr**	5.32	6.68	7.61	8.77	9.80	**25yr**
50yr	0.52	0.83	1.06	1.48	2.00	2.67	**50yr**	1.73	2.46	3.18	4.19	5.49	7.18	8.39	**50yr**	6.35	8.07	9.17	10.48	11.65	**50yr**
100yr	0.58	0.94	1.21	1.71	2.32	3.12	**100yr**	2.00	2.89	3.75	4.96	6.53	8.58	10.14	**100yr**	7.60	9.75	11.06	12.53	13.86	**100yr**
200yr	0.64	1.05	1.36	1.95	2.70	3.67	**200yr**	2.33	3.40	4.43	5.89	7.79	10.26	12.26	**200yr**	9.08	11.79	13.34	14.98	16.49	**200yr**
500yr	0.76	1.24	1.62	2.36	3.30	4.54	**500yr**	2.85	4.22	5.50	7.37	9.82	13.01	15.75	**500yr**	11.51	15.15	17.10	18.99	20.77	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.37	0.45	0.60	0.74	0.90	**1yr**	0.64	0.88	0.92	1.26	1.57	2.12	2.46	**1yr**	1.88	2.36	2.88	3.35	4.03	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.18	**2yr**	0.86	1.16	1.36	1.83	2.36	3.04	3.40	**2yr**	2.69	3.27	3.75	4.47	5.05	**2yr**
5yr	0.35	0.54	0.67	0.91	1.16	1.40	**5yr**	1.00	1.37	1.61	2.15	2.78	3.71	4.12	**5yr**	3.28	3.97	4.61	5.41	6.11	**5yr**
10yr	0.38	0.59	0.73	1.02	1.31	1.60	**10yr**	1.13	1.56	1.81	2.44	3.13	4.27	4.78	**10yr**	3.78	4.60	5.32	6.24	7.01	**10yr**
25yr	0.44	0.66	0.82	1.18	1.55	1.91	**25yr**	1.34	1.87	2.11	2.84	3.65	4.94	5.79	**25yr**	4.37	5.57	6.48	7.55	8.42	**25yr**
50yr	0.48	0.73	0.91	1.31	1.76	2.19	**50yr**	1.52	2.14	2.35	3.19	4.09	5.64	6.68	**50yr**	4.99	6.42	7.53	8.71	9.66	**50yr**
100yr	0.54	0.81	1.01	1.46	2.01	2.51	**100yr**	1.73	2.45	2.63	3.57	4.57	6.42	7.69	**100yr**	5.68	7.40	8.74	10.06	11.07	**100yr**
200yr	0.59	0.89	1.13	1.64	2.29	2.87	**200yr**	1.97	2.80	2.93	4.00	5.10	7.31	8.87	**200yr**	6.47	8.53	10.14	11.61	12.70	**200yr**
500yr	0.69	1.03	1.33	1.93	2.74	3.45	**500yr**	2.36	3.37	3.40	4.63	5.92	8.64	10.68	**500yr**	7.65	10.27	12.33	14.06	15.18	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.53	0.71	0.87	1.08	**1yr**	0.75	1.05	1.23	1.74	2.21	2.87	3.08	**1yr**	2.54	2.97	3.43	4.22	4.81	**1yr**
2yr	0.33	0.51	0.62	0.85	1.04	1.25	**2yr**	0.90	1.22	1.48	1.95	2.51	3.29	3.62	**2yr**	2.91	3.49	4.00	4.75	5.45	**2yr**
5yr	0.39	0.61	0.75	1.03	1.31	1.58	**5yr**	1.13	1.55	1.86	2.50	3.20	4.24	4.85	**5yr**	3.75	4.67	5.28	6.23	7.00	**5yr**
10yr	0.46	0.70	0.87	1.22	1.57	1.92	**10yr**	1.36	1.88	2.23	3.05	3.86	5.21	6.06	**10yr**	4.62	5.83	6.65	7.65	8.53	**10yr**
25yr	0.56	0.84	1.05	1.50	1.97	2.48	**25yr**	1.70	2.42	2.88	3.97	4.96	7.07	8.14	**25yr**	6.26	7.82	8.90	10.07	11.12	**25yr**
50yr	0.64	0.98	1.22	1.75	2.35	2.99	**50yr**	2.03	2.93	3.49	4.83	6.03	8.74	10.20	**50yr**	7.74	9.80	11.12	12.38	13.59	**50yr**
100yr	0.75	1.13	1.42	2.04	2.80	3.62	**100yr**	2.42	3.54	4.24	5.92	7.33	10.81	12.78	**100yr**	9.56	12.28	13.88	15.25	16.63	**100yr**
200yr	0.87	1.30	1.65	2.39	3.34	4.39	**200yr**	2.88	4.29	5.16	7.24	8.90	13.39	16.03	**200yr**	11.85	15.41	17.35	18.78	20.38	**200yr**
500yr	1.06	1.58	2.03	2.95	4.19	5.64	**500yr**	3.62	5.51	6.66	9.47	11.54	17.81	21.63	**500yr**	15.76	20.80	23.31	24.76	26.67	**500yr**

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Northeast Regional Climate Center

NRCS Web Soil Survey

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Strafford County, New Hampshire

June 10, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:553 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 5 10 20 30

Feet: 0 25 50 100 150

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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 24, Aug 22, 2023

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
WfB	Windsor loamy fine sand, clay subsoil variant, 0 to 8 percent slopes	1.4	100.0%
Totals for Area of Interest		**1.4**	**100.0%**

Map Unit Descriptions

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

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

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

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

onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Strafford County, New Hampshire

WfB—Windsor loamy fine sand, clay subsoil variant, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9d9b
Elevation: 0 to 280 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Windsor variant and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Windsor Variant

Typical profile

H1 - 0 to 26 inches: loamy fine sand
H2 - 26 to 30 inches: loamy sand
H3 - 30 to 42 inches: silt loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Not named

Percent of map unit: 15 percent
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Physical Properties

Soil Physical Properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

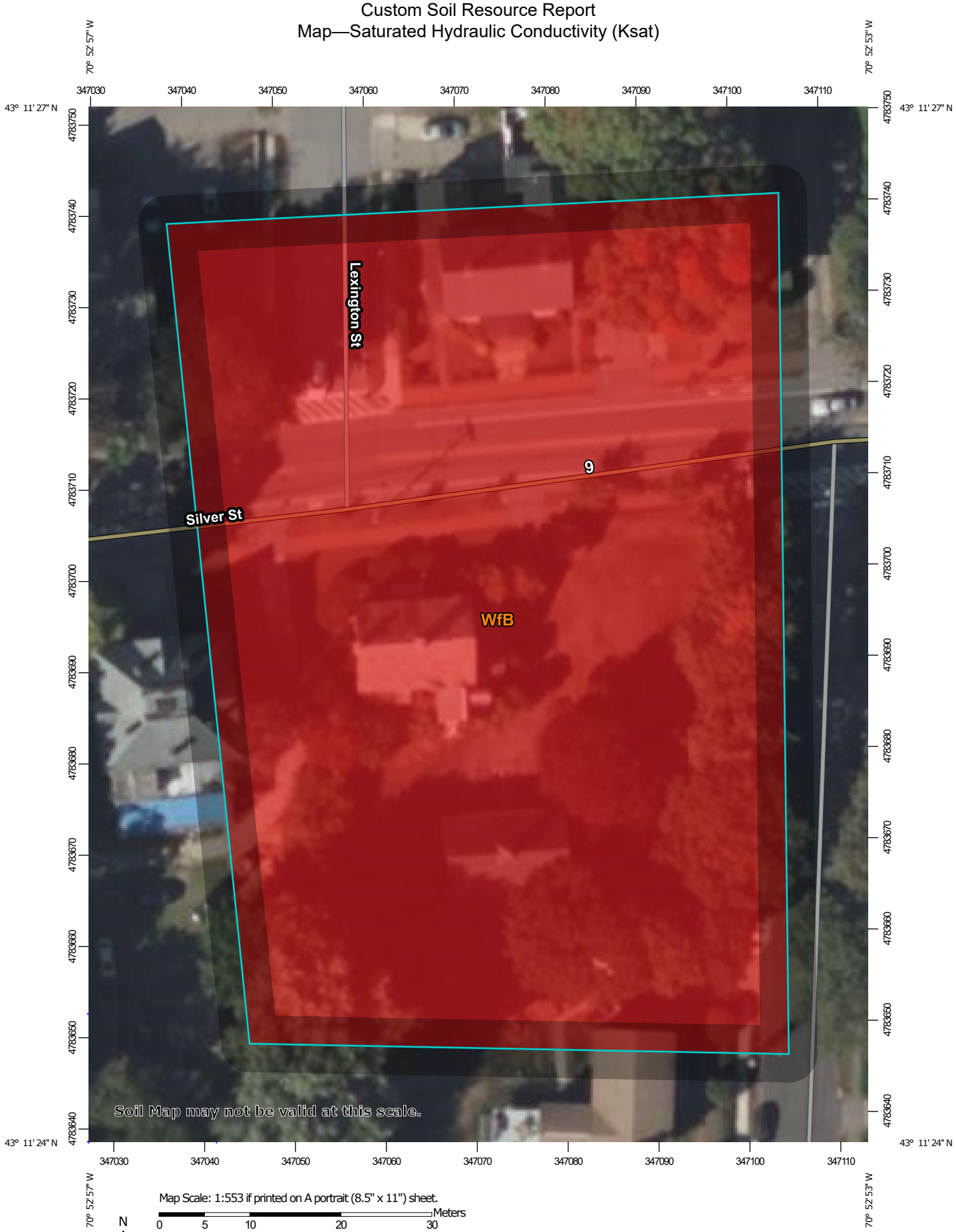
Saturated Hydraulic Conductivity (Ksat)

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

Custom Soil Resource Report
Map—Saturated Hydraulic Conductivity (Ksat)



Map Scale: 1:553 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 5 10 20 30

Feet
0 25 50 100 150

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

= 70.3862

Not rated or not available

Soil Rating Lines

= 70.3862

Not rated or not available

Soil Rating Points

= 70.3862

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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

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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)

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Survey Area Data: Version 24, Aug 22, 2023

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

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Table—Saturated Hydraulic Conductivity (Ksat)

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
WfB	Windsor loamy fine sand, clay subsoil variant, 0 to 8 percent slopes	70.3862	1.4	100.0%
Totals for Area of Interest			**1.4**	**100.0%**

Rating Options—Saturated Hydraulic Conductivity (Ksat)

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Top Depth: 0

Bottom Depth: 100

Units of Measure: Centimeters

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

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

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

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

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

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

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

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

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N

Meters
0 5 10 20 30

Feet
0 25 50 100 150

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

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US Routes

Major Roads

Local Roads

Background

Aerial Photography

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

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Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
WfB	Windsor loamy fine sand, clay subsoil variant, 0 to 8 percent slopes	A	1.4	100.0%
Totals for Area of Interest			**1.4**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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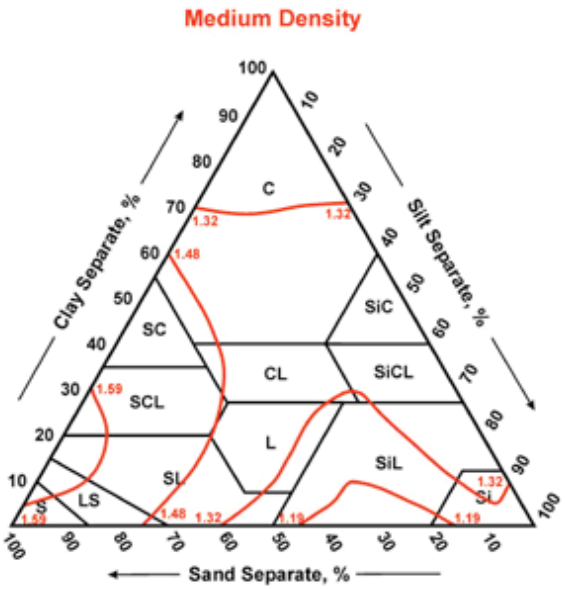
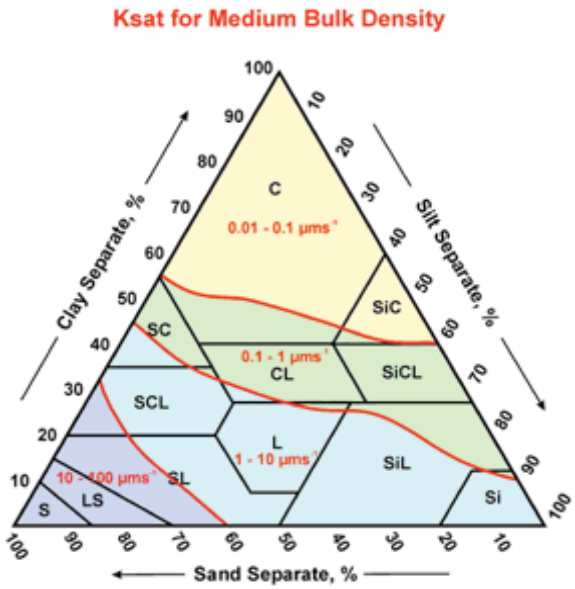
Ksat Value, SSSNNE

K_{sat} VALUES
FOR
NEW HAMPSHIRE SOILS
(Including Hydrologic and DES Soil Lot Sizing Groups)





From: **Guide for Estimating Ksat from Soil Properties** (**Exhibit 618-9**). (http://soils.usda.gov/technical/handbook/contents/part618ex.html)

Sponsored by the Society of Soil Scientists of Northern New England
SSSNNE Special Publication No. 5
September, 2009

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Suffield	536	0.6	2.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	mesic	silty over clayey	no	deep to clay C
Sunapee	168	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	
Sunapee var	269	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	frigid dystrudept
Suncook	2	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	occasionally flooded
Suncook	402	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	frequent flooding
Sunday	102	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	occasionally flooded
Sunday	202	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	frequently flooded
Surplus	669	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	cryic	loamy	yes	mwd, sandy loam in Cd
Sutton	68	0.6	6.0	0.60	6.0	B	3	Loose till, loamy textures	mesic	loamy	no	
Swanton	438	2.0	6.0	0.00	0.2	C	5	Sandy/loamy over silt/clay	frigid	co. loamy over clayey	no	
Telos	123	0.6	2.0	0.02	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Thorndike	84	0.6	2.0	0.60	2.0	C/D	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	less than 20 in. deep
Timakwa	393			6.00	100.0	D	6	Organic Materials - Freshwater	mesic	sandy or sandy-skeletal	no	organic over sand
Tunbridge	99	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Unadilla	30	0.6	2.0	2.00	20.0	B	2	Terraces and glacial lake plains	mesic	silty	no	silty over gravelly
Vassalboro	150					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Walpole	546	2.0	6.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Wareham	34	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Warwick	210	2.0	6.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	loamy-skeletal	no	loamy over slate gravel
Waskish	195					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Waumbeck	58	2.0	20.0	6.00	20.0	B	3	Loose till, sandy textures	frigid	sandy-skeletal	yes	very cobbly loamy sand
Westbrook	597			0.00	2.0	D	6	Tidal Flat	mesic	loamy	no	organic over loam
Whitman	49	0.0	0.2	0.00	0.2	D	6	Firm, platy, loamy till	mesic	loamy	no	mucky loam
Windsor	26	6.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	mesic	sandy	no	
Winnecook	88	0.6	2.0	0.60	2.0	C	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Winooski	9	0.6	6.0	0.60	6.0	B		Flood Plain (Bottom Land)	mesic	silty over loamy	no	
Winooski	103	0.6	6.0	0.60	6.0	B	3	Flood Plain (Bottom Land)	mesic	silty	no	very fine sandy loam
Wonsqueak	995			0.20	2.0	D	6	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Woodbridge	29	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	mesic	loamy	no	sandy loam in Cd
Woodstock	93	2.0	6.0	2.00	6.0	C/D	4	Loose till, bedrock	frigid	loamy	no	less than 20 in. deep

no longer recognized
organic materials

NHDES Groundwater Recharge Calculation

GROUNDWATER RECHARGE VOLULME (GRV) CALCULATION (Env-Wq 1507.04)

0.05	ac	Area of HSG A soil that was replaced by impervious cover	0.40"
	ac	Area of HSG B soil that was replaced by impervious cover	0.25"
	ac	Area of HSG C soil that was replaced by impervious cover	0.10"
	ac	Area of HSG D soil or impervious cover that was replaced by impervious cover	0.0"
0.40	inches	Rd = Weighted groundwater recharge depth	
0.0186	ac-in	GRV = AI * Rd	
68	cf	GRV conversion (ac-in x 43,560 sf/ac x 1ft/12”)	

Provide calculations below showing that the project meets the groundwater recharge requirements (Env-Wq 1507.04):

192 cf of recharge volume is provided within the Stormtech Infiltration System, below the system's outlet. See attached HydroCAD Storage Table.

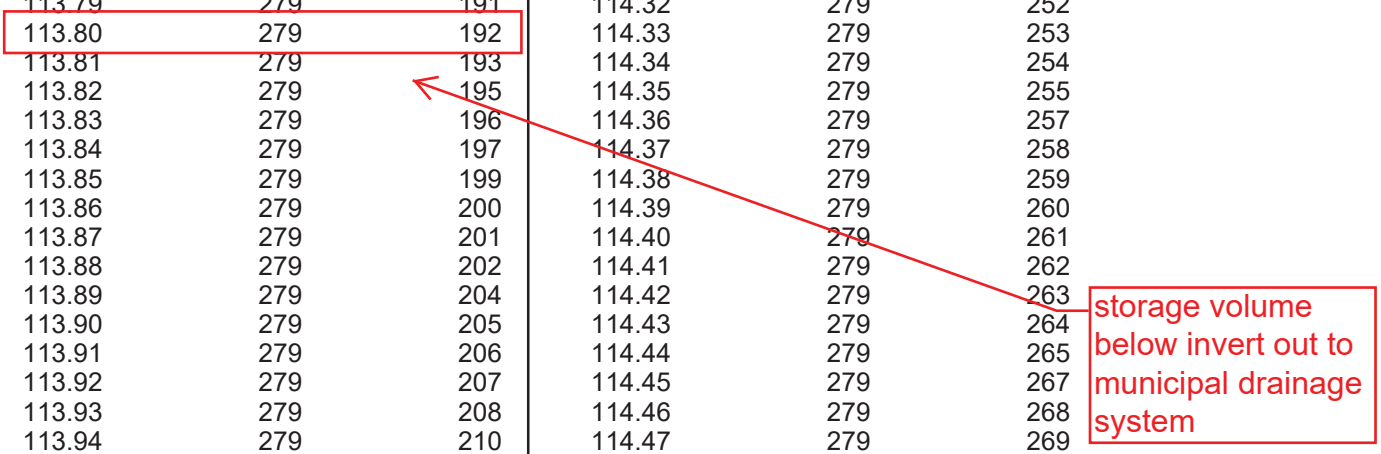
Groundwater Recharge Storage Table

Stage-Area-Storage for Pond IS1: Infiltration System

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
112.50	**279**	0	113.03	279	61
112.51	279	1	113.04	279	63
112.52	279	2	113.05	279	65
112.53	279	3	113.06	279	67
112.54	279	4	113.07	279	69
112.55	279	6	113.08	279	71
112.56	279	7	113.09	279	73
112.57	279	8	113.10	279	75
112.58	279	9	113.11	279	76
112.59	279	10	113.12	279	78
112.60	279	11	113.13	279	80
112.61	279	12	113.14	279	82
112.62	279	13	113.15	279	84
112.63	279	14	113.16	279	86
112.64	279	16	113.17	279	87
112.65	279	17	113.18	279	89
112.66	279	18	113.19	279	91
112.67	279	19	113.20	279	93
112.68	279	20	113.21	279	95
112.69	279	21	113.22	279	97
112.70	279	22	113.23	279	98
112.71	279	23	113.24	279	100
112.72	279	25	113.25	279	102
112.73	279	26	113.26	279	104
112.74	279	27	113.27	279	106
112.75	279	28	113.28	279	107
112.76	279	29	113.29	279	109
112.77	279	30	113.30	279	111
112.78	279	31	113.31	279	113
112.79	279	32	113.32	279	115
112.80	279	33	113.33	279	116
112.81	279	35	113.34	279	118
112.82	279	36	113.35	279	120
112.83	279	37	113.36	279	122
112.84	279	38	113.37	279	123
112.85	279	39	113.38	279	125
112.86	279	40	113.39	279	127
112.87	279	41	113.40	279	129
112.88	279	42	113.41	279	130
112.89	279	43	113.42	279	132
112.90	279	45	113.43	279	134
112.91	279	46	113.44	279	136
112.92	279	47	113.45	279	137
112.93	279	48	113.46	279	139
112.94	279	49	113.47	279	141
112.95	279	50	113.48	279	142
112.96	279	51	113.49	279	144
112.97	279	52	113.50	279	146
112.98	279	54	113.51	279	147
112.99	279	55	113.52	279	149
113.00	279	56	113.53	279	151
113.01	279	58	113.54	279	152
113.02	279	59	113.55	279	154

Stage-Area-Storage for Pond IS1: Infiltration System (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
113.56	279	156
113.57	279	157
113.58	279	159
113.59	279	161
113.60	279	162
113.61	279	164
113.62	279	165
113.63	279	167
113.64	279	169
113.65	279	170
113.66	279	172
113.67	279	173
113.68	279	175
113.69	279	176
113.70	279	178
113.71	279	179
113.72	279	181
113.73	279	182
113.74	279	184
113.75	279	185
113.76	279	186
113.77	279	188
113.78	279	189
113.79	279	191
113.80	279	192
113.81	279	193
113.82	279	195
113.83	279	196
113.84	279	197
113.85	279	199
113.86	279	200
113.87	279	201
113.88	279	202
113.89	279	204
113.90	279	205
113.91	279	206
113.92	279	207
113.93	279	208
113.94	279	210
113.95	279	211
113.96	279	212
113.97	279	213
113.98	279	214
113.99	279	215
114.00	279	216
114.01	279	218
114.02	279	219
114.03	279	220
114.04	279	221
114.05	279	222
114.06	279	223
114.07	279	224
114.08	279	225
114.09	279	226
114.10	279	228
114.11	279	229
114.12	279	230
114.13	279	231
114.14	279	232
114.15	279	233
114.16	279	234
114.17	279	235
114.18	279	236
114.19	279	238
114.20	279	239
114.21	279	240
114.22	279	241
114.23	279	242
114.24	279	243
114.25	279	244
114.26	279	245
114.27	279	247
114.28	279	248
114.29	279	249
114.30	279	250
114.31	279	251
114.32	279	252
114.33	279	253
114.34	279	254
114.35	279	255
114.36	279	257
114.37	279	258
114.38	279	259
114.39	279	260
114.40	279	261
114.41	279	262
114.42	279	263
114.43	279	264
114.44	279	265
114.45	279	267
114.46	279	268
114.47	279	269
114.48	279	270
114.49	279	271
114.50	279	**272**
114.51	279	272
114.52	279	272
114.53	279	272
114.54	279	272
114.55	279	272
114.56	279	272
114.57	279	272
114.58	279	272
114.59	279	272
114.60	279	272
114.61	279	272



Stage-Area-Storage for Pond IS1: Infiltration System (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
114.62	279	272
114.63	279	272
114.64	279	272
114.65	279	272
114.66	279	272
114.67	279	272
114.68	279	272
114.69	279	272
114.70	279	272
114.71	279	272
114.72	279	272
114.73	279	272
114.74	279	272
114.75	279	272
114.76	279	272
114.77	279	272
114.78	279	272
114.79	279	272
114.80	279	272

NHDES WQV & WQF Calculation

GENERAL CALCULATIONS - WQV and WQF
(optional worksheet)

This worksheet may be useful when designing a BMP **that does not fit into one of the specific worksheets already provided** (i.e. for a technology which is not a stormwater wetland, infiltration practice, etc.)

Water Quality Volume (WQV)

0.28	ac	A = Area draining to the practice
0.13	ac	A_I = Impervious area draining to the practice
0.45	decimal	I = Percent impervious area draining to the practice, in decimal form
0.46	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)
0.13	ac-in	WQV= 1" x Rv x A
466	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")

Water Quality Flow (WQF)

1	inches	P = Amount of rainfall. For WQF in NH, P = 1".
0.46	inches	Q = Water quality depth. Q = WQV/A
93	unitless	CN = Unit peak discharge curve number. CN =1000/(10+5P+10Q–10*[Q^2 + 1.25*Q*P] $^{0.5}$)
0.7	inches	S = Potential maximum retention. S = (1000/CN) - 10
0.147	inches	Ia = Initial abstraction. Ia = 0.2S
6.0	minutes	T_c = Time of Concentration
700.0	cfs/mi^2/in	q_u is the unit peak discharge. Obtain this value from TR-55 exhibits 4-II and 4-III.
0.140	cfs	WQF = q_u x WQV. Conversion: to convert "cfs/mi^2/in * ac-in" to "cfs" multiply by 1mi^2/640ac.

Designer's Notes:

Operation & Maintenance Procedure/Log Form

OPERATION AND MAINTENANCE PLAN SCHEDULE

ALLEN & MAJOR ASSOCIATES, INC.

Project: Residential Development
Project Address: 114 Silver Street, Dover, NH

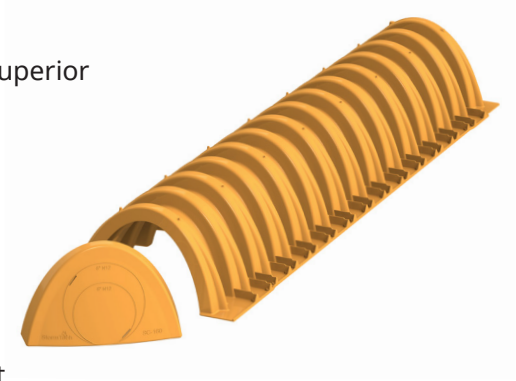
Responsible for O&M Plan: 114 Silver Street Group, LLC
Address: 10 Durham Road, Dover, NH 03820
Phone: (603) 412-6175

All information within table is derived from New Hampshire Stormwater Manual: Chapter 4, Sections 3 and 4

BMP CATEGORY	BMP OR MAINTENANCE ACTIVITY	SCHEDULE/ FREQUENCY	NOTES	INSPECTION PERFORMED	
				DATE:	BY:
PRETREATMENT PRACTICES	DEEP SUMP CATCH BASIN	May require frequent maintenance. It is recommended that catch basins be inspected at least twice annually.	Sediment should be removed when it approaches half the sump depth. If floating hydrocarbons are observed the material should be removed immediately. Damaged hoods should be replaced when noted by inspection.		
TREATMENT PRACTICES	UNDERGROUND INFILTRATION SYSTEM	Inspect at least twice annually and with any rainfall event exceeding 2.5 inches in a 24-hour period.	Removal of debris from inlet and outlet structures. Removal of accumulated sediment. Inspection and repair of outlet structures and appurtenances. If system does not drain within a 72-hour period following a rainfall event, a professional should assess the facility's condition.		
	RAIN GARDEN	Inspect at least twice annually and with any rainfall event exceeding 2.5 inches in a 24-hour period.	Annually the system should be inspected for drawdown time. Trash and debris should be removed at each inspection.		
OTHER MAINTENANCE	SNOW STORAGE	Clear and remove snow to approved storage locations as necessary to ensure systems are working properly and are protected from meltwater pollutants.	Carefully select snow disposal sites before winter. Avoid dumping removed snow over catch basins, or in detention ponds, sediment forebays, rivers, wetlands, and flood plains. It is also prohibited to dump snow in the bioretention basins or gravel swales.		
	STREET SWEEPING	Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring.	Sweep, power broom or vacuum paved areas. Submit information that confirms that all street sweepings have been completed in accordance with state and local requirements		

ADS Stormtech Technical Specifications

StormTech® SC-160LP Chamber



Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for commercial and municipal applications. StormTech chambers can also be used in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.

The SC-160LP chamber was developed for infiltration and detention in shallow cover applications

- Only 14” (350 mm) required from top of chamber to bottom of pavement
- Only 12” (300 mm) tall

Nominal Chamber Specifications
(not to scale)

Size (L x W x H)
85.4” x 25” x 12”
2170 mm x 635 mm x 305 mm

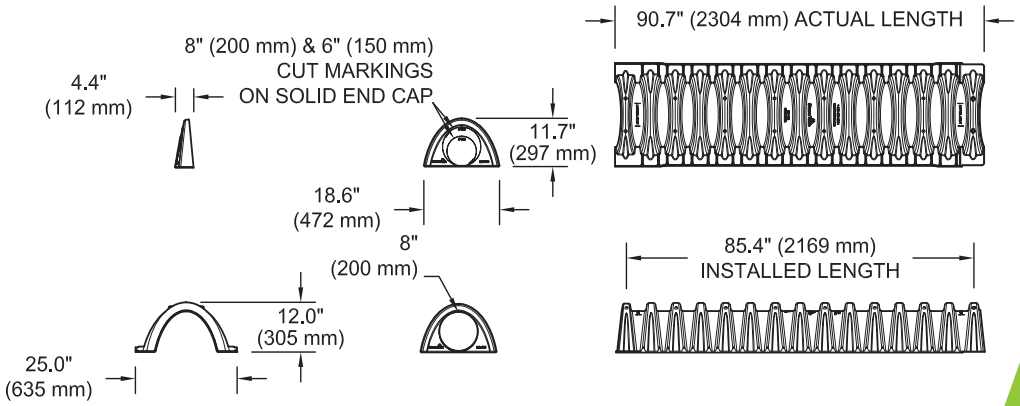
Chamber Storage
6.85 ft³ (0.19 m³)

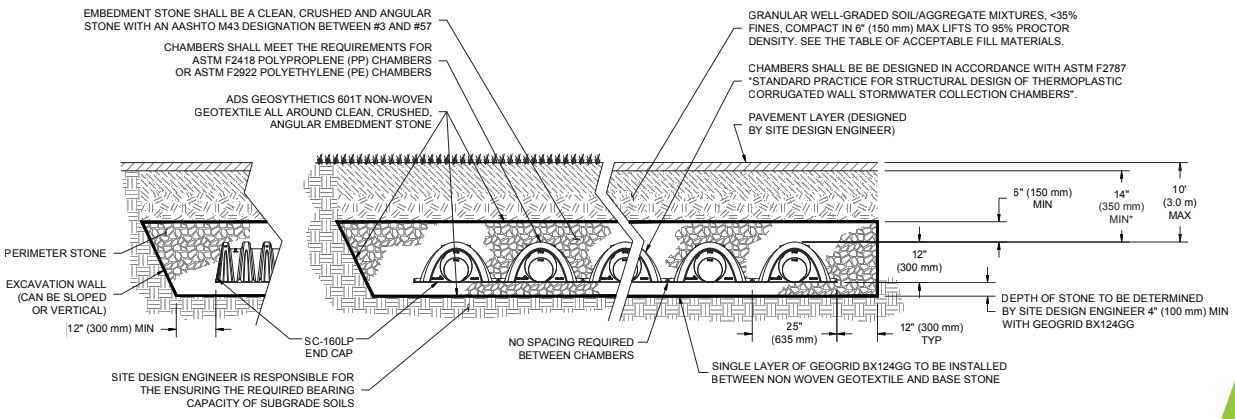
Min. Installed Storage*
15.0 ft³ (0.42 m³)

Weight
24.0 lbs (10.9 kg)

Shipping
132 chambers/pallet
144 end caps/pallet
12 pallets/truck

*Assumes 6” (150 mm) stone above, 4” (100 mm) below and stone between chambers with 40% stone porosity.





*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 20" (510 mm).

ADS StormTech™

StormTech SC-160LP Specifications

Cumulative Storage Volumes Per Chamber

Assumes 40% Stone Porosity. Calculations are Based Upon a 4" (100 mm) Stone Base Under Chambers.

Depth of Water in System Inches (mm)		Cumulative Chamber Storage ft³ (m³)	Total System Cumulative Storage ft³ (m³)
22 (559)	↑	6.85 (0.194)	14.98 (0.424)
21 (533)		6.85 (0.194)	14.49 (0.410)
20 (508)	Stone	6.85 (0.194)	14.00 (0.396)
19 (483)	Cover	6.85 (0.194)	13.50 (0.382)
18 (457)		6.85 (0.194)	13.01 (0.368)
17 (432)	↓	6.85 (0.194)	12.51 (0.354)
16 (406)		6.85 (0.194)	12.02 (0.340)
15 (381)		6.80 (0.193)	11.49 (0.325)
14 (356)		6.67 (0.189)	10.92 (0.309)
13 (330)		6.38 (0.181)	10.25 (0.290)
12 (305)		5.94 (0.168)	9.49 (0.269)
11 (279)		5.40 (0.153)	8.67 (0.246)
10 (254)		4.78 (0.135)	7.81 (0.221)
9 (229)		4.10 (0.116)	6.91 (0.196)
8 (203)		3.36 (0.095)	5.97 (0.169)
7 (178)		2.58 (0.073)	5.01 (0.142)
6 (152)		1.76 (0.050)	4.02 (0.114)
5 (127)		0.89 (0.025)	3.01 (0.085)
4 (102)	↑	0 (0)	1.98 (0.056)
3 (76)	Stone	0 (0)	1.48 (0.042)
2 (51)	Foundation	0 (0)	0.99 (0.028)
1 (25)	↓	0 (0)	0.49 (0.014)

Note: Add 0.49 ft³ (0.014 m³) of storage for each additional inch (25 mm) of stone foundation.

Amount of Stone Per Chamber

English Tons (yds³)	Stone Foundation Depth		
	4"	6"	8"
SC-160LP	1.1 (0.8)	1.2 (0.9)	1.3 (0.9)
Metric Kilograms (m³)	**100 mm**	**150 mm**	**200 mm**
SC-160LP	652 (0.7)	1074 (0.8)	1197 (0.8)

Note: Assumes 6" (150 mm) of stone above and only embedment stone between chambers.

Volume Excavation Per Chamber yd³ (m³)

	Stone Foundation Depth		
	4 (100)	8 (200)	12 (300)
SC-160LP	1.4 (1.1)	1.6 (1.2)	1.8 (1.3)

Note: Assumes no row separation and 14" (350 mm) of cover. The volume of excavation will vary as depth of cover increases.

ADS StormTech products, manufactured in accordance with ASTM F2418 or ASTMF2922, comply with all requirements in the Build America, Buy America (BABA) Act.

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Visit us at adspipe.com/stormtech and utilize the Design Tool

ADS StormTech™

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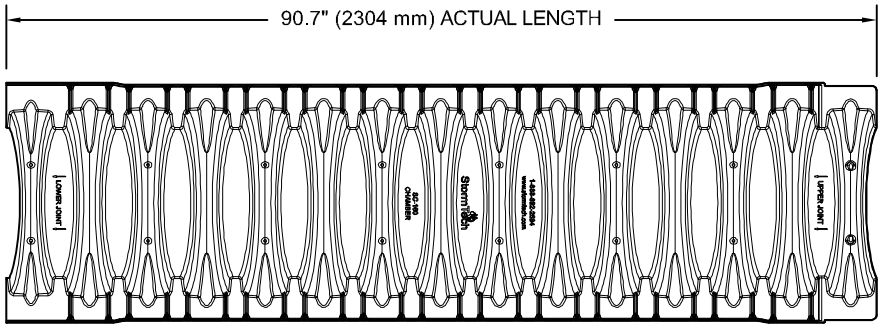
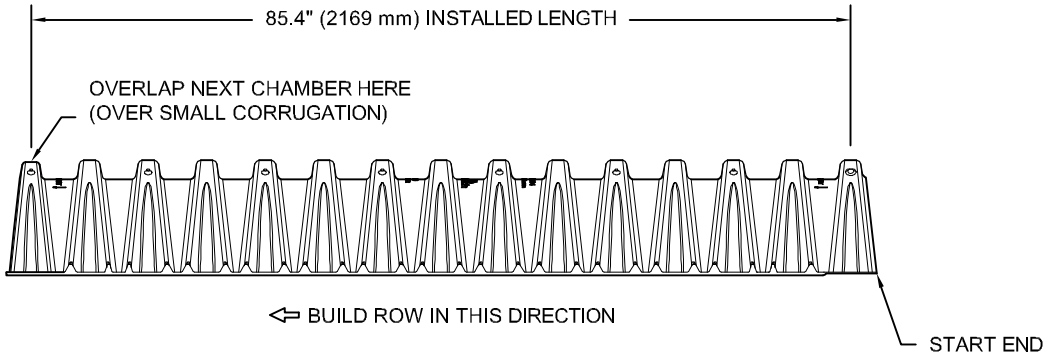
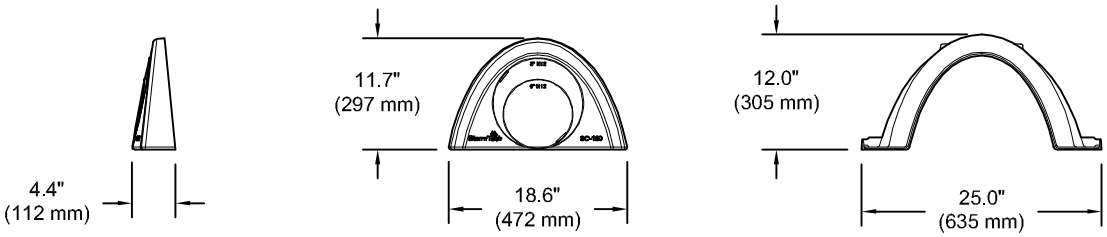
SC-160LP TECHNICAL SPECIFICATION

NTS





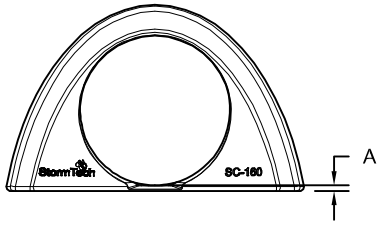


NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	25.0" X 12.0" X 85.4"	(635 mm X 305 mm X 2169 mm)
CHAMBER STORAGE	6.85 CUBIC FEET	(0.19 m³)
MINIMUM INSTALLED STORAGE*	16.0 CUBIC FEET	(0.45 m³)
WEIGHT	24.0 lbs.	(10.9 kg)

*ASSUMES 6" (152 mm) ABOVE, 6" (152 mm) BELOW, AND STONE BETWEEN CHAMBERS WITH 40% STONE POROSITY.

PART #	STUB	A
SC160IEPP	6" (150 mm)	0.66" (16 mm)
	8" (200 mm)	0.80" (20 mm)
SC160IEPP08	8" (200 mm)	0.96" (24 mm)



ALL STUBS 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.

NOTE: ALL DIMENSIONS ARE NOMINAL

Isolator® Row Plus
O&M Manual

ADS StormTech™

The Isolator® Row Plus

Introduction

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row Plus is a technique to inexpensively enhance Total Suspended Solids (TSS) and Total Phosphorus (TP) removal with easy access for inspection and maintenance.

The Isolator Row Plus

The Isolator Row Plus is a row of StormTech chambers, either SC-160, SC-310, SC-310-3, SC-740, DC-780, MC-3500 or MC-7200 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for sediment settling and filtration as stormwater rises in the Isolator Row Plus and passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC- 310-3 and SC-740 models) allow stormwater to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row Plus protecting the adjacent stone and chambers storage areas from sediment accumulation.

ADS geotextile fabric is placed between the stone and the Isolator Row Plus chambers. The woven geotextile provides a media for stormwater filtration, a durable surface for maintenance, prevents scour of the underlying stone and remains intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the chamber's sidewall. The non-woven fabric is not required over the SC-160, DC-780, MC-3500 or MC-7200 models as these chambers do not have perforated side walls.

The Isolator Row Plus is designed to capture the "first flush" runoff and offers the versatility to be sized on a volume basis or a flow-rate basis. An upstream manhole provides access to the Isolator Row Plus and includes a high/low concept such that stormwater flow rates or volumes that exceed the capacity of the Isolator Row Plus bypass through a manifold to the other chambers. This is achieved with an elevated bypass manifold or a high-flow weir. This creates a differential between the Isolator Row Plus row of chambers and the manifold to the rest of the system, thus allowing for settlement time in the Isolator Row Plus. After Stormwater flows through the Isolator Row Plus and into the rest of the chamber system it is either exfiltrated into the soils below or passed at a controlled rate through an outlet manifold and outlet control structure.

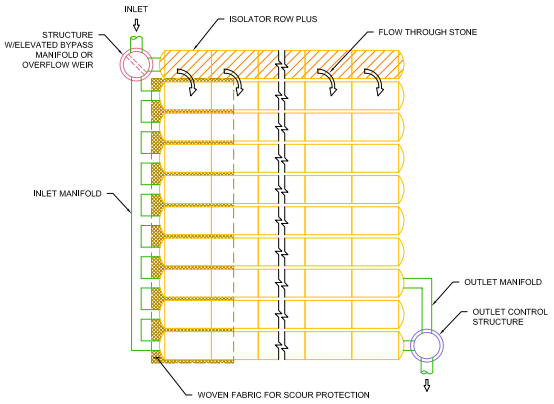
The Isolator Row FLAMP™ (patent pending) is a flared end ramp apparatus attached to the inlet pipe on the inside of the chamber end cap. The FLAMP provides a smooth transition from pipe invert to fabric bottom. It is configured to improve chamber function performance by enhancing outflow of solid debris that would otherwise collect at the chamber's end. It also serves to improve the fluid and solid flow into the access pipe during maintenance and cleaning and to guide cleaning and inspection equipment back into the inlet pipe when complete.

The Isolator Row Plus may be part of a treatment train system. The treatment train design and pretreatment device selection by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, StormTech recommend using the Isolator Row Plus to minimize maintenance requirements and maintenance costs.

Note: *See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row Plus.*

Looking down the Isolator Row PLUS from the manhole opening, ADS PLUS Fabric is shown between the chamber and stone base.

StormTech Isolator Row PLUS with Overflow Spillway (not to scale)



Isolator Row Plus Inspection/Maintenance

Inspection

The frequency of inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row Plus should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

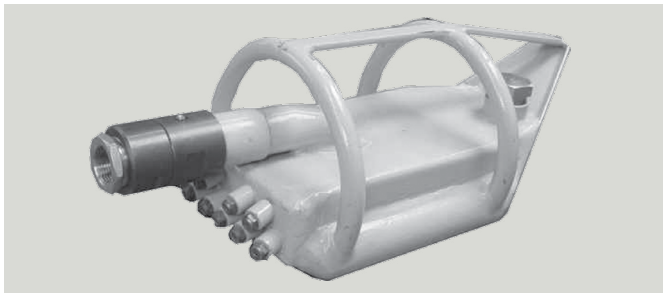
The Isolator Row Plus incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row Plus, clean-out should be performed.

Maintenance

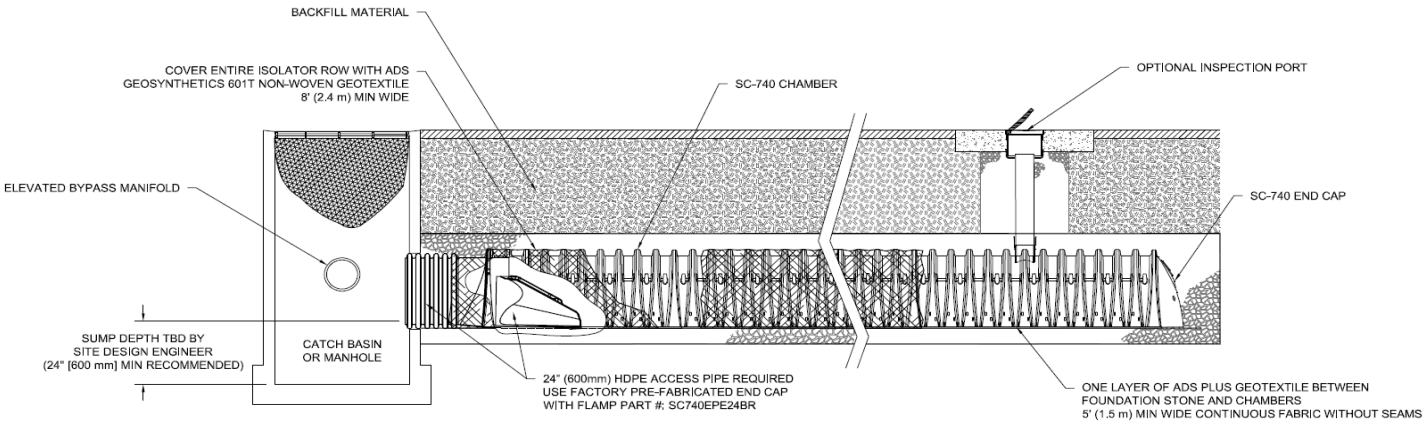
The Isolator Row Plus was designed to reduce the cost of periodic maintenance. By "isolating" sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row Plus while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" are best. StormTech recommends a maximum nozzle pressure of 2000 psi be utilized during cleaning. JetVac reels can vary in length. For ease of maintenance, ADS recommends Isolator Row Plus lengths up to 200' (61 m). **The JetVac process shall only be performed on StormTech Isolator Row Plus that have ADS Plus Fabric (as specified by StormTech) over their angular base stone.**



StormTech Isolator Row PLUS (*not to scale*)

Note: *Non-woven fabric is only required over the inlet pipe connection into the end cap for SC-160LP, DC-780, MC-3500 and MC-7200 chamber models and is not required over the entire Isolator Row PLUS.*



Isolator Row Plus Step By Step Maintenance Procedures

Step 1

Inspect Isolator Row Plus for sediment.

A) Inspection ports (if present)
- i. Remove lid from floor box frame
- ii. Remove cap from inspection riser
- iii. Using a flashlight and stadia rod,measure depth of sediment and record results on maintenance log.
- iv. If sediment is at or above 3 inch depth, proceed to Step 2. If not, proceed to Step 3.

B) All Isolator Row Plus
- i. Remove cover from manhole at upstream end of Isolator Row Plus
- ii. Using a flashlight, inspect down Isolator Row Plus through outlet pipe
  1. Mirrors on poles or cameras may be used to avoid a confined space entry
  2. Follow OSHA regulations for confined space entry if entering manhole
- iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches), proceed to Step 2.
  If not, proceed to Step 3.

Step 2

Clean out Isolator Row Plus using the JetVac process.

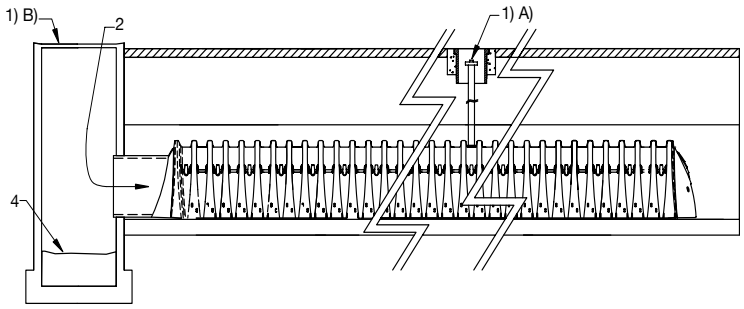
A) A fixed floor cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
B) Apply multiple passes of JetVac until backflush water is clean
C) Vacuum manhole sump as required

Step 3

Replace all caps, lids and covers, record observations and actions.

Step 4

Inspect & clean catch basins and manholes upstream of the StormTech system.



Sample Maintenance Log

Date	Stadia Rod Readings		Sedi-ment Depth (1)–(2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/11	6.3 ft	none		New installation. Fixed point is CI frame at grade	DJM
9/24/11		6.2	0.1 ft	Some grit felt	SM
6/20/13		5.8	0.5 ft	Mucky feel, debris visible in manhole and in Isolator Row PLUS, maintenance due	NV
7/7/13	6.3 ft		0	System jetted and vacuumed	DJM

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ADS StormTech® Installation Guide

SC-160LP

StormTech
Installation Video

Required Materials and Equipment List

- Acceptable fill materials per Table 1
- ADS Plus and non-woven geotextile fabrics
- StormTech solid end caps and pre-cored end caps
- StormTech chambers
- StormTech manifolds and fittings

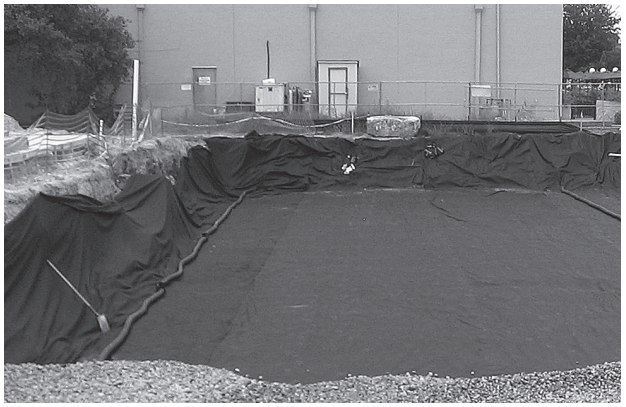
Important Notes:

A. This installation guide provides the minimum requirements for proper installation of chambers. Non-adherence to this guide may result in damage to chambers during installation. Replacement of damaged chambers during or after backfilling is costly and very time consuming. It is recommended that all installers are familiar with this guide, and that the contractor inspects the chambers for distortion, damage and joint integrity as work progresses.

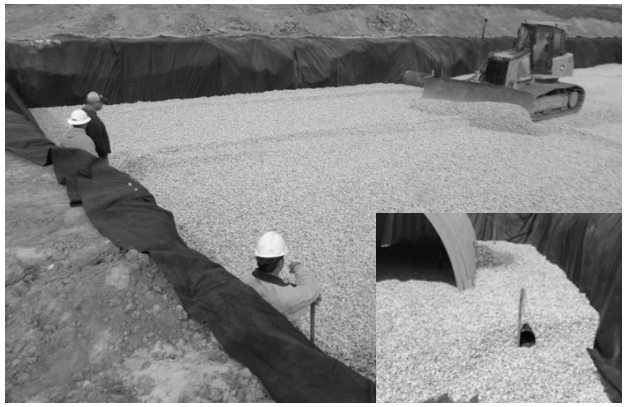
B. Care should be taken in the handling of chambers and end caps. Avoid dropping, prying or excessive force on chambers during removal from pallet and initial placement.

Requirements for System Installation

Excavate bed and prepare subgrade per engineer's plans.

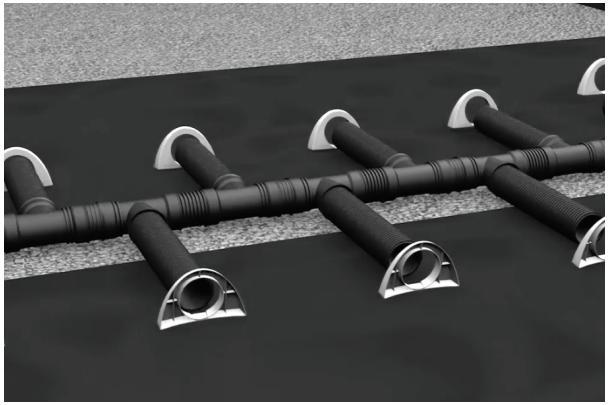


Place non-woven geotextile over prepared soils and up excavation walls. Install underdrains if required.



Place clean, crushed, angular stone foundation 6" (150 mm) or 4" (100 mm) with a single layer of Geogrid BX124GG. See plans for foundation stone design.Compact to achieve a flat surface.

Manifold, Scour Fabric and Chamber Assembly



Install manifolds and lay out ADS Plus fabric at inlet rows [min. 12.5 ft (3.8 m)] at each inlet end cap. Place a continuous piece (no seams, single layer) along entire length of Isolator® Plus Row(s).

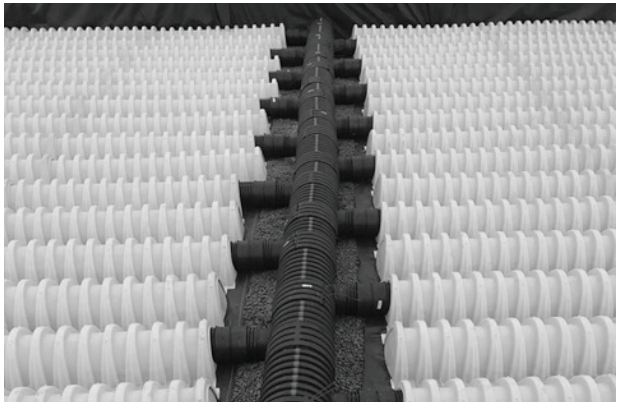
Align the first chamber and end cap of each row with inlet pipes. Contractor may choose to postpone stone placement around end chambers and leave ends of rows open for easy inspection of chambers during the backfill process.

Continue installing chambers by overlapping chamber end corrugations. Chamber joints are labeled “Lower Joint – Overlap Here” and “Build this direction – Upper Joint” Be sure that the chamber placement does not exceed the reach of the construction equipment used to place the stone. No spacing is required between chambers.

Attaching the End Caps

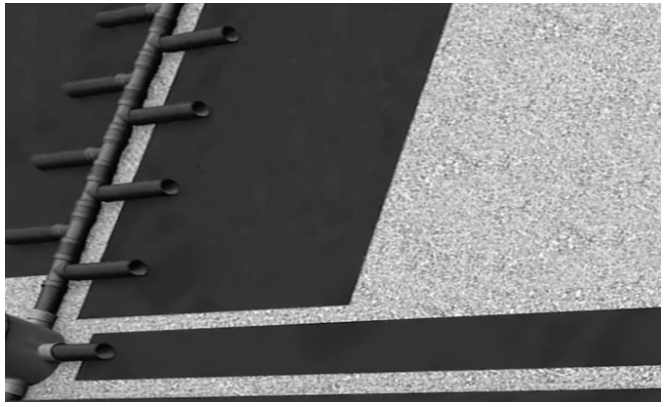
Lift the end of the chamber a few inches off the ground. With the curved face of the end cap facing outward, place the end cap into the chamber’s end corrugation.

Prefabricated End Caps



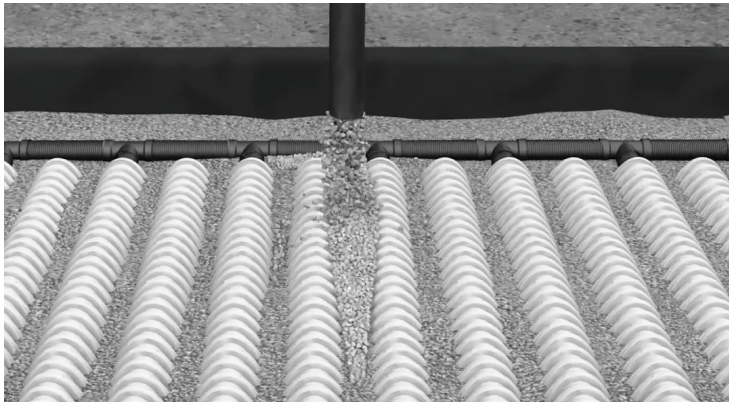
SC-160LP end caps can accept 8” (200mm) or 6” (150mm) manifold inlets. End caps can be ordered as an 8” (200mm) open hole or can be cored in the field.

Isolator Row Plus

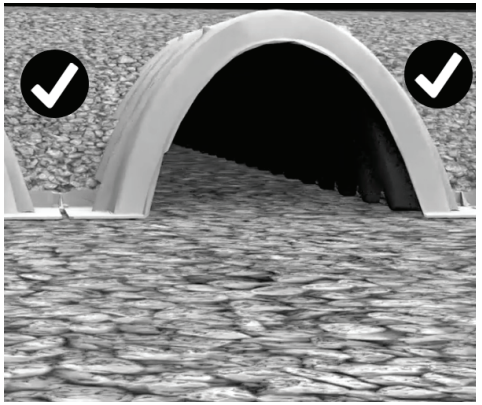


Place one continuous layers of ADS Plus fabric between the foundation stone and the Isolator Row Plus chambers, making sure the fabric lays flat and extends the entire width of the chamber feet.

Initial Anchoring of Chambers – Embedment Stone

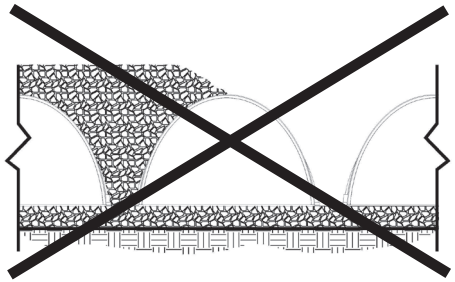


Initial embedment shall be spotted along the centerline of the chamber evenly anchoring the lower portion of the chamber. This is best accomplished with a stone conveyor or excavator reaching along the row.

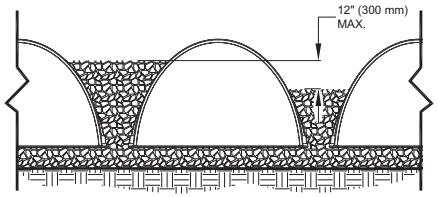


Care should be taken when backfilling not to damage the chambers. Please refer to the allowable construction vehicle loads on page 6.

Backfill of Chambers – Embedment Stone

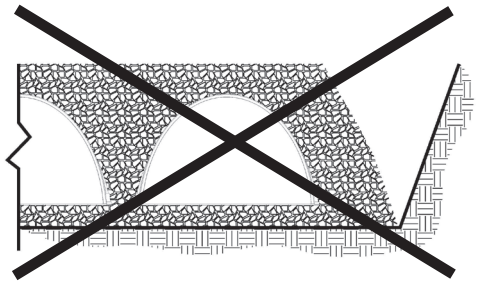


Uneven Backfill

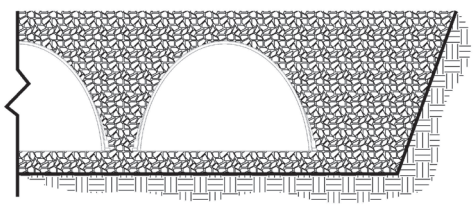


Even Backfill

Backfill chambers evenly. Stone column height should never differ by more than 12” (300 mm) between adjacent chamber rows or between chamber rows and perimeter.



Perimeter Not Backfilled



Perimeter Fully Backfilled

Perimeter stone must be brought up evenly with chamber rows. Perimeter must be fully backfilled, with stone extended horizontally to the excavation wall.

Backfill - Embedment Stone & Cover Stone

Continue evenly backfilling between rows and around perimeter until embedment stone reaches tops of chambers. Perimeter stone must extend horizontally to the excavation wall for both straight or sloped sidewalls.

Final Backfill of Chambers – Fill Material

Small dozers and skid loaders may be used to finish grading stone backfill in accordance with ground pressure limits in Table 2. They must push material parallel to rows only. Never push perpendicular to rows. StormTech recommends that the contractor inspect chambers before placing final backfill. Any chambers damaged by construction shall be removed and replaced.

Final Backfill of Chambers – Fill Material

Install non-woven geotextile over stone. Geotextile must overlap 24” (600 mm) min. where edges meet. Compact each lift of backfill as specified in the site design engineer’s drawings. Roller to travel parallel with rows.

StormTech Isolator Row Plus Detail

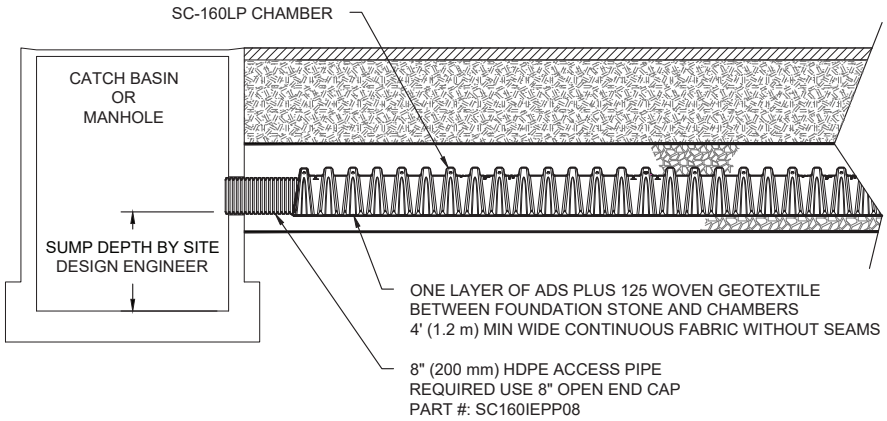


Table 1- Acceptable Fill Materials

Material Location	Description	AASHTO M43 Designation[1]	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 the pavement subbase may be part of the 'D' layer.	Any soil/rock materials, native soils or per engineer's plans. Check plans for pavement subgrade requirements.	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 part of the 'C' layer.	Granular well-graded soil/aggregate mixtures, <35% fines or processed aggregate. Most pavement subbase materials can be used in lieu of this layer.	AASHTO M45 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 compaction after min. 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:** Embedment Stone surrounding chambers from the foundation stone to the 'C' layer above.	Clean, crushed, angular stone	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	No compaction required.
(A) **Foundation Stone:** Foundation Stone below the chambers from the subgrade up to the foot (bottom) of the chamber.	Clean, crushed, angular stone,	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	Place and compact in 6" (150 mm) lifts using two full coverages with a vibratory compactor.[2, 3]

Please Note:

1. 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".
2. 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.
3. Where infiltration surfaces may be comprised by compaction, for standard installations and 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.

Figure 1- Inspection Port Detail

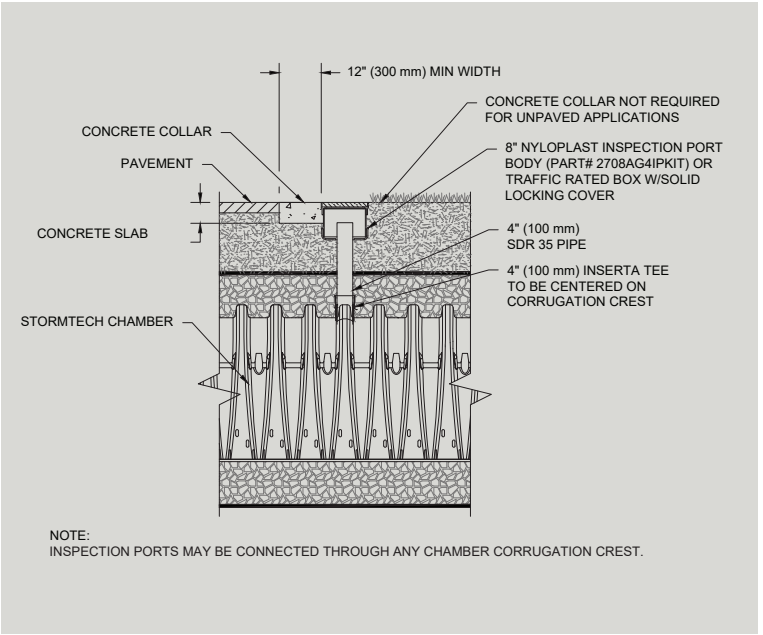
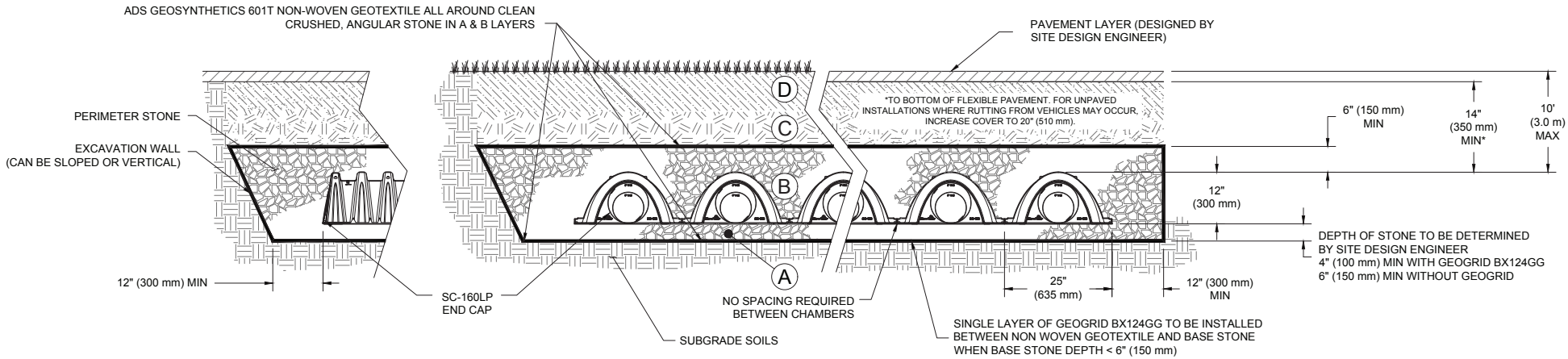


Figure 2 - Fill Material Locations



Notes:

1. 36” (900 mm) of stabilized cover materials over the chambers is recommended during the construction phase if general construction activities, such as full dump truck travel and dumping, are to occur over the bed.
2. During paving operations, dump truck axle loads on 14” (350 mm) of cover may be necessary. Precautions should be taken to avoid rutting of the road base layer, to ensure that compaction requirements have been met, and that a minimum of 14” (350 mm) of cover exists over the chambers. Contact StormTech for additional guidance on allowable axle loads during paving.
3. Ground pressure for track dozers is the vehicle operating weight divided by total ground contact area for both tracks. Excavators will exert higher ground pressures based on loaded bucket weight and boom extension.
4. Mini-excavators (< 8,000lbs/3,628 kg) can be used with at least 12” (300 mm) of stone over the chambers and are limited by the maximum ground pressures in Table 2 based on a full bucket at maximum boom extension.
5. Storage of materials such as construction materials, equipment, spoils, etc. should not be located over the StormTech system. The use of equipment over the StormTech system not covered in Table 2 (ex. soil mixing equipment, cranes, etc) is limited. Please contact StormTech for more information.
6. Allowable track loads based on vehicle travel only. Excavators shall not operate on chamber beds until the total backfill reaches 3 feet (900 mm) over the entire bed.

Table 2 - Maximum Allowable Construction Vehicle Loads[6]

Material Location	Fill Depth over Chambers in. (mm)	Maximum Allowable Wheel Loads		Maximum Allowable Track Loads[6]		Maximum Allowable Roller Loads
		Max Axle Load for Trucks lbs (kN)	Max Wheel Load for Loaders lbs (kN)	Track Width in. (mm)	Max Ground Pressure psf (kPa)	Max Drum Weight or Dynamic Force lbs (kN)
Ⓓ Final Fill Material	36” (900) Compacted	32,000 (142)	16,000 (71)	12” (305) 18” (457) 24” (610) 30” (762) 36” (914)	3880 (186) 2640 (126) 2040 (97) 1690 (81) 1470 (70)	38,000 (169)
Ⓒ Initial Fill Material	24” (600) Compacted	32,000 (142)	16,000 (71)	12” (305) 18” (457) 24” (610) 30” (762) 36” (914)	2690 (128) 1880 (90) 1490 (71) 1280 (61) 1150 (55)	20,000 (89)
	24” (600) Loose/ Dumped	32,000 (142)	16,000 (71)	12” (305) 18” (457) 24” (610) 30” (762) 36” (914)	2390 (114) 1700 (81) 1370 (65) 1190 (57) 1080 (51)	20,000 (89) Roller gross vehicle weight not toexceed 12,000 lbs. (53 kN)
	18” (450)	32,000 (142)	16,000 (71)	12” (305) 18” (457) 24” (610) 30” (762) 36” (914)	2110 (101) 1510 (72) 1250 (59) 1100 (52) 1020 (48)	20,000 (89) Roller gross vehicle weight not to exceed 12,000 lbs. (53 kN)
Ⓑ Embedment Stone	12” (300)	16,000 (71)	NOT ALLOWED	12” (305) 18” (457) 24” (610) 30” (762) 36” (914)	1540 (74) 1190 (57) 1010 (48) 910 (43) 840 (40)	20,000 (89) Roller gross vehicle weight not to exceed 12,000 lbs. (53 kN)
	6” (150)	8,000 (35)	NOT ALLOWED	12” (305) 18” (457) 24” (610) 30” (762) 36” (914)	1070 (51) 900 (43) 800 (38) 760 (36) 720 (34)	NOT ALLOWED

Table 3 - Placement Methods and Descriptions

Material Location	Placement Methods/ Restrictions	Wheel Load Restrictions	Track Load Restrictions	Roller Load Restrictions
		See Table 2 for Maximum Construction Loads		
Ⓓ Final Fill Material	A variety of placement methods may be used. All construction loads must not exceed the maximum limits in Table 2.	36” (900 mm) minimum cover required for dump trucks to dump over chambers.	Dozers to push parallel to rows until 36” (900mm) compaced cover is reached.[4]	Roller travel parallel to rows only until 36” (900 mm) compacted cover is reached.
Ⓒ Initial Fill Material	Excavator positioned off bed recommended. Small excavator allowed over chambers. Small dozer allowed.	Asphalt can be dumped into paver when compacted pavement subbase reaches 18” (450 mm) above top of chambers.	Small LGP track dozers & skid loaders allowed to grade cover stone with at least 6” (150 mm) stone under tracks at all times. Equipment must push parallel to rows at all times.	Use dynamic force of roller only after compacted fill depth reaches 12” (300 mm) over chambers. Roller travel parallel to chamber rows only.
Ⓑ Embedment Stone	No equipment allowed on bare chambers. Use excavator or stone conveyor positioned off bed or on foundation stone to evenly fill around all chambers to at least the top of chambers.	No wheel loads allowed. Material must be placed outside the limits of the chamber bed.	No tracked equipment is allowed on chambers until a min. 6” (150 mm) cover stone is in place.	No rollers allowed.
Ⓐ Foundation Stone	No StormTech restrictions. Contractor responsible for any conditions or requirements by others relative to subgrade bearing capacity, dewatering or protection of subgrade.			

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StormTech® Standard Limited Warranty

STANDARD LIMITED WARRANTY OF STORMTECH LLC ("STORMTECH"): PRODUCTS

(A) This Limited Warranty applies solely to the StormTech chambers and end plates manufactured by StormTech and sold to the original purchaser (the "Purchaser"). The chambers and end plates are collectively referred to as the "Products."

(B) The structural integrity of the Products, when installed strictly in accordance with StormTech's written installation instructions at the time of installation, are warranted to the Purchaser against defective materials and workmanship for one (1) year from the date of purchase. Should a defect appear in the Limited Warranty period, the Purchaser shall provide StormTech with written notice of the alleged defect at StormTech's corporate headquarters within ten (10) days of the discovery of the defect. The notice shall describe the alleged defect in reasonable detail. StormTech agrees to supply replacements for those Products determined by StormTech to be defective and covered by this Limited Warranty. The supply of replacement products is the sole remedy of the Purchaser for breaches of this Limited Warranty. StormTech's liability specifically excludes the cost of removal and/or installation of the Products.

(C) THIS LIMITED WARRANTY IS EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE PRODUCTS, INCLUDING NO IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.

(D) This Limited Warranty only applies to the Products when the Products are installed in a single layer. UNDER NO CIRCUMSTANCES, SHALL THE PRODUCTS BE INSTALLED IN A MULTI-LAYER CONFIGURATION.

(E) No representative of StormTech has the authority to change this Limited Warranty in any manner or to extend this Limited Warranty. This Limited Warranty does not apply to any person other than to the Purchaser.

(F) Under no circumstances shall StormTech be liable to the Purchaser or to any third party for product liability claims; claims arising from the design, shipment, or installation of the Products, or the cost of other goods or services related to the purchase and installation of the Products. For this Limited Warranty to apply, the Products must be installed in accordance with all site conditions required by state and local codes; all other applicable laws; and StormTech's written installation instructions.

(G) THE LIMITED WARRANTY DOES NOT EXTEND TO INCIDENTAL, CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES. STORMTECH SHALL NOT BE LIABLE FOR PENALTIES OR LIQUIDATED DAMAGES, INCLUDING LOSS OF PRODUCTION AND PROFITS; LABOR AND MATERIALS; OVERHEAD COSTS; OR OTHER LOSS OR EXPENSE INCURRED BY THE PURCHASER OR ANY THIRD PARTY. SPECIFICALLY EXCLUDED FROM LIMITED WARRANTY COVERAGE ARE DAMAGE TO THE PRODUCTS ARISING FROM ORDINARY WEAR AND TEAR; ALTERATION, ACCIDENT, MISUSE, ABUSE OR NEGLECT; THE PRODUCTS BEING SUBJECTED TO VEHICLE TRAFFIC OR OTHER CONDITIONS WHICH ARE NOT PERMITTED BY STORMTECH'S WRITTEN SPECIFICATIONS OR INSTALLATION INSTRUCTIONS; FAILURE TO MAINTAIN THE MINIMUM GROUND COVERS SET FORTH IN THE INSTALLATION INSTRUCTIONS; THE PLACEMENT OF IMPROPER MATERIALS INTO THE PRODUCTS; FAILURE OF THE PRODUCTS DUE TO IMPROPER SITING OR IMPROPER SIZING; OR ANY OTHER EVENT NOT CAUSED BY STORMTECH. A PRODUCT ALSO IS EXCLUDED FROM LIMITED WARRANTY COVERAGE IF SUCH PRODUCT IS USED IN A PROJECT OR SYSTEM IN WHICH ANY GEOTEXTILE PRODUCTS OTHER THAN THOSE PROVIDED BY ADVANCED DRAINAGE SYSTEMS ARE USED. THIS LIMITED WARRANTY REPRESENTS STORMTECH'S SOLE LIABILITY TO THE PURCHASER FOR CLAIMS RELATED TO THE PRODUCTS, WHETHER THE CLAIM IS BASED UPON CONTRACT, TORT, OR OTHER LEGAL THEORY.

ADS StormTech™

adspipe.com
800-821-6710

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ADS 0601T/O NONWOVEN GEOTEXTILE SPECIFICATION

Scope

This specification describes ADS 0601T/O nonwoven geotextile.

Filter Fabric Requirements

ADS 0601T/O is an orange nonwoven geotextile composed of polypropylene fibers, which are formed into a stable network such that the fibers retain their relative position. ADS 0601T/O is inert to biological degradation and resists naturally encountered chemicals, alkali and acids. ADS 0601T/O conforms to the physical property values listed below:

Filter Fabric Properties

Property	Test Method	Unit	Typical Value[1] MD	Typical Value[1] CD
Grab Tensile Strength	ASTM D4632	lbs (N)	175 (779)	175 (779)
Grab Tensile Elongation	ASTM D4632	%	75	75
Trapezoid Tear Strength	ASTM D4533	lbs (N)	85 (378)	85 (378)
CBR Puncture Strength	ASTM D6241	lbs (N)	480 (2136)	480 (2136)
Permittivity	ASTM D4491	sec^{-1}	1.5	1.5
Flow Rate	ASTM D4491	$gal/min/ft^2$ ($l/min/m^2$)	105 (4278)	105 (4278)
UV Resistance (at 500 hours)[1]	ASTM D4355	% strength retained	80	80

Physical Properties

Property	Test Method	Unit	Typical Value[2]
Weight	ASTM D5161	oz/yd^2 (g/m^2)	6.5 (220)
Thickness	ASTM D5199	mils (mm)	65 (1.7)
Roll Dimensions (W x L)	-	ft (m)	15 x 300 (4.5 x 91)
Roll Area	-	yd^2 (m^2)	500 (418)
Estimated Roll Weight	-	lb (kg)	220 (100)

1 Modified, Minimum Test Value
2 ASTM D4439 Standard Terminology for Geosynthetics: typical value, n-*for geosynthetics*, the mean value calculated from documented manufacturing quality control test results for a defined population obtained from one test method associated with on specific property.

ADS "Terms and Conditions of Sale" can be found on the ADS website, adspipe.com.
The ADS logo is a registered trademark of Advanced Drainage Systems, Inc. #0601T/O 10/22 MH

Separation

ADS 315W WOVEN GEOTEXTILE SPECIFICATION

Scope

This specification describes ADS 315W woven geotextile.

Filter Fabric Requirements

ADS 315W is manufactured using high-tenacity polypropylene yarns that are woven to form a dimensionally stable network, which allows the yarns to maintain their relative position. ADS 315W resists ultraviolet deterioration, rotting and biological degradation and is inert to commonly encountered soil chemicals. ADS 315W conforms to the physical property values listed below:

Filter Fabric Properties

Property	Test Method	Unit	M.A.R.V. (Minimum Average Roll Value)[2]
Tensile Strength (Grab)	ASTM D4632	lbs (N)	315 (1400)
Elongation	ASTM D4632	%	15
CBR Puncture	ASTM D6241	lbs (N)	900 (4005)
Puncture	ASTM D4833	lbs (N)	150 (667)
Mullen Burst	ASTM D3786	psi (kPa)	600 (4134)
Trapezoidal Tear	ASTM D4533	lbs (N)	120 (533)
UV Resistance (at 500 hours)	ASTM D4355	%	70
Apparent Opening Size (AOS)*	ASTM D4751	U.S. Sieve (mm)	40 (.425)
Permittivity	ASTM D4491	sec^{-1}	.05
Water Flow Rate	ASTM D4491	gpm/ft^2 ($l/min/m^2$)	4 (163)

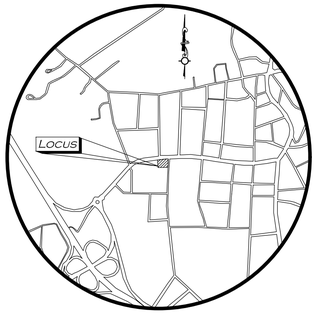
* Maximum average roll value.

Packaging

Roll Dimensions (W x L) - ft. (m)	12.5 x 360/ 15 x 300 / 17.5 x 258 (3.81 x 109.8/ 4.57 x 91.5 / 5.33 x 78.6)

ADS "Terms and Conditions of Sale" can be found on the ADS website, adspipe.com.
The ADS logo is a registered trademark of Advanced Drainage Systems, Inc. #315W 10/22 MH

SITE DEVELOPMENT PLANS FOR
114 SILVER STREET
(MAP 12, LOT 148)
DOVER, NEW HAMPSHIRE 03820



LOCUS MAP
NOT TO SCALE

LIST OF DRAWINGS			
DRAWING TITLE	SHEET NO.	ISSUED	REV
EXISTING CONDITIONS	1	06/20/24	-
SITE PREPARATION PLAN	C-101	06/20/24	-
LAYOUT & MATERIALS PLAN	C-102	06/20/24	-
GRADING & DRAINAGE PLAN	C-103	06/20/24	-
UTILITIES PLAN	C-104	06/20/24	-
DETAILS	C-501	06/20/24	-
DETAILS	C-502	06/20/24	-
DETAILS	C-503	06/20/24	-
LANDSCAPE PLAN	L-101	06/20/24	-
LANDSCAPE NOTES	L-102	06/20/24	-
LANDSCAPE NOTES & DETAILS	L-501	06/20/24	-

APPLICANT/OWNER:
114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820
(603) 412-6175

CIVIL ENGINEER / SURVEYOR / LANDSCAPE ARCHITECT:
ALLEN & MAJOR ASSOCIATES, INC.
400 HARVEY ROAD
MANCHESTER, NH 03103
(603) 627-5500

ISSUED FOR T.R.C. REVIEW: JUNE 20, 2024

STATE OF NEW HAMPSHIRE – MICHAEL A. MALYNOWSKI No. 12205 LICENSED PROFESSIONAL ENGINEER – 06-20-2024
PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:
114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	1" = ##'	DWG. NAME:	C3347-01
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:
ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE: COVER
SHEET No. C

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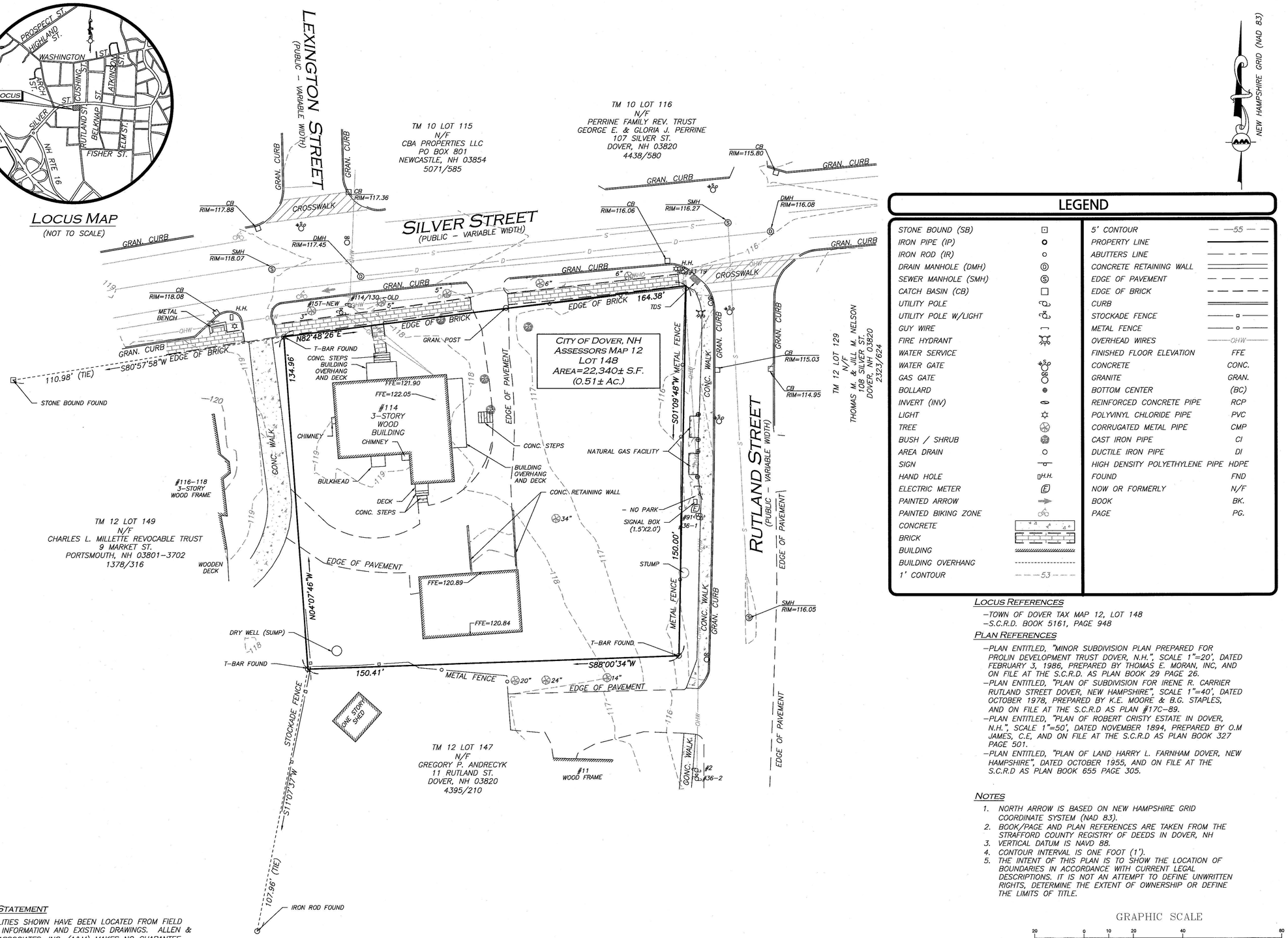
R: \PROJECTS\3347-01\CIVIL\DRAWINGS\CURRENT\C-3347-01_COVER.DWG

LOCUS MAP
(NOT TO SCALE)



LEGEND

STONE BOUND (SB)	⊡	5' CONTOUR	— —55— —
IRON PIPE (IP)	o	PROPERTY LINE	———
IRON ROD (IR)	○	ABUTTERS LINE	— — — —
DRAIN MANHOLE (DMH)	Ⓓ	CONCRETE RETAINING WALL	———
SEWER MANHOLE (SMH)	Ⓢ	EDGE OF PAVEMENT	— — — —
CATCH BASIN (CB)	□	EDGE OF BRICK	— — — —
UTILITY POLE		CURB	———
UTILITY POLE W/LIGHT		STOCKADE FENCE	——▫——▫——
GUY WIRE		METAL FENCE	——o——o——
FIRE HYDRANT		OVERHEAD WIRES	——OHW——
WATER SERVICE		FINISHED FLOOR ELEVATION	FFE
WATER GATE		CONCRETE	CONC.
GAS GATE	GG	GRANITE	GRAN.
BOLLARD	⊕	BOTTOM CENTER	(BC)
INVERT (INV)		REINFORCED CONCRETE PIPE	RCP
LIGHT	☼	POLYVINYL CHLORIDE PIPE	PVC
TREE		CORRUGATED METAL PIPE	CMP
BUSH / SHRUB		CAST IRON PIPE	CI
AREA DRAIN	○	DUCTILE IRON PIPE	DI
SIGN	—o—	HIGH DENSITY POLYETHYLENE PIPE	HDPE
HAND HOLE	H.H.	FOUND	FND
ELECTRIC METER	(E)	NOW OR FORMERLY	N/F
PAINTED ARROW		BOOK	BK.
PAINTED BIKING ZONE		PAGE	PG.
CONCRETE			
BRICK			
BUILDING			
BUILDING OVERHANG			
1' CONTOUR	— —53— —		

LOCUS REFERENCES

–TOWN OF DOVER TAX MAP 12, LOT 148
–S.C.R.D. BOOK 5161, PAGE 948

PLAN REFERENCES

–PLAN ENTITLED, "MINOR SUBDIVISION PLAN PREPARED FOR PROLIN DEVELOPMENT TRUST DOVER, N.H.", SCALE 1"=20', DATED FEBRUARY 3, 1986, PREPARED BY THOMAS E. MORAN, INC, AND ON FILE AT THE S.C.R.D. AS PLAN BOOK 29 PAGE 26.
–PLAN ENTITLED, "PLAN OF SUBDIVISION FOR IRENE R. CARRIER RUTLAND STREET DOVER, NEW HAMPSHIRE", SCALE 1"=40', DATED OCTOBER 1978, PREPARED BY K.E. MOORE & B.G. STAPLES, AND ON FILE AT THE S.C.R.D AS PLAN #17C–89.
–PLAN ENTITLED, "PLAN OF ROBERT CRISTY ESTATE IN DOVER, N.H.", SCALE 1"=50', DATED NOVEMBER 1894, PREPARED BY O.M JAMES, C.E, AND ON FILE AT THE S.C.R.D AS PLAN BOOK 327 PAGE 501.
–PLAN ENTITLED, "PLAN OF LAND HARRY L. FARNHAM DOVER, NEW HAMPSHIRE", DATED OCTOBER 1955, AND ON FILE AT THE S.C.R.D AS PLAN BOOK 655 PAGE 305.

NOTES

1. NORTH ARROW IS BASED ON NEW HAMPSHIRE GRID COORDINATE SYSTEM (NAD 83).
2. BOOK/PAGE AND PLAN REFERENCES ARE TAKEN FROM THE STRAFFORD COUNTY REGISTRY OF DEEDS IN DOVER, NH
3. VERTICAL DATUM IS NAVD 88.
4. CONTOUR INTERVAL IS ONE FOOT (1').
5. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH CURRENT LEGAL DESCRIPTIONS. IT IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP OR DEFINE THE LIMITS OF TITLE.

GRAPHIC SCALE

20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

R:\PROJECTS\3347–01\SURVEY\DRAWINGS\CURRENT\S–3347–01–EC.DWG

UTILITY STATEMENT

THE UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. ALLEN & MAJOR ASSOCIATES, INC. (A&M) MAKES NO GUARANTEE THAT THE UTILITIES SHOWN HEREON COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. A&M FURTHER DOES NOT WARRANT THAT THE UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. A&M HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

THIS PLAN IS THE RESULT OF AN ACTUAL ON THE GROUND SURVEY PERFORMED ON OR BETWEEN APRIL 17, 2024 AND APRIL 18, 2024 AND HAD AN ERROR OF CLOSURE OF NO GREATER THAN 1/10,000.

ALLEN & MAJOR ASSOCIATES, INC.

STATE OF NEW HAMPSHIRE — LICENSED LAND SURVEYOR — NO 908 JAMES P SMITH — SURVEYOR

JAMES P. SMITH NH LLS #908 — DATE 6-20-24

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:
TAX MAP 12 LOT 148
114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	1" = 20'	DWG. NAME:	S-3347-01-EC
DRAFTED BY:	KMT	CHECKED BY:	JPS

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE:	SHEET No.
RESIDENTIAL SITE PLAN	1

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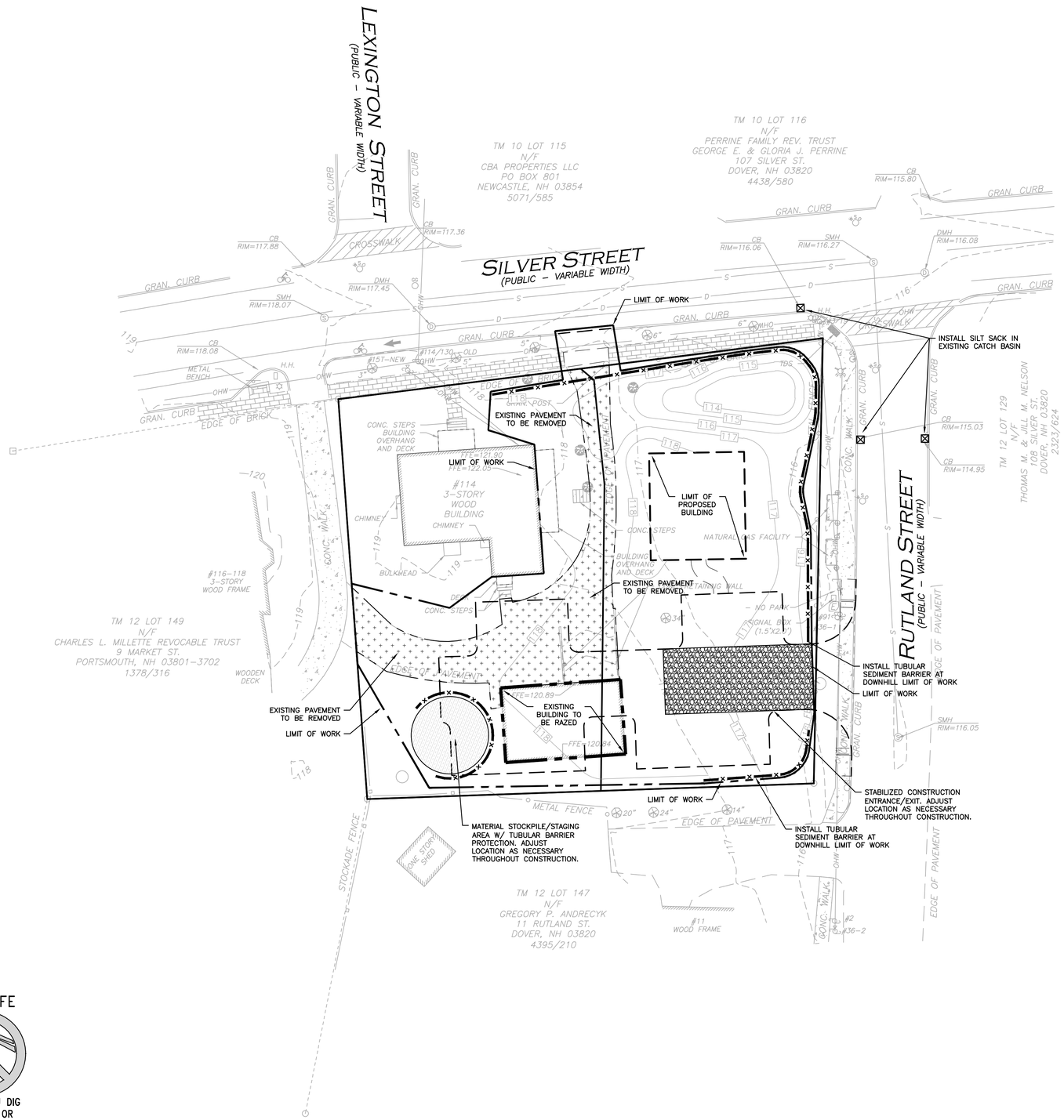

LEGEND

- LIMIT OF DISTURBANCE
- TUBULAR BARRIER
- CATCH BASIN FILTER
- BUILDING TO BE REMOVED
- PAVEMENT TO BE REMOVED
- STABILIZED ENTRANCE
- TEMPORARY FENCE
- STOCKPILE/STAGING AREA

GENERAL NOTES:

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES.
2. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
3. IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT ADDITIONAL EROSION CONTROL MEASURES ARE REQUIRED TO STOP ANY EROSION ON THE CONSTRUCTION SITE, THE PROPERTY OWNER SHALL BE REQUIRED TO INSTALL THE NECESSARY EROSION PROTECTION AT NO EXPENSE TO THE CITY.
4. GRADING / DEMOLITION OUTSIDE OF THE PROJECT BOUNDARIES (IF ANY) REQUIRES A TEMPORARY CONSTRUCTION/GRADING EASEMENT FROM THE LANDOWNER (BY OTHERS).
5. ALTHOUGH CERTAIN ITEMS HAVE BEEN NOTED ON THIS DRAWING FOR DEMOLITION, NO ATTEMPT HAS BEEN MADE TO DELINEATE EACH AND EVERY ITEM THAT REQUIRES DEMOLITION FOR THE COMPLETION OF THE PROJECT. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL NECESSARY DEMOLITION WORK TO COMPLETE THE PROJECT. ALLEN & MAJOR ASSOCIATES, INC. IS NOT RESPONSIBLE FOR SITE DEMOLITION ITEMS NOT SHOWN ON THE SURVEY, OR SPECIFICALLY NOTED. THE DEMOLITION NOTES AND ARROWS ON THIS PLAN ARE TYPICAL AND DO NOT REFLECT QUANTITY.
6. WRITTEN DIMENSIONS ON THIS PLAN TAKE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN THE EVENT OF A CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWINGS AND/OR SPECIFICATIONS OR CONDITIONS, THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR.
7. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

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BEFORE YOU DIG
CALL 811 OR
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1-888-344-7233

R:\PROJECTS\3347-01\CIVIL\DRAWINGS\CURRENT\C-3347-01_SITE-PREP.DWG

STATE OF NEW HAMPSHIRE – MICHAEL A. MALYNOWSKI No. 12205 LICENSED PROFESSIONAL ENGINEER – 06-20-2024

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:

114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:

114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	1" = 20'	DWG. NAME:	C3347-01
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
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DRAWING TITLE:

SITE PREPARATION PLAN

SHEET No.

C-101

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CITY OF DOVER HERITAGE RESIDENTIAL (HR) DISTRICT ZONING SUMMARY TABLE

ITEM	REQUIRED/ALLOWED	LOT 1	LOT 2
LOT			
LOT SIZE (MIN)	10,000 SF	11,650 SF	10,690 SF
LOT COVERAGE	40% MAX, *SEE NOTE 2	60.5%	60.3%
FRONTAGE	80 FT	82.2 FT	82.2 FT
PRINCIPAL BUILDING			
FRONT, BUILD TO LINE	*SEE NOTE 1	14.8 FT (EX.)	31.2 FT
ABUT A STREET, BUILD TO LINE	*SEE NOTE 1	N/A	24.4 FT
SIDE, SETBACK	15 FT	15.1 FT	15.2 FT
REAR, SETBACK	30 FT	73.3 FT	77.0 FT
HEIGHT OF BUILDING			
PRINCIPAL BUILDING	24 FT MIN, 40 FT MAX	EXISTING	<40 FT
OUTBUILDING	40 FT MAX	N/A	N/A

NOTES:

1. THE PROPERTY OWNER SHALL CALCULATE THE AVERAGE FRONT SETBACKS OF ALL LOTS WITHIN THE SAME ZONE LOCATED ON THE SAME SIDE OF THE STREET, 250 FT IN EACH DIRECTION FROM THE CENTER OF THE FRONT LOT LINE. THIS FRONT SETBACK DIMENSION SHALL BE CONSIDERED TO BE A BUILD TO LINE. STRUCTURES MAY BE CONSTRUCTED WITHIN FIVE (5) FT PLUS OR MINUS OF THE AVERAGE. PORCHES OR STEPS MAY BE LOCATED AN ADDITIONAL FIVE (5) FT BEYOND THE FRONT FAÇADE OF THE STRUCTURE. EXPANSIONS TO EXISTING STRUCTURES SHALL BE SUBJECT TO A MINIMUM SETBACK EQUAL TO THE CALCULATED AVERAGE SETBACK MINUS FIVE (5) FEET.

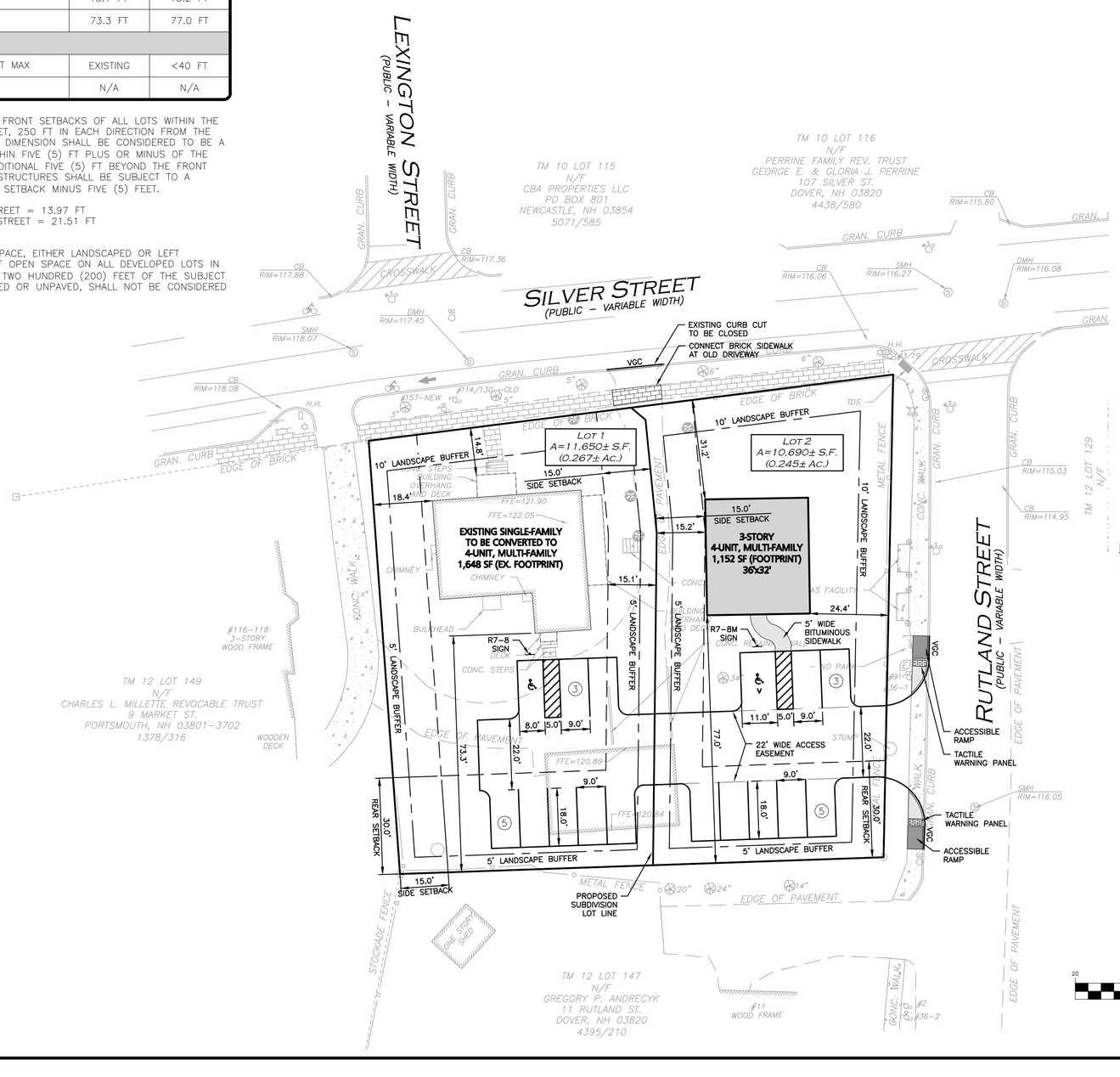
   CALCULATED AVERAGE FRONT SETBACK FROM SILVER STREET = 13.97 FT
   CALCULATED AVERAGE FRONT SETBACK FROM RUTLAND STREET = 21.51 FT

2. THE SPECIFIC SITE MUST HAVE AN AMOUNT OF OPEN SPACE, EITHER LANDSCAPED OR LEFT NATURAL, AT LEAST EQUAL TO THE AVERAGE AMOUNT OF OPEN SPACE ON ALL DEVELOPED LOTS IN THE HR DISTRICT THAT ARE WHOLLY OR PARTLY WITHIN TWO HUNDRED (200) FEET OF THE SUBJECT PARCEL. EXISTING PARKING AREAS, EITHER GRAVEL, PAVED OR UNPAVED, SHALL NOT BE CONSIDERED TO BE OPEN SPACE.

   CALCULATED AVERAGE OPEN SPACE = 60.3%

PARKING SUMMARY TABLE

CITY OF DOVER: CHAPTER 153, SITE REVIEW, OFF-STREET PARKING	REQUIRED PARKING	PROPOSED PARKING
LOT 1: MULTI-FAMILY DWELLING, 4 UNITS	8	8
2 SPACES PER UNIT → (2 SPACES/UNIT X 4 UNITES) = 8 SPACES		
LOT 2: MULTI-FAMILY DWELLING, 4 UNITS	8	8
2 SPACES PER UNIT → (2 SPACES/UNIT X 4 UNITES) = 8 SPACES		
TOTAL PROVIDED		16



LEGEND

- PROP. PROPERTY LINE
- SIGN
- BOLLARD
- BUILDING
- BUILDING ARCHITECTURE
- CURB
- PARKING STRIPING
- HEAVY DUTY CONCRETE
- SIDEWALK
- BRICK SIDEWALK
- ADA ACCESSIBLE RAMP
- ADA DET. WARNING SURFACE
- SNOW STORAGE
- GRAVEL ACCESS
- SETBACK LINE
- PARKING COUNT (10)
- STEEL GUARDRAIL
- WOOD GUARDRAIL
- CHAIN LINK FENCE
- WOOD FENCE
- DECORATIVE FENCE
- TREE LINE
- TRANSFORMER (T)

PLAN NOTES:

1. EXISTING CONDITIONS WERE COMPILED FROM AN ON THE GROUND SURVEY PERFORMED BY ALLEN & MAJOR ASSOCIATES AS WELL AS AVAILABLE RECORD PLANS OBTAINED FROM THE CITY OF DOVER AND OTHER SOURCES.
2. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
3. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK. THE CONTRACTOR SHALL ALSO CONTACT THE CITY DEPARTMENT OF PUBLIC WORKS AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF LOCAL UTILITIES.
4. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

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R: \PROJECTS\3347-01\CIVIL\DRAWINGS\CURRENT\C-3347-01_LAYOUT & MATERIAL.DWG

STATE OF NEW HAMPSHIRE
MICHAEL A. MALYNOWSKI
No. 12205
LICENSED PROFESSIONAL ENGINEER
06-20-2024

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:

114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:

114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	1" = 20'	DWG. NAME:	C3347-01
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501

WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE:

LAYOUT & MATERIALS PLAN

SHEET No.

C-102

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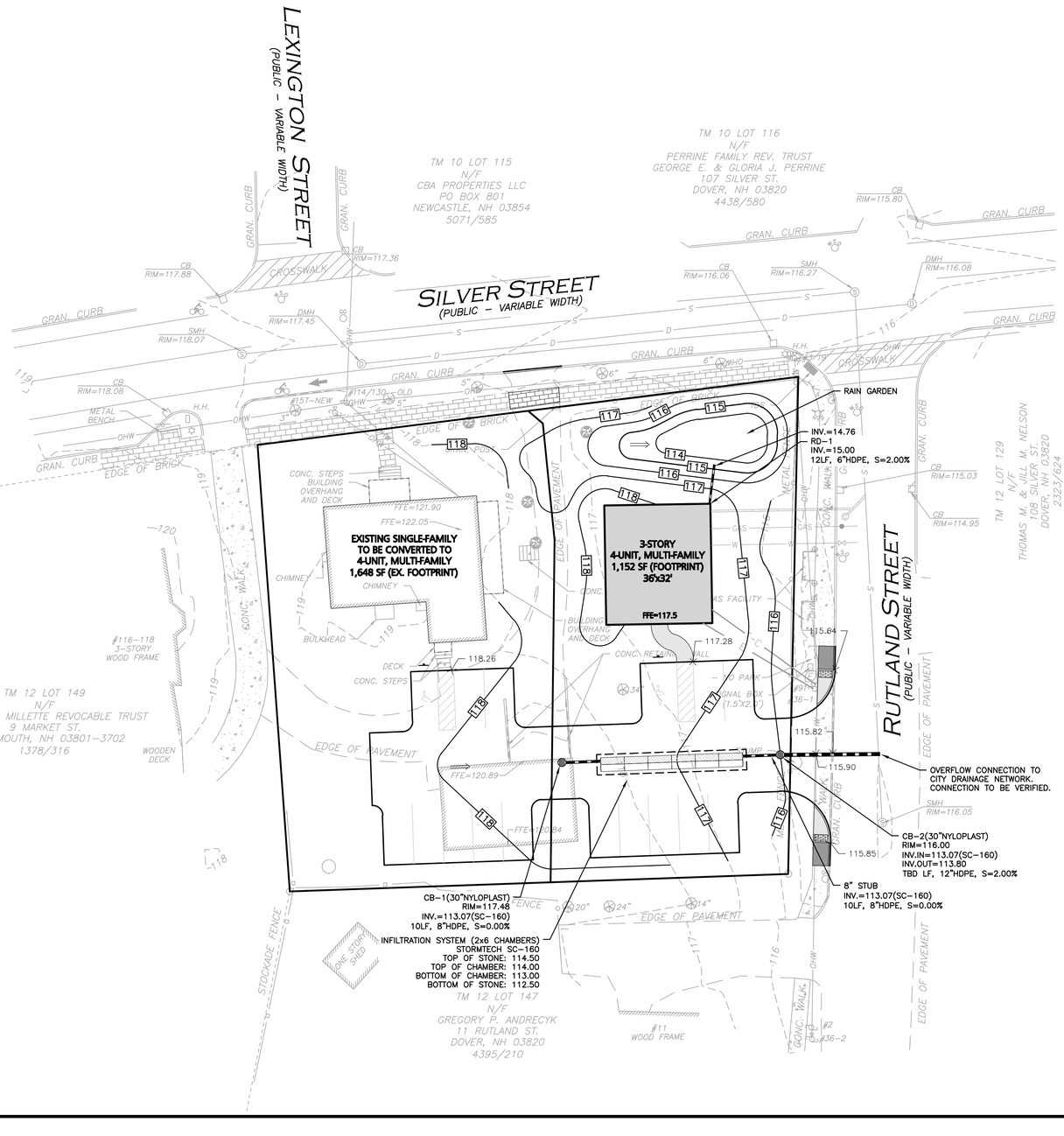

LEGEND

DRAIN MANHOLE (DMH)	
CATCH BASIN (CB)	
CATCH BASIN – NYLOPLAST	
DRAIN LINE	
RIPRAP OUTFALL	
5' CONTOUR	115
1' CONTOUR	117
SPOT GRADE	115.55
INFILTRATION SYSTEM	
FLOW DIRECTION	

GRADING & DRAINAGE NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS INCLUDING THE CITY OF DOVER, NHDOT, NHDES, MUTCD, AND AASHTO.
2. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY ALLEN & MAJOR ASSOCIATES DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK, OR THE OWNER'S EMPLOYEES, CUSTOMERS, OR THE GENERAL PUBLIC. THE SEAL OF THE ENGINEER AS INCLUDED IN THE PLAN SET DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PROVIDE THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE US OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND/OR LOCAL REGULATIONS.
3. ALL ELEVATIONS REFER TO NAVD 88.
4. PIPE DIMENSIONS ARE MEASURED FROM THE CENTER OF THE STRUCTURE.
5. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.
6. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
7. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
8. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
9. ALL CATCH BASINS ON-SITE SHALL BE EQUIPPED WITH HOODS AND 4 FOOT SUMPS AND SHALL CONFORM TO LOCAL DRAINAGE REQUIREMENTS.
10. A MINIMUM OF 18" VERTICAL CLEARANCE SHALL BE MAINTAINED WHERE WATER SERVICES CROSS STORM DRAIN LINES. WATER SERVICES SHALL BE ENCASED IN CONCRETE REGARDLESS OF CLEARANCE WHEN PASSING BELOW STORM DRAIN LINES. ENCASEMENT SHALL EXTEND ALONG WATER SERVICE A MINIMUM DISTANCE OF TEN FEET FROM THE CROSSING POINT OF THE OTHER PIPE AS MEASURED NORMALLY FROM ALL POINTS ALONG THE PIPE.
11. ALL DRAINAGE SHALL CONFORM TO LOCAL REQUIREMENTS.
12. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE START OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DRAWINGS, SPECIFICATIONS, OR RELATIVE CODES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT PRIOR TO START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AND/OR DESIGN INTENT OF THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.
13. THE DESIGN ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS, AND/OR THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE GUIDANCE OF THE DESIGN ENGINEER WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES, OR CONFLICTS WHICH ARE DISCOVERED OR ALLEGED.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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STATE OF NEW HAMPSHIRE
MICHAEL A. MALYNOWSKI
No. 12205
LICENSED PROFESSIONAL ENGINEER
06-20-2024

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:

114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:

114 SILVER STREET
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PROJECT NO.	3347-01	DATE:	06/20/24
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PREPARED BY:

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DRAWING TITLE:

GRADING & DRAINAGE PLAN

SHEET No.

C-103

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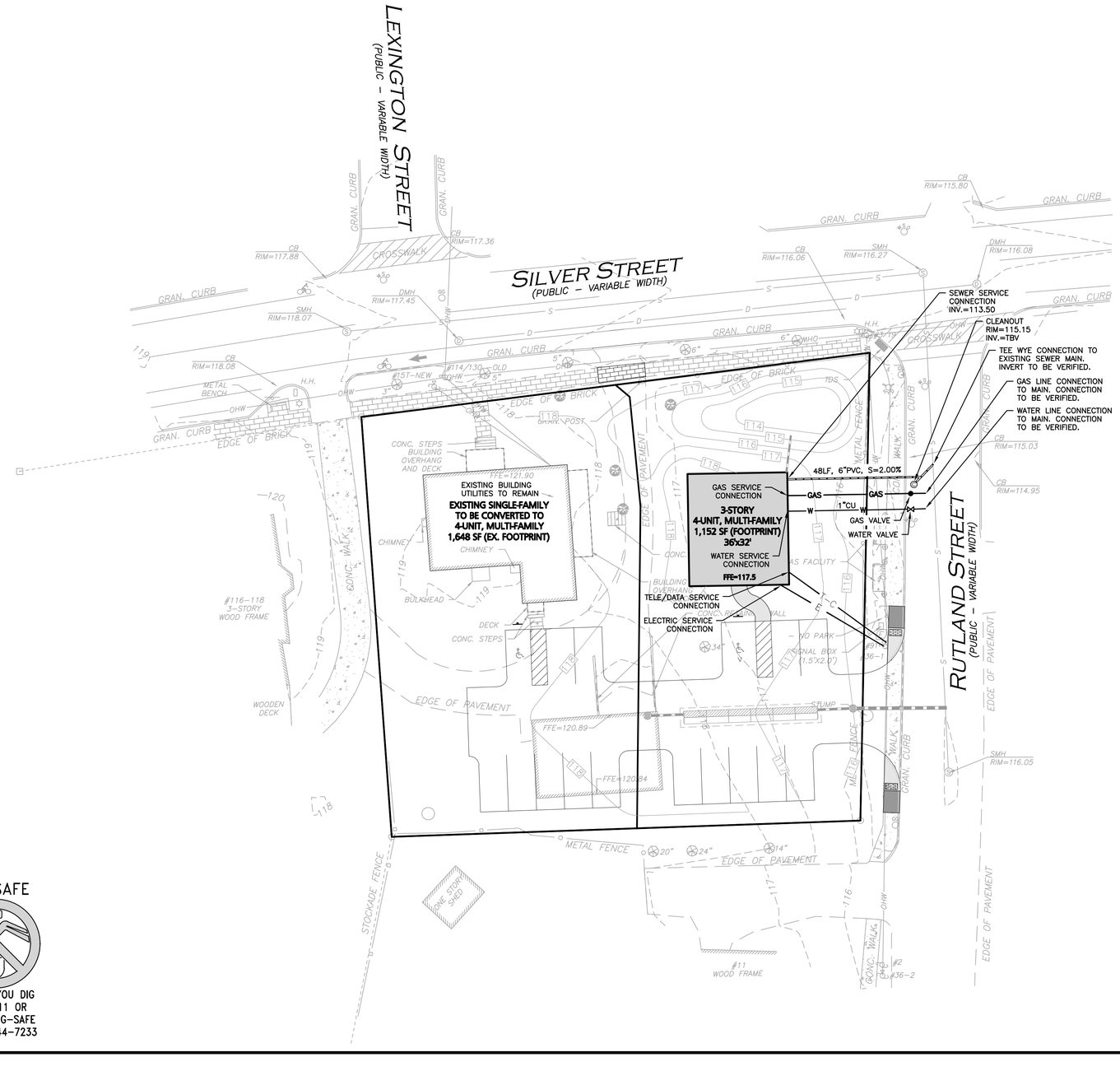

LEGEND

SEWER MANHOLE	S
SEWER CLEANOUT	
SEWER LINE	
WATER LINE	W
WATER VALVE	WV
GAS LINE	GAS
GAS VALVE	GV
OVER HEAD WIRE	OHW
ELECTRICAL CONDUIT	E
TELE/CABLE CONDUIT	T–C

UTILITY NOTES:

1. A MINIMUM OF 10 FEET CLEAR HORIZONTALLY SHALL BE MAINTAINED BETWEEN WATER MAINS AND SANITARY SEWER MAINS AND/OR STORM DRAINS. WHENEVER CONDITIONS PREVENT A LATERAL SEPARATION OF 10 FEET TO A WATER MAIN, THE WATER MAIN SHALL BE LAID IN A SEPARATE TRENCH AND THE DIFFERENCE IN ELEVATION BETWEEN THE WATER MAIN AND THE SEWER MAIN SHALL BE AT LEAST 18 INCHES.
2. IN THE CASE THAT WATER MAINS CROSS SANITARY SEWER MAINS AND ARE SEPARATED BY LESS THAT 18" OF VERTICAL CLEARANCE, THE SEWER MAIN SHALL BE ENCASED IN CONCRETE FOR THE ENTIRE WIDTH OF THE TRENCH AND FOR A DISTANCE OF 8 LINEAR FEET CENTERED ON THE CROSSING.
3. THE LATEST STANDARDS OF THE CITY OF DOVER "CHAPTER 147 – SEWERS" SHALL BE FOLLOWED WHEN PERFORMING ANY SANITARY SEWER WORK. SEWER WORK WILL BE INSPECTED BY CITY OF DOVER PERSONNEL AND ALL COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. THE LATEST STANDARDS OF THE CITY OF DOVER "CHAPTER 148 – WATER SYSTEMS" SHALL BE FOLLOWED WHEN PERFORMING ANY WATER DISTRIBUTION WORK. WATER WORK WILL BE INSPECTED BY CITY OF DOVER PERSONNEL AND ALL COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE CONTRACTOR SHALL REFER TO ARCHITECTS PLANS AND SPECIFICATIONS FOR ACTUAL LOCATION OF ALL ROOF DRAIN LATERALS AND UTILITY ENTRANCES TO INCLUDE SANITARY SEWER LATERALS, DOMESTIC AND FIRE PROTECTION WATER SERVICE, ELECTRIC, TELEPHONE, AND GAS SERVICE. THE CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO AVOID CONFLICTS AND COORDINATE WITH THE PROPER AGENCY THE LOCATION AND SCHEDULING OF CONNECTIONS WITH THEIR FACILITIES.
6. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION. THE ENGINEER WILL THEN PROVIDE RESOLUTION TO UTILITY CONFLICTS WITHOUT DELAY.
7. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS INCLUDING THE CITY OF DOVER, NHDOT, NHDES, MUTCD, AND AASHTO.
8. THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS OF THE SITE. THESE PLANS PREPARED BY ALLEN & MAJOR ASSOCIATES, INC., DO NOT EXTEND TO, NOR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THE EMPLOYEES, AGENTS OF REPRESENTATIVES IN PERFORMANCE OF THE WORK. THE SEAL OF THE ARCHITECT OR ENGINEER HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PREPARE OF OBTAIN THE APPROPRIATE SAFETY SYSTEMS THAT MAY BE REQUIRED BY THE US OCCUPATIONAL SAFETY AND HEATH ADMINISTRATION (OSHA) AND/OR LOCAL REGULATIONS.
9. ALL ELEVATIONS REFER TO NAVD 88.
10. PIPE DIMENSIONS ARE MEASURED FROM THE INSIDE FACE OF THE STRUCTURE.
11. LOCATION OF PROPOSED ELECTRICAL/COMMUNICATION SERVICE IS SCHEMATIC IN NATURE AND FOR COORDINATION PURPOSES ONLY. SPECIFIC ALIGNMENTS ARE TO BE DESIGNED BY OTHERS AND REVIEWED BY THE UTILITY PROVIDING SERVICE. PROPOSED ELECTRICAL SERVICE TO BE BURIED IN ACCORDANCE WITH THE CITY OF DOVER REGULATIONS AND ELECTRIC COMPANY.
12. LOCATION OF PROPOSED GAS MAIN IS SCHEMATIC IN NATURE AND FOR COORDINATION PURPOSES ONLY. SPECIFIC ALIGNMENTS ARE TO BE DESIGNED BY OTHERS AND REVIEWED BY THE UTILITY PROVIDING SERVICE.
13. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE START OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DRAWINGS, SPECIFICATIONS, OR RELATIVE CODES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT PRIOR TO START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE ENGINEER AND/OR ARCHITECT SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AND/OR DESIGN INTENT OF THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.
14. THE DESIGN ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS, AND/OR THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE GUIDANCE OF THE DESIGN ENGINEER WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES, OR CONFLICTS WHICH ARE DISCOVERED OR ALLEGED.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

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STATE OF NEW HAMPSHIRE – MICHAEL A. MALYNOWSKI No. 12205 LICENSED PROFESSIONAL ENGINEER

06-20-2024

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:

114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:

114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
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DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

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DRAWING TITLE:

UTILITIES PLAN

SHEET No.

C-104

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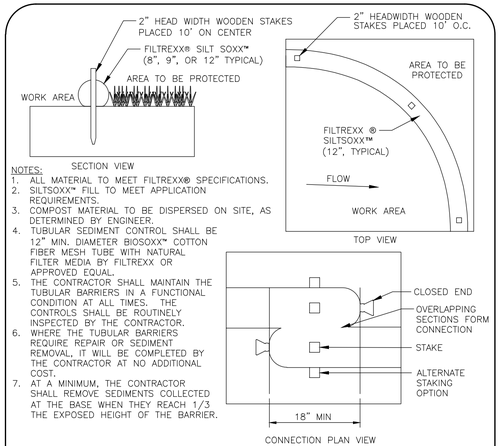
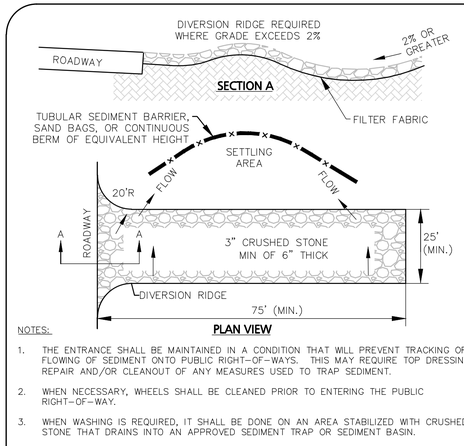


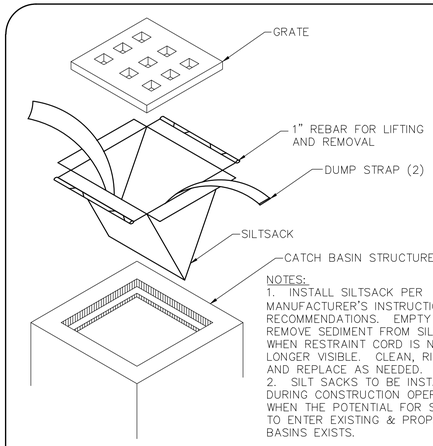
NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILTSOXX™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.
4. TUBULAR SEDIMENT CONTROL SHALL BE 12" MIN. DIAMETER BIOSOXX™ COTTON FIBER MESH TUBE WITH NATURAL FILTER MEDIA BY FILTREXX OR APPROVED EQUAL.
5. THE CONTRACTOR SHALL MAINTAIN THE TUBULAR BARRIERS IN A FUNCTIONAL CONDITION AT ALL TIMES. THE CONTROLS SHALL BE ROUTINELY INSPECTED BY THE CONTRACTOR.
6. WHERE THE TUBULAR BARRIERS REQUIRE REPAIR OR SEDIMENT REMOVAL, IT WILL BE COMPLETED BY THE CONTRACTOR AT NO ADDITIONAL COST.
7. AT A MINIMUM, THE CONTRACTOR SHALL REMOVE SEDIMENTS COLLECTED AT THE BASE WHEN THEY REACH 1/3 THE EXPOSED HEIGHT OF THE BARRIER.

FILTREXX SILTSOXX DETAIL — NOT TO SCALE — 1



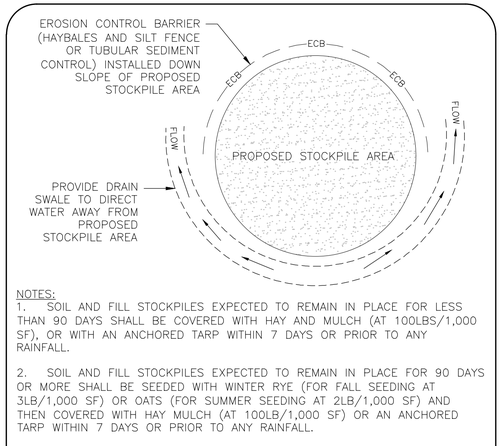
NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTERING THE PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

STABILIZED CONSTRUCTION ENTRANCE — NOT TO SCALE — 2



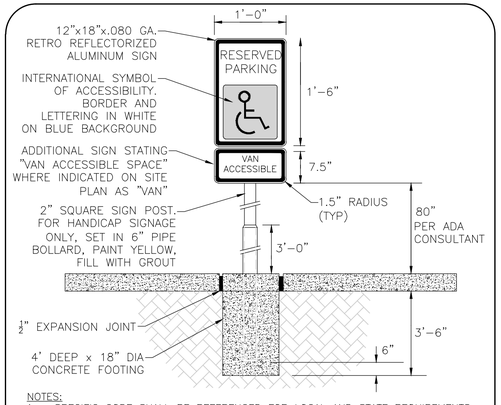
NOTES:
1. INSTALL SILTSACK PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. EMPTY OR REMOVE SEDIMENT FROM SILTSACK WHEN RESTRAINT CORD IS NO LONGER VISIBLE. CLEAN, RINSE, AND REPLACE AS NEEDED.
2. SILT SACKS TO BE INSTALLED DURING CONSTRUCTION OPERATIONS WHEN THE POTENTIAL FOR SEDIMENT TO ENTER EXISTING & PROPOSED BASINS EXISTS.

CATCH BASIN INLET PROTECTION — NOT TO SCALE — 3



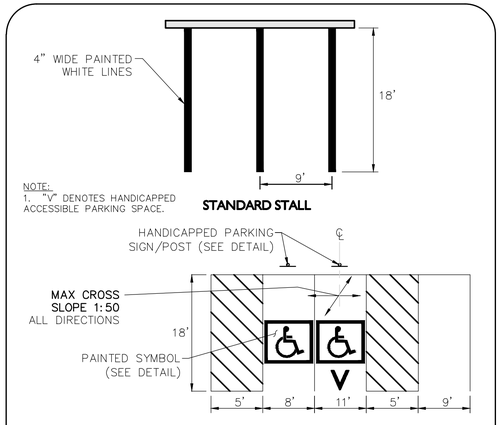
NOTES:
1. SOIL AND FILL STOCKPILES EXPECTED TO REMAIN IN PLACE FOR LESS THAN 90 DAYS SHALL BE COVERED WITH HAY AND MULCH (AT 100LBS/1,000 SF), OR WITH AN ANCHORED TARP WITHIN 7 DAYS OR PRIOR TO ANY RAINFALL.
2. SOIL AND FILL STOCKPILES EXPECTED TO REMAIN IN PLACE FOR 90 DAYS OR MORE SHALL BE SEEDED WITH WINTER RYE (FOR FALL SEEDING AT 3LB/1,000 SF) OR OATS (FOR SUMMER SEEDING AT 2LB/1,000 SF) AND THEN COVERED WITH HAY MULCH (AT 100LB/1,000 SF) OR AN ANCHORED TARP WITHIN 7 DAYS OR PRIOR TO ANY RAINFALL.

STOCKPILE PROTECTION — NOT TO SCALE — 4



NOTES:
1. SPECIFIC CODE SHALL BE REFERENCED FOR LOCAL AND STATE REQUIREMENTS.
2. PROVIDE (1) SIGN PER HANDICAP SPACE. SEE SITE PLAN FOR EXACT LOCATION.
3. EXPANSION JOINT MATERIAL NOT REQUIRED WITH FLEXIBLE PAVEMENT.

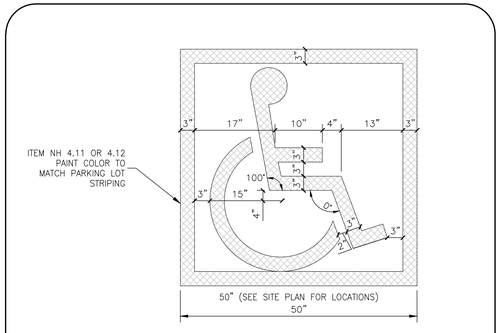
ACCESSIBLE PARKING SIGN POST — NOT TO SCALE — 5



NOTE:
1. "V" DENOTES HANDICAPPED ACCESSIBLE PARKING SPACE.

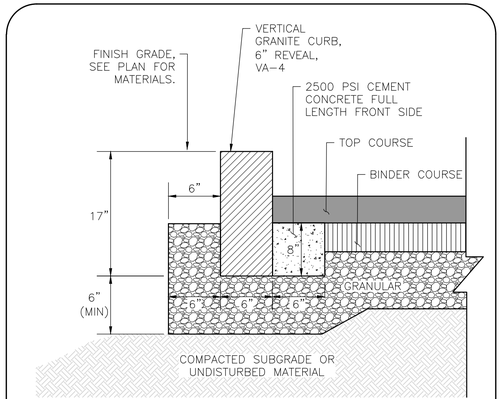
STANDARD AND VAN ACCESSIBLE HANDICAPPED PARKING SPACE

HANDICAP & STANDARD PARKING STRIPING — NOT TO SCALE — 6



SYMBOL TO BE CENTERED ON WIDTH OF PARKING STALL. SYMBOL IS REQUIRED TO CONTRAST WITH BACKGROUND. USE WHITE ON BLUE (COLOR #105090 IN FEDERAL STANDARD 5952) DOUBLE COAT.

ACCESSIBLE PARKING STALL PAVEMENT MARKING — NOT TO SCALE — 7



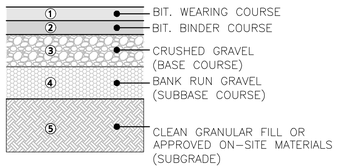
VERTICAL GRANITE CURB — NOT TO SCALE — 8

STANDARD DUTY FLEXIBLE PAVEMENT DESIGN SECTION

LAYER NUMBER	LAYER DESCRIPTION	LAYER THICKNESS (INCHES)
1	BITUMINOUS WEARING COURSE (¾" AGGREGATE – NHDOT PRE-APPROVED MIX DESIGN)	1.5"
2	BITUMINOUS BINDER COURSE (¾" AGGREGATE – NHDOT PRE-APPROVED MIX DESIGN)	1.5"
3	CRUSHED GRAVEL (BASE COURSE) (NHDOT ITEM 304.3)	6.0"
4	GRAVEL BORROW (SUBBASE COURSE) (NHDOT ITEM 304.2)	12"
5	CLEAN GRANULAR FILL MATERIAL OR APPROVED ON-SITE MATERIALS (SUBGRADE)	AS NECESSARY

NHDOT GRADATION SPECIFICATION

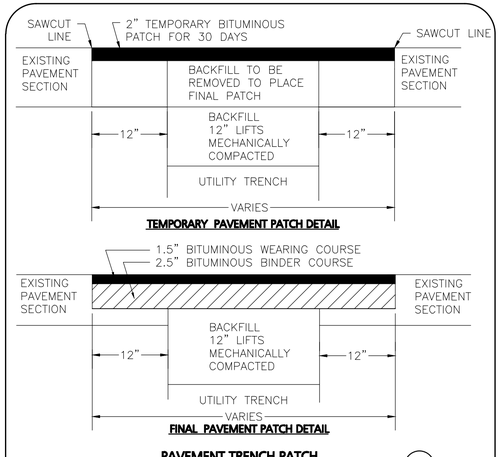
SIEVE SIZE	PERCENT PASSING BY WEIGHT		
	CLEAN GRANULAR FILL	BASE COURSE	SELECT GRANULAR FILL
8"	100	100	100
3"	70–100	100	70–100
½"	40–100	40–80	40–90
No. 4	25–100	30–70	25–80
No. 10	15–95	20–60	15–70
No. 40	10–70	10–30	5–40
No. 200	0–15	3–10	0–12



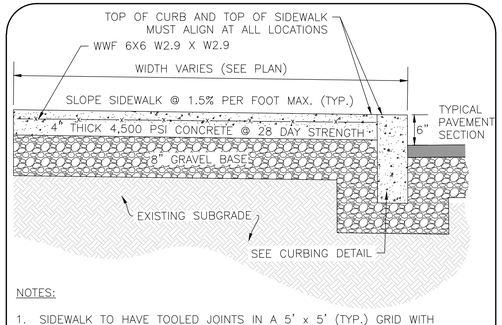
NOTES:
IF A GEOTECHNICAL REPORT IS PREPARED THE RECOMMENDATIONS WITHIN THAT REPORT SHALL SUPERCEDE RECOMMENDATIONS HEREIN. THE CONTRACTOR SHALL HAVE AND REVIEW A COPY OF THE GEOTECHNICAL REPORT AND COMPLY WITH THE RECOMMENDATIONS THEREIN.

1. TOPSOIL SHALL BE REMOVED BENEATH ALL PAVEMENT AREAS TO EXPOSE THE NATURALLY-OCCURRING SOILS OR ACCEPTABLE ON-SITE FILL MATERIALS.
2. THE SUBGRADE SHOULD BE PROOFROLLED UNDER THE SUPERVISION OF A GEOTECHNICAL ENGINEER USING AT LEAST 4 PASSES OF A 10-TON VIBRATORY ROLLER. AREAS OF THE SUBGRADE THAT "WEAVE" OR "ROLL" EXCESSIVELY SHOULD BE OVEREXCAVATED AND REPLACED WITH DRIER CLEAN GRANULAR FILL MATERIAL.
3. THE PAVEMENT SUBGRADE CONSISTING OF THE SPECIFIED CLEAN GRANULAR FILL SHALL BE PLACED IN 12" MAXIMUM LIFTS AND COMPACTED TO A DRY DENSITY OF AT LEAST 95 PERCENT OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM DESIGNATION D-1557.
4. PAVEMENT AND GRAVEL SPECIFICATIONS WITHIN THE CITY RIGHT-OF-WAY ARE TO BE DESIGNATED BY THE CITY'S DESIGN CONSULTANT FOR THE ROUNDABOUT PROJECT.

PAVEMENT SECTIONS — NOT TO SCALE — 9



PAVEMENT TRENCH PATCH — NOT TO SCALE — 10



NOTES:
1. SIDEWALK TO HAVE TOOLED JOINTS IN A 5' x 5' (TYP.) GRID WITH EXPANSION JOINTS 15' ON CENTER AND PREMOLDED FILLER
2. TOOLED JOINT 6" FROM FACE OF CURB
3. SEE PLAN FOR ELEVATIONS AT CURB
4. SIDEWALK CROSS SLOPE TO BE 1.5% MAX & SIDEWALK LONGITUDINAL SLOPE TO BE 4.5% MAX, TYP.

CONCRETE SIDEWALK WITH CURB — NOT TO SCALE — 11

R: \PROJECTS \3347-01\CIVIL \DRAWINGS\CURRENT\C-3347-01_DETAILS.DWG

STATE OF NEW HAMPSHIRE — MICHAEL A. MALYNOWSKI No. 12205 LICENSED PROFESSIONAL ENGINEER — 06-20-2024

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:
114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	AS SHOWN	DWG. NAME:	C3347-01
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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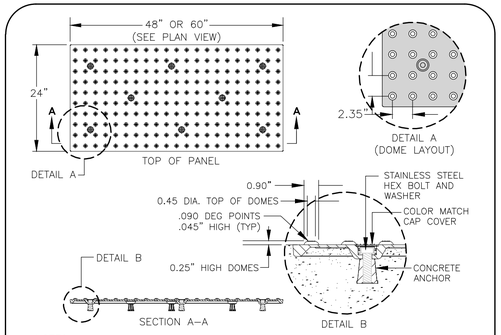
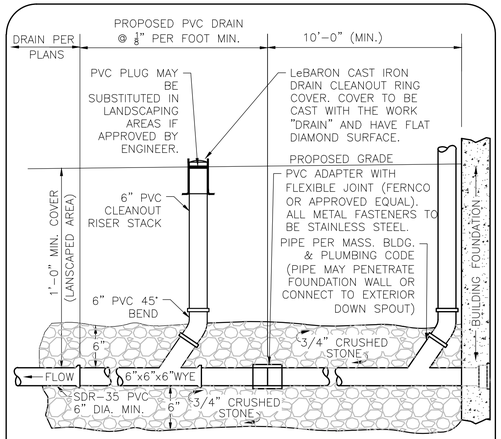


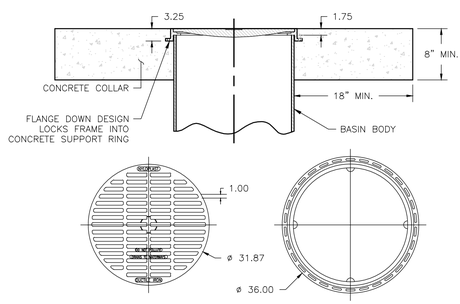
NOTES:

1. VENDOR INFORMATION: "ADATILE" WET SET ADA REPLACEABLE TACTILE (OR APPROVED EQUAL) AS MANUFACTURED BY ADATILE, PHONE: 1–800–372–0519, WWW.ADATILE.COM, EMAIL: INFO@ADATILE.COM
2. COLOR SHALL BE BLACK.
3. INSTALL PER MANUFACTURER'S INSTALLATION GUIDELINES.

WET SET ADA REPLACEABLE TACTILE PANEL (1)
NOT TO SCALE



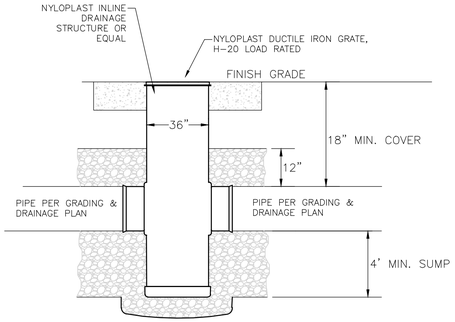
ROOF DRAIN (2)
NOT TO SCALE



GRATE

NOTES:

1. DIMENSIONS ARE FOR REFERENCE ONLY
2. ACTUAL DIMENSIONS MAY VARY DIMENSIONS ARE IN INCHES
3. GRATE MEETS H–20 LOAD RATING
4. QUALITY: MATERIALS SHALL CONFORM TO ASTM A536 GRADE 70–50–05
5. PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT



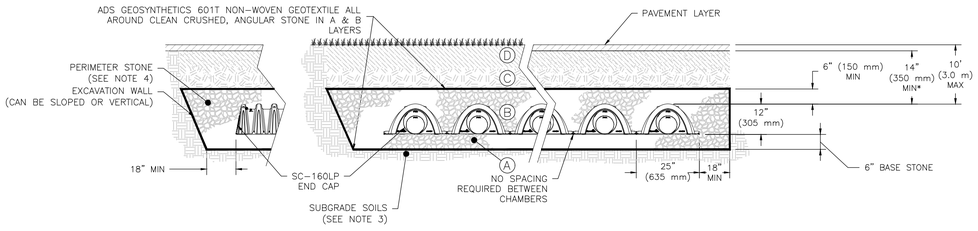
NYLOPLAST DRAIN STRUCTURE (3)
NOT TO SCALE

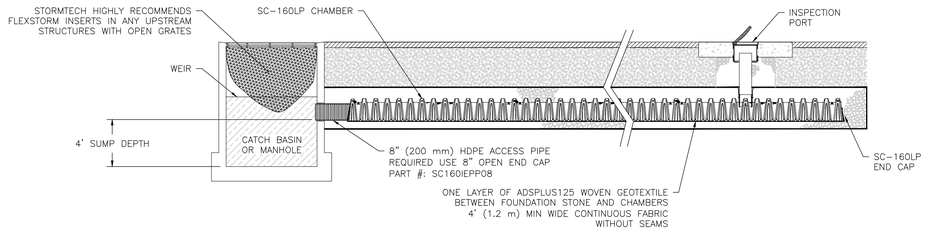
ACCEPTABLE FILL MATERIALS: STORMTECH SC-160LP CHAMBER SYSTEMS

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	GENERAL BACKFILL. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	SEE FULL DEPTH PAVEMENT SECTION DETAIL
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 14" (355 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL–GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	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.	CLEAN, CRUSHED, ANGULAR STONE	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.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:

1. 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".
2. 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.
3. 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.
4. 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.

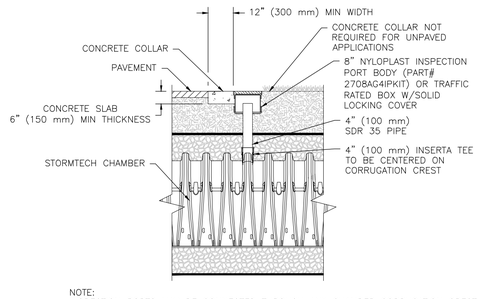




SC-160LP ISOLATOR ROW PLUS DETAIL
NOT TO SCALE

SC-160LP STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC–160LP.
2. CHAMBERS SHALL BE ARCH–SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT–MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. 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.
6. 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.
7. 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 1.5".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT/% THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. 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.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION CREST.

INSPECTION PORT DETAIL
NOT TO SCALE

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS 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 PLUS 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 PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS 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 PLUS 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. 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.

STORMTECH SC-160LP DETENTION SYSTEM (4)
NOT TO SCALE

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PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:

114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:

114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	AS SHOWN	DWG. NAME:	C3347-01
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE:

DETAILS

SHEET No.

C-502

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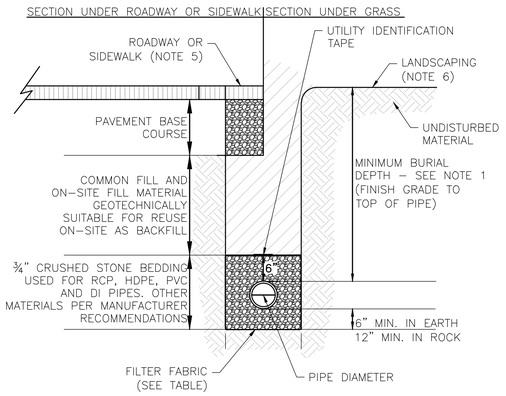
NOTES:

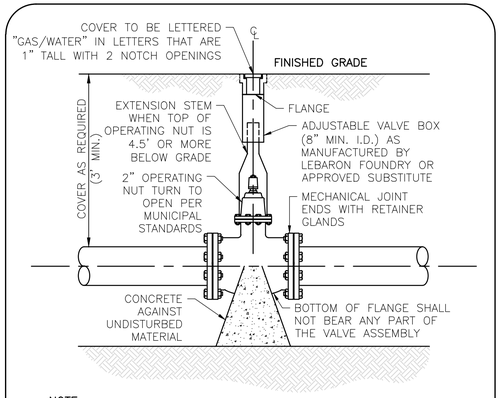
1. MINIMUM BURIAL DEPTH (FINISH GRADE TO TOP OF PIPE)
   GRAVITY PIPE (SEWER & DRAIN) – SEE PLAN OR PROFILE
   PRESSURE PIPE UNDER PAVING – 4'
   PRESSURE PIPE BENEATH UNPAVED – 3'
   WATER PIPE – 5'
2. WHERE BACKFILL IS DESIGNATED AS COMPACTED, THIS MEANS 90 TO 95% STANDARD PROCTOR, AASHTO T-99. ALL FILL PLACED BELOW PIPES AND STRUCTURES MUST MEET THIS REQUIREMENT.
3. TRENCHES WITHIN PUBLIC RIGHT OF WAY MAY REQUIRE FLOWABLE FILL. VERIFY WITH MUNICIPAL ENGINEER.
4. WHERE WASTE FILLS ARE ENCOUNTERED AT SUBGRADE LEVEL FOR NEW UTILITIES, THE FILL SHOULD BE OVER-EXCAVATED, THE SUBGRADE SHOULD BE RE-COMPACTED, AND BACKFILL CONSISTING OF PIPE BEDDING MATERIAL, CRUSHED STONE OR OTHER SUITABLE GRANULAR FILL SHOULD BE PLACED TO A SUFFICIENT DEPTH TO CREATE A FIRM AND STABLE SUBGRADE (TYPICALLY 12 TO 18 INCHES OVER-EXCAVATION).
5. REFER TO PAVING, CURBS, WALKS AND DRIVEWAY DETAILS.
6. REFER TO LANDSCAPING DETAILS.

FILTER FABRIC USE

	SOIL TYPE	
	SILT OR CLAY	GRANULAR SOIL
ABOVE GROUND WATER	FILTER FABRIC NOT REQUIRED	FILTER FABRIC NOT REQUIRED
BELOW GROUND WATER	FILTER FABRIC REQUIRED	FILTER FABRIC NOT REQUIRED

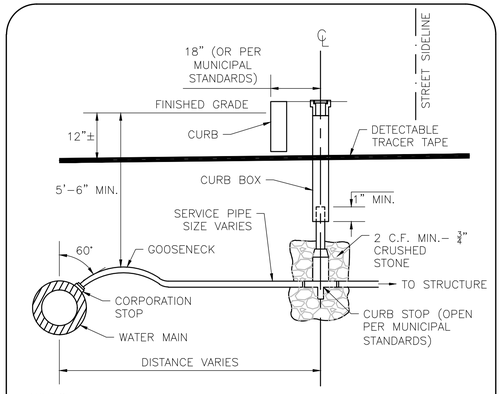


UTILITY TRENCH
NOT TO SCALE
1



NOTE:
1. CONTRACTOR MAY USE ANCHOR TEES AT HIS OPTION.
2. HYDRANTS AND VALVES TO OPERATE PER MUNICIPAL STANDARDS

GATE VALVE
NOT TO SCALE
2



NOTES:
1. WATER SERVICES LARGER THAN 1" ARE TO BE RESTRAINED TO WATER MAIN WITH APPROVED SADDLE.

TYPICAL WATER SERVICE CONNECTION
NOT TO SCALE
3

STATE OF NEW HAMPSHIRE – MICHAEL A. MALYNOWSKI No. 12205 LICENSED PROFESSIONAL ENGINEER – 06-20-2024

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:
114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	AS SHOWN	DWG. NAME:	C3347-01
DESIGNED BY:	JRG	CHECKED BY:	MAM

PREPARED BY:
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civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
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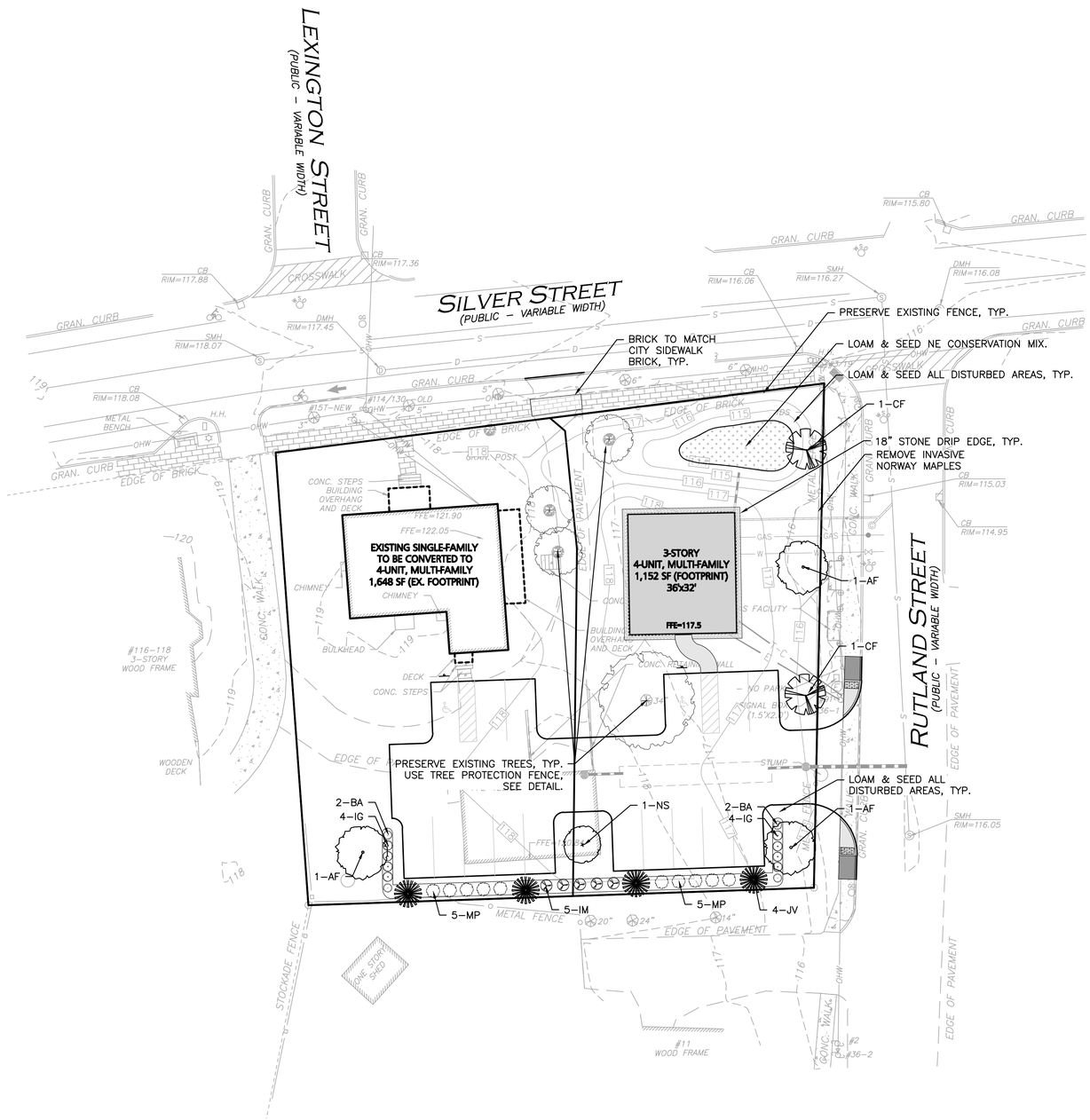

PLAN NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR IT'S REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
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LEGEND

- DECIDUOUS TREE
- EVERGREEN TREE
- FLOWERING TREE
- SHRUBS
- MULCH BED
- PERENNIALS/GROUNDCOVER
- WILDFLOWER SEED MIX
- EROSION CONTROL SEED MIX
- STONE EDGE

PLANTING SCHEDULE-TREES, SHRUBS, GROUNDCOVERS & PERENNIALS

KEY	QTY	BOTANICAL NAME	COMMON NAME	MIN. SIZE	SPACING	COMMENTS
DECIDUOUS/EVERGREEN TREES						
AF	3	ACER FREEMANII "ARMSTRONG"	ARMSTRONG MAPLE	3" CAL.	AS SHOWN	B&B
CF	2	CORNUS FLORIDA 'CHEROKEE PRINCESS'	CHEROKEE PRINCESS DOGWOOD	2.5–3" CAL.	AS SHOWN	B&B
JV	4	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	6–7' HT.	AS SHOWN	B&B –3" CALIPER
NS	1	NYSSA SYLVATICA 'WILDFIRE'	WILDFIRE TUPELO	3" CAL.	AS SHOWN	B&B
SHRUBS						
IG	8	ILEX GLABRA COMPACTA	COMPACT INKBERRY	#7	AS SHOWN	POT – 2' HT.
IM	5	ILEX MESERVE 'BLUE PRINCESS'	BLUE PRINCESS HOLLY	#7	AS SHOWN	POT – 2' HT.
MP	10	MYRICA PENNSYLVANICA	BAYBERRY	2'–2.5' HT.	AS SHOWN	B&B
GRASSES/PERENNIALS						
BA	4	BAPTISIA AUSTRALIS	BLUE FALSE INDIGO	#3	24" O.C.	STAGGERED

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

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LICENSED LANDSCAPE ARCHITECT
BETHANY C. DERMODY
006
STATE OF NEW HAMPSHIRE
6.20.24

PROFESSIONAL LANDSCAPE ARCHITECT FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:

114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:

114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	1" = 20'	DWG. NAME:	L-3347-01
DESIGNED BY:	BCD	CHECKED BY:	MAM

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE:

LANDSCAPE PLAN

SHEET No.

L-101

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CONSERVATION WILDLIFE SEED MIX:

NEW ENGLAND CONSERVATION / WILDLIFE MIX
(BY NEW ENGLAND WETLAND PLANTS INC. – NEWP.COM)
APPLICATION RATE: 25 LBS/ACRE | 1750 SQ FT/LB

ITEM	BOTANICAL NAME	COMMON NAME	INDICATOR
1.	ELYMUS VIRGINICUS	VIRGINIA WILD RYE	FACW
2.	CHAMAECRISTA FASCICULATA	PARTRIDGE PEA	FACU
3.	FESTUCA RUBRA	RED FESCUE	FACU
4.	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	FACU
5.	ANDROPOGON GERARDII	BIG BLUESTEM	FACU
6.	PANICUM VIRGATUM	SWITCH GRASS	FAC
7.	DESMODIUM PANICULATUM	PANICLEDLEAF TICK TREFOIL	FACU
8.	SORGHASTRUM NUTANS	INDIAN GRASS	FACU
9.	VERBENA HASTATA	BLUE VERVAIN	FACW
10.	ASCLEPIAS TUBEROSA	BUTTERFLY MILKWEED	
11.	RUDBECKIA HIRTA	BLACK EYED SUSAN	FACU
12.	HELENIUM AUTUMNALE	FALL SNEEZEWEED	FACW
13.	ASTERPILOSUS/SYMPHYOTRICHUM PILOSUM	HEATH ASTER	FACU
14.	SOLIDAGO JUNCEA	EARLY GOLDENROD	
15.	AGROSTIS PERENNANS	UPLAND BENTGRASS	FACU

THE NEW ENGLAND CONSERVATION/WILDLIFE MIX PROVIDES A PERMANENT COVER OF GRASSES, WILDFLOWERS, AND LEGUMES. FOR BOTH GOOD EROSION CONTROL AND WILDLIFE HABITAT VALUE. THE MIX IS DESIGNED TO BE A NO MAINTENANCE SEEDING, AND IS APPROPRIATE FOR CUT AND FILL SLOPES, DETENTION BASIN SIDE SLOPES, AND DISTURBED AREAS ADJACENT TO COMMERCIAL AND RESIDENTIAL PROJECTS.

LOAM AND SEED NOTES:

CONTRACTOR SHALL SEED ALL DISTURBED AREAS NOT NOTED TO RECEIVE OTHER MATERIALS, AND AT AREAS SHOWN ON THE PLAN PER SPECIFICATIONS BELOW

SCIENTIFIC NAME	COMMON NAME	PROPORTION BY WEIGHT	PERCENT PURITY	PERCENT GERMINATION
FESTUCA RUBRA "RUBRA"	CREEPING RED FESCUE	37%	95%	90%
PAO PRAENTENSIS "BARON"	BARON KENTUCKY BLUEGRASS	40%	85%	90%
LOLIUM PERENNE "PALMER"	PALMER PERENNIAL RYEGRASS	15%	95%	90%
FESTUCA RUBRA COMMUTATA WILMA	WILMA CHEWINGS	8%	95%	80%

1. SEED TO BE SPREAD AT MINIMUM RATE OF 5 LBS. PER 1000 SQ. FT.
2. SEEDING TO BE COMPLETED "IN SEASON" BETWEEN APRIL 1 TO JUNE 15 OR AUGUST 15 TO OCTOBER 1, EXCEPT FOR RESEEDING OF BARE SPOTS. IF UNABLE TO SEED WITHIN THESE TIMEFRAMES, CONTRACTOR TO INSTALL EROSION CONTROL MATS ON ALL SLOPES 3:1 AND OVER, HYDROSEED ALL EXPOSED AREAS, ADD SOIL STABILIZER "FLEXTERRA HP–FGM" AS MANUFACTURED BY "PROFILE" TO HYDROSEED (AT RATE OF 3,000 LBS PER ACRE). CONTRACTOR TO COMPLETE ALL ABOVE "OUT OF SEASON" REQUIREMENTS AND THEN ALSO BE RESPONSIBLE FOR RE–GRADING AND RE–SEEDING ALL DISTURBED, ERODED, OR BARE SPOTS WITHIN NEXT CLOSEST PLANTING SEASON IN FALL OR SPRING.
3. COMMERCIAL FERTILIZER SHALL BE APPLIED AT THE RATE OF 25 POUNDS PER 1000 SQ. FT. OR AS RECOMMENDED BY THE TESTING AGENCY. LIME TO BE SPREAD AT THE RATE OF 100 POUNDS PER 1000 SQ. FT OR AS RECOMMENDED BY THE TESTING AGENCY. COMMERCIAL FERTILIZER SHALL BE A COMPLETE FERTILIZER CONTAINING AT LEAST 50% OF THE NITROGEN OF WHICH IS DERIVED FROM NATURAL ORGANIZE SOURCES OF UREAFORM. IT SHALL CONTAIN THE FOLLOWING PERCENTAGES BY WEIGHT: NITROGEN (N) 10%, PHOSPHORUS (P) 6%, POTASH (K) 4%. LIME SHALL BE AN APPROVED AGRICULTURAL LIMESTONE CONTAINING NOT LESS THAN 85% OF TOTAL CARBONATES. LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT 50% WILL PASS A 100 MESH SIEVE AND 90% WILL PASS THROUGH A 20 MESH SIEVE.
4. LAWN AREAS TO BE SEEDED BY SOWING EVENLY WITH AN APPROVED MECHANICAL SEEDER AT THE RATE OF TEN POUNDS PER 1000 SQUARE FEET.
5. CONTRACTOR RESPONSIBLE FOR WATERING, MOWING, AND RESEEDING OF LAWN BARE SPOTS UNTIL A UNIFORM, HEALTHY STAND OF GRASS IS ESTABLISHED AND ACCEPTED.

LANDSCAPE (HR)
§ 153-14 SITE DEVELOPMENT DESIGN CRITERIA.

G. LANDSCAPING	REQUIRED	PROVIDE	NOTES
1.a. EXISTING TREES AND STANDS OF TREES TO BE PROTECTED WITH CONSTRUCTION FENCING.	AS NOTED	PROTECT EXISTING TREES	
1.b. INVASIVE PLANT MATERIAL IS PROHIBITED	AS NOTED	REMOVE INVASIVES	
1.c. SHRUBS AND HEDGES TO BE A MIN. OF 24" IN HEIGHT WHEN PLANTED	AS NOTED	AS NOTED	
1.f. 1 TREE PER 35' NEXT TO ROADWAYS	AS NOTED	1 TREE PER 35 LINEAR FEET NEXT TO ROADWAYS	
1.g. TREES UNDER POWER LINES TO BE LOW GROWING.	AS NOTED	AS NOTED	
1.h. LANDSCAPE MAINTENANCE AND MANAGEMENT PLAN TO BE PROVIDED. REGULAR LS MAINTENANCE REQUIRED.	AS NOTED	AS NOTED	
1.i. SNOW STORAGE ON GRASSED OR NON LIVING AREAS.	AS NOTED	AS NOTED	
3. PARKING PERIMETER LANDSCAPE SHALL HAVE TREES PLANTED 35' ON CENTER 3" CALIPER MIN. SHRUBS BETWEEN THE TREES SHALL BE 5' ON CENTER AND 24" HIGH MIN.	AS NOTED	AS NOTED	

LANDSCAPE MANAGEMENT NOTES:

LANDSCAPE MANAGEMENT PLAN
IT SHOULD BE RECOGNIZED THAT THIS IS A GENERAL GUIDELINE TOWARDS ACHIEVING HIGH QUALITY AND WELL GROOMED LANDSCAPED AREAS. THE GROUNDS STAFF / LANDSCAPE CONTRACTOR MUST RECOGNIZE THE SHORTCOMINGS OF A GENERAL MAINTENANCE PROGRAM SUCH AS THIS, AND MODIFY AND/OR AUGMENT IT BASED ON WEEKLY, MONTHLY, AND YEARLY OBSERVATIONS. IN ORDER TO ASSURE THE HIGHEST QUALITY CONDITIONS, THE STAFF MUST ALSO RECOGNIZE AND APPRECIATE THE NEED TO BE AWARE OF THE CONSTANTLY CHANGING CONDITIONS OF THE LANDSCAPING AND BE ABLE TO RESPOND TO THEM ON A PROACTIVE BASIS.

FERTILIZER
- MAINTENANCE PRACTICES SHOULD BE AIMED AT REDUCING ENVIRONMENTAL, MECHANICAL AND PEST STRESSES TO PROMOTE HEALTHY AND VIGOROUS GROWTH. WHEN NECESSARY, PEST OUTBREAKS SHOULD BE TREATED WITH THE MOST SENSITIVE CONTROL MEASURE AVAILABLE. SYNTHETIC CHEMICAL CONTROLS SHOULD BE USED ONLY AS A LAST RESORT TO ORGANIC AND BIOLOGICAL CONTROL METHODS. FERTILIZER, SYNTHETIC CHEMICAL CONTROLS AND PEST MANAGEMENT APPLICATIONS (WHEN NECESSARY) SHOULD BE PERFORMED ONLY BY LICENSED APPLICATORS IN ACCORDANCE WITH THE MANUFACTURER'S LABEL INSTRUCTIONS WHEN ENVIRONMENTAL CONDITIONS ARE CONDUCIVE TO CONTROLLED PRODUCT APPLICATION.
- ONLY SLOW–RELEASE ORGANIC FERTILIZERS SHOULD BE USED IN THE LANDSCAPED AREAS TO LIMIT THE AMOUNT OF NUTRIENTS THAT COULD ENTER DOWNSTREAM RESOURCE AREAS. FERTILIZATION OF DEVELOPED AREAS ON SITE WILL BE PERFORMED WITHIN MANUFACTURERS LABELING INSTRUCTIONS AND SHALL NOT EXCEED AN NPK RATIO OF 1:1:1 (I.E. TRIPLE 10 FERTILIZER MIX), CONSIDERED A LOW NITROGEN MIXTURE. ADDITIONALLY, THE FERTILIZER WILL INCLUDE A SLOW RELEASE ELEMENT.

SUGGESTED AERATION
- PROGRAM IN–SEASON AERATION OF LAWN AREAS IS GOOD CULTURAL PRACTICE, AND IS RECOMMENDED WHENEVER FEASIBLE. IT SHOULD BE ACCOMPLISHED WITH A SOLID THIN TINE AERATION METHOD TO REDUCE DISRUPTION TO THE USE OF THE AREA. THE DEPTH OF SOLID TINE AERATION IS SIMILAR TO CORE TYPE, BUT SHOULD BE PERFORMED WHEN THE SOIL IS SOMEWHAT DRIER FOR A GREATER OVERALL EFFECT.
- DEPENDING ON THE INTENSITY OF USE, IT CAN BE EXPECTED THAT ALL LANDSCAPED LAWN AREAS WILL NEED AERATION TO REDUCE COMPACTION AT LEAST ONCE PER YEAR. THE FIRST OPERATION SHOULD OCCUR IN LATE MAY FOLLOWING THE SPRING SEASON. METHODS OF REDUCING COMPACTION WILL VARY BASED ON THE NATURE OF THE COMPACTION. COMPACTION ON NEWLY ESTABLISHED LANDSCAPED AREAS IS GENERALLY LIMITED TO THE TOP 2–3" AND CAN BE ALLEVIATED USING HOLLOW CORE OR THIN TINE AERATION METHODS.
- THE SPRING AERATION SHOULD CONSIST OF TWO PASSES AT OPPOSITE DIRECTIONS WITH 1/4" HOLLOW CORE TINES PENETRATING 3–5" INTO THE SOIL PROFILE. AERATION SHOULD OCCUR WHEN THE SOIL IS MOIST BUT NOT SATURATED. THE CORES SHOULD BE SHATTERED IN PLACE AND DRAGGED OR SWEPT BACK INTO THE TURF TO CONTROL THATCH. IF DESIRED THE CORES MAY ALSO BE REMOVED AND THE AREA TOP–DRESSED WITH SAND OR SANDY LOAM. IF THE AREA DRAINS ON AVERAGE TOO SLOWLY, THE TOPDRESSING SHOULD CONTAIN A HIGHER PERCENTAGE OF SAND. IF IT IS DRAINING ON AVERAGE TOO QUICKLY, THE TOP DRESSING SHOULD CONTAIN A HIGHER PERCENTAGE OF SOIL AND ORGANIC MATTER.

LANDSCAPE MAINTENANCE PROGRAM PRACTICES:

LAWN
- MOW A MINIMUM OF ONCE A WEEK IN SPRING, TO A HEIGHT OF 2" TO 2 1/2" HIGH. MOWING SHOULD BE FREQUENT ENOUGH SO THAT NO MORE THAN 1/3 OF GRASS BLADE IS REMOVED AT EACH MOWING. THE TOP GROWTH SUPPORTS THE ROOTS; THE SHORTER THE GRASS IS CUT, THE LESS THE ROOTS WILL GROW. SHORT CUTTING ALSO DRIES OUT THE SOIL AND ENCOURAGES WEEDS TO GERMINATE.
- MOW APPROXIMATELY ONCE EVERY TWO WEEKS FROM JULY 1ST TO AUGUST 15TH DEPENDING ON LAWN GROWTH.
- MOW ON A TEN–DAY CYCLE IN FALL, WHEN GROWTH IS STIMULATED BY COOLER NIGHTS AND INCREASED MOISTURE.
- DO NOT REMOVE GRASS CLIPPINGS AFTER MOWING.
- KEEP MOWER BLADES SHARP TO PREVENT RAGGED CUTS ON GRASS LEAVES, WHICH CAUSE A BROWNISH APPEARANCE AND INCREASE THE CHANCE FOR DISEASE TO ENTER A LEAF.

SHRUBS
- MULCH NOT MORE THAN 3" DEPTH WITH SHREDDED PINE OR FIR BARK.
- HAND PRUNE ANNUALLY, IMMEDIATELY AFTER BLOOMING, TO REMOVE 1/3 OF THE ABOVE–GROUND BIOMASS (OLDER STEMS). STEM REMOVALS TO OCCUR WITHIN 6" OF THE GROUND TO OPEN UP SHRUB AND MAINTAIN TWO–YEAR WOOD (THE BLOOMING WOOD).
- FERTILIZE WITH ½ LB. SLOW–RELEASE FERTILIZER (SEE ABOVE SECTION ON FERTILIZER) EVERY SECOND YEAR.
- HAND PRUNE EVERGREEN SHRUBS ONLY AS NEEDED TO REMOVE DEAD AND DAMAGED WOOD AND TO MAINTAIN THE NATURALISTIC FORM OF THE SHRUB. NEVER MECHANICALLY SHEAR EVERGREEN SHRUBS.

TREES
- PROVIDE AFTERCARE FOR NEW TREE PLANTINGS FOR THE FIRST THREE YEARS.
- DO NOT FERTILIZE TREES, IT ARTIFICIALLY STIMULATES THEM (UNLESS TREE HEALTH WARRANTS).
- WATER ONCE A WEEK FOR THE FIRST YEAR; TWICE A MONTH THE SECOND, ONCE A MONTH THE THIRD YEAR.
- PRUNE TREES ON A FOUR–YEAR CYCLE.

ORNAMENTAL GRASSES/PERENNIALS
- APPLY LOW– NITROGEN 10–10–10 FERTILIZER AS GROWTH RESUMES IN THE SPRING.
- WATER THOROUGHLY.
- GRASSES/PERENNIALS DO NOT NEED TO BE CUT DOWN BEFORE WINTER. IN FACT, THEY ARE ATTRACTIVE WHEN LEFT STANDING AND THE FOLIAGE HELPS TO INSULATE THE CROWN OF THE PLANT.
- CUT BACK THE FOLIAGE TO ABOUT 4–6 INCHES IN THE SPRING BEFORE GROWTH RESUMES. WHEN FOLIAGE IS REMOVED, SPRING GROWTH WILL BEGIN EARLIER. OLD FOLIAGE LEFT ON THE PLANT CAN DELAY THE CROWN'S WARMING AND SUBSEQUENT GROWTH BY AS MUCH AS 3 WEEKS.

WATERING
- WATERING TREES, SHRUBS AND PERENNIALS SHOULD BE DONE WEEKLY UPON ESTABLISHMENT FOR 6 MONTHS.

PLAN NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR IT'S REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
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LICENSED LANDSCAPE ARCHITECT
BETHANY C. DERMODY
006
STATE OF NEW HAMPSHIRE
6.20.24
PROFESSIONAL LANDSCAPE ARCHITECT FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:
114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	AS SHOWN	DWG. NAME:	L-3347-01
DESIGNED BY:	BCD	CHECKED BY:	MAM

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE:
LANDSCAPE NOTES

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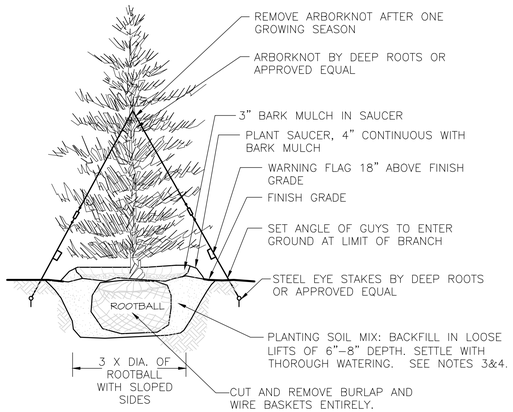
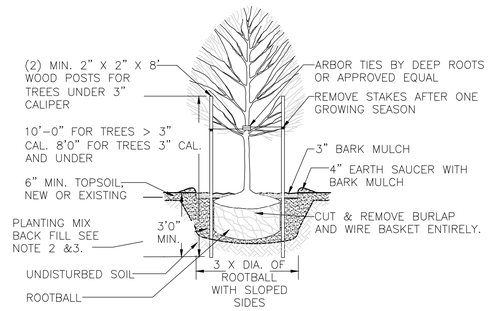


NOTES

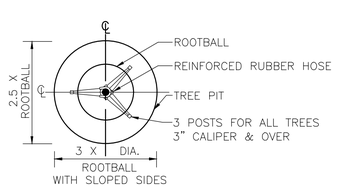
1. TREES SHALL BEAR SAME RELATIONSHIP TO FINISH GRADE AS IT BORE TO NURSERY OR FIELD GRADE. ROOT FLARE SHALL BE 2" ABOVE FINISH GRADE. REMOVE SOIL FROM TRUNK FLARE OF TREE TO DETERMINE ACTUAL TOP OF ROOTBALL AREA.
2. INSTALL THREE GUYS PER TREE; EQUALLY SPACED AROUND BALL.
3. ATTACH GUYS AT 2/3 HEIGHT OF TREE.
4. BACKFILL WITH PLANTING MIX. PLANT MIX TO BE: 50% NATIVE TOPSOIL, 20% COMPOST (LEAVES & ORGANIC MATERIAL, NO ASH) 20% PEAT MOSS, 10% SAND.
5. ADD MYCORRAIZA SOIL ADDITIVES AND SLOW RELEASE FERTILIZER WHEN PLANT HOLES ARE 50% FILLED AND WATER THOROUGHLY AT COMPLETION.

EVERGREEN TREE DETAIL — NOT TO SCALE — 1

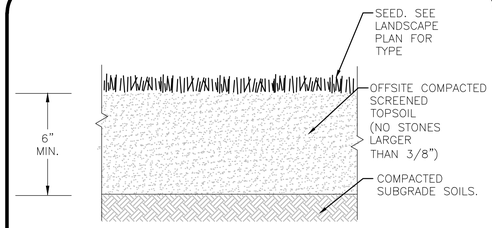


NOTES:

1. ALL TREES SHALL HAVE THE SAME RELATIONSHIP TO FINISH GRADE AFTER PLANTING AS THEY HAD AT THE ORIGINAL NURSERY SETTING. ROOT FLARE SHALL BE 2" ABOVE FINISH GRADE. REMOVE SOIL FROM TRUNK FLARE OF TREE TO DETERMINE ACTUAL ROOTBALL AREA.
2. BACKFILL WITH PLANTING MIX. PLANT MIX TO BE: 50% NATIVE TOPSOIL, 20% COMPOST (LEAVES & ORGANIC MATERIAL, NO ASH) 20% PEAT MOSS, 10% SAND.
3. ADD MYCORRAIZA SOIL ADDITIVES AND SLOW RELEASE FERTILIZER WHEN PLANT HOLES ARE 50% FILLED AND WATER THOROUGHLY AT COMPLETION.



DECIDUOUS TREE PLANTING DETAIL — NOT TO SCALE — 2



TEXTURE CLASS	% OF TOTAL WEIGHT
SAND	45% – 65%
SILT	15% – 35%
CLAY	5% – 20%

SIEVE	% PASSING
3/8"	100
NO. 4	85–100
NO. 40	60–85
NO. 100	38–60
NO. 200	10–35
20 um	LESS THAN 5%

NOTES:

1. TOP OF LOAM (TOPSOIL) IS FINISH GRADE.
2. ALL TOPSOIL (BOTH ONSITE AND OFFSITE SOURCES) SHALL BE COMPOSED OF A NATURAL, FERTILE, FRIABLE SOIL TYPICAL OF CULTIVATED TOPSOILS OF THE LOCALITY. OFFSITE SOIL SHALL BE SUITABLE FOR THE GERMINATION OF SEEDS AND SUPPORT OF VEGETATIVE GROWTH, WITH ADDITIVES, IF REQUIRED, TO ACHIEVE PARTICLE DISTRIBUTION AND ORGANIC CONTENT BELOW. TOPSOIL SHALL BE TAKEN FROM A WELL–DRAINED, ARIABLE SITE, FREE OF SUBSOIL, LARGE STONES, EARTH CLODS, STICKS, STUMPS, CLAY LUMPS, ROOTS, OTHER OBJECTIONABLE, EXTRANEOUS MATTER OR DEBRIS NOR CONTAIN TOXIC SUBSTANCES.
3. THE CONTRACTOR SHALL PROVIDE THE OWNER / LANDSCAPE ARCHITECT WITH TOPSOIL TEST RESULTS (RECOMMEND UMASS AMHERST SOIL TESTING LAB) FOR APPROVAL PRIOR TO OBTAINING AND PLACING THE SOIL. IF ANY TOPSOIL IS PURCHASED OR PLACED PRIOR TO APPROVAL BY OWNER / LANDSCAPE ARCHITECT, IT IS AT CONTRACTORS RISK, AND IT CAN BE REMOVED AT NO ADDITIONAL COST TO THE OWNER. IF THE PLANTING SOIL (BOTH ONSITE AND OFFSITE SOURCES) DOES NOT FALL WITHIN THE REQUIRED SIEVE ANALYSIS, TEXTURAL CLASS, ORGANIC CONTENT, OR PH RANGE, IT SHALL BE ADJUSTED TO MEET THE SPECIFICATIONS THROUGH THE ADDITION OF SAND, COMPOST, LIMESTONE, OR ALUMINUM SULFATE TO BRING IT WITHIN THE SPECIFIED LIMITS AT NO ADDITIONAL COST TO THE OWNER.
4. TOPSOIL SHALL HAVE A PH VALUE BETWEEN 5.5 AND 6.5. TOPSOIL SHALL CONTAIN BETWEEN 4% AND 8% ORGANIC MATTER OF TOTAL DRY WEIGHT AND SHALL CONFORM TO THE FOLLOWING GRADATION AND TEXTURE CLASS ABOVE.

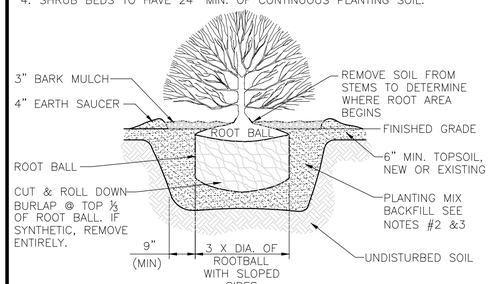
TOPSOIL FOR LAWN, TREES, SHRUBS, & PERENNIALS — NOT TO SCALE — 3

LANDSCAPE NOTES

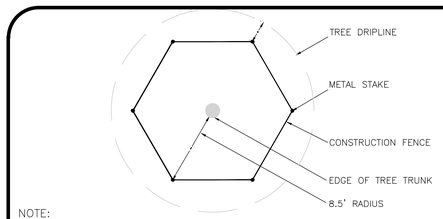
1. ALL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY/TOWN OF DOVER, NH.
2. PLANTING PLAN IS DIAGRAMMATIC IN NATURE. FINAL PLACEMENT OF PLANTS TO BE APPROVED BY THE LANDSCAPE ARCHITECT IN THE FIELD.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES, ANY PERMITTING AGENCIES, AND "DIG–SAFE" (1–888–344–7233) AT LEAST 72 HOURS IN ADVANCE OF ANY WORK THAT WILL REQUIRE EXCAVATION. CONTRACTOR SHALL NOTIFY THE OWNERS REPRESENTATIVE OF NAY CONFLICTS IN WRITING.
4. NO PLANT MATERIAL SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA, ANY TREES NOTED AS "SEAL OR SELECTED SPECIMEN" SHALL BE TAGGED AND SEALED BY THE LANDSCAPE ARCHITECT.
5. ALL TREES SHALL BE BALLED AND BURLAPPED (B&B) UNLESS OTHERWISE NOTED OR APPROVED BY THE OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT.
6. CONTRACTOR SHALL VERIFY QUANTITIES SHOWN ON PLANT LIST. QUANTITIES SHOWN ON PLANS SHALL GOVERN OVER PLANT LIST.
7. ANY PROPOSED PLANT SUBSTITUTIONS MUST BE APPROVED IN WRITING BY OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT.
8. ALL PLANT MATERIALS INSTALLED SHALL MEET THE GUIDELINES ESTABLISHED BY THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY AMERICANHORT (LATEST EDITION).
9. ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF ACCEPTANCE.
10. ALL DISTURBED AREAS NOT OTHERWISE NOTED SHALL RECEIVE 6" OF SUITABLE LOAM & SEED LAWNS WITH 3:1 OR GREATER SLOPES SHALL BE PROTECTED WITH AN EROSION CONTROL BLANKET.
11. ANY FALL TRANSPLANTING HAZARD PLANTS SHALL BE DUG IN THE SPRING AND STORED FOR FALL PLANTING.
12. TREES SHALL HAVE A MINIMUM CALIPER AS INDICATED ON THE PLANTING SCHEDULE TAKEN ONE FOOT ABOVE THE ROOT CROWN.
13. ALL PLANT BEDS AND TREE SAUCERS TO RECEIVE 3" OF PINE BARK MULCH. GROUND COVER AREAS SHALL RECEIVE 1" OF PINE BARK MULCH
14. ALL DECIDUOUS TREES ADJACENT TO WALKWAYS AND ROADWAYS SHALL HAVE A BRANCHING PATTERN TO ALLOW FOR A MINIMUM OF 7' OF CLEARANCE BETWEEN THE GROUND AND THE LOWEST BRANCH.
15. ALL TREE STAKES SHALL BE STAINED DARK BROWN.
16. CONTRACTOR RESPONSIBLE FOR WATERING, AND RESEEDING OF BARE SPOTS UNTIL A UNIFORM STAND OF VEGETATION IS ESTABLISHED AND ACCEPTED.
17. ALL PARKING ISLANDS PLANTED WITH SHRUBS SHALL HAVE 24" OF TOP SOIL. FINISH GRADE SHALL BE EQUAL TO THE TOP OF CURB.
18. SOIL SAMPLES, TESTS, AND SHOP DRAWINGS SHALL BE PROVIDED TO THE LANDSCAPE ARCHITECT OR THE OWNER FOR APPROVAL PRIOR TO CONSTRUCTION.
19. DESIGN AND INSTALLATION OF IRRIGATION SYSTEM TO BE PERFORMED BY AN APPROVED IRRIGATION DESIGN BUILD CONTRACTOR OR BY AN APPROVED EQUAL, TO BE DETERMINED BY THE OWNERS REPRESENTATIVE AND LANDSCAPE ARCHITECT. IRRIGATION SYSTEM IS TO BE DESIGNED FOR EFFICIENT WATER USAGE INCLUDING: USE OF DRIP IRRIGATION FOR SHRUBS AND PERENNIALS, IRRIGATION SYSTEM WITH HEAD–TO–HEAD COVERAGE, A CENTRAL SHUT–OFF VALVE, SEPARATE ZONES FOR EACH TYPE OF BEDDING AREA BASED ON WATERING NEEDS, AND A RAIN SENSOR TO SHUT OFF IRRIGATION DURING RAIN EVENTS.
19. ALL PROPOSED LANDSCAPE AREAS THAT ARE NOT IRRIGATED SHALL BE PROVIDED WITH TEMPORARY WATER EFFICIENT IRRIGATION. TEMPORARY IRRIGATION TO BE PROVIDED FOR AN ESTABLISHMENT PERIOD OF 3 MONTHS. THIS CAN INCLUDE BUT IS NOT LIMITED TO: GATOR BAGS, PORTABLE IRRIGATION AND WEEKLY WATERING OF ALL LANDSCAPE AREAS.

NOTES:

1. ALL SHRUBS SHALL HAVE THE SAME RELATIONSHIP TO FINISH GRADE AFTER PLANTING AS THEY HAD AT THE ORIGINAL NURSERY SETTING. SET SHRUB 1"–2" ABOVE FINISH GRADE.
2. BACKFILL WITH PLANTING MIX. PLANT MIX TO BE: 50% NATIVE TOPSOIL, 20% COMPOST (LEAVES & ORGANIC MATERIAL, NO ASH) 20% PEAT MOSS, 10% SAND.
3. ADD MYCORRAIZA SOIL ADDITIVES AND SLOW RELEASE FERTILIZER WHEN PLANT HOLES ARE 50% FILLED AND WATER THOROUGHLY AT COMPLETION.
4. SHRUB BEDS TO HAVE 24" MIN. OF CONTINUOUS PLANTING SOIL.

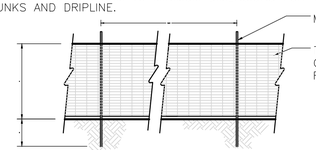


SHRUB PLANTING DETAIL — NOT TO SCALE — 4

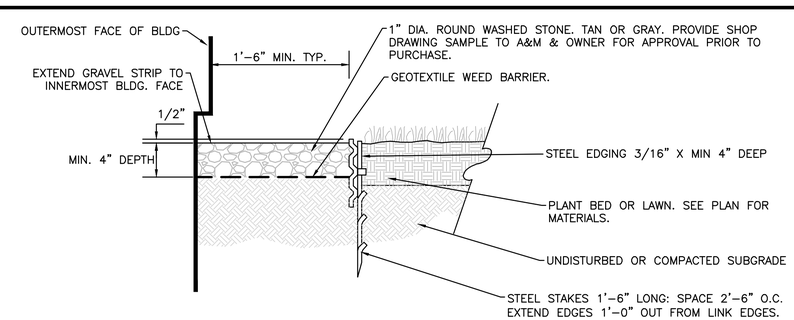


NOTE:

1. CONSTRUCTION FENCE TO BE "VISUAL BARRIER FENCE" AS MANUFACTURED BY EXXON CHEMICAL COMPANY ATLANTA, GA; "KONTROL SAFETY FENCE" AS MANUFACTURED BY MIRAFI, CHARLOTTE, N.C. OR APPROVED EQUAL.
2. IF GROUPS OF TREES ARE TO BE PROTECTED, EXTEND FENCE AROUND PERIMETER TO CONFORM TO MINIMUM DIMENSIONS FOR TREE TRUNKS AND DRIPLINE.



TEMP. CONST. FENCE / TREE PROTECTION — NOT TO SCALE — 5



NOTES:

1. STONE STRIP IS TO BE INSTALLED CONTINUOUS ADJACENT TO THE ENTIRE FACE OF BUILDINGS EXCEPT WHERE OTHER HARD SURFACING MATERIALS ARE SPECIFIED OR IF SHOWN OTHERWISE ON PLAN.
2. STONE STRIP TO BE INSTALLED UNDER ALL BUILDING OVERHANGS.
3. COORDINATE INSTALLATION OF STONE STRIP WITH INSTALLATION OF FOUNDATION DRAIN & TO BE LOCATED BEYOND ROOF OVERHANG.

STONE EDGE ALONG BUILDING — NOT TO SCALE — 6

LICENSED LANDSCAPE ARCHITECT
BETHANY C. DERMODY
006
STATE OF NEW HAMPSHIRE
6.20.24
PROFESSIONAL LANDSCAPE ARCHITECT FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION

APPLICANT\OWNER:

114 SILVER STREET GROUP, LLC
10 DURHAM ROAD
DOVER, NH 03820

PROJECT:

114 SILVER STREET
DOVER, NH

PROJECT NO.	3347-01	DATE:	06/20/24
SCALE:	AS SHOWN	DWG. NAME:	L-3347-01
DESIGNED BY:	BCD	CHECKED BY:	MAM

PREPARED BY:
ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying
environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE: LANDSCAPE NOTES & DETAILS

SHEET No. L-501

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R:\PROJECTS\3347-01\CIVIL\DRAWINGS\CURRENT\L-3347-01_LANDSCAPE.DWG

Traffic Impacts are negligible for the proposed project.

Architectural plans to be submitted later, following TRC review.

Streetscape plans to be submitted later, following TRC review.

PLAN SNAPSHOT REPORT SITE-2024-0007
FOR CITY OF DOVER, N.H.

Plan Type:	Site Plan - Major	**Project:**		**App Date:**	06/26/2024
Work Class:	New Construction	**District:**	None	**Exp Date:**	08/30/2024
Status:	In Review	**Square Feet:**	0.00	**Completed:**	NOT COMPLETED
Valuation:	$0.00	**Assigned To:**	Blonigen, Rachel	**Approval Expire Date:**	

Description: Construction of a 25 space parking lot to support business operations. No modifications proposed to existing structure.

Parcel: 31011-000000 Main	**Address:** 1 Grove St Main Dover, NH	**Zone:** CBD-T(Central Business District - Transit)

Owner
Michael Pilon
Business: (603) 749-9424
Mobile: (508) 353-5340

Wetlands Scientist
Deidra Benjamin
Home: (603) 332-2863

Applicant
Berry Surveying & Engineering
335 Second Crown Point Road
Barrington, NH 03825
Business: (603) 332-2863
Mobile: (603) 781-3403

Landscape Architect
Terrain Planning & Design, LLC
Business: (603) 491-2322

Applicant
Michael Pilon
Business: (603) 749-9424
Mobile: (508) 353-5340

Engineer
Kenneth Berry
Home: (603) 332-2863
Business: (603) 332-2863
Mobile: (603) 332-2863

Surveyor
Kenneth Berry
Home: (603) 332-2863
Business: (603) 332-2863
Mobile: (603) 332-2863

Plan Custom Fields

Total	0	Total2	0	Total3	0
Total4	0	Total5	0	Total6	0
Total7	0	Total8	0	Total9	0
Street Classification Type	Municipal	Net Change in # Parking Spaces (+/-)	25	Water Service	Municipal
Recording Number		Sewer Service	Municipal	Total Acres (GIS)	0.49
Deed Book	4943	Total SQFT	21344.4	Deed Page	308
Deed Date		Proposed Property Use	Proposing a 25 space parking lot to support existing business operations	Area of Parcel to be Developed (SQFT)	14000
Number of Parking Spaces Existing	0	Number of Parking Spaces Proposed	25	Number of Employees Total	25
Number of Employees in Max Shift	1	Distance to City Water	0	Distance to City Sewer	0
Type of Building to be Built	Existing masonry building	Estimated Construction Value	200000.00	Refuse Removal	Private
Is there an existing Conservation Easement?	No	Existing Conservation Easement Details		TotalImpactFeeSDTOD	0.00
TotalImpactFeeTHTOD	0.00	TotalImpactFee23FTOD	0.00	TotalImpactFeeA4TOD	0.00
TotalImpactFeeMHTOD	0.00	TotalImpactFeeADUTOD	0.00	TotalImpactFeeAONRTOD	0.00
TotalImpactFeeAR55TOD	0.00	TotalImpactFeeAR62TOD	0.00	Sub Total Residential	0.00
TotalImpactFeeRIRCTOD	0.00	TotalImpactFeeOCSTOD	0.00	TotalImpactFeeITWCTOD	0.00
TotalImpactFeeNHALTOD	0.00	TotalImpactFeeOIUTOD	0.00	TotalImpactFeeAFAOTOD	0.00
Sub Total Non-Residential	0.00	Total of Impact Fees to be Assessed	0.00		

PLAN SNAPSHOT REPORT (SITE-2024-0007)

Attachment File Name	Added On	Added By	Attachment Group	Notes
Signature_Chris_Berry_6/26/2024.jpg	06/26/2024 14:31	Berry, Chris		Uploaded via CSS

Invoice No.	Fee	Fee Amount	Amount Paid
INV-00008467	Planning General Application Fee	$200.00	$0.00
	Total for Invoice INV-00008467	$200.00	$0.00
	Grand Total for Plan	$200.00	$0.00

Meeting Type	Location	Scheduled Date	Subject
Technical Review Committee Meeting v.1	City Hall, Second Floor Conference Room	07/18/2024	Technical Review Committee Meeting

Submittal Name	Status	Received Date	Due Date	Complete Date	Resubmit	Completed
Land Use Plan Technical Review v.1	In Review	06/27/2024	07/25/2024		No	No

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Business Development	Business Development	Dove, Annie	In Review	06/27/2024	07/25/2024	
City Engineer	Community Services - Engineering	Mavrogeorge, Kenneth	In Review	06/27/2024	07/25/2024	
IS Building Official	Fire / Inspection Services	Maxfield, Jim	In Review	06/27/2024	07/25/2024	
Planning	Planning	Bassegio, Erin	In Review	06/27/2024	07/25/2024	
Zoning Administrator	Planning	Crouser, Paul	In Review	06/27/2024	07/25/2024	
Traffic Bureau	Police	Speidel, Marn	In Review	06/27/2024	07/25/2024	

Workflow Step / Action Name	Action Type	Start Date	End Date
Review v.1		06/27/2024 11:02	
Confirm application complete v.1	Generic Action		06/27/2024 11:19
Technical Review Committee Meeting Agenda v.1	Task	06/27/2024 11:18	06/27/2024 11:19
Land Use Plan Technical Review v.1	Receive Submittal	06/27/2024 0:00	
Technical Review Committee Meeting v.1	Hold Meeting	06/27/2024 11:18	
Planning Board v.1			
Planning Board Agenda v.1	Task		
Invoice for Notices v.1	Task		
Send Notices v.1	Task		
Planner Creates Staff Recommendations v.1	Plan Activity		
Distribute Planning Board Materials v.1	Task		
Planning Board Hearing v.1	Hold Hearing		
Planning Board Decision v.1	Plan Activity		
NOD Sent to Applicant v.1	Create Report		
Final Plan v.1			
Land Use Plan Stamped and Signed v.1	Generic Action		
Recording v.1	Task		

Document Archival v.1	Generic Action
Internal Notification of Plan Completion v.1	Generic Action
Building Official Notifies Address v.1	Generic Action
Pre-Con Meeting v.1	Hold Meeting
Create/Link to Records v.1	
Create / Link to Permit - Building Major v.1	Create Sub Permit
Create / Link to Permit - Site Work, Construction v.1	Create Sub Permit

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: Hampshire Controls Corp. Telephone # 603-749-9424

Address of Applicant: P.O. Box 516, Dover, NH 03821

E-Mail Address: michael.pilon@hampshirecontrols.com

Name of Property Owner (*if different from applicant*): Pillar Imaging LLC Telephone # Same

Address of Property Owner: 1 Grove Street, Dover, NH 03820

PROPERTY INFORMATION

Address of Property: 1 Grove Street

Assessor's Map # 31 Lot(s) # 11

Zoning District(s) CBD TOD Overlay District(s) N/A

Size of Parcel: 21,383 sq. ft. 0.49 ac. Property Deed: Book 4943 Page: 308

Existing Use of Property: Light Manufacturing/Office / Vacant Land

SITE PLAN INFORMATION

Describe Proposed Use: Construction of a Parking Lot to Service the Expansion of Existing Business

Area of Parcel to be Developed: 14,000 Sq. Ft. new development 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 _____

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

Number of Employees Total: 25 In Maximum Shift: 1

Disposition of Parcel:

Building Footprint 7,252 sq. ft.

Total Building Area 7,252 sq. ft.

Paved Area _____ sq. ft.

Building Setbacks:

Front Yard 0 ft.

Rear Yard 0-25' (Existing Building 115') ft.

Side Yard: Right____ ft. Left_____ ft.

10-25' build-to

City Water? X Yes ___ No How far is city water from the property? _____

City Sewer? X Yes ___ No How far is city sewer from the property? _____

TRANSFER OF DEVELOPMENT RIGHTS INFORMATION

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

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

Relief sought (Check All That Apply):

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

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

_____

_____

_____

BUILDING INFORMATION

Type of Building to be Built: Existing Masonry Building

Height of Building: 1 story Finished Floor Elevation: 73.5

Number of Seats (where applicable) _____

Estimated value of construction: _____Refuse removal: Public/Private (circle one)

WAIVER REQUESTS

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

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

Please find attached narrative.
(1) SITE SPECIFIC SOILS MAP: 153-14(A)(3)(f)(2)(C)
(2) PARKING LOT ACCESSWAY WIDTH: 153-14(D)(6)(b)
(3) INTERIOR LANDSCAPING: 153-14(G)(2)(A)
(4) PERIMETER LANDSCAPING: 153-14(G)(3)(A)
(5) PIPE COVER: 157-40-B(5)

_____

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) Berry Surveying & Engineering, Christopher R. Berry Kenneth A. Berry, PE, LLS

Address 335 Second Crown Point Road Barrington, NH 03825 Telephone #: 603-332-2863

Professional License #: LLS 805 E-mail address: crberry@metrocast.net k.berry@berrysurveying.com

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) Same

Address _____ Telephone #: _____

Professional License #: PE 14243 E-mail address: _____

ARCHITECT INFORMATION

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

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

LANDSCAPE ARCHITECT INFORMATION

Name of Landscape Architect and Company (Licensed in N.H.) Terrain Planning, Eric Buck

Address 311 Kast Hill Road, Hopkinton, NH 03229 Telephone #: 603-491-2322

Professional License #: 78 E-mail address: ebuck@terrainplanning.com

SOIL SCIENTIST INFORMATION

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

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

CONSERVATION EASEMENT HOLDER

Name of Easement Holder: _____ Telephone #_____

Address Easement Holder: _____

SIGNATURES

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

Signature of Property Owner: _____ Date: 05/09/2024

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: 05/09/2024

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: 05/09/2024

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: 05/09/2024

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

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: Hampshire Controls Corp. File Number: _____

PROJECT TITLE: Non-residential Site Plan for Hampshire Controls Corp.

PROPERTY LOCATION: 1 Grove Street Tax Map: 31 Lot: 11

	Where/How Provided	Reviewed
1. Completed and signed Application form	X	
2. Plan Review Fees are provided	X	
3. Electronic copy of the engineered/surveyed plan layout	X	
4. Electronic copy of supplementary materials and application	X	
5. Traffic Impact Assessment and Analysis (Standard or Advanced)	X	
6. Waiver requests to the Site Plan Review Regulations, with written justification	X	
7. Conditional Use Permit applications	X	
8. A colored rendering of the streetscape that will be created along the existing public right-of-way	N/A, Site rendering provided	
9. A colored architectural plan showing all sides of buildings	N/A	
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:	X	
Location map at appropriate scale	X	
Proposed Project name and title and Planning File #	X	
Date, north arrow and scale	X	
Names of all abutting property owners	X	
Name and address of owners and/or applicants	X	
Signature & stamp of NH licensed land surveyor and/or engineer	X	
Zoning District boundaries, including any special or overlay districts	X	
Location of Conservation District areas	X, N/A	
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	X	
Location and widths of existing & proposed easements & right of ways	X	
Location and width of existing and proposed access/egress ways	X	

	Explain How Provided	Reviewed
Depict pedestrian walkways and accessible access	X	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	X	
Existing and proposed topographic information at two foot intervals	X	
Existing and proposed buildings and structure locations	X	
Minimum building setbacks or build to lines on all lots	X	
Location and size of existing and proposed electric, telephone, gas cable and other underground utilities	X	
Existing and proposed water lines and fire hydrants, including materials and capacity needed	X	
Location and materials of sanitary sewage facilities within project site and projected additional peak hour sewer load	X	
Existing and proposed stormwater lines and facilities	X	
Lighting plan depicting all existing and proposed exterior light fixtures and a lighting level analysis for parking lots	X	
Location of Flood Hazard Zone	N/A	
Location of all bodies of water and watercourses	X	
Location of wetlands and buffers	N/A, none on site	
Neighborhood plan with aerial underlay showing how project relates to abutting uses within the plan set	X	
Existing natural features and/or significant vegetation on property	X	
Depict existing contours up to 100 ft. beyond project limits	X	
Landscape plan depicting existing and proposed landscaping, prepared by a licensed Professional Landscape Architect	X	
Location of parking layout delineating spaces and arrangement; note addressing maximum required spaces	X	
Location, material and size of existing and proposed pavement area	X	
Location of proposed fire lanes	X	
Specify finished floor elevations of buildings	X	
Location of solid waste disposal facilities (dumpster, pad and screening, etc.), including required screening	X	
Depict all service, storage, loading bays and utility areas	X	
All applicable Dover Common Site Plan notes	X	
11. Additional Information if appropriate		
Stormwater Management Plan depicting the existing & proposed storm drainage system and engineered drainage analysis	X	
Stormwater Management System Operation and Maintenance Plan	X	
Letter to Serve from Public and Private Utilities	N/A	
Erosion and Sedimentation Control Plan	X	
Landscape Operation and Maintenance Plan	X	
Proposed restrictive covenants or homeowners association documents	N/A	
Dates and permit numbers of all required state and federal permits	No state or federal	
If wetland buffer, indicate placards locations, as applicable	N/A	
Depict test boring locations, groundwater elevations and soil profiles and/or soils types call-outs	Waiver requested, NRCS used	
Location of proposed drive-in facilities	N/A	
Provide additional exhibits/technical data determined appropriate by the Planning Board or its staff as required	Will provide as requested	

REVIEWED BY: _____ DATE_____ TRC DATE_____

BERRY SURVEYING & ENGINEERING
335 Second Crown Point Road
Barrington, NH 03825
Phone: (603) 332-2863
Fax: (603) 335-4623
www.BerrySurveying.Com
crberry@metrocast.net
June 24, 2024

City of Dover Planning Board
Attention: Donna Benton, AICP, Director of Planning and Community Development
288 Central Ave
Dover, NH 03820

Re: Project Narrative
Non-Residential Site Plan
Pillar Imaging, LLC (Owner)
Hampshire Controls Corp. (Applicant)
1 Grove Street
Tax Map 31, Lot 11

Dear Mrs. Benton,

On behalf of our client, Hampshire Controls Corp., Berry Surveying & Engineering (BS&E) is submitting a proposed Non-Residential Site Plan for a 25-space parking lot at 1 Grove Street, Tax Map 31, Lot 11.

Background and General Narrative:

Pillar Imaging, LLC, owns the parcel known as 1 Grove Street in Dover, NH (Tax Map 31, Lot 11). The parcels contain 21,383 Sq. Ft. (0.49 Ac.) of land and is occupied by the Hampshire Controls Corp. building. Hampshire Controls Corp. designs and manufactures monitoring, alert notification and data logging technologies for medical, food processing, and research applications. Hampshire Controls Corp. currently utilizes a handful of partially marked parking spaces in a gravel area along the north side of the building, small gravel area on the eastern side of the building and any available street parking to support operations. The available parking is not adequate for current and future operations at Hampshire Controls.

Berry Surveying & Engineering has conducted an on-site survey of the parcel which includes a topographic analysis and wetlands analysis. No wetlands were found on site as determined by Deidra Benjamin, CWS. Tax Map 31, Lot 11 contains a commercial structure built in 1923 located at the front of the property along the right of way of Grove Street. The rear of the property is grassed with a few trees. The site is located approximately 150 feet from the intersection of Grove Street and Third Street. Topographic conditions on site are relatively flat, gradually sloping from the northern to

the southern side of the property. The site consists of Suffield Silt Loam, according to NRCS Websoil Survey. The site is located within the Central Business District – Transit Oriented Development Subdistrict (CBD-TOD). The parcel is subject to a a minimum lot coverage of 75-100%, 80% minimum frontage build out, 3-5 story minimum building height, 0' front build-to line, 10-25' side build-to lines, and a 0-25' rear build-to line.

The Proposal:

The proposal is for Hampshire Controls Corp. to expand the number of employees working from the facility. The existing operation employs 8 people, with an expansion to 25 employees desired. Utilizing the parking requirements from Chapter 153-14, the office land use code selected was based upon the business "having employees but not a high volume of customers" (subnote #9). Using the standard of 1 parking space per 300 Sq. Ft. results in a maximum parking value of 24 spaces. In previous Dover projects, it has been determined that a Conditional Use Permit is not required for one space over the maximum value. Within the parking lot includes an accessible space/accessible route and 2 EV ready parking spaces and a bike rack.

The parking lot will connect from the northeastern parking lot of the Station Apartments (Tax Map 31, Lot 4-1) (P20-58 & WAIV-2023-0008) at the end of Grove Street. A blanket easement will be provided for access over the Station Apartments parcel for the subject parcel. The current gravel parking area on the north side of the building will be replaced with a 5' at grade bituminous sidewalk and river stone landscaping. The existing gravel parking area on the eastern side of the structure will be removed for the proposed paved parking lot. The existing concrete sidewalk along the parcel frontage is proposed to remain.

Drainage:

The increase in impervious surface of the proposed parking lot will be mitigated by a subsurface sand filter, located at the parking lot entrance (low point). As the proposed parking lot grade is positive from the limit of the Station Apartments parking lot, stormwater is routed to a seam in the parking lot along the traveled way and captured by two catch basins. The catch basins the distribute the captured stormwater through the filter system, and discharged into the closed drainage system of Grove Street. A high flow by-pass is provided for large storm events within the system.

Utilities/Lighting:

The subject parcel is proposed to continue to utilize existing water, sewer, electric, and gas services. New utilities consist of two solar pole lights to meet the lighting requirements of the CBD zone. Due to the proximity of the pole lights to abutting properties, care was taken to select a lighting package that will not be a nuisance to abutters. The Litonia Lighting product selected includes an extreme backlight control package for this consideration.

Traffic:

A Traffic Impact Analysis has been provided for the proposed increase in employees as part of this application.

Non-Environmental Conditional Use Permits:

Due to the nature of the project and the zoning district the project is located in, several Conditional Use Permits will be required. Within the application package, they are numbered 1-5 to correspond with the numbering on the Site Plan table. CUP applications and narratives for each request are included within the provided package. Conditional Use Permit Requests are as follows:

(1) Existing frontage build-out of 73% where 80% is required
(2) Existing lot coverage of 33.9% where 75-100% is required
(3) Existing height of principal building of 1 story where 3-5 are required
(4) Existing rear build-to provided of 114.4'-115.2' where 0' min to 25' max is required
(5) Modifications of the streetscape standards to leave the existing frontage as is

Waiver Requests:

Several Waiver Requests are included within the application. Waivers are numbered 1-5 to correspond with the numbering on the Site Plan table. Justification for each waiver request is included within the Site Plan package. Waiver Requests are as follows:

(1) Site Specific Soils Map: 153-14(A)(3)(f)(2)(C)
(2) Parking Lot Accessway Width 153-14(D)(6)(b)
(3) Interior Landscaping: 153-14(G)(2)(A)
(4) Perimeter Landscaping: 153-14(G)(3)(A)
(5) Pipe Cover: 157-40-B(5)

Overall, project requires the following approvals:

- Site Plan Approval
- Conditional Use Permit Approvals
- Waiver Request Approvals

We look forward to working with the City of Dover on this application.

Respectfully Submitted,
BERRY SURVEYING & ENGINEERING

Kevin R. Poulin, PE
Project Engineer

Christopher R. Berry, SIT
Principal, President

BERRY SURVEYING & ENGINEERING
335 Second Crown Pt. Rd., Barrington, NH 03825
(603) 332-2863 / (603) 335-4623 FAX
www.BerrySurveying.Com

BERRY SURVEYING & ENGINEERING
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Fax: (603) 335-4623
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June 24, 2024

City of Dover Planning Board
Attention: Donna Benton, AICP, Director of Planning and Community Development
288 Central Ave
Dover, NH 03820

Re: Waiver Requests
Non-Residential Site Plan
Hampshire Controls Corp.
1 Grove Street
Tax Map 31, Lot 11

Chairperson & Members of the Dover Planning Board:

In accordance with Site Plan Review Regulations, the following five waivers, numbered corresponding with the Site Plan, are hereby requested:

1. **Identification of Waiver Request**: Submission of a Site-Specific Soils Map as part of a site plan application. Chapter 153-14(A)(3)(f)(2)(C)

    - Site Plan application without a Site-Specific Soils Map (SSSM).

1a. Explanation:

The site is 0.49 Acres in size and currently completely either developed or disturbed in some way. The use of the SSSM is for the purposes of analyzing peak rates of runoff from larger project sites. In this instance the Natural Resources Conservation Service (NRCS) soils were used. With the project size being small any potential variance would not appreciably change the results of the analysis.

1b. Waiver Justification:
Granting the waiver will properly carry out the purpose and intent of the regulations.

The intent of this regulation is to ensure that proper data is collected in relation to soils so that the project drainage can be designed accordingly. Given the use of the NRCS Web Soil Survey, and the fact that the site is small, the variation from pre-development and post-development curve numbers is minor. This regulation is more relevant to projects that will utilize septic systems or that contain existing natural areas larger in proportion to the project size.

1c. Strict conformity to the regulations would pose an unnecessary hardship to the applicant.

Strict conformity to this regulation will require the applicant to involve a NH certified soils scientist, who will have to go on site and delineate the soils type on a site with uniform soils. Additionally, the site is mostly disturbed, so any soil survey conducted would be similar to the NRCS Soils Map.

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2. Identification of Waiver Request: Minimum two-way parking lot aisle access width of 24 feet per Regulation 153-14(D)(6)(b)

- Parking lot two-way accessway widths of 18 feet with no adjacent parking spaces and 20 feet with parking on one side of the access way.

2a. Explanation:

The applicant is proposing a 25-space parking lot with 24-foot two-way access way where there is parking on both sides, 18-foot two-way access way where there is no parking on either side, and a 20-foot two-way access way where there is parking on one side. The 18-foot two-way access way and 20-foot two-way access way are proposed due to parcel size and snow storage considerations.

2b. Waiver Justification:
Granting the waiver will properly carry out the purpose and intent of the regulations.

The intent of this regulation is to provide adequate space for vehicle circulation and movement in a parking lot. Of the 25 parking spaces, 17 are accessed from the 24-foot two-way accessway. The remaining 8 spaces on the east side of the parking lot would utilize the 18-foot and 20-foot two-way access ways. In reviewing the standards of 153-14(D)(6)(a), aisle widths as low as 16 feet are allowed for 60-degree parking. With the area of 18-foot two-way accessway not containing any parking spaces, this width is not unreasonable, especially considering the low number of parking spaces that will need to use this lane for access. Also shown within 153-14(D)(6)(A) is the requirement of a 22-foot aisle for 90-degree parking and a 20-foot aisle for 75-degree parking. While the 20-foot aisle way will provide access to a total of 8 90-degree parking spaces on one side of the aisle, it is not unreasonable to provide the width for the 75-degree standard. If parking was provided on both sides of this access way, the applicant would look to provide a 24-foot two-way access way.

2c. Strict conformity to the regulations would pose an unnecessary hardship to the applicant.

Requiring the applicant to provide 24-foot two-way accessways would pose an unnecessary hardship on the applicant. Requiring the 18-foot accessway without parking spaces to be 24-feet would result in a loss of 3 parking spaces in order to provide the additional 6-feet of pavement with snow storage considerations. Requiring the 20-foot access way providing access to 8 parking spaces to be 24 feet would result in the parking lot construction being closer to the abutting building to the east. This would reduce the snow storage capacity for the site and further reduce potential for landscaping along the east side of the parking lot.

---

3. Identification of Waiver Request: Interior Landscaping of 5% for a parking lot of 25 spaces per 153-14(G)(2)(A)

- Having interior Landscaping percentage of 0% due to site constraints and to meet the maximum parking space value.

3a. Explanation:

The applicant is proposing 0% interior landscaping in order to provide the maximum allowable parking space value to support business operations. Perimeter landscaping is proposed in the parking lot.

3b. Waiver Justification:
Granting the waiver will properly carry out the purpose and intent of the regulations.

Granting the waiver will properly carry out the purpose and intent of the regulations. The proposed 25 space parking lot is only 5 parking spaces over the threshold to not require any interior landscaping (20 spaces or less). The intent of these regulations is to provide visually appealing parking lots with vehicle protection. All impervious surface proposed with the parking lot is necessary for either parking or vehicle circulation. Given the size of the subject parcel, viable locations for internal landscaping are non-existent. The parking lot will be subject to low vehicles speeds due to the geometry and will be supplemented by provided exterior landscaping.

3c. Strict conformity to the regulations would pose an unnecessary hardship to the applicant.

Requiring the applicant to provide 5% internal parking lot landscaping would pose an unnecessary hardship on the applicant. Including the access neck of the parking lot, the proposed area is 9,414 Sq. Ft.. An internal landscaping of 5% would require 470 Sq. Ft.. With each parking space being 9 ft X18 ft (162 Sq. Ft.), this would require a reduction of three parking spaces to satisfy the regulation. The parking lot would then become a 22-space parking lot, even closer to the threshold of 21 spaces to require the 5% interior parking lot landscaping requirement. The applicant would not be able to provide the maximum allowable parking spaces for the land use with strict conformity to the regulations.

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4. Identification of Waiver Request: Perimeter Landscaping with trees 35 feet on center with shrubs 5 feet on center between per 153-14(G)(3)(A).

- To provide perimeter parking lot landscaping as shown on the Landscaping Plan due to snow storage considerations and adjacent buildings.

4a. Explanation:

The applicant is proposing perimeter parking lot landscaping with trees and shrubs shown as spaced due to snow storage considerations and proximity of the parking lots to buildings. The 5-foot space between the western side of the parking lot and the subject parcel building is not sufficient for tree planting. Shrubs have been selected along this side of the parking lot. In the northern portion of the parking lot, this area is necessary to be used for snow storage, not allowing planting of trees or shrubs. In the eastern portion of the parking lot, trees are provided in the northeast and southeast corners of the parking lot due to the proximity to the abutting structure to the east on Lot 7. The majority of the parking lot snow storage will be located on the eastern side of the parking lot. On the southern side of the parking lot, shrubs are proposed due to the proximity to the property line and light pole.

4b. Waiver Justification:
Granting the waiver will properly carry out the purpose and intent of the regulations.

Granting the waiver will properly carry out the purpose and intent of the regulations. The applicant has attempted to balance the need for parking with snow storage and perimeter landscaping. Placing trees on the eastern or western side of the parking lot is not advantageous due to the proximity of potential trees to existing structures. While the northern and eastern sides of the parking lot are utilized to meet the snow storage

standard of 6:1 (9,414 Sq. Ft. of parking lot required 1,570 Sq. Ft. with 1,585 Sq. Ft. provided on site).

4c. Strict conformity to the regulations would pose an unnecessary hardship to the applicant.

Requiring the applicant to provide trees at 35' on center and shrubs 5' on center in between would pose an unnecessary hardship to the applicant. The proximity to the existing buildings to the eastern and western side of the parking lot is greatly restrictive. If the applicant was to provide this standard, the parking lot would need to be shifted to the east to balance the available tree planting area between the two buildings. This would provide approximately 8 feet of separation from the edge of pavement to the building faces, with 2 feet on each side consisting of shoulder. The distance from the trees to the buildings would be less than ideal due to root growth considerations. Between the addition of trees and shrubs 5 feet on center. This would greatly reduce the snow storage capability on site and require the applicant to remove snow to an offsite location, when the snow storage requirement can be met on the subject parcel.

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5. Identification of Waiver Request: Minimum pipe cover of 3' per Subdivision Regulation 157-40-B(5)

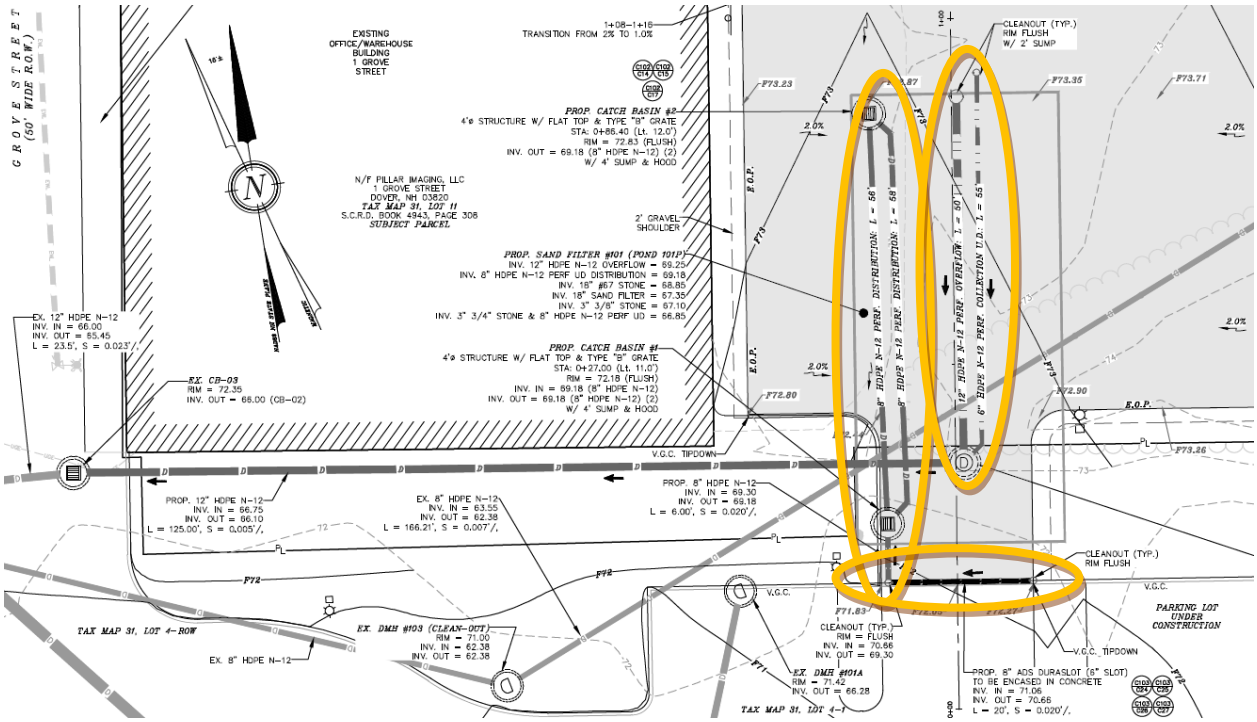
- Proposed 8" ADS Duraslot drain w/ outlet pipe and Sand Filter distribution pipes and overflow pipes without three feet of cover.

5a. Explanation:

The applicant proposes to utilize a Subsurface Sand Filter for stormwater treatment and mitigation. Given the elevation constraints of the site (relatively flat) and the limited available discharge points, the parking lot has been designed around these factors. To discharge the sand filter system, there are two available discharge points within the Station Apartments parcel/Grove Street right of way. Existing DMH #101A and existing catch basin CB-03 (See Existing Conditions Plan) provide a potential outlet away from the site. Existing DMH #101A was installed with a 10" outlet pipe originally, which is not sufficient for the overflow capacity required. Existing catch basin CB-03 in Grove Street contains a 12" outlet pipe, which is sufficient capacity for the required storm events. Based upon the invert out of existing catch basin CB-03, a 12" HDPE N-12 was connected to the proposed sand filter at a minimum slope to keep the elevation of the Sand Filter as low as possible.

The proposed parking lot entrance grade is controlled by the previously approved parking lot grade of the Station Apartments (Lot 4-1), limiting the ability to raise the final parking lot grade to provide the three feet of cover. The 8" ADS Duraslot drain is proposed to be encased in concrete. This drain is provided to ensure that additional impervious surface from the new parking lot is captured and treated, as opposed to draining into the Station Apartments closed drainage system. The 8" HDPE N-12 connection pipe from the Duraslot drain to the Subsurface Sand Filter is provided with a minimum 2 feet of cover.

In terms of the dual 8" HDPE N-12 distribution pipes and 12" HDPE N-12 overflow pipe, the elevations are controlled by the same factors previously discussed, with a minimum of 2-2.5 feet of cover provided over the pipes. The designed parking lot elevations takes into account the existing grade adjacent to the building in an attempt to not raise the grade in this area much if any above existing grade along the building.



5b. Waiver Justification:
Granting the waiver will properly carry out the purpose and intent of the regulations.

The purpose and intent of this regulation is to provide long term pavement and pipe durability. With the exception of the 8" ADS Duraslot drain to be encased in concrete, distribution, collection, and overflow pipes have a minimum of two feet of cover, placing the pipe outside of the limits of the parking lot gravel select materials at a depth of 22". HDPE N-12 perforated products are specified to be double-walled.

5c. Strict conformity to the regulations would pose an unnecessary hardship to the applicant.

Requiring the applicant to provide 3' of cover would pose an unnecessary hardship on the applicant. To provide the required cover, the applicant has two options. The first option would be to remove the ADS Duraslot Drain and increase the parking lot proposed entrance grade and move catch basin #1 uphill. This would result in an undesirable parking lot entrance grade and additional impervious surface ending up in the Station Apartments closed drainage system that would have been unanticipated in the previously approved designs. This would also likely result in a parking lot grade adjacent to the building that would be 6 inches to 1 foot higher than the existing condition.

A second potential option would be to evaluate entering the parking lot from the north (Lot 12) where the accessible route is shown. Not having a connection to the Station Apartments parking lot on Lot 4-1 would allow the proposed parking lot elevations to be independent from each other, potentially allowing for 3 feet of pipe cover. However, this potential parking lot connection location would be very tight with the parking lot and access to the north (Lot 12) and would place the driveway connection very close to Lot 10, which is a single-family residence.

Respectfully Submitted,
BERRY SURVEYING & ENGINEERING

Kevin R. Poulin, PE
Project Engineer

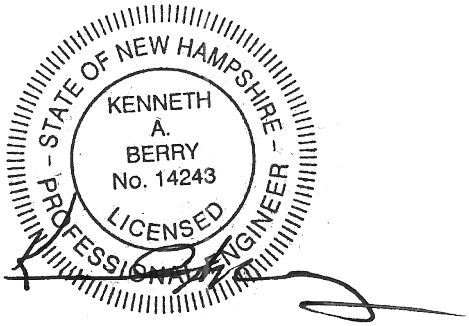
Christopher R. Berry
Principal, President

BERRY SURVEYING & ENGINEERING
335 Second Crown Point Road
Barrington, NH 03825
Phone: (603) 332-2863
Fax: (603) 335-4623
www.BerrySurveying.Com

June 24, 2024

City of Dover Planning Board
Attention: Donna Benton, AICP, Director of Planning and Community Development
288 Central Ave
Dover, NH 03820

RE: Traffic Impact Memo
Hampshire Controls Corp.
Tax Map 31, Lot 11
1 Grove Street
Dover, NH 03820



Mrs. Benton,

Berry Surveying & Engineering (BS&E), on behalf of the applicant, has prepared a Trip Generation memo for an existing 7,252 Sq. Ft. Office/Light Manufacturing Facility at 1 Grove Street. The applicant is looking to go from eight (8) employees to twenty-five (25) employees. The point of analysis is the four-way stop-controlled intersection Third Street and Grove Street for subject parcel only generated vehicle trips. The proposed parking lot connection will access Grove Street via the cul-de-sac from the Station Apartments. The following conclusions were reached as a result Traffic Impact Analysis:

- In the proposed condition, a total of 95 vehicle trips are predicted to occur on a weekday, 12 vehicle trips (9 enter/3 exit) at the weekday AM peak hour, and 12 vehicle trips (4 enter/8 exit) at the PM peak hour.

- This is an increase of 64 total weekday vehicle trips, 8 AM weekday peak hour vehicle trips, and 8 PM weekday peak hour vehicle trips from the existing condition.

- The closest opportunity for the use of public transportation is the Dover Transportation Station at 33 Chestnut Street. This is a 0.3 mile walk from the subject parcel.

- It is recommended that the surrounding infrastructure is sufficient to handle the existing vehicle trips at peak hours and all other hours.

Proposed Development & Introduction

The proposal is to construct a twenty-five (25) space parking lot on Tax Map 31, Lot 11 to support the existing Hampshire Controls Corp. building, which contains +/- 2,148Sq. Ft. of office space and +/- 5,104 Sq. Ft. of light manufacturing space. This existing facility utilizes a gravel parking area along the northern and eastern sides of the building for parking. This proposed parking lot will take access from the Station Apartments parking lot on Tax Map 31, Lot 4-1. The purpose of this analysis is to determine the maximum number of trips coming to and leaving the existing project site during certain peak periods of the day. This information is then used in determining the impact on safety as it relates to the existing roadway infrastructure. The following components of the analysis are typical for a project of this size pursuant to the Institute of Traffic Engineers (ITE) manual.

Existing Site Description

The subject parcel is known as Tax Map 31, Lot 11 containing 21,383 Sq. Ft. (0.49 Ac.) of land. The subject parcel is occupied by an existing small office/light manufacturing building, which is proposed to remain as part of the site plan. Located in the Central Business District – Transit Oriented Development Sub-District, the parcel contains frontage along Grove Street. There are commercial and residential driveways within 250' north of the subject parcel.

Grove Street Roadway Description

Grove Street is a two-lane local roadway, with on street parking on both sides of the roadway. This portion of Grove Street runs north to south, directly connecting to Third Street, Fourth Street, and Sixth Street among other local roadways. Central Avenue and Chestnut Street (minor arterial and major collector roadways) are located to the east of the parcel, accessed from Third Street.

Grove Street in the area of the project is composed of a forty to forty-two-foot-wide paved surface with ten to eleven travel lanes with on-street parking. Vertical granite curb lines the west side of the roadway and brick/concrete sidewalks are located on the east and west of the road. There is no centerline delineation provided. The speed limit of the roadway is not posted but is assumed to be 30 miles per hour (MPH). The geometry of Grove Street is straight to the north of the subject parcel terminating in a cul-de-sac to the south and intersecting Third Street to the north. Topographically, Grove Street is relatively flat as well in the project area (less than 3% road grade).

Proximity to Public Transportation/Pedestrian Access

Access to the nearest public transportation opportunity is the Dover Transportation Station at 33 Chestnut Street. This is a 0.3 mile walk from the subject parcel. Sidewalks are available on Third Street, with no road crossings needed to access this facility.

Existing Vehicle Speeds

As previously mentioned, the non-posted speed limit of Grove Street is 30 MPH. For the purposes of the safety analysis below, the 85th percentile of speed is required. This particular section of Grove Street was observed by Berry Surveying & Engineering to analyze the pass by traffic, reviewing speed. Excessive speeds were rare, and most operators obeyed the posted speed due to the stop-controlled intersection of Grove Street and Third Street and the termination of Grove Street just to the south of the subject parcel. The 85th percentile derived by observation and in front of the existing site is 30 MPH.

Existing Trip Generation

The following existing trip generation outputs are directly from the 11th Edition Trip Generation Manual using Code 140, Manufacturing and Small Office Building Code 712:

Manufacturing (140) Existing Generation

Time Method	AM Peak Adj. Street Traffic Employees			Time Method	PM Peak Adj. Street Traffic Employees			Time Method	Weekday Total Employees		
Employees	6			Employees	6			Employees	6		
Avg Rate	0.32			Avg Rate	0.31			Avg Rate	2.51		
Total Trips	2			Total Trips	2			Total Trips	15		
% Enter	73	Total Enter	1	% Enter	37	Total Enter	1	% Enter	50	Total Enter	8
% Exit	27	Total Exit	1	% Exit	63	Total Exit	1	% Exit	50	Total Exit	7

Small Office Building (712) Existing Generation

Time Method	AM Peak Adj. Street Traffic Employees			Time Method	PM Peak Adj. Street Traffic Employees			Time Method	Weekday Total Employees		
Employees	2			Employees	2			Employees	2		
Avg Rate	1.05			Avg Rate	1.08			Avg Rate	7.86		
Total Trips	2			Total Trips	2			Total Trips	16		
% Enter	85	Total Enter	2	% Enter	33	Total Enter	1	% Enter	50	Total Enter	8
% Exit	15	Total Exit	0	% Exit	67	Total Exit	1	% Exit	50	Total Exit	8

Existing Total Site Trip Generation

Time Method	AM Peak Adj. Street Traffic Employees			Time Method	PM Peak Adj. Street Traffic Employees			Time Method	Weekday Total Employees		
Total Trips	4			Total Trips	4			Total Trips	31		
% Enter	75	Total Enter	3	% Enter	50	Total Enter	2	% Enter	52	Total Enter	16
% Exit	25	Total Exit	1	% Exit	50	Total Exit	2	% Exit	48	Total Exit	15

It can be seen for the existing condition from the total site trip generation that a generation occurs of 31 weekday total trips, four (4) trips during the AM weekday peak hour, and four (4) trips during the PM weekday peak hour.

Proposed Trip Generation

The following proposed trip generation outputs are directly from the 11th Edition Trip Generation Manual using Code 140, Manufacturing and Small Office Building Code 712:

Manufacturing (140) Proposed Generation

Time Method	AM Peak Adj. Street Traffic Employees			Time Method	PM Peak Adj. Street Traffic Employees			Time Method	Weekday Total Employees		
Employees	19			Employees	19			Employees	19		
Avg Rate	0.32			Avg Rate	0.31			Avg Rate	2.51		
Total Trips	6			Total Trips	6			Total Trips	48		
% Enter	73	Total Enter	4	% Enter	37	Total Enter	2	% Enter	50	Total Enter	24
% Exit	27	Total Exit	2	% Exit	63	Total Exit	4	% Exit	50	Total Exit	24

Small Office Building (712) Proposed Generation

Time Method	AM Peak Adj. Street Traffic Employees			Time Method	PM Peak Adj. Street Traffic Employees			Time Method	Weekday Total Employees		
Employees	6			Employees	6			Employees	6		
Avg Rate	1.05			Avg Rate	1.08			Avg Rate	7.86		
Total Trips	6			Total Trips	6			Total Trips	47		
% Enter	85	Total Enter	5	% Enter	33	Total Enter	2	% Enter	50	Total Enter	24
% Exit	15	Total Exit	1	% Exit	67	Total Exit	4	% Exit	50	Total Exit	23

Proposed Total Site Trip Generation

Time Method	AM Peak Adj. Street Traffic Employees			Time Method	PM Peak Adj. Street Traffic Employees			Time Method	Weekday Total Employees		
Total Trips	12			Total Trips	12			Total Trips	95		
% Enter	75	Total Enter	9	% Enter	33	Total Enter	4	% Enter	51	Total Enter	48
% Exit	25	Total Exit	3	% Exit	67	Total Exit	8	% Exit	49	Total Exit	47

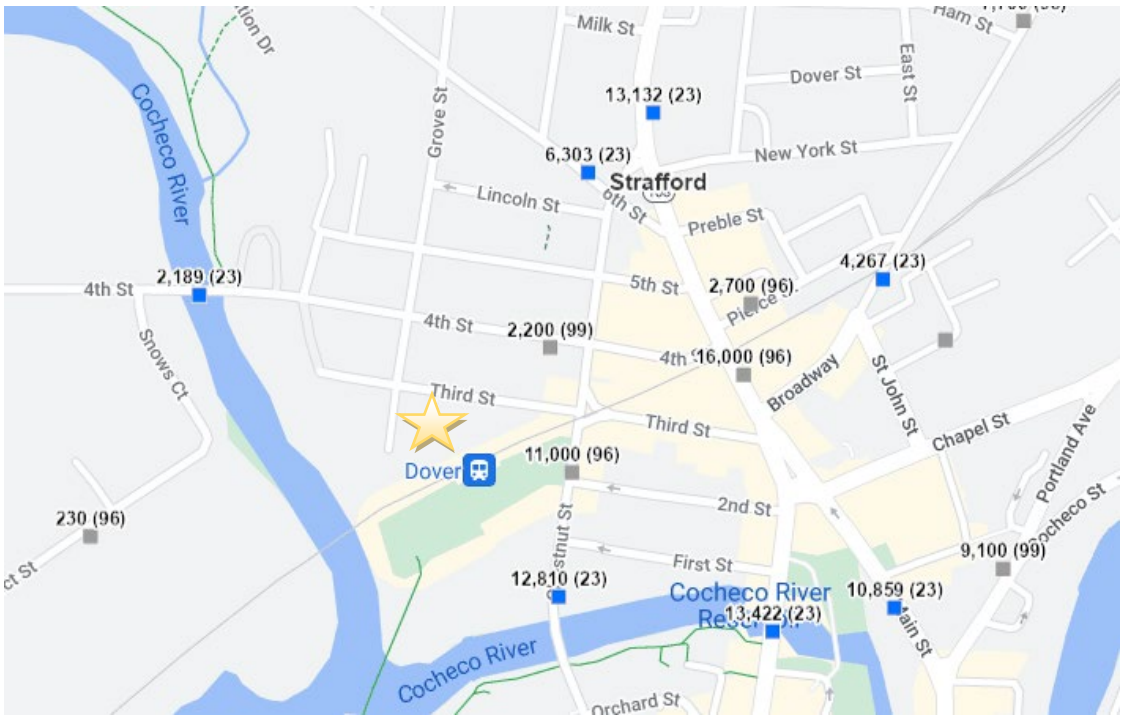
It can be seen for the existing condition from the total site trip generation that a generation occurs of 95 weekday total trips, twelve (12) trips during the AM weekend peak hour, and twelve (12) trips during the PM weekday peak hour.

Difference in Existing to Proposed Trip Generation

Changes in Trip Generation	
Time	# Trips Increased
Weekday Total	64.0
Weekday AM Peak	8.0
Weekday PM Peak	8.0

Surrounding Roadway Access/Movements

A ratio of the Average Annual Daily Traffic (AADT) of Central Ave., Fourth Street, and Sixth Street provided by the NHDOT is used for the directional distribution assumption. Movements straight through the Third Street and Grove Street intersections are assumed to access to site to and from either Fourth Street or Sixth Street. Movements right at the intersection of Third Street and Grove Street are assumed to access the site to or from Central Ave. The following image from the NHDOT Transportation Data Management System demonstrates the surrounding roadway traffic volumes in relation to the site.



BERRY SURVEYING & ENGINEERING
335 Second Crown Pt. Rd., Barrington, NH 03825
(603) 332-2863 / (603) 335-4623 FAX
www.BerrySurveying.Com

The following table provides the directional distribution calculated based upon NHDOT provided AADTs. Fourth Street and Sixth Street movements will go straight through the Grove and Third Street intersections. Movements to and from Central Ave. will turn either right or left to and from Third Street. Third Street to the west of the Third Street and Grove Street intersection is a dead end, so no turning movements are assumed to or from this direction.

Surrounding Road Network	AADT (2023)	% of Trip to or from
Fourth Street	2189	38.8
Sixth Street	6303	
Central Ave	13422	61.2

The following tables show in a tabular format the total trips that are calculated to occur to and from the site are shown at the weekday peak hours analyzed existing condition. These trips are further broken down into enter and exit to and from the site as well as percentage of vehicle movements.

Weekday AM Peak Hour Directional Distribution

Time	AM Peak Hour	# Trips	Turn Type	% Distribution
Total Trips	12			
Trips Enter from Grove Street Southbound		3.5	Straight	29.1
Trips Enter Third Street Westbound		5.5	Left	45.9
Trips Exit to Grove Street Northbound		1.2	Straight	9.7
Trips Exit to Third Street Eastbound		1.8	Right	15.3

Weekday PM Peak Hour Directional Distribution

Time	PM Peak Hour	# Trips	Turn Type	% Distribution
Total Trips	12			
Trips Enter from Grove Street Southbound		1.6	Straight	12.9
Trips Enter Third Street Westbound		2.4	Left	20.4
Trips Exit to Grove Street Northbound		3.1	Straight	25.8
Trips Exit to Third Street Eastbound		4.9	Right	40.8

Sight Distance and Safety Analysis

Sight distance on Grove Street to the north, as well as roadway alignment are the two determining factors of safety. For the proposed driveway, vehicles will be entering Grove Street at the cul-de-sac. Vehicle speeds will be low through the cul-de-sac, where vehicles leaving the cul-de-sac will have ample time and opportunity to see on coming vehicles, as they have to go counter-clockwise though the cul-de-sac.

At the four-way stop controlled intersection of Third Street and Grove Street, ample sight distance is provided to the north, east, and west. The following image from Google Maps Streetview demonstrates the available sight distance at the stop-controlled intersection to the north and east.

The following image from Google Maps Streetview demonstrates the available sight distance at the stop-controlled intersection to the north and west.

BERRY SURVEYING & ENGINEERING
335 Second Crown Pt. Rd., Barrington, NH 03825
(603) 332-2863 / (603) 335-4623 FAX
www.BerrySurveying.Com

Sight distance to the west is un-obstructed for well over approximately 200 feet in all directions. There are no vertical or horizontal obstructions present.

The standard sight distance required by AASHTO in this situation is 200 feet (30 MPH 85th percentile). There are no improvements required to obtain this sight distance. With respect to general safety of Grove Street in relation to the peak hour trip generation and AADT, it is our assessment that the cross section of pavement and shoulder widths are appropriate.

*AASHTO Geometric Design of Highways and Streets (2011)

Respectfully Submitted,

BERRY SURVEYING & ENGINEERING

Christopher R. Berry, SIT
Principal, President

Kenneth A. Berry, PE, LLS,
CPSWQ, CPESC, CESSWI
Principal, VP-Technical Operations

Kevin R. Poulin, PE
Project Engineer

BERRY SURVEYING & ENGINEERING

BERRY SURVEYING & ENGINEERING
335 Second Crown Pt. Rd., Barrington, NH 03825
(603) 332-2863 / (603) 335-4623 FAX
www.BerrySurveying.Com

DRAINAGE ANALYSIS
&
EROSION AND SEDIMENT CONTROL PLAN

Prepared for:

Hampshire Controls Corp.
P.O. Box 516
Dover, NH 03821

Land of

Pillar Imaging, LLC
1 Grove Street
Dover, NH 03820

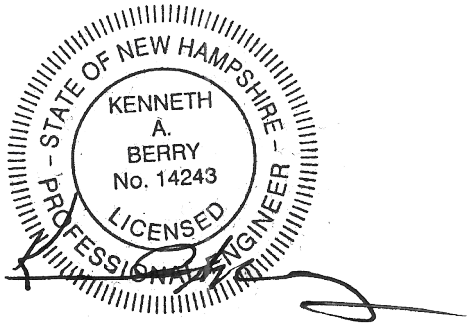
1 Grove Street, Dover, NH
Tax Map 31, Lot 11

Prepared By

Berry Surveying & Engineering
335 Second Crown Point Road
Barrington, NH 03825
603-332-2863

Project Number:
DB2024-031

June 24, 2024



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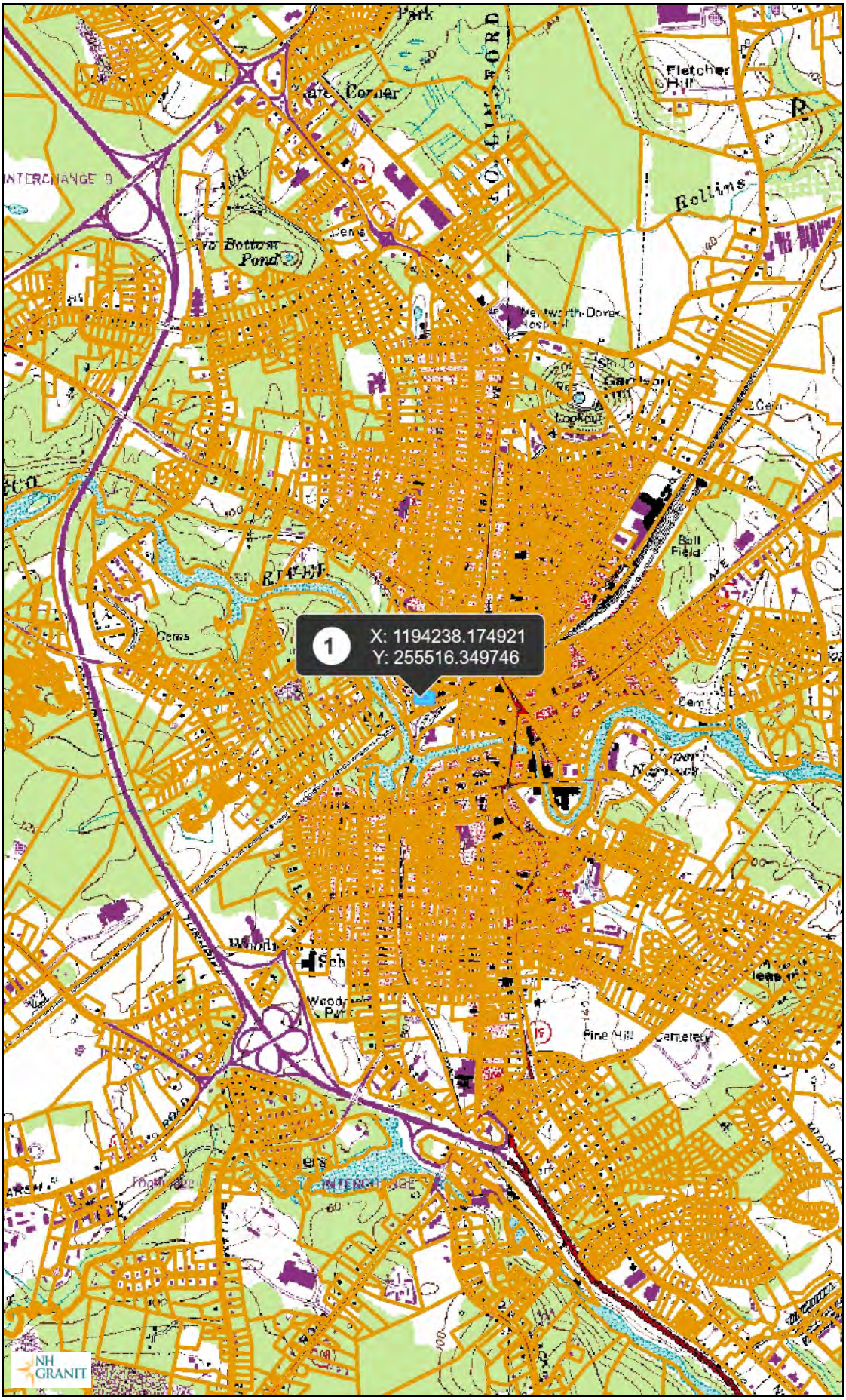
Map by NH GRANIT



Legend

- Parcels
- State
- County
- City/Town

Map Scale

1: 24,000

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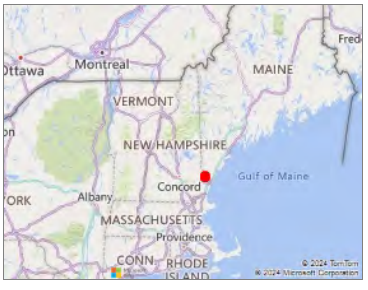
Map Generated: 6/18/2024

Notes



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Legend

- Parcels
- State
- County
- City/Town

Map Scale

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Notes

DESIGN METHOD OBJECTIVES

Hampshire Controls Corp. is proposing to develop the remainder of Tax Map 31, Lot 11 into a 25-space parking lot to with a subsurface sand filter to support their commercial operations. The western portion of the lot is occupied by an existing structure "Hampshire Controls Corp", with gravel adjacent to the building and grassed/wooded are on the eastern portion of the parcel. This Drainage Analysis includes portions of the Drainage Analysis & Pipe Capacity Analysis for the "Station Apartments" (Dover Project numbers P20-58 and WAIV-2023-0008). Portions of the P20-58 Drainage Analysis have been expanded and revised based upon the findings for the Pipe Capacity Analysis provided for WAIV-2023-0008.

An Existing and Proposed Conditions analysis was conducted for the purpose of estimating the peak rate of stormwater run-off from the property and subsequently designing adequate mitigation of drainage. There are two existing drainage discharge points which are identified in the existing analysis and duplicated in the proposed conditions analysis. Designing two watershed models we have compared the differences in these rates of peak run-off and surface water volume. Sheet W1, Existing Conditions Watershed Plan, outlines the characteristics of the site in its existing or pre-construction conditions for Tax Map 31, Lot 11. Additionally, sheet W1, Existing Conditions and outlines the characteristics of post-construction conditions for Tax Map 31, Lot 4-1 & 4-ROW (Jewitt Circle & The Station Apartments. The second analysis displays the proposed (post-construction) conditions for Tax Map 31, Lot 11 (See Sheet W2.) The analysis was conducted using data for; 2 Yr-24 Hr (3.15"), 10 Yr-24 Hr (4.75"), 25 Yr-24 Hr (6.00"), and 50 Yr-24 Hr (7.17") storm events. Storm event analysis was accomplished using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment and rainfall quantities are based on the Extreme Precipitation Table for this location from the Northeast Regional Climate Center / Cornell University (http://precip.eas.cornell.edu).

1.0 Existing Conditions Analysis:

Reference: Sheet W1 - Existing Conditions Watershed Plan (Enclosed)
Existing Conditions Plan
NRCS Websoil Survey

The existing property consists of the Hampshire Controls Corp building, with gravel parking area on the north and east sides, with grassed and wooded area on the eastern portion of the parcel. There are ten subcatchments in the Existing Condition. Nine flow to the west as a point discharge to **Final Reach #100**. One subcatchment flows offsite to the southeast as a non-point discharge to **Final Reach #200**. The area of the property is 0.49 acres with 2.15 acres of offsite area analyzed, for a total area of analysis of 2.64 acres. There were no wetlands identified on the site. The current use is supported by municipal water and sewer.

On-site soils consist of SfC – Suffield Silt Loam, which is classified as Hydrologic Soil Group C, based on the USDA, NRCS Websoil. Off-site soils consist of SfC – Suffield

Silt Loam, which is classified as Hydrologic Soil Group C, based on the USDA, NRCS Websoil. Land covers include pavement, grass, roofs, gravel, woods.

Water drains via closed drainage system to a Gabion Basket level spreader (outside of analysis) and flows to the Cochecho River Central Ave Dam (NHIMP600030608-04). The impairment of the watershed are as follows:

Cochecho River Central Ave Dam (NHIMP600030608-04)
Mercury, NE Regional Mercury TMDL, December 20, 2008, TMDL #33883
Aquatic Life Integrity
Fish Consumption

Final Reach #100:

The existing and proposed conditions analysis are based upon the Station Apartments (P20-58 & WAIV-2023-0008) being completed and designed as approved. It is still under construction at the time of application.

Final Reach #100 is considered the discharge from catch basin on the western side of Grove Street labeled as "**CB-02**" from the original P20-58 Drainage Analysis and recreated in the WAIV-2023-0008 Pipe Capacity Analysis.

Subcatchment #P-1 consists of land adjacent to the eastern side of the cul-de-sac and railroad tracks that drains directly to **Focal Point System #1 (Pond FP1P).** Stormwater is then routed via outlet structure **(Pond ad-01P)** to **Pond cb-02P** and **Final Reach #100**. Land covers consist of grassed surface.

Subcatchment #P-1A consists of the land within the Station Apartments cul-de-sac that drains directly to **catch basin cb-01 (Pond cb-01P).** Runoff from Pond cb-01 directly discharges into **Focal Point System #1 (Pond FP1P).** Runoff is routed via the description above for **Pond FP1P** to **Final Reach #100**. Land covers consist of paved and grassed surface.

Subcatchment #P-1B consists of the land within the Station Apartments northeast parking lot that drains directly to a non-modeled Rain Guardian Turret. This includes urbanized runoff from Third Street to the north. Runoff from the Rain Guardian Turret directly discharges into **Focal Point System #1 (Pond FP1P).** Runoff is routed via the description above for **Pond FP1P** to **Final Reach #100**. Land covers consist of paved, gravel, roof, woods, and grassed surface.

Subcatchment #P-1C consists of urbanized area from Grove Street, Third Street, and parcels from the east side of Grove Street that drains directed to **Catch Basin cb-03 (Pond cb-03P)** on the eastern side of Grove Street. Runoff is routed directly to **Pond cb-02P** and **Final Reach #100.** Land covers consist of paved, gravel, roof, woods, and grassed surface.

Subcatchment #P-1D consists of urbanized area from Grove Street, Third Street, and parcels from the west side of Grove Street that drains directed to **Catch Basin cb-02 (Pond cb-02P)** on the western side of Grove Street to **Final Reach #100.** Land covers consist of paved and grassed surface.

Subcatchment #P-2 consists of land adjacent to the southern side of the cul-de-sac and railroad tracks that drains directly to **Focal Point System #2 (Pond FP2P).** Stormwater is then routed via outlet structure **to another outlet structure (Pond ad-01P)** to **Pond cb-02P and Final Reach #100**. Land covers consist of grassed surface.

Subcatchment #P-2A consists of the land within the Station Apartments southern parking lot that drains directly to a non-modeled Rain Guardian Turret. Runoff from the Rain Guardian Turret directly discharges into **Focal Point System #2 (Pond FP2P).** Runoff is routed via the description above for **Pond FP1** and **Pond FP2** to **Final Reach #100**. Land cover consist of paved surface.

Subcatchment #11 consists of the roof of the 1 Grove Street building (subject parcel Tax Map 31, Lot 11). Roof water is discharged where shown at the start of **Reach #3** and flows via overland to **catch basin cb-03 (Pond cb-03P)** on the eastern side of Grove Street. Once runoff is collected in **Pond cb-03P**, runoff is routed to **catch basin cb-02 (Pond cb-02P)** and **Final Reach #100.**

Subcatchment #12 consists of the roof of the 66 Third Street building (Tax Map 31, Lot 7). Roof water is discharged where shown at the western edge of the structure, through **drain manhole #2 (Pond #2P)** to **catch basin cb-02 (Pond cb-02)** and **Final Reach #100.**

Final Reach #200:

Subcatchment #20 is a tiny portion of the subject parcel that drains to the southeast, away from The Station Apartments on to Tax Map 31, Lot 4, which is considered **Final Reach #200**.

2.0 Proposed Conditions Analysis:

Reference: Sheet W2 - Proposed Conditions Watershed Plan (Enclosed)
Proposed Site Plan
Proposed Site Detail Plans
Proposed Grading & Drainage Plans

The proposed conditions analysis consists of eleven (11) subcatchments. The final analysis points from the existing analysis are preserved. Land covers include pavement, grass, roofs, gravel, and woods.

Final Reach #100:

Subcatchments including **P-1, P-1A, P-1D, P-2, P-2A, 11, & 12** remain unchanged from existing to proposed condition.

Subcatchment #101 consists of urbanized area from Third Street and largely the surface of the proposed parking lot, which is captured in a series of catch basins and distributed to **Subsurface Sand Filter #101 (Pond 101P)** for treatment. Discharge is routed through and underdrain with endcap and orifice assembly or high flow by pass to existing **catch basin cb-02 (Pond cb-02)** and **Final Reach #100.** Land covers consist of paved, roofs, gravel, and grassed surfaces.

Subcatchment P-1B, the Station Apartments northeast parking lot area, has been reduced in size due to the proposed construction of **Sand Filter #101 (101P).** While the weighted curve number has increased and the time of concentration has decreased, the direct contributing area has been reduced significantly.

Subcatchment P-1C, the area to catch basin on the eastern side of Grove Street, has had minor cover type changes. Proposed construction on the north side of the building includes removing the existing gravel area, replacing a portion with an at grade sidewalk, and planting the remaining reclaimed area with grass. The weighted curve number has remained the same in the subcatchment.

Final Reach #200:

Subcatchment #20 has been reduced in size due to the proposed parking lot construction. This remaining portion of the subject parcel that drains to the southeast, away from The Station Apartments on to Tax Map 31, Lot 4, which is considered **Final Reach #200**.

Summary

The addition of Subsurface Sand Filter #101 (Pond 101P) helps to mitigate the effect of the proposed parking lot and additional impervious surfaces. As shown in the following Comparative Analysis, the peak rate and volume of runoff are shown to be reduced at the four analysis events in the W2 proposed conditions versus the W1 existing conditions analysis. The addition of this parking lot assists to relieve pressure on the existing Station Apartments Drainage System by providing a delay in the release in the peak rate of runoff from the proposed construction and uphill area.

3.0a Stormwater Treatment:

Subsurface Sand Filter (Pond #101P) is a proprietary sand filter designed based in part on a filtration system developed by the City of Dover, Engineering Department, Community Services, and in part on the NHDES Stormwater Manuals and other published resources. Prior to the above referenced culvert distribution pipe, each

of the catch basins are designed to have four-foot sumps and to be installed with hoods or snouts. This pre-treatment is critical in keeping gross solids and heavy sediment from entering the system distribution culvert.

The crushed three-quarter inch stone envelope around the level perforated culvert pipe distributes the pre-treated runoff over the top of the sand filter. The distribution and sand filter layers are separated by Mirafi S600 non-woven geotechnical fabric. Under the sand filter, an underdrain pipe intercepts the runoff where it is then discharged. The six-inch underdrain, installed with two clean-outs, is wrapped in a three-quarter inch stone blanket and non-woven geotechnical fabric. Although the HydroCad model does not take into consideration any exfiltration, it is anticipated that during times of the year surface water runoff will also be infiltrated to ground water. A time-of-concentration (Tc) for the subcatchments contributing to the sand filter have been assigned as 100 minutes. Larger Tc's are utilized for porous pavement designs which is well documented. Until such time as research can be completed on the timing of these sand filters, a more conservative Tc was utilized. Water Quality Volume calculations based on the Alteration of Terrain model along with Pond Storage Tables are included in Appendix 3 for the modeled practice.

3.0b Stormwater Infiltration:

Stormwater is not proposed to be infiltrated on site due to the site soil being Suffield silt loam per NRCS Websoil Survey. According to the SSSNNE Ksat NH manual, Suffield silt loam provides a Ksat range in the "C" horizon of 0.0-0.2in/hr. The 24Hr stormwater volume is not increased as a result due to extended detention.

3.1 FULL COMPARATIVE ANALYSIS

ANALYSIS COMPONENT: PEAK RATE DISCHARGE (Cubic Feet / Second)

		2 Yr	10 Yr	25 Yr	50 Yr
Final Reach #100	Existing	3.86	9.63	12.17	14.81
	Proposed	3.87	6.33	10.81	13.11
Final Reach #200	Existing	0.01	0.02	0.04	0.05
	Proposed	0.00	0.01	0.01	0.01

ANALYSIS COMPONENT: VOLUME (Acre Feet)

		2 Yr	10 Yr	25 Yr	50 Yr
Final Reach #100	Existing	0.493	0.821	1.083	1.332
	Proposed	0.484	0.814	1.078	1.328
Final Reach #200	Existing	0.001	0.002	0.003	0.004
	Proposed	0.000	0.000	0.001	0.001

Final Reach #100 shows an increase in peak rate of runoff of 0.01 CFS at the 2YR-24HR storm event, with peak rate of runoff reductions shown for the 10YR, 25YR, &

50YR storm events. After an analysis of the W1 Existing Conditions Watershed Model and the W2 Proposed Conditions Watershed Model, BS&E has come to the conclusion that this 0.01CFS shown increase at the 2YR-24HR event is likely a factor of rounding in the HydroCAD program. The displayed difference in the Comparative Analysis between the W1 and W2 watershed models peak rate of runoff negligible compared to the existing 2YR-24 hour storm event.

4.0 EROSION & SEDIMENT CONTROL PLANS BEST MANAGEMENT PRACTICES (BMP's)

Reference: Proposed Site Plan and Grading Plan
Erosion & Sediment Control Plan
Erosion & Sediment Control Details

The proposed site development is protected from erosion and the abutting properties are protected from sediment by the use of Best Management Practices as outlined in the New Hampshire Stormwater Manual, Volume 2, Post-Construction Best Management Practices Selection & Design (December 2008, NHDES & US EPA); and City of Dover Chapter 153-14 A, Stormwater Management, Erosion Control, and Flood Hazards. **Temporary stabilization measures should be in place within seven calendar days for exposed soils areas that are within one hundred feet of a surface water body or a wetland and no more than 14 calendar days for all other areas. Permanent stabilization should be in place within three calendar days following completion of final grading of exposed soil areas. Erosion and sediment control measures shall be installed prior to any soil land disturbance and must be reviewed and approved by the City of Dover Community Services Department. All swales and drainage structures will be constructed and stabilized prior to having run-off directed to them. Abutting properties will not be adversely affected by this development.** Reference is also made to the Inspection, Operation & Maintenance Manual which has been written specifically for this project and available to the owner.

A Site Specific, Terrain Alteration Permit (RSA 485: A-17) is not required for this site plan due to the area of disturbance being less than 100,000 SF and the site will operate as a General Permit by Rule under this rule. Because the site impact is less than one acre, a Notice of Intent with the EPA is not required and the site will operation in accordance with the City of Dover Chapter 153-14 A Stormwater Management, Erosion Control, and Flood Hazards and the approved Stormwater Management Plan.

Perimeter Control (Silt Fence / Silt Soxx / Erosion Control Mix Berm)

The plan set demonstrates the location of perimeter sediment control. The Erosion and Sediment Control Details, Sheet E-101, has the specifications for installation and maintenance of the silt fence, Filtrexx mulch filled Silt Soxx (or approved equal), and Erosion Control Mix Berm. It is noted that the City of Dover prefers the mulch berms as well as the Filtrexx product.

Underground Sand Filter (Dover, NH Design)

Description: The intent of a sand filter in general is to treat surface water runoff to enhance the water quality prior to discharge into the environment. In this instance of the Dover, New Hampshire inspired Sand Filter Design, the intent is to pre-treat runoff for gross solids, litter and trash, and course sediment in a catch basin with deep sumps and hoods, and to remove additional finer sediment through distribution through crushed stone to and through a sand filter. After filtration, any runoff that cannot infiltrate into the soil will be intercepted by an underdrain where it is discharged through a drain manhole and culvert pipe to a gravity day-light. The underdrain system will be equipped with multiple clean-outs. During construction it is important that the ground surface not be exposed to traffic or construction equipment to preserve the infiltration capabilities, if any, of the existing soil. Construction specifications are included in the plan set and reference is made to New Hampshire Stormwater Manual, Volume 2, 4-3 Treatment Practices, 4b Underground Sand Filter System and EPA Storm Water Technology Fact Sheet, Sand Filter.

The Dover, NH Sand Filter is intended to be treated as a Low Impact Development design feature and each catch basin will accept runoff from an area less than ¼ acre to maximize the pre-treatment capabilities of the deep sumps and hoods and to treat surface water runoff as close to the source as source. The storage capacity of the sand filter is to be designed to accept the Water Quality Volume. (WQV) This application is appropriate in redevelopment site situations where Green Infrastructure applications such as a rain garden or gravel wetland is not practical.

Maintenance Considerations:
Sand Filters should be inspected at least twice annually and following any rainfall event exceeding 0.25 inches in a twenty-four hour period. Maintenance rehabilitation will be conducted as warranted by each inspection. Trash and debris will be removed at each inspection from the catch basin grates and semi-annually from the sumps. The initial inspiration of the Dover NH Sand Filter was that it can be maintained by equipment normally owned by the municipality commonly used for catch basin / drain manhole maintenance. A maintenance / access port in the hood is a critical component of the design so that hose and hydraulic cleaning can be conducted in the distribution culvert.

The outlet to the collection underdrain consists of a 1” orifice in a threaded end-cap within the concrete outlet structure. The inlet manifold and threaded pipe outlet manifold system is designed so that the system can be completely drained. The orifice requires periodic inspection, initially on a semi-annual basis. This time increment may need to be adjusted based on the experience on the maintenance of the device.

On an annual basis the infiltration capabilities need to be confirmed by evaluation the drawdown time. If the sand filter system does not drain within 72-hours following a rainfall event, a qualified professional will assess the condition of the sand filter to

determine measures required to restore the functionality. This is normally the direct result of sediment accumulation which will be removed to restore the filter media ratio.

Also on an annual basis the vegetation growth in an around the level spreader should be inspected to ensure healthy condition and proper operation. Invasive species need to be removed along with dead or diseased vegetation.

Deep Sump Catch Basin

Description: A deep sump catch basin consists of a manhole-type structure with an inlet grate, an outlet pipe connected to the piped drainage system, and a sump with a depth several times the diameter of the outlet pipe. The inlet grate is located at the surface, and is sometimes combined with a vertical inlet integrated with a street or parking area curb. The sump's purpose is to capture coarse sediments and debris from the runoff intercepted by the structure. The outlet pipe can be fitted with a "hood" consisting of a cast metal or formed plastic fitting, designed to prevent floating materials from exiting the structure. Deep sump catch basins used as pretreatment are most effective if sited "off-line" since flow-through basins are more susceptible to sediment re-suspension. All pretreatment deep sump catch basins will have an outlet pipe hood which extends one-foot below the outlet invert and will include a hood vent. During construction the catch basins will be protected by inlet protection per the approved construction plans. Hoods are to be installed during initial construction. See SWM Volume 2, 4-4.5 Pre-treatment Practices, 5. Pre-treatment Swales, page 144.

Maintenance Considerations:
Catch basins may require frequent maintenance. Depending on location, this may require several cleanings of the sumps each year. At a minimum, it is recommended that catch basins be inspected at least twice annually, once following snow-melt and once following leaf drop, and cleaned as indicated by inspection. Sediment should be removed when it approaches half the sump depth. If floating hydrocarbons are observed during an inspection, the material should be removed immediately by skimming, absorbent materials, or other method and disposed in conformance with applicable state and federal regulations. Cleaning may require Vacuum-truck instead of "clam-shell" to avoid damage to hood. Damaged hoods should be replaced when noted by inspection.

Stabilization for Long Term Cover

Vegetated Stabilization – Original Planting

All areas that are disturbed during construction will be stabilized with vegetated material within 30 days of breaking ground. Construction will be managed in such a manner that erosion is prevented and that no abutter's property will be subjected to any siltation, unless otherwise permitted. All areas to be planted with grass for long-term cover will follow the specification and on Sheet C-102 using seeding mixture C, as follows:

Mixture	Pounds per Acre	Pounds per 1,000 Sq. Ft.
Tall Fescue	24	0.55
Creeping Red Fescue	24	0.55
Total	48	1.10

Conservation Mix

Mixture	Pounds per Acre	Pounds per 1,000 Sq. Ft.
Tall Fescue	15	0.35
Creeping Red Fescue	15	0.35
Annual Ryegrass	5	0.12
Perennial Ryegrass	5	0.12
Kentucky Bluegrass	15	0.35
White Clover	7	0.16
Total	**62**	**1.45**

Conservation Mix will used to stabilize all 2:1 slopes. As the site is to be stabilized with erosion control mix as a mulch, the vegetation should be established with a high percentage of white clover for growth to be established. Conservation Mix will also be used to plant and stabilize the erosion control mix mulch. Seed will originally be applied by hydroseeding which includes a tackifier.

Environmental Dust Control

Dust will be controlled on the site by the use of multiple Best Management Practices. Mulching and temporary seeding will be the first line of protection to be utilized where problems occur. If dust problems are not solved by these applications, the use of water and calcium chloride can be applied. Calcium chloride will be applied at a rate that will keep the surface moist but not cause pollution.

Inlet Protection / Storm Drain Inlets

Storm drain inlet protection will be installed per the Erosion & Sediment Control Details as a sediment barrier installed around a storm drain inlet, catch basin, or curb inlet to reduce sediment intrusion into a system after it has been constructed and existing catch basins. These are to be constructed in accordance with the Erosion & Sediment Control Details, Sheet E-101 and maintained after every rain event.

At a minimum, you must comply with following (EPA CGP Part 2.1.2.9.b) “Clean, or remove and replace, the protection measures as sediment accumulates, the filter becomes clogged, and/or performance is compromised. Where there is evidence of sediment accumulation adjacent to the inlet protection measure, you must remove the deposited

sediment by the end of the same work day in which it is found or by the end of the following work day if removal by the same work day is not feasible."

It is vital in the construction of this site that the existing MS4 drainage system not be impacted by sediment. See also sediment track out below.

Sediment Track-Out / Stabilized Construction Entrance / Exit

A temporary gravel construction entrance provides an area where mud can be dislodged from tires before the vehicle leaves the construction site to reduce the amount of mud and sediment transported onto paved municipal and state roads. The stone size for the pad should be between 3-inch coarse aggregate, and the pad itself constructed to a minimum length of 50' for the full width of the access road. The aggregate should be placed at least six inches thick. A plan view and profile are shown on Construction Details Plan. The Construction Exit will be maintained in a condition that will prevent tracking of sediment onto the public highway. When the control pad becomes ineffective, the stone should be removed along with the collected soil material, regraded on site, and stabilized. A plan view and profile are shown on the Construction Details Plan in E-101 Erosion & Sediment Control Details.

Off-site Vehicle Tracking: A stabilized construction entrance has been provided to help reduce vehicle tracking of sediments. The paved street adjacent to the site entrance will be swept every other week or as necessary to remove any excess mud, dirt or rock tracked from the site. After the binder pavement has been placed, any construction activity that causes the tracking of sediments will also result in street sweeping. Pavement should be swept prior to surface pavement and periodically to remove materials. Dump trucks hauling material from the construction site will be covered with a tarpaulin.

At a minimum, you must provide for maintenance that meets the following (EPA CGP Part 2.1.2.3.d) "Where sediment has been tracked-out from your site onto the surface of off-site streets, other paved areas, and sidewalks, you must remove the deposited sediment by the end of the same work day in which the track-out occurs or by the end of the next work day if track-out occurs on a non-work day. You must remove the track-out by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal. You are prohibited from hosing or sweeping tracked-out sediment into any stormwater conveyance (unless it is connected to a sediment basin, sediment trap, or similarly effective control), storm drain inlet, or surface water."

Stockpiled Sediment or Soil

Stockpiled materials including topsoil, excavated materials, borrow materials imported onto the site, construction aggregates, and sediment removed from temporary sediment traps will be located in designated areas at least 50 feet away from concentrated flows. All stockpiles will have erosion protection in the form of silt fence and diversion swales will be applied to protect the material and surrounding areas. Inactive stockpiles

will be seeded for temporary stabilization. Erosion control measures will be inspected in accordance with the schedule for all other activities on site.

At a minimum, you must comply with following (EPA CGP Part 2.1.2.4d) "Do not hose down or sweep soil or sediment accumulated on pavement or other impervious surfaces into any stormwater conveyance (unless connected to a sediment basin, sediment trap, or similar effective control,) storm drain inlet, or surface water."

Dewatering Practices

Dewatering practices are not known to be required on this site. If during construction this becomes required, an addendum will be published specific for the requirements. As a general rule, ground water that needs to be removed from an excavation will be pumped to a sediment basin or a storm drain inlet prior to discharge from the site.

At a minimum, you must comply with following (EPA CGP Part 2.1.3.4) "With backwash water, either haul it away for disposal or return it to the beginning of the treatment process; and replace and clean the filter media used in dewatering devices when the pressure differential equals or exceeds the manufacturer's specifications."

Regarding dewatering practices in the State of New Hampshire, specifically see Construction General Permit Section 9.1.2 NHR12000 State of New Hampshire and "Clarification of Section 9.1.2 … and other New Hampshire specific information for the U.S. EPA 2012 NPDES Construction General Permit (CGP), May 3, 2012"

Please be advised that should dewatering become required, the EPA CGP 2022 requires daily inspections, monitoring, and reporting quarterly to the agency.

Construction Sequence

1.) Cut and remove trees in construction area only as required, relocate any project T.B.M.

2.) Construct and/or install temporary and permanent sediment erosion and detention control facilities as specified. Erosion and Sediment control measures shall be installed prior to any soil land disturbance and must be reviewed and approved by the Community Services Department.

3.) Erosion, sediment and detention control facility shall be installed & stabilized prior to directing runoff to them. Temporary diversions may be required. Post construction storm water management practices must be initiated and stabilized early in the process. Runoff must be directed to temporary practices until stormwater BMPs are stabilized.

4.) Clear, cut and dispose of debris in approved facility

5.) Construct temporary culverts as/if required, or directed

6.) Construct roadways for access to desired construction areas. All roads shall be stabilized immediately.

7.) Install pipe and construction associated appurtenances as required or directed. Install gravel courses. All disturbed areas shall stabilized immediately after grading.

8.) Begin permanent and temporary seeding and mulching. All cut and fill slopes and disturbed areas shall be seeded or mulched as required, or directed. No area is allowed to be disturbed for a length of time that exceeds 45 days before being stabilized. Daily, or as required. All parking areas shall be stabilized within 72 hours of achieving finished grades. All cut and fill slopes shall be stabilized within 72 hours of achieving finished grades. Limit the length of exposure of unstabilized soil to 45 days or less.

9.) Construct temporary berms, drains ditches, silt fences, sediment traps, etc. Mulch and seed as required.

10.) Inspect and maintain all erosion and sediment control measures during construction. All SWPPP inspections must be conducted by a qualified professional such as a professional engineer (PE), a certified professional in erosion and sediment control (CPESC), a certified erosion sediment and storm water inspector (CESSWI), or a certified professional in storm water quality (CPSWQ). Inspection reports shall be submitted to the community services department. Erosion and sediment control practices are to be inspected weekly and after 0.5" of rainfall.

11.) Complete permanent seeding and landscaping.

12.) Remove temporary erosion control measures after seeding areas have established themselves and site improvements are complete.

13.) Smooth and revegetate all disturbed areas.

14.) Finish paving parking lot.

Temporary Erosion Control Measures

1. The smallest practical area of land shall be exposed at any one time.

2. Erosion, sediment and detention measures shall be installed as shown on the plans and at locations as required, directed by the engineer.

3. All disturbed areas shall be returned to original grades and elevations. Disturbed areas shall be loamed with a minimum of 4" of loam and seeded with not less

than one pound of seed per 50 square yards of area. (see seed specifications this sheet)

4. All disturbed areas will be restabilized within 45 days. At any one time, no more than 5 acres, (217,800 Sq. Ft.) Will be disturbed.

5. Silt fences and perimeter barriers shall be inspected periodically and after every rain during the life of the project. All damaged areas shall be repaired, sediment deposits shall periodically be removed and disposed of.

6. After all disturbed areas have been stabilized, the temporary erosion and sediment control measures are to be removed and the area disturbed by the removal smoothed and re-vegetated.

7. Per the EPA CGP requirements there will be reports of the erosion control inspections IAW SWPPP prepared by BS&E. All erosion controls shall be inspected weekly and within 24 hours after 0.25" or greater rain event.

8. Ditches, swales, and basins shall be stabilized prior to directing runoff to them.

9. Do not traffic exposed soil surfaces with construction equipment. If feasible, perform excavations with equipment positioned outside the limits of the infiltration system.

10. Roadways, driveways and cut and fill slopes must be stabilized within 72 hours of achieving final grade.

11. Stabilization means:

11.1. A minimum of 85% of vegetative cover has been established.

11.2. A minimum of 3 inches of non-erosive material such as stone or rip rap has been installed, or

11.3. Erosion control blankets have been installed.

12. This project is to be managed in a manner that meets the requirements and intent of RSA 430:53 and chapter AGR 3800 relative to invasive species.

13. The NHDES stormwater manual, in three volumes, dated December 2008, is a part of this plan set and the more restrictive will govern. (NH SWM)

Inspection and Maintenance Schedule

Sediment control measures will be inspected during and after storm events to ensure that the practice still has integrity and is not allowing sediment to pass. Depending on SWPPP criteria, all controls will be inspected either once every 7 days and after storm

events. Inspection reports must be submitted to City of Dover Engineering Department. See also Stormwater System Operation: Inspection & Maintenance Manual published separately also by Berry Surveying & Engineering. See also Storm Water Pollution Prevention Plan (SWPPP) and / or Stormwater Management Plan (SWMP) developed in accordance with EPA NPDES or City of Dover requirements.

Corrective Action measures will be made in accordance with Stormwater Management Plan (SWMP) / SWPPP requirements and records maintained on site by the Contractor.

5.0 Demonstration of Compliance with Dover Chapter 153-14

The following list of standards from chapter 153-14 are shown to demonstrate compliance with Dover stormwater regulations, starting with section 3: Design Standards. Our demonstration of compliance is *italicized* after each standard:

(3) Design standards.

(a) Minimum protections and management standards.

[1] Where applicable, all development must comply with the EPA Phase II Stormwater Rules and the City's MS4 permit, as amended.

Acknowledgement of project compliance with the EPA Phase II stormwater rules is shown on the Erosion & Sediment Control Plan, sheet #6, note #14.

[2] Existing surface waters, including ponds, rivers, perennial and intermittent streams (natural or channelized), and wetlands (including vernal pools), shall be protected by the minimum buffer setback as specified in Chapter **170**, Zoning, § 170-27.1. Stormwater and erosion and sediment control best management practices (BMPs) shall be located outside the specified buffer zone unless otherwise approved by the Planning Board.

There are no wetlands/wetland buffers located on the subject parcel.

[3] Low-impact development (LID) site planning and design strategies shall be used to the most extent practicable (MEP) in order to reduce the generation of the stormwater runoff volume for both new and redevelopment projects. An owner/applicant must document why LID strategies are not appropriate if not used to manage stormwater.

Please find Sand Filter #101, sheet #5. This LID is proposed on the project due to lack of infiltration capacity of the existing soil. A reduction in stormwater runoff volume will occur from the implementation of the LID. See comparative analysis in section 3.1.

[4] All proposed stormwater practices and measures shall be installed and maintained in accordance with manufacturers' specifications and performance specifications outlined in the New Hampshire Stormwater Management Manual Volume 2 (December 2008 or current revision) a copy of which can be found on the NHDES website.

Please find Inspection & Maintenance Manual included in the drainage binder. See E-101 with references to the New Hampshire Stormwater Manual (NH SWM).

[5] All storage facilities for fuel, chemicals, chemical or industrial wastes, and biodegradable raw materials shall meet the regulations of the NHDES, including but not limited to those involving underground storage tanks, aboveground storage tanks, hazardous waste and best management practices for groundwater protection (Part Env-Wq 401).

Please find note #13 on the Erosion & Sediment Control Plan. Prior to construction, a Stormwater Management Plan will be developed in accordance with US EPA CGP 2022.

[6] Salt and other deicing materials shall be stored under cover or located such that no direct discharges to receiving waters are possible. Snow storage areas shall be located such that no direct discharges to receiving waters are possible. See the NHDES guidance fact sheet on road salt and snow disposal.

Please find the topic Snow Storage Areas & Winter Maintenance within the Inspection & Maintenance Manual included in the drainage binder.

[7] The use of sodium-chloride-based materials for winter maintenance shall be the minimum necessary for safety. The use of sodium-chloride-based materials is discouraged within the groundwater protection districts.

Please find the topic Snow Storage Areas & Winter Maintenance within the Inspection & Maintenance Manual included in the drainage binder.

[8] Impervious surfaces for parking areas and roads shall be minimized to the extent possible.

The extent of the proposed surface has been minimized to the extent practical by only providing required pavement for drive lanes and parking.

[9] Stormwater runoff from new impervious surfaces shall be directed to a best management practice for flow mitigation, treatment and/or infiltration.

Stormwater runoff is conveyed to a sand filter in the parking lot for treatment.

(b) Stormwater management for new development.

[1] Runoff of impervious surfaces shall be treated to provide 80% removal of total suspended solids (TSS) and 50% removal of both total nitrogen and phosphorus. Removal rates shall be determined using approved manufacturer's pollutant removal efficiency analysis or the pollutant removal efficiencies outlined in the New Hampshire Stormwater Management Manual Volume 1, Appendix E (December 2008 or current revision), a copy of which is available from the NHDES website.

Utilizing the 2023 UNHSC BMP Performance Fact Sheet, the design can expect to see the following annual performance:

- *Total Suspended Solids (TSS) reduction of 100%*
- *Total Nitrogen (TN) reduction of 40%*
- *Total Phosphorous (TP) reduction of 63%*

While the Total Nitrogen Removal value for a sand filter is 40% where 50% is required, this type of stormwater BMP has been utilized in multiple project locations within the City of Dover.

[2] Rainfall amount shall be based on current extreme precipitation estimates obtained from the Northeast Regional Climate Center.

Extreme Precipitation Tables are included in the drainage binder and have been used for analysis.

[3] Measures shall be taken to control the post-development peak rate runoff so that it does not exceed predevelopment runoff for the two-, ten-, twenty-five- and fifty-year, twenty-four-hour storm events.

Please find comparative analysis in Section 3.1. See discussion included regarding the W2 Proposed 2YR event.

[4] Measures shall be taken to control the post-development surface water runoff volume so that it does not exceed predevelopment runoff for the two-, ten-, twenty-five- and fifty-year, twenty-four-hour storm events. For sites where infiltration/recharge is limited or not practicable, the owner/applicant must demonstrate that the project will not cause or contribute to flooding or functional impairments to streets, adjacent properties, and downstream properties.

Please find comparative analysis in Section 3. 1 for the demonstration of a reduction in volume at the final reach.

[5] Infiltration rates for designing groundwater recharge practices shall be determined in accordance with Section Env-Wq 1504.14.

Ground water recharge is not proposed on site due to site soil conditions.

[6] Stormwater conveyance practices shall be sized appropriately to convey the ten-year, twenty-four-hour storm event without overtopping or causing flooding on the property.

The practice have been sized within these parameters, providing 0.48' of freeboard at the 10YR-24HR event.

[7] For large projects adding greater than or equal to 10 acres of impervious cover, or projects located in known areas of flooding concern, or specifically within areas with a 1% chance of being inundated by water in any given year, the owner/applicant shall submit a supplementary report that describes how the project will not increase the future flooding potential and complies with the AoT requirements pertaining to floodplain impacts as described in Section Env-Wq 1503.09, regardless of whether an AoT permit is required.

This standard is not applicable for this project.

[8] The design of the stormwater management systems shall take into account upstream and upgradient runoff that flows onto, over, or through the site to be developed or redeveloped and provide for this contribution of runoff.

Off-site stormwater flow has been accounted for in the project design. Please find watershed sheets within the drainage binder.

[9] Seasonal high-water table elevations must be accounted for in all BMP design criteria.

Due to the Suffield Silt Loam shown from the Websoil Survey, the seasonal high-water table has been accounted for by providing underdrain and system liner options.

[10] Access for maintenance of stormwater facilities must be included as part of the design, where necessary. Access easements may be required.

Sand filter access is obtained from either catch basin, drain manhole, or cleanouts.

[11] Plantings in treatment areas shall be native grasses, shrubs and/or other native plants in sufficient numbers and density to prevent soil erosion and to achieve water-quality treatment.

See section 4.0 of this narrative for BMP plantings and stabilization seeding descriptions. The applicant is following USDA NRCS seeding recommendations.

(c) Stormwater management for redevelopment. In order to determine the stormwater requirements for redevelopment projects, the percentage of the site covered by existing impervious areas must be calculated. Stormwater requirements for redevelopment will vary based upon the amount of site surface area that is covered by existing impervious surfaces.

These standards and the following are not applicable for this project.

[1] For sites meeting the definition of a redevelopment project and having less than 40% existing impervious surface coverage, the stormwater management requirements will be the same as new development projects, with the important distinction that the applicant can meet those requirements either on site or at an approved off-site location (i.e., off-site mitigation). The applicant must satisfactorily demonstrate that impervious area reduction, LID strategies and BMPs have been implemented on site to the MEP.

[2] For sites meeting the definition of a redevelopment project and having more than 40% existing impervious surface coverage, stormwater shall be managed in accordance with one or more of the following techniques, listed in order of preference:

[a] Implement measures on site that result in mitigation and treatment of at least 30% of the existing impervious cover as well as 50% of the additional proposed impervious surfaces and pavement areas through the application of LID; or

[b] Implement other LID techniques on site to the MEP to provide mitigation and treatment for at least 50% of the entire site area.

[3] The owner/applicant may utilize off-site mitigation to meet the redevelopment requirements when the following standards have been met:

[a] The owner/applicant shall demonstrate, to the satisfaction of the Planning Board, that on-site treatment has been implemented to the MEP.

[b] The owner/applicant shall find an approved, off-site location within the same watershed as the project site or within the drainage area of the same receiving water body.

[c] Off-site mitigation shall be equivalent to no less than the total area of impervious cover not treated on site.

[d] The owner/applicant shall submit a full design of the proposed off-site measures for review and approval.

[e] The owner/applicant must also demonstrate that there is no downstream drainage or flooding impact as a result of not providing on-site management.

(d) Erosion control standards during construction. The following standards shall be applied in project planning and shall be implemented prior to and during construction activity:

[1] All proposed measures shall meet, at a minimum, the design standards for best management practices set forth in the New Hampshire Stormwater Management Manual Volume 3 (December 2008 or current revision), a copy of which is available from the NHDES website.

See Inspection & Maintenance Manual and Erosion & Sediment Control Plans, sheet #6.

[2] When a project requires a stormwater permit from the EPA Construction General Permit (CGP) Program, copies of the stormwater pollution prevention plan (SWPPP) inspections shall be provided to the Community Services Department.

This project is not subject to the EPA CGP program. This project will require a local stormwater management plan. Inspections will be provided to the Community Services Department.

[3] Stripping of vegetation shall be done in a manner that minimizes soil erosion. Whenever practical, natural vegetation shall be retained, protected, or supplemented.

There is to be no disturbance outside of the limit of construction. Erosion & sediment control measures are to be in place prior to the start of land grubbing. See Erosion & Sediment Control Plans, sheet #6.

[4] The area of land disturbance shall be kept to a minimum and be limited to an area only large enough to accommodate construction activities for a particular construction phase.

The limit of disturbance is to be staked prior to the beginning of construction. The project is proposed as one phase due to the less than one acre of disturbance for this portion of the project.

[5] Off-site surface water and runoff from undisturbed areas shall be diverted away from disturbed areas where feasible, or measures to convey stormwater through the project area without causing erosion of sediment must be included. Integrity of downstream drainage systems shall be maintained.

Please find measures on Erosion & Sediment Control Plan, sheet #6.

[6] Appropriate erosion and sediment control measures shall be installed prior to any soil land disturbance and must be reviewed and approved by the Community Services Department.

Please find Erosion & Sediment Control Plan, sheet #6, note 15b.

[7] Perimeter site controls shall not be placed within wetland areas, stream channels or wetland buffers.

There are no wetland areas, stream channels, or wetland buffers within 50' of the subject parcel.

[8] Disturbed soil areas shall be either temporarily or permanently stabilized. In areas where final grading has not occurred, temporary stabilization measures should be in place within seven calendar days for exposed soil areas that are within 100 feet of a surface water body or a wetland and no more than 14 calendar days for all other areas. Permanent stabilization should be in place within three calendar days following completion of final grading of exposed soil areas.

Please find Erosion & Sediment Control Plan (sheet #6), note #15h.

[9] All temporary erosion and sediment control measures shall be maintained in functioning condition until final site stabilization is accomplished. A proposed BMP inspection schedule shall be included in the submittal.

Please find Erosion & Sediment Control Plan (sheet #6), Inspection & Maintenance Manual.

[10] Additional temporary stabilization for the winter season consistent with NHDES guidelines shall be in place for disturbed areas that are not permanently stabilized by October 1, or at the discretion of the Community Services Department.

Please find winter stabilization note E10, sheet E-101.

[11] Special stabilization details shall be provided with the submission for any land disturbance on slopes equal to or steeper than 3:1.

Please find Rolled Erosion Control Blanket (RECB) Slope Stabilization Detail L4, sheet L-101.

[12] All temporary erosion and sediment control measures shall be removed after final site stabilization. Trapped sediment and other disturbed soil

areas resulting from the removal of temporary measures shall be permanently stabilized within 30 calendar days unless conditions dictate otherwise.

This note is shown on sheet E101, Detail E7, note #6.

[13] For projects proposing to disturb and expose soils in areas of 10 acres or more at one time, a temporary (or permanent) sediment basin must be provided with storage for a calculated volume of runoff from a drainage area from a two-year, twenty-four-hour storm, or equivalent control measures, where attainable, until final stabilization of the site. Alternatively, the sediment basin can be sized to provide 3,600 cubic feet of storage per acre of drainage area until final stabilization of the site. In determining appropriate locations and number of sediment basins needed, the operators may consider such factors as erodibility of site soils, slope lengths, available area on site, construction period and other unique site considerations.

This standard is not applicable for this project.

[14] Use of temporary sediment basins should avoid any additional vegetation clearing or site land disturbance not otherwise needed for post-construction. Sediment basin locations must be reviewed by the Community Services Department prior to construction and must consider the potential for off-site impacts, including public safety, especially as it relates to sediment movement and/or sediment basin failure, and alternative sediment controls must be used where site limitations preclude a safe design.

The limit of construction is not to be expanded beyond the staked limit of construction.

(e) Installation and construction inspections. The owner/applicant shall be responsible for inspection requirements as follow:

[1] The Community Services Department or its designated agent shall have access to the site to complete routine inspections.

The applicant acknowledges this standard. This is shown as note #15E on the Erosion & Sediment Control Plan.

[2] The Community Services Department shall be notified 24 hours prior to installation of a stormwater BMP in order to schedule an inspection. These inspections shall be completed during normal working hours.

The applicant acknowledges this standard. This is shown as note #15E on the Erosion & Sediment Control Plan.

[3] The Planning Board or Community Services Department may require the design engineer and/or an independent third party to provide inspection and oversight of the construction of the stormwater management facilities and erosion and sediment control measures at its discretion. Such oversight may be especially important for implementing techniques such as porous pavement or subsurface stormwater infiltration systems. The owner/applicant shall be responsible for all fees associated with third-party inspections.

The applicant acknowledges this standard. This is shown as note #15F on the Erosion & Sediment Control Plan.

[4] All SWPPP inspections must be conducted by a qualified professional such as a professional engineer (PE), a certified professional in erosion and sediment control (CPESC), a certified erosion sediment and stormwater inspector (CESSWI), or a certified professional in stormwater quality (CPSWQ). Inspection reports shall be submitted to the Community Services Department.

The applicant acknowledges this standard. This is shown as note #15G on the Erosion & Sediment Control Plan.

[5] The owner is ultimately responsible for the installation, construction, inspection, and disposition of all stormwater management and erosion control measures required by the provisions of these regulations.

The applicant acknowledges this standard. This is shown as note #15H on the Erosion & Sediment Control Plan.

(f) Stormwater management plan (SWMP) submittal requirements. At the discretion of the Planning Board or Community Services Department, a technical review by an independent third party may be required of any SWMP prepared under these regulations. Such a review shall be performed by a qualified professional consultant and the expense of which shall be the full responsibility of the owner/applicant.

The applicant acknowledges this standard. This is shown as note #15I on the Erosion & Sediment Control Plan.

[1] For projects requiring minimum protection standards, a plan including the following information shall be submitted:

[a] Description of erosion and sediment control measures as well as sequence for final stabilization of the project site.

Please find Erosion & Sediment Control Plans, sheet #6.

[b] Proposed changes in impervious cover areas and any changes in pre- and post-development drainage patterns.

Please find W1 Existing watershed and W2 Proposed watershed plans within the drainage binder.

[c] Description of LID proposed measures.

Please see section 4.0 of this drainage narrative. Low impact development measures include the implementation of a subsurface sand filter.

[2] For projects requiring new development or redevelopment standards, a drainage report that contains the following items shall be submitted:

[a] Description of construction period and earth movement schedule, including anticipated project start and completion dates, sequence and duration of grading and construction activities, sequence and timing of installation and/or application of soil erosion and sediment control measures as well as sequence for final stabilization of the project site.

Please find section 4.0 in this drainage narrative containing the construction sequence.

[b] Description of the on-site and adjacent wetlands, streams and other water resources, including methods used to identify these resources, and a description of any buffer setbacks that may apply, steep slopes, critical habitat, existing vegetation, areas with a 1% chance of being inundated by water in any given year, and whether any downstream water bodies are listed as impaired according to NHDES's most recent 303(d) list.

Please find Existing Conditions Plans, sheet #2. There are no steep slopes, wetlands, or flood zones within the subject parcel.

[c] Soils information for proposed disturbed areas shall be delineated by a certified soil scientist. For all other areas that contribute runoff to the project site, soil types may be identified in accordance with Natural Resources Conservation Service (NRCS) countywide soil survey.

A waiver from this standard has been requested to use NRCS soils for the subject parcel due to the parcel size of 0.49Ac., with a large portion occupied by building.

[d] Description of existing drainage patterns, receiving water bodies or drainage infrastructure and soil types for recharge potential.

Please find W-1 Existing Watershed Plan.

[e] Watershed area limits, including any off-site and upstream areas contributing flow to shared drainage channels and/or infrastructure.

Please find W-1 Existing Watershed Plan & W-2 Proposed Watershed Plan within the drainage binder.

[f] Description of proposed changes in impervious cover areas and any changes in pre- and post-development drainage patterns.

Please find sections 1.0 and 2.0 of this narrative as well as W-1 Existing Watershed Plan, Existing Drainage Analysis, W-2 Proposed Watershed Plan & Proposed Drainage Analysis.

[g] Methods and assumptions used to calculate pre- and post-development runoff volume, peak discharge, and discharge velocity for the specified design storm events.

Please find Section 1.0 & 2.0 of this drainage narrative discussing the existing and proposed development conditions.

[h] Methods and assumptions used to calculate the pollutant load removal.

Utilizing the 2023 UNHSC BMP Performance Fact Sheet, the design can expect to see the following annual performance:

- *Total Suspended Solids (TSS) reduction of 100%*
- *Total Nitrogen (TN) reduction of 40%*
- *Total Phosphorous (TP) reduction of 63%*

While the Total Nitrogen Removal value for a sand filter is 40% where 50% is required, this type of stormwater BMP has been utilized in multiple project locations within the City of Dover.

[i] Description of LID measures that are proposed to limit the development footprint, preserve existing vegetation and mimic existing hydrology to the extent feasible.

Please see section 4.0 of this drainage narrative. Low impact development measures include the implementation of a subsurface sand filter

[j] If not used, provide rationale why LID measures are not practical for the site.

A subsurface sand filter is proposed on site and qualifies as low impact development.

[k] Describe measures and calculations for proposed practices used to achieve no net increase in runoff volumes leaving the site.

Please find comparative analysis demonstrating compliance with the 2-50YR 24Hr storm events.

[l] Provide calculations for the infiltration or exfiltration system.

Please find proposed W2 Hydrocad outputs in the drainage binder.

[m] If an increase in post-development runoff volume is anticipated due to limited applicability for LID measures and site constraints, provide an assessment and supporting calculations to demonstrate no adverse impacts to downstream infrastructure, adjacent properties or aquatic habitat.

There is no increase in post-development runoff volume due to the extended detention proposed to occur due to the implementation of LID devices including a subsurface sand filter.

[n] Descriptions, details, and design criteria and calculations for all structural, nonstructural, permanent, and temporary erosion and sedimentation control measures and BMPs. This information should include seeding mixtures and rates, types of sod, methods of seedbed preparation, expected seeding dates (or limitations on seeding time frames), type and rate of lime and fertilizer application, and type and quantity of mulching for temporary and permanent control facilities.

Please find section 4.0 of this narrative, the Inspection & Maintenance Manual and Plan, as well as the Erosion & Sediment Control Plan. Type and rate of lime and fertilizer will be determined on site by testing the topsoil for requirements.

[o] Where proposed changes are anticipated within mapped limits of the areas with a 1% chance of being inundated by water in any given year, provide hydrologic and hydraulic analysis to show no net increase in flood elevations.

There is no disturbance proposed within any flood zones.

[p] Proposed schedule for the inspection and maintenance of all erosion control measures on site prior to achieving final site stabilization.

Please find Inspection & Maintenance Manual. EPA and NHDES will require an inspection every 7 days and after a storm event greater than 0.25".

[q] Describe procedures for removing temporary erosion control measures and removal of accumulated sediment captured by such measures.

Please find Inspection & Maintenance Manual.

[r] Any other specific study, calculation, or investigation as requested by the City.

No additional studies or investigations have been requested at this time.

[s] Describe procedures to limit and/or optimize the use of deicing materials and minimize off-site increases in chloride levels in adjacent surface water and groundwater.

Please find Inspection & Maintenance Manual.

[t] Provide a maintenance and inspection plan for post-construction monitoring of stormwater BMPs to ensure long-term performance and functionality, including details of who will be responsible for inspections and maintenance, proposed schedule, documentation, submittal procedures and contingency plans if future maintenance is required.

Please find Inspection & Maintenance Manual and plans.

[u] Provide copies of pertinent state and federal permits.

No state or Federal permits are required for this project.

(g) Long-term operation and maintenance. The owner shall be responsible for continued inspection and maintenance requirements.

[1] An operation and maintenance manual shall be created with the following information:

[a] The names of the responsible qualified professionals who will implement the required reporting, inspections, and maintenance activities.

Please find Inspection & Maintenance Manual.

[b] An inspection checklist, identifying item or BMP, inspection frequency, and components to be inspected. The list shall clearly outline performance thresholds and triggers for maintenance.

Please find Inspection & Maintenance Manual.

[c] Snow and ice removal shall be performed by a contractor certified by the "Green SnoPro" Program, or approved equivalent, following best management practices for the application of deicing materials.

Please find Inspection & Maintenance Manual.

[d] Deicing log to track amount and type of deicing material applied.

Please find Inspection & Maintenance Manual.

[e] A site plan clearly identifying the locations of all stormwater practices to be inspected and maintained.

Please find Inspection & Maintenance Plans within the drainage binder.

[f] Inspection and maintenance log to be submitted to the City of Dover Community Services Department on an annual basis. Documents shall be submitted no later than December 15 of each year.

Please find Inspection & Maintenance Manual.

[2] 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 of the requirements for maintenance and reporting.

Please find note #29 of the Site Plan, sheet #3.

6.0 CONCLUSION

Peak rates of runoff flow are reduced in the post-construction analysis / condition, as compared to the pre-construction peak rates of runoff flow at **Final Reach #100 and Final Reach #200.** This reduction occurs during the 2 Yr, 10 Yr, 25 Yr, and 50 Yr/24hr, storm events due to the mitigation provided by the Subsurface Sand Filter. See

Comparative Analysis for discussion on the 2YR Proposed Conditions Analysis for **Final Reach #100**. The 2-50 year, 24-hour post-development storm volumes has not increased over the pre-development volume at the final reach.

A Site Specific, Terrain Alteration Permit (RSA 485: A-17) is not required for this site plan due to the area of disturbance being less than 100,000 SF and the site will operate as a General Permit by Rule under this rule. Because the site impact is less than one acre, a Notice of Intent with the EPA is not required and the site will operation in accordance with the City of Dover Chapter 153-14 A Stormwater Management, Erosion Control, and Flood Hazards and the approved Stormwater Management Plan.

Respectfully Submitted,
BERRY SURVEYING & ENGINEERING

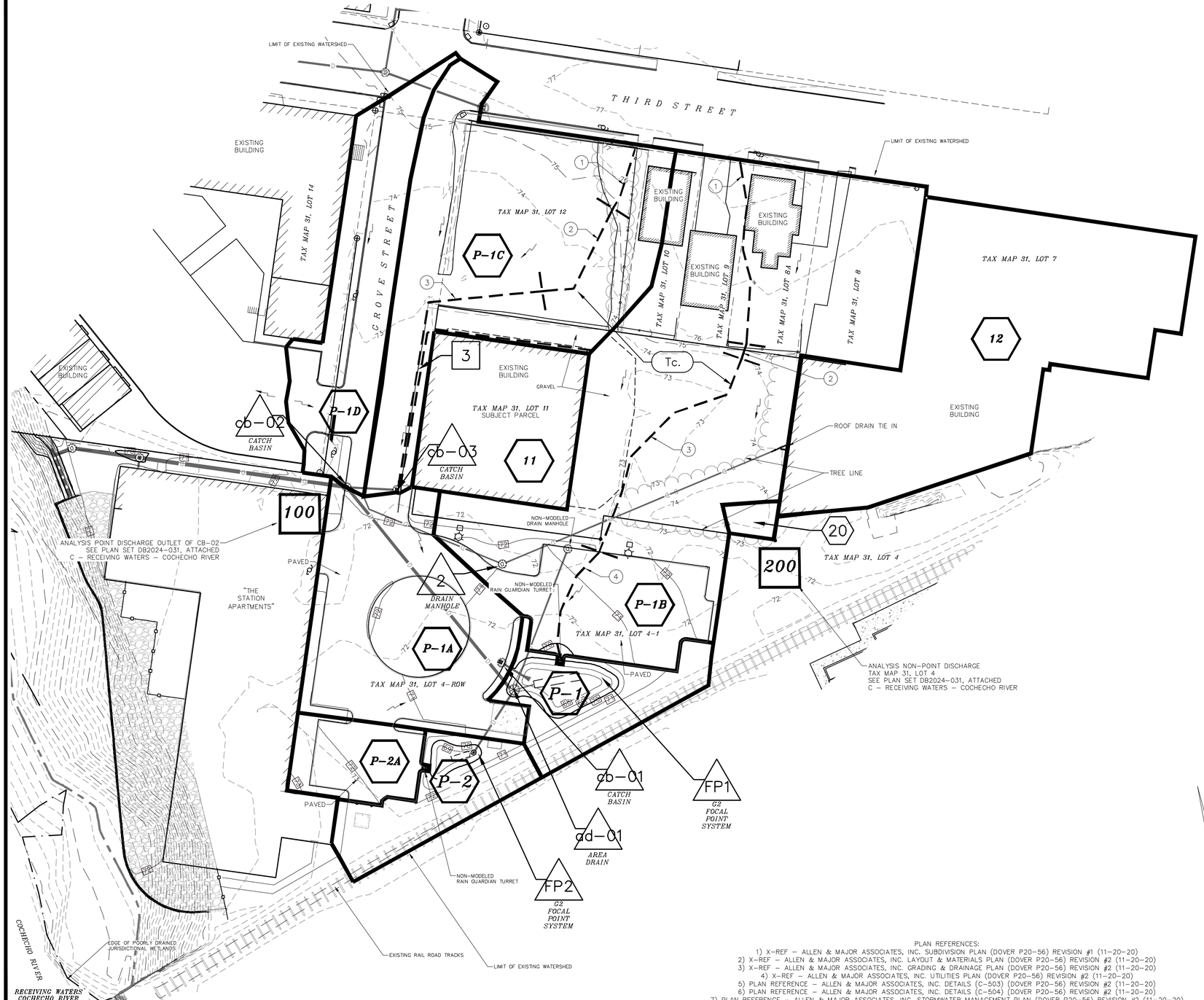
Christopher R. Berry, SIT
Principal, President

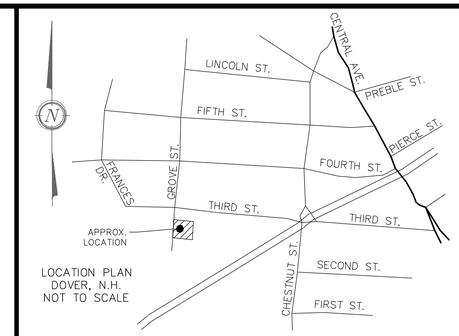
Kenneth A. Berry PE, LLS,
CPSWQ, CPESC, CESSWI
Principal, VP - Technical Operations

Kevin R. Poulin, PE
Project Engineer

Appendix I - Existing Conditions Analysis

25 Yr - 24 Hr. Full Summary
2 Yr - 24 Hr. Node Listing
10 Yr -24 Hr. Node Listing
25 Yr - 24 Hr. Node Listing
50 Yr - 24 Hr. Node Listing





LOCATION PLAN
DOVER, N.H.
NOT TO SCALE

NOTES:

1.) OWNER: PILLAR IMAGING, LLC
1 GROVE STREET
DOVER, NH 03820

APPLICANT: HAMPSHIRE CONTROLS CORP.
P.O. BOX 516
DOVER, NH 03821

2.) TAX MAP 31, LOT 11

3.) LOT AREA: 21,383 Sq. Ft., 0.49 Ac.

4.) S.C.R.D. BOOK 4943, PAGE 308

5.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HYPER SR SURVEY GRADE GPS RECEIVERS.

6.) THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING WATERSHED CONDITIONS OF TAX MAP 31, LOT 11.

7.) HYDROCAD USES A SERIES OF NODE SUFFIXES FOR NUMBERING PURPOSES (S=SUBCATCHMENT, P=POND DEVICE, R=REACH), TO SIMPLIFY ANNOTATION THESE SUFFIXES ARE LEFT OFF THE WATERSHED PLANS AND NODE TYPE IS DENOTED BY THE SYMBOL SHAPE ACCORDING TO THE DISPLAYED LEGEND WHICH COINCIDES WITH HYDROCAD GRAPHICS.

8.) THIS PROJECT REFERS TO DRAINAGE DESIGNS FROM DOVER APPROVED PROJECT P20-56 AND WAIV-2023-0008. REFER TO DRAINAGE NARRATIVE AND WAIV-2023-0008 APPROVED DRAINAGE DOCUMENTS FOR FURTHER INFORMATION.

NRCS SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
SfC	SUFFIELD SILT LOAM	C

SLOPE: A = 0-3% B = 3-8% C = 8-15% D = 15-25% E = 25-50% F = 50%+

DENOMINATOR: /Rk = ROCKY /VPD = VERY POORLY DRAINED /PD = POORLY DRAINED /SWPD = SOMEWHAT POORLY DRAINED /MWD = MODERATELY WELL DRAINED

SEE WEBSOIL USDA-NRCS

LINE TYPE LEGEND:

211	EXISTING CONTOUR MINOR
210	EXISTING CONTOUR MAJOR
	PROPERTY LINE
	NRCS SOIL LINE
WdA	NRCS SOIL LABEL
	LIMIT OF WATERSHED
	TIME OF CONCENTRATION PATH
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
TYP.	TYPICAL
FND	FOUND

SYMBOLS LEGEND:

SUBCATCHMENT AREA SYMBOL

FLOW REACH SYMBOL

POND DEVICE SYMBOL

TIME OF CONCENTRATION SEGMENT

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

PLAN REFERENCES:
1) X-REF - ALLEN & MAJOR ASSOCIATES, INC. SUBDIVISION PLAN (DOVER P20-56) REVISION #1 (11-20-20)
2) X-REF - ALLEN & MAJOR ASSOCIATES, INC. LAYOUT & MATERIALS PLAN (DOVER P20-56) REVISION #2 (11-20-20)
3) X-REF - ALLEN & MAJOR ASSOCIATES, INC. GRADING & DRAINAGE PLAN (DOVER P20-56) REVISION #2 (11-20-20)
4) X-REF - ALLEN & MAJOR ASSOCIATES, INC. UTILITIES PLAN (DOVER P20-56) REVISION #2 (11-20-20)
5) PLAN REFERENCE - ALLEN & MAJOR ASSOCIATES, INC. DETAILS (C-503) (DOVER P20-56) REVISION #2 (11-20-20)
6) PLAN REFERENCE - ALLEN & MAJOR ASSOCIATES, INC. DETAILS (C-504) (DOVER P20-56) REVISION #2 (11-20-20)
7) PLAN REFERENCE - ALLEN & MAJOR ASSOCIATES, INC. STORMWATER MANAGEMENT PLAN (DOVER P20-56) REVISION #2 (11-20-20)

DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

SWPPP EPA SITE MAP (EXISTING)
W1 EXISTING CONDITIONS WATERSHED PLAN
NON-RESIDENTIAL SITE PLAN
LAND OF
PILLAR IMAGING, LLC.
1 GROVE STREET
DOVER, N.H.
TAX MAP 31, LOT 11

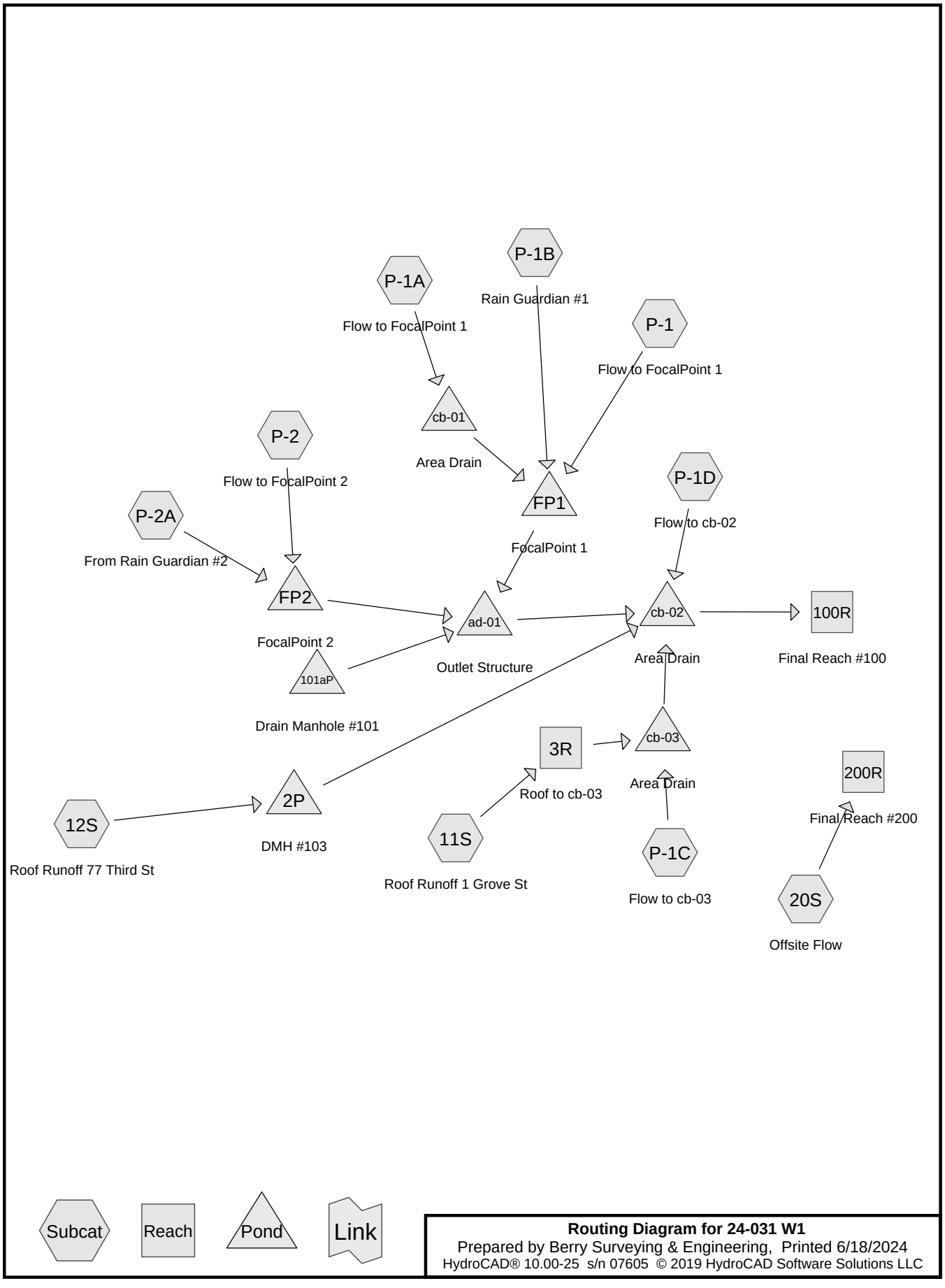
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 30 FT.
DATE : JUNE 24, 2024
FILE NO. : DB 2024 - 031

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14243
LICENSED PROFESSIONAL ENGINEER

SHEET 1 OF 2

NOT FOR CONSTRUCTION



Routing Diagram for 24-031 W1

Prepared by Berry Surveying & Engineering, Printed 6/18/2024

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.697	74	>75% Grass cover, Good, HSG C (P-1, P-1A, P-1B, P-1C, P-1D, P-2)
0.082	96	Gravel surface, HSG C (P-1B, P-1C)
1.051	98	Paved parking, HSG C (P-1A, P-1B, P-1C, P-1D, P-2A)
0.726	98	Roofs, HSG C (11S, 12S, P-1B, P-1C)
0.082	70	Woods, Good, HSG C (20S, P-1B, P-1C)
2.639	**91**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
2.639	HSG C	11S, 12S, 20S, P-1, P-1A, P-1B, P-1C, P-1D, P-2, P-2A
0.000	HSG D	
0.000	Other	
2.639		**TOTAL AREA**

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	0.000	0.697	0.000	0.000	0.697	>75% Grass cover, Good	P-1, P-1A, P-1B, P-1C, P-1D, P-2
0.000	0.000	0.082	0.000	0.000	0.082	Gravel surface	P-1B, P-1C
0.000	0.000	1.051	0.000	0.000	1.051	Paved parking	P-1A, P-1B, P-1C, P-1D, P-2A
0.000	0.000	0.726	0.000	0.000	0.726	Roofs	11S, 12S, P-1B, P-1C
0.000	0.000	0.082	0.000	0.000	0.082	Woods, Good	20S, P-1B, P-1C
0.000	**0.000**	**2.639**	**0.000**	**0.000**	**2.639**	**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	2P	62.38	62.34	93.0	0.0004	0.012	8.0	0.0	0.0
2	101aP	66.28	65.50	78.0	0.0100	0.013	10.0	0.0	0.0
3	ad-01	64.00	62.59	139.0	0.0101	0.013	18.0	0.0	0.0
4	cb-01	68.14	68.00	11.0	0.0127	0.013	12.0	0.0	0.0
5	cb-02	62.34	61.20	110.0	0.0104	0.013	24.0	0.0	0.0
6	cb-03	66.00	65.45	23.5	0.0234	0.012	12.0	0.0	0.0
7	FP1	65.00	65.00	1.0	0.0000	0.013	18.0	0.0	0.0
8	FP2	65.90	65.50	39.0	0.0103	0.013	12.0	0.0	0.0

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

Subcatchment 11S: Roof Runoff 1 Grove St Runoff Area=7,252 sf 100.00% Impervious Runoff Depth>5.76"
Tc=6.0 min CN=98 Runoff=0.96 cfs 0.080 af

Subcatchment 12S: Roof Runoff 77 Third Runoff Area=21,184 sf 100.00% Impervious Runoff Depth>5.76"
Tc=6.0 min CN=98 Runoff=2.79 cfs 0.233 af

Subcatchment 20S: Offsite Flow Runoff Area=499 sf 0.00% Impervious Runoff Depth>2.80"
Tc=6.0 min CN=70 Runoff=0.04 cfs 0.003 af

Subcatchment P-1: Flow to FocalPoint 1 Runoff Area=4,554 sf 0.00% Impervious Runoff Depth>3.18"
Tc=6.0 min CN=74 Runoff=0.38 cfs 0.028 af

Subcatchment P-1A: Flow to FocalPoint 1 Runoff Area=12,252 sf 77.71% Impervious Runoff Depth>5.18"
Tc=6.0 min CN=93 Runoff=1.55 cfs 0.121 af

Subcatchment P-1B: Rain Guardian #1 Runoff Area=35,221 sf 41.39% Impervious Runoff Depth>4.29"
Flow Length=313' Tc=13.4 min CN=85 Runoff=3.14 cfs 0.289 af

Subcatchment P-1C: Flow to cb-03 Runoff Area=18,593 sf 75.46% Impervious Runoff Depth>5.18"
Flow Length=264' Tc=7.8 min CN=93 Runoff=2.24 cfs 0.184 af

Subcatchment P-1D: Flow to cb-02 Runoff Area=8,324 sf 94.85% Impervious Runoff Depth>5.64"
Tc=6.0 min CN=97 Runoff=1.09 cfs 0.090 af

Subcatchment P-2: Flow to FocalPoint 2 Runoff Area=4,116 sf 0.00% Impervious Runoff Depth>3.18"
Tc=6.0 min CN=74 Runoff=0.35 cfs 0.025 af

Subcatchment P-2A: From Rain Guardian Runoff Area=2,974 sf 100.00% Impervious Runoff Depth>5.76"
Tc=6.0 min CN=98 Runoff=0.39 cfs 0.033 af

Reach 3R: Roof to cb-03 Avg. Flow Depth=0.19' Max Vel=2.35 fps Inflow=0.96 cfs 0.080 af
n=0.013 L=175.0' S=0.0066 '/' Capacity=7.30 cfs Outflow=0.95 cfs 0.080 af

Reach 100R: Final Reach #100 Inflow=12.17 cfs 1.083 af
Outflow=12.17 cfs 1.083 af

Reach 200R: Final Reach #200 Inflow=0.04 cfs 0.003 af
Outflow=0.04 cfs 0.003 af

Pond 2P: DMH #103 Peak Elev=69.13' Storage=0.002 af Inflow=2.79 cfs 0.233 af
8.0" Round Culvert n=0.012 L=93.0' S=0.0004 '/' Outflow=2.74 cfs 0.233 af

Pond 101aP: Drain Manhole #101 Peak Elev=0.00' Storage=0.000 af
10.0" Round Culvert n=0.013 L=78.0' S=0.0100 '/' Primary=0.00 cfs 0.000 af

Pond ad-01: Outlet Structure Peak Elev=65.22' Storage=15 cf Inflow=5.26 cfs 0.496 af
18.0" Round Culvert n=0.013 L=139.0' S=0.0101 '/' Outflow=5.22 cfs 0.496 af

Pond cb-01: Area Drain Peak Elev=70.20' Storage=0.001 af Inflow=1.55 cfs 0.121 af
12.0" Round Culvert n=0.013 L=11.0' S=0.0127 '/' Outflow=1.56 cfs 0.121 af

Pond cb-02: Area Drain Peak Elev=63.99' Storage=21 cf Inflow=12.15 cfs 1.083 af
24.0" Round Culvert n=0.013 L=110.0' S=0.0104 '/' Outflow=12.17 cfs 1.083 af

Pond cb-03: Area Drain Peak Elev=67.63' Storage=21 cf Inflow=3.19 cfs 0.264 af
12.0" Round Culvert n=0.012 L=23.5' S=0.0234 '/' Outflow=3.18 cfs 0.264 af

Pond FP1: FocalPoint 1 Peak Elev=69.97' Storage=1,778 cf Inflow=4.60 cfs 0.438 af
Outflow=4.61 cfs 0.438 af

Pond FP2: FocalPoint 2 Peak Elev=69.66' Storage=158 cf Inflow=0.74 cfs 0.058 af
Outflow=0.73 cfs 0.058 af

Total Runoff Area = 2.639 ac Runoff Volume = 1.086 af Average Runoff Depth = 4.94"
32.65% Pervious = 0.862 ac 67.35% Impervious = 1.778 ac

Summary for Subcatchment 11S: Roof Runoff 1 Grove St

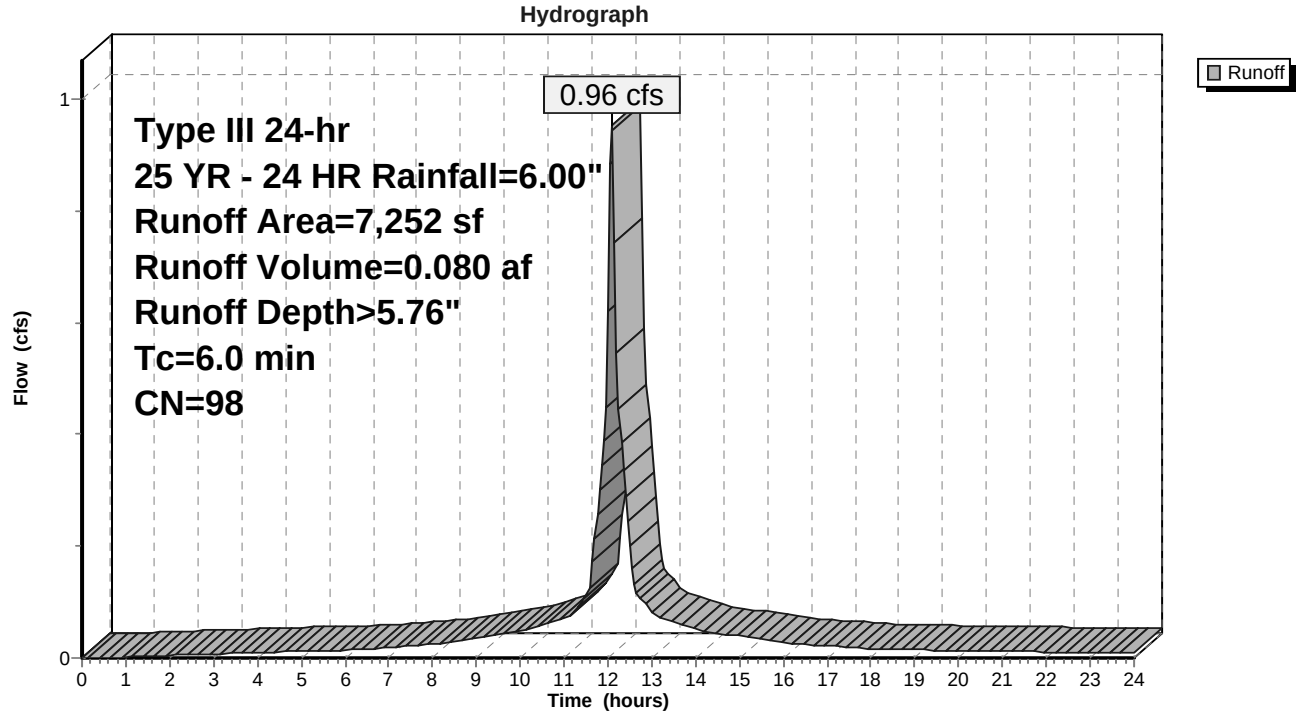
Runoff = 0.96 cfs @ 12.09 hrs, Volume= 0.080 af, Depth> 5.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
7,252	98	Roofs, HSG C
7,252		100.00% Impervious Area

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

Subcatchment 11S: Roof Runoff 1 Grove St



Summary for Subcatchment 12S: Roof Runoff 77 Third St

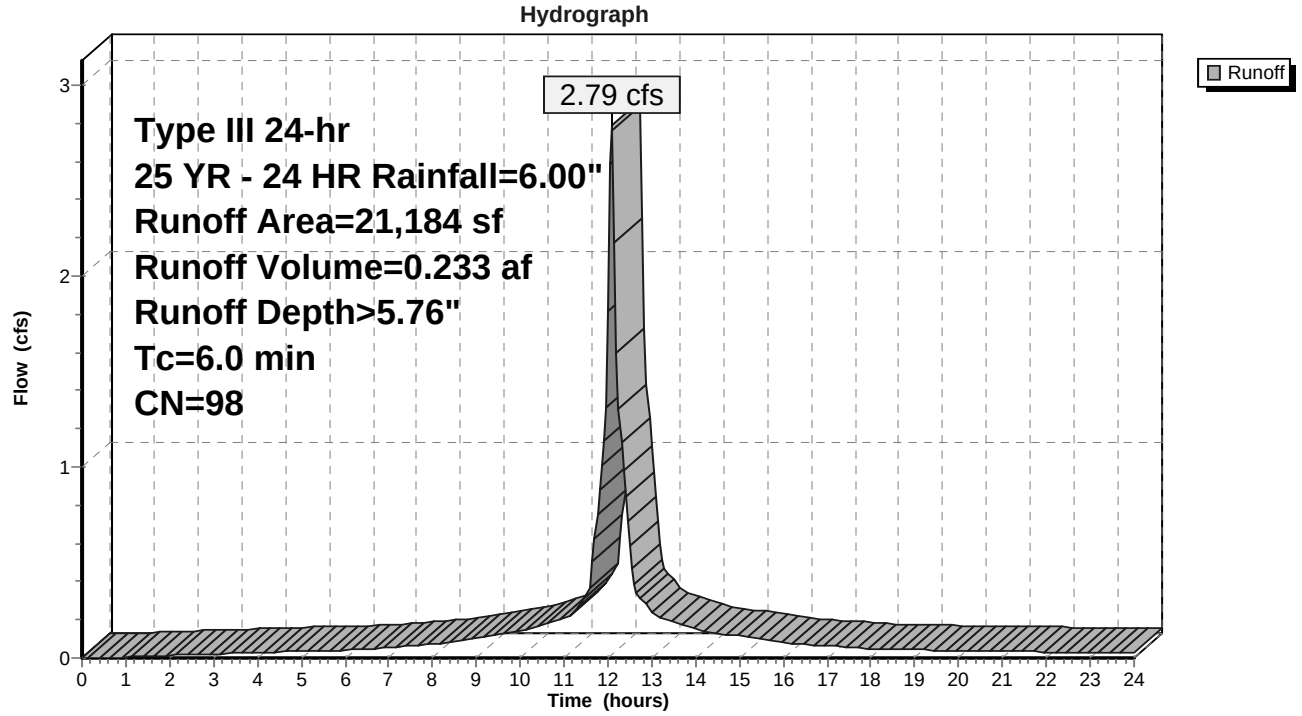
Runoff = 2.79 cfs @ 12.09 hrs, Volume= 0.233 af, Depth> 5.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
21,184	98	Roofs, HSG C
21,184		100.00% Impervious Area

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

Subcatchment 12S: Roof Runoff 77 Third St



Summary for Subcatchment 20S: Offsite Flow

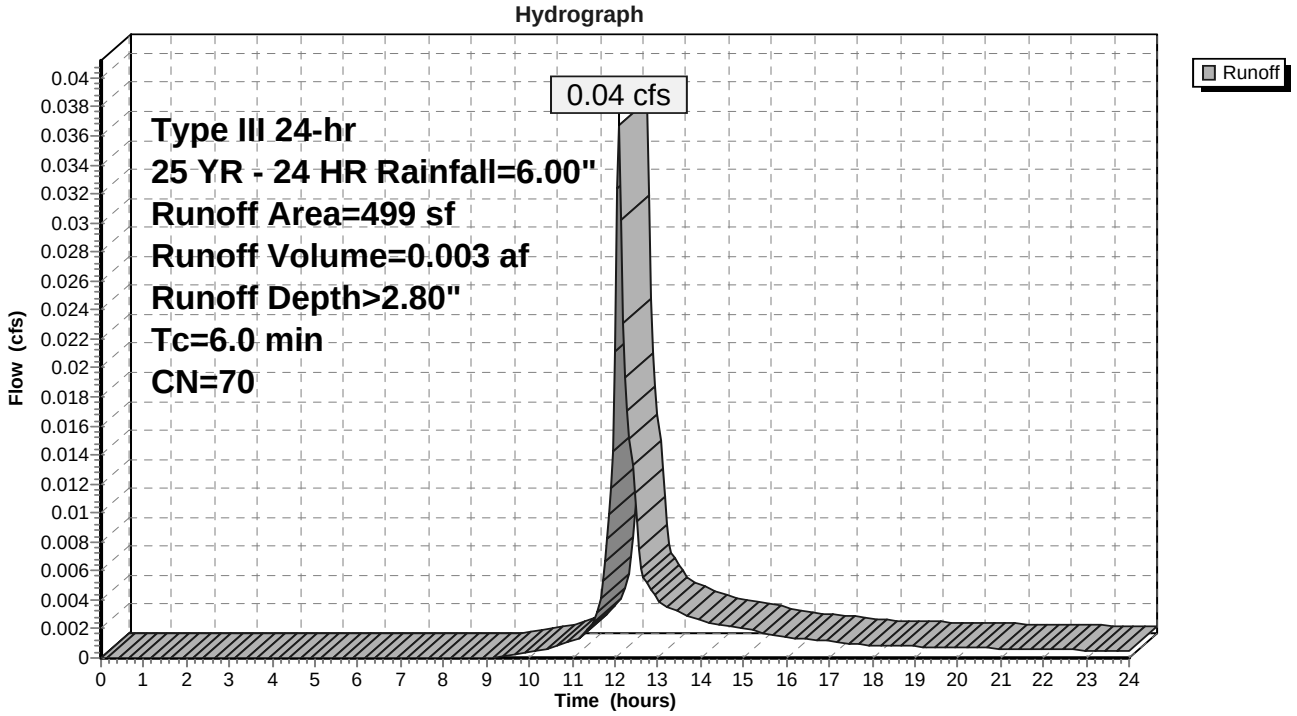
Runoff = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Depth> 2.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
499	70	Woods, Good, HSG C
499		100.00% Pervious Area

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

Subcatchment 20S: Offsite Flow



Summary for Subcatchment P-1: Flow to FocalPoint 1

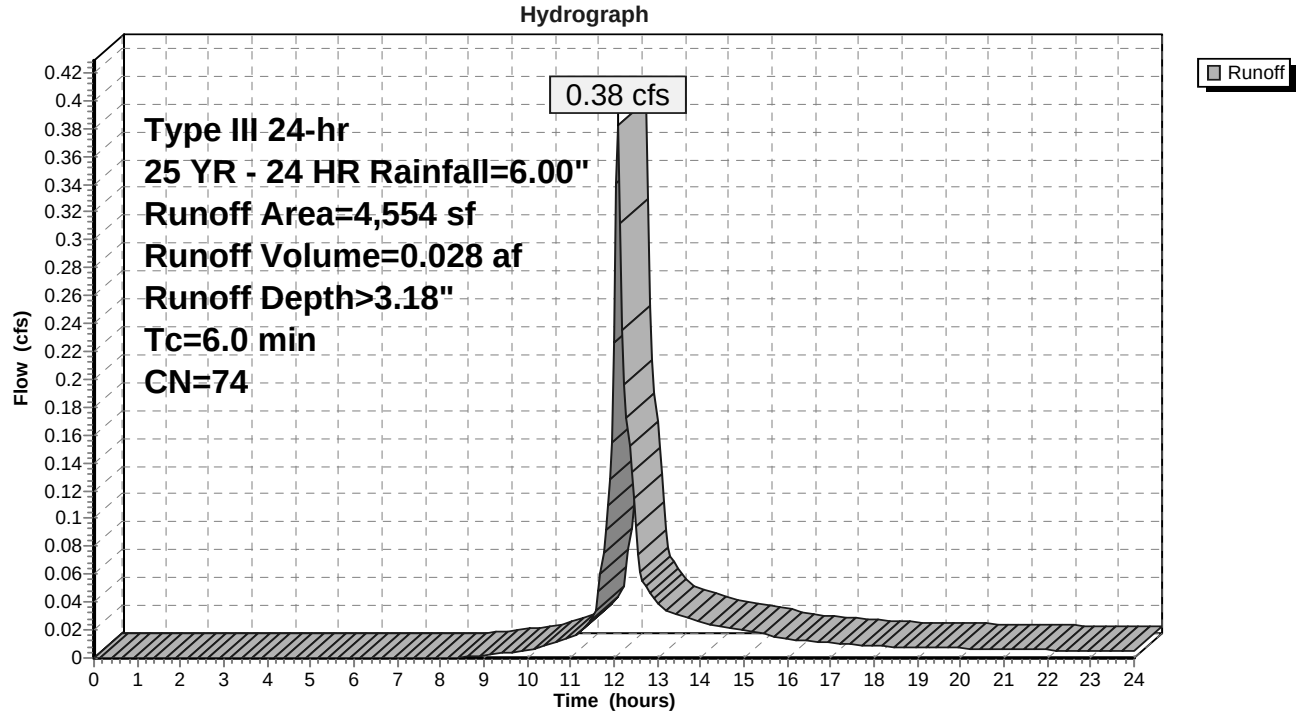
Runoff = 0.38 cfs @ 12.09 hrs, Volume= 0.028 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
4,554	74	>75% Grass cover, Good, HSG C
4,554		100.00% Pervious Area

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

Subcatchment P-1: Flow to FocalPoint 1



Summary for Subcatchment P-1A: Flow to FocalPoint 1

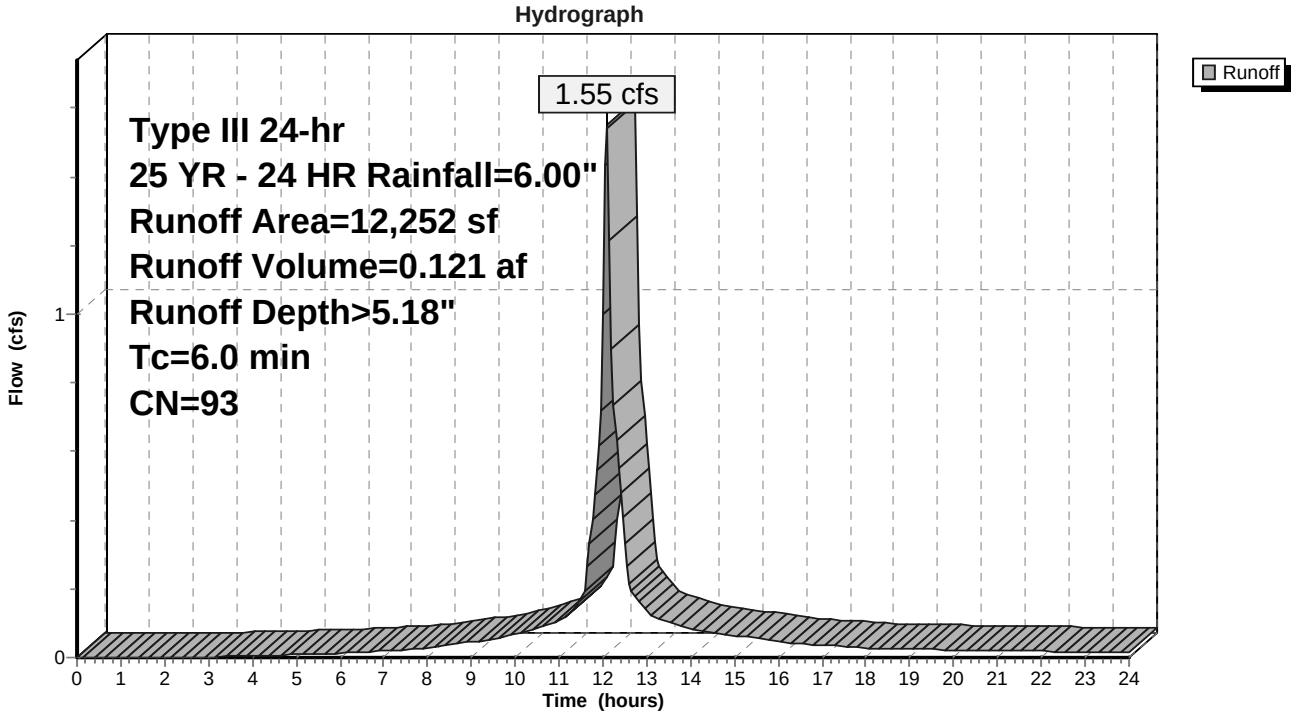
Runoff = 1.55 cfs @ 12.09 hrs, Volume= 0.121 af, Depth> 5.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
9,521	98	Paved parking, HSG C
2,731	74	>75% Grass cover, Good, HSG C
12,252	93	Weighted Average
2,731		22.29% Pervious Area
9,521		77.71% Impervious Area

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

Subcatchment P-1A: Flow to FocalPoint 1



Summary for Subcatchment P-1B: Rain Guardian #1

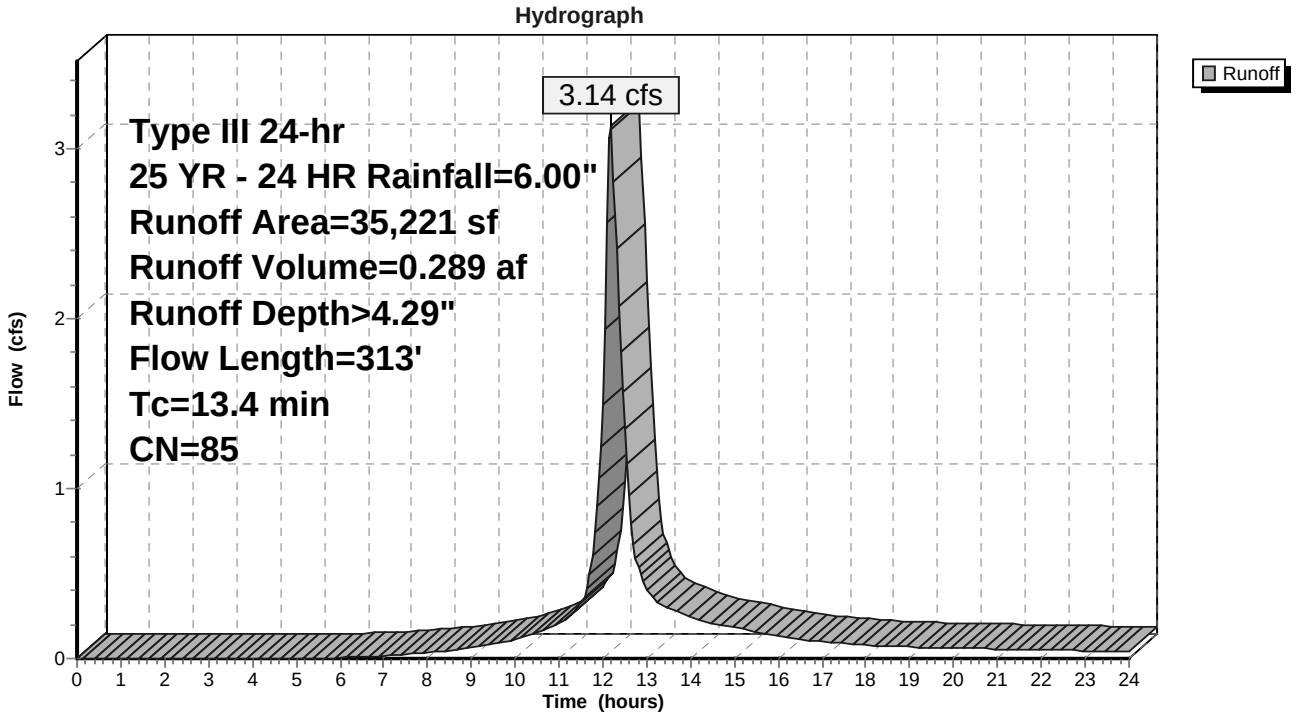
Runoff = 3.14 cfs @ 12.18 hrs, Volume= 0.289 af, Depth> 4.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
11,970	98	Paved parking, HSG C
15,906	74	>75% Grass cover, Good, HSG C
2,607	98	Roofs, HSG C
2,343	70	Woods, Good, HSG C
2,395	96	Gravel surface, HSG C
35,221	85	Weighted Average
20,644		58.61% Pervious Area
14,577		41.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.0250	0.18		**Sheet Flow, Segment #1** Grass: Short n= 0.150 P2= 3.15"
0.1	9	0.1470	2.68		**Shallow Concentrated Flow, Segment #2** Short Grass Pasture Kv= 7.0 fps
4.0	140	0.0070	0.59		**Shallow Concentrated Flow, Segment #3** Short Grass Pasture Kv= 7.0 fps
0.3	64	0.0250	3.21		**Shallow Concentrated Flow, Segment #4** Paved Kv= 20.3 fps
13.4	313	Total			

Subcatchment P-1B: Rain Guardian #1



Summary for Subcatchment P-1C: Flow to cb-03

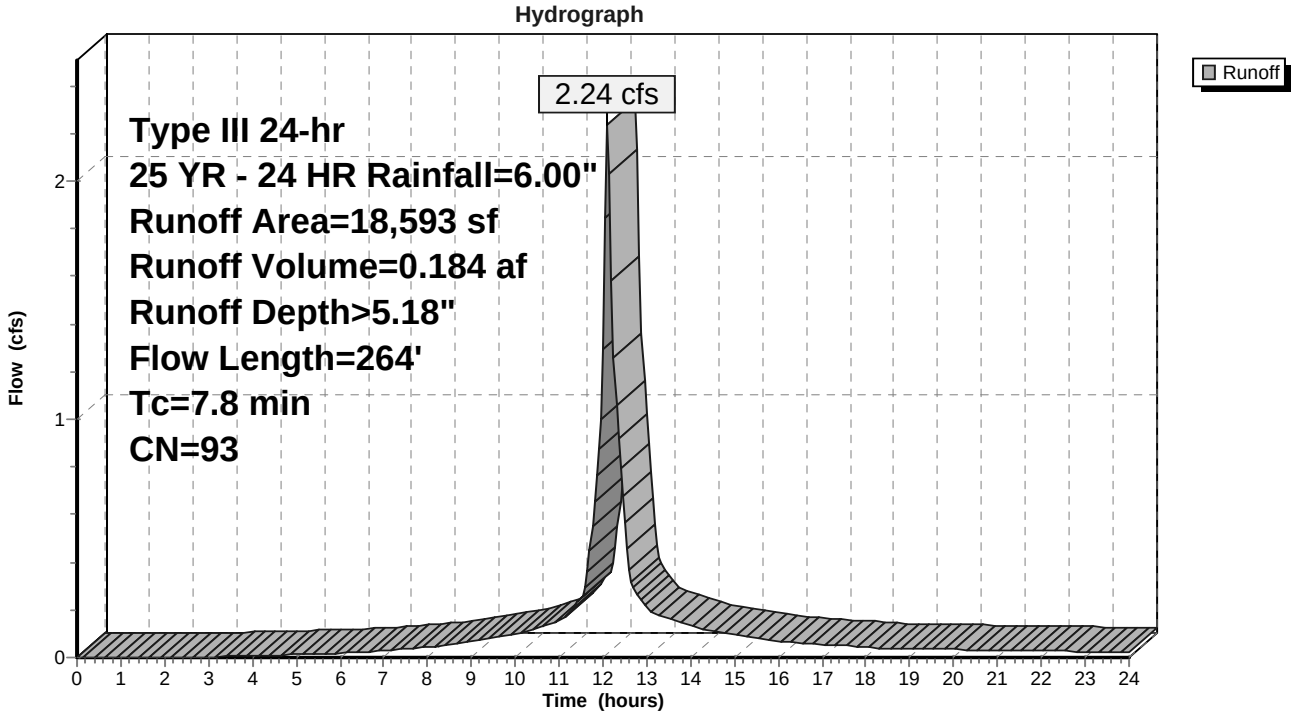
Runoff = 2.24 cfs @ 12.11 hrs, Volume= 0.184 af, Depth> 5.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
13,438	98	Paved parking, HSG C
2,621	74	>75% Grass cover, Good, HSG C
592	98	Roofs, HSG C
748	70	Woods, Good, HSG C
1,194	96	Gravel surface, HSG C
18,593	93	Weighted Average
4,563		24.54% Pervious Area
14,030		75.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	35	0.0727	0.10		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.15"
1.0	66	0.0152	1.13		**Sheet Flow, Segment #2** Smooth surfaces n= 0.011 P2= 3.15"
1.2	163	0.0123	2.25		**Shallow Concentrated Flow, Sergment #3** Paved Kv= 20.3 fps
7.8	264	Total			

Subcatchment P-1C: Flow to cb-03



Summary for Subcatchment P-1D: Flow to cb-02

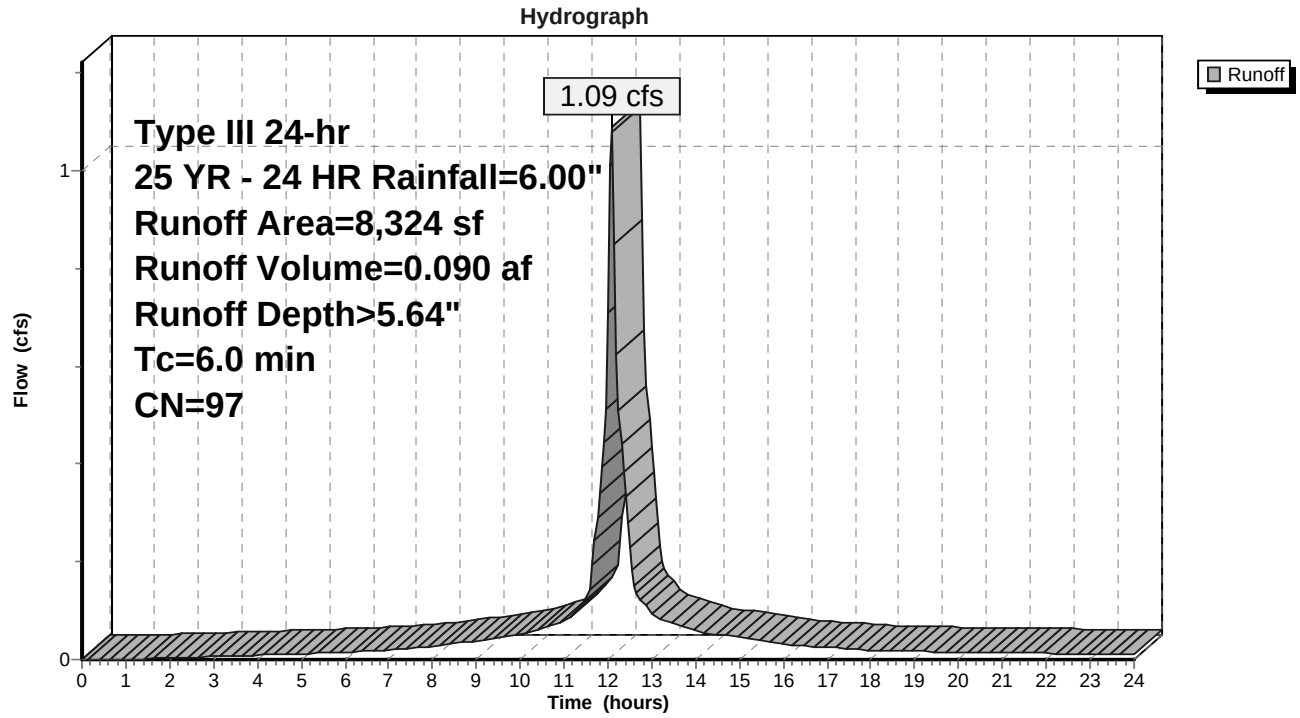
Runoff = 1.09 cfs @ 12.09 hrs, Volume= 0.090 af, Depth> 5.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
7,895	98	Paved parking, HSG C
429	74	>75% Grass cover, Good, HSG C
8,324	97	Weighted Average
429		5.15% Pervious Area
7,895		94.85% Impervious Area

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

Subcatchment P-1D: Flow to cb-02



Summary for Subcatchment P-2: Flow to FocalPoint 2

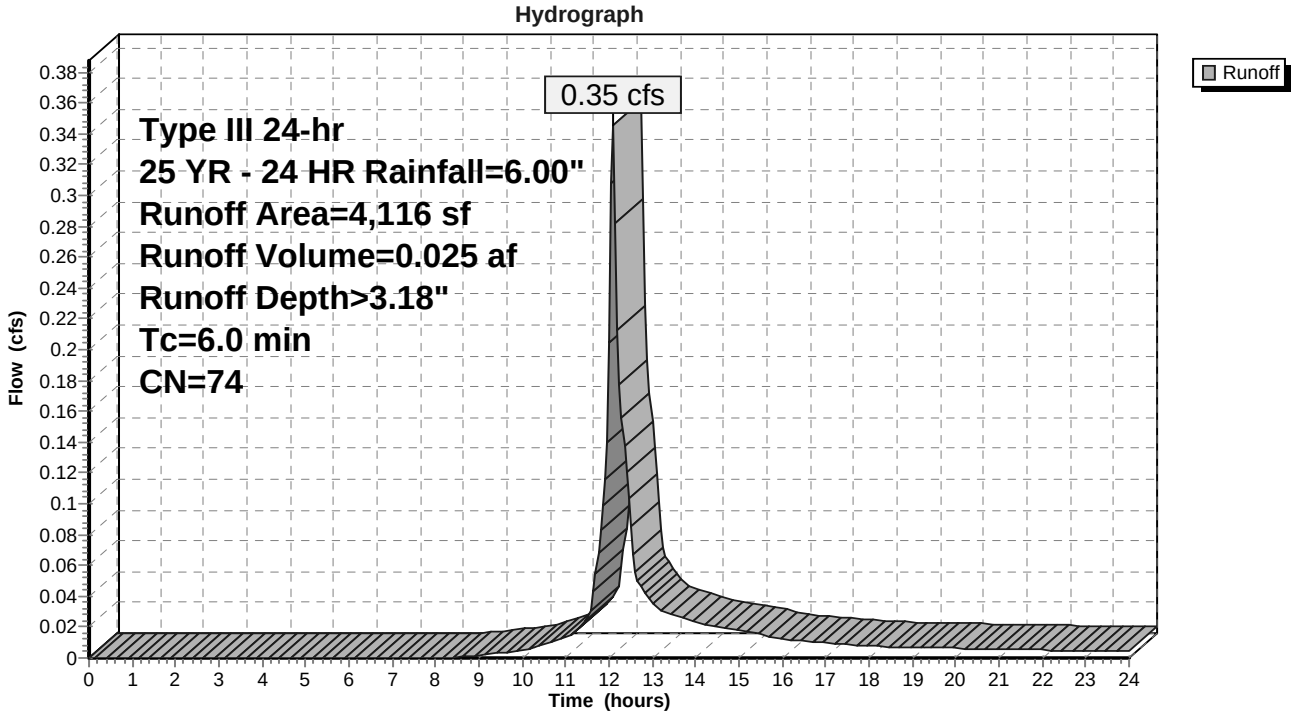
Runoff = 0.35 cfs @ 12.09 hrs, Volume= 0.025 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
4,116	74	>75% Grass cover, Good, HSG C
4,116		100.00% Pervious Area

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

Subcatchment P-2: Flow to FocalPoint 2



Summary for Subcatchment P-2A: From Rain Guardian #2

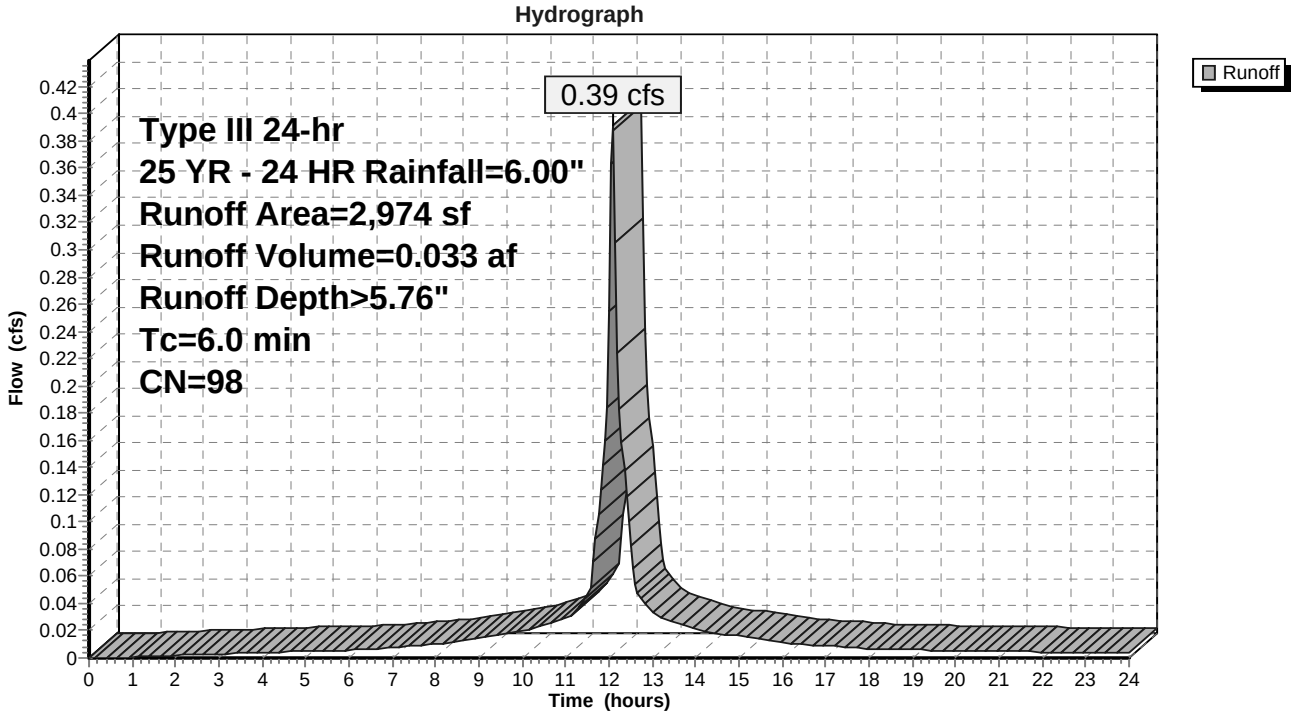
Runoff = 0.39 cfs @ 12.09 hrs, Volume= 0.033 af, Depth> 5.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
2,974	98	Paved parking, HSG C
2,974		100.00% Impervious Area

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

Subcatchment P-2A: From Rain Guardian #2



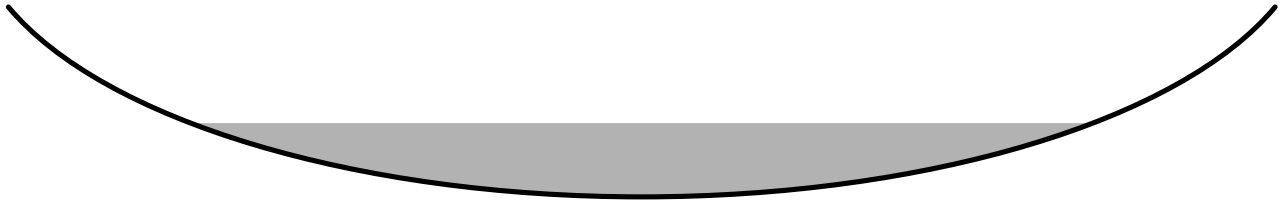
Summary for Reach 3R: Roof to cb-03

Inflow Area = 0.166 ac,100.00% Impervious, Inflow Depth > 5.76" for 25 YR - 24 HR event
Inflow = 0.96 cfs @ 12.09 hrs, Volume= 0.080 af
Outflow = 0.95 cfs @ 12.10 hrs, Volume= 0.080 af, Atten= 1%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.35 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 0.76 fps, Avg. Travel Time= 3.8 min

Peak Storage= 70 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 0.50' Flow Area= 1.7 sf, Capacity= 7.30 cfs

5.00' x 0.50' deep Parabolic Channel, n= 0.013 Asphalt, smooth
Length= 175.0' Slope= 0.0066 '/'
Inlet Invert= 73.50', Outlet Invert= 72.35'



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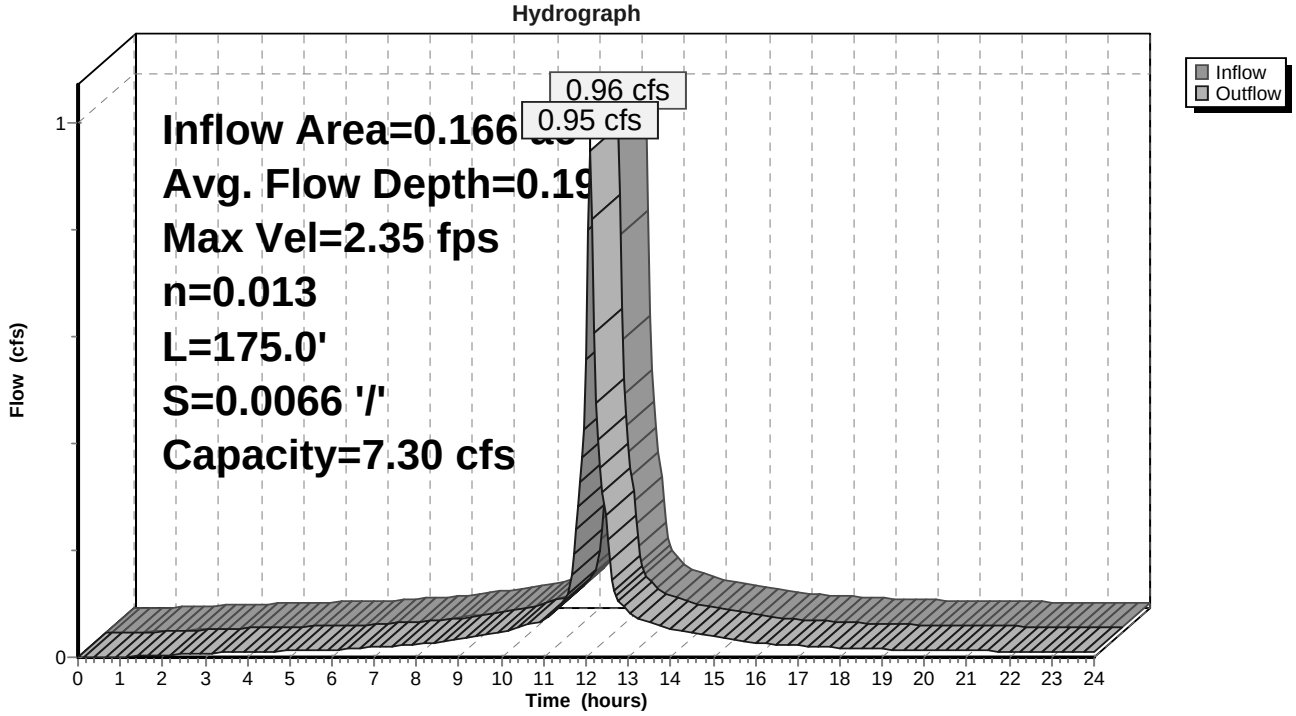
Reach 3R: Roof to cb-03



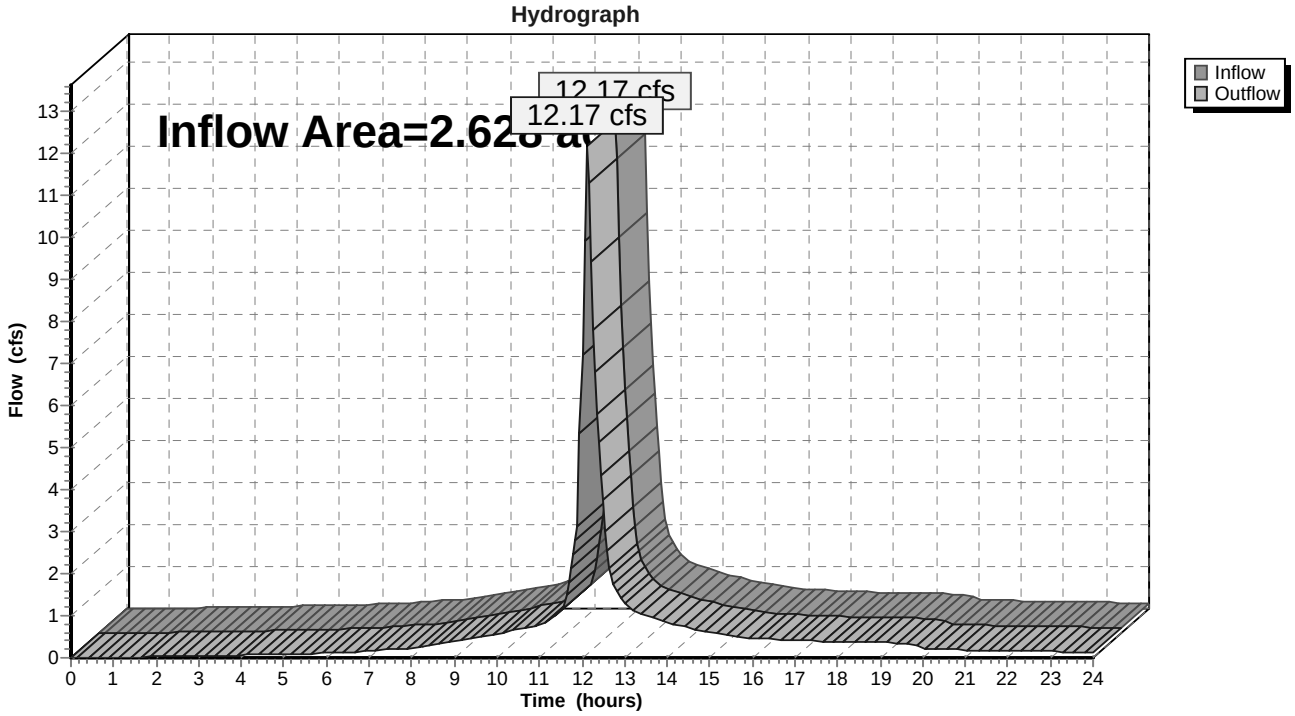
Summary for Reach 100R: Final Reach #100

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

Inflow Area = 2.628 ac, 67.64% Impervious, Inflow Depth > 4.95" for 25 YR - 24 HR event
Inflow = 12.17 cfs @ 12.11 hrs, Volume= 1.083 af
Outflow = 12.17 cfs @ 12.11 hrs, Volume= 1.083 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 100R: Final Reach #100



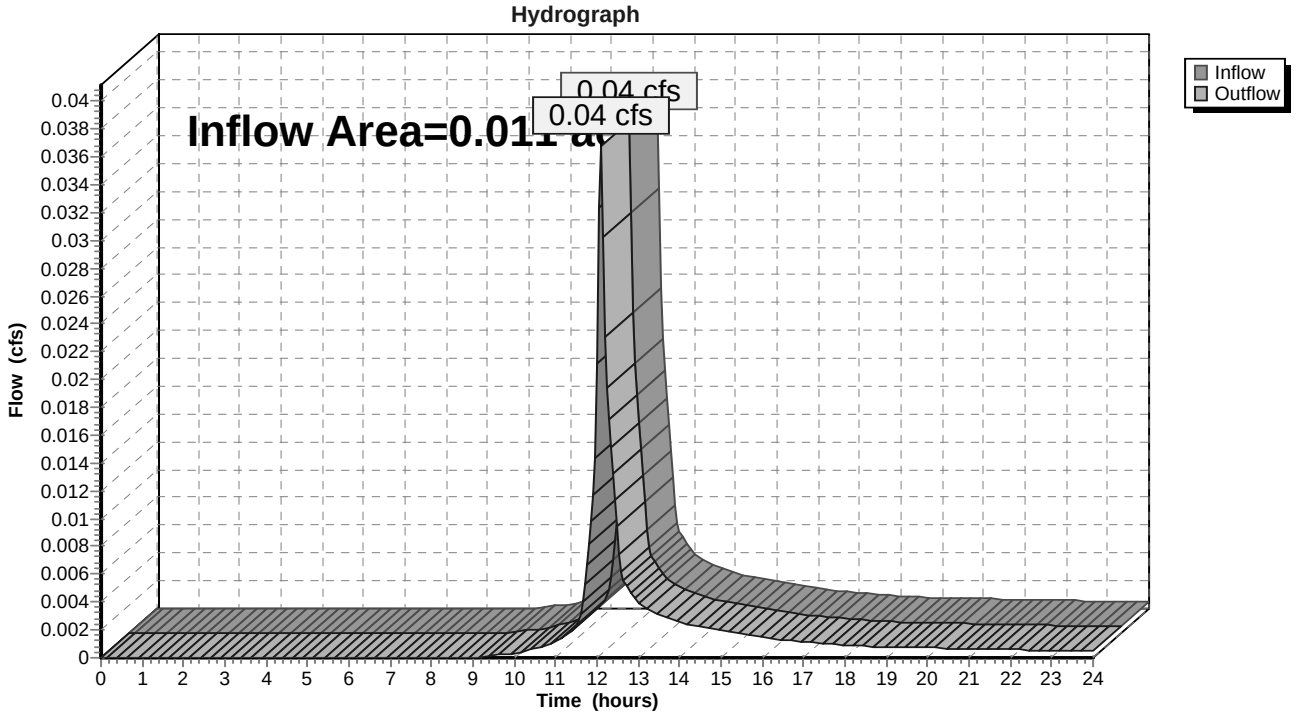
Summary for Reach 200R: Final Reach #200

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

Inflow Area = 0.011 ac, 0.00% Impervious, Inflow Depth > 2.80" for 25 YR - 24 HR event
Inflow = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af
Outflow = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 200R: Final Reach #200



Summary for Pond 2P: DMH #103

Inflow Area = 0.486 ac,100.00% Impervious, Inflow Depth > 5.76" for 25 YR - 24 HR event
Inflow = 2.79 cfs @ 12.09 hrs, Volume= 0.233 af
Outflow = 2.74 cfs @ 12.10 hrs, Volume= 0.233 af, Atten= 2%, Lag= 0.7 min
Primary = 2.74 cfs @ 12.10 hrs, Volume= 0.233 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 69.13' @ 12.10 hrs Surf.Area= 0.000 ac Storage= 0.002 af

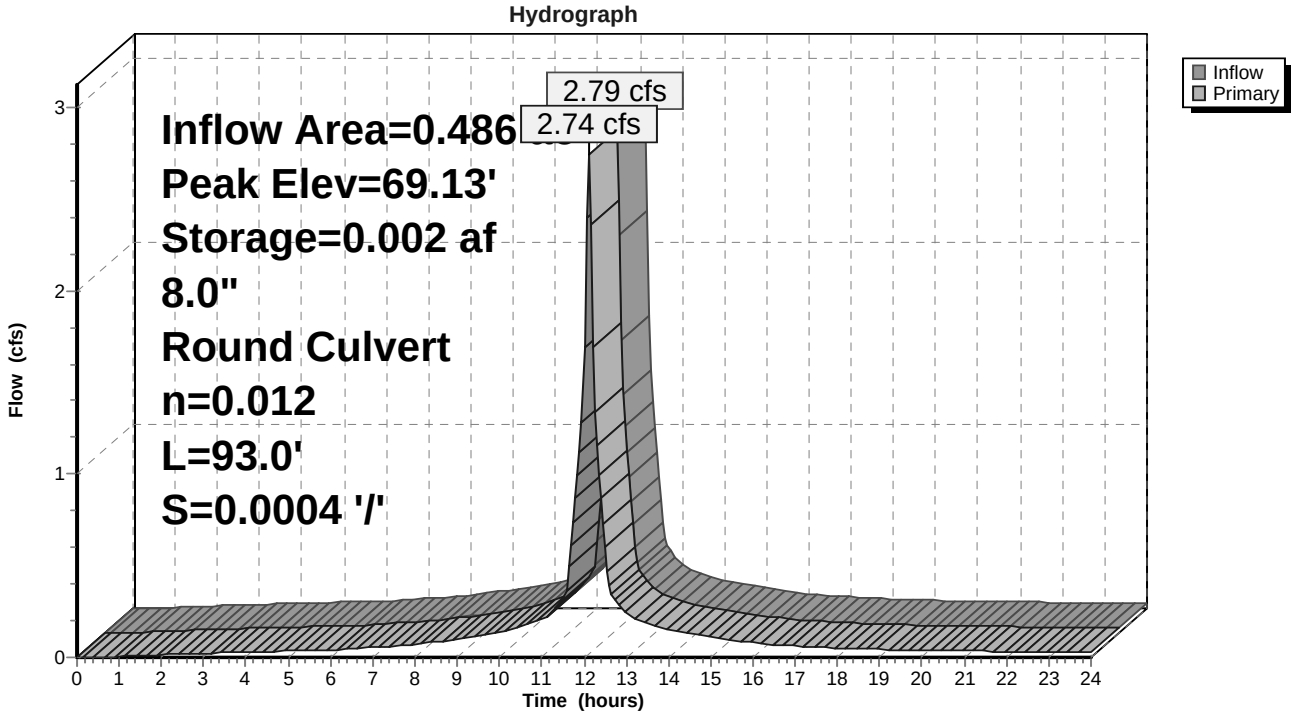
Plug-Flow detention time= 0.6 min calculated for 0.233 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (745.2 - 744.7)

Volume	Invert	Avail.Storage	Storage Description
#1	62.38'	0.002 af	**4.00'D x 8.62'H Basin**

Device	Routing	Invert	Outlet Devices
#1	Primary	62.38'	**8.0" Round 8" HDPE n-12** L= 93.0' Ke= 0.300 Inlet / Outlet Invert= 62.38' / 62.34' S= 0.0004 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=2.68 cfs @ 12.10 hrs HW=69.08' TW=63.98' (Dynamic Tailwater)
↑**1=8" HDPE n-12** (Outlet Controls 2.68 cfs @ 7.68 fps)

Pond 2P: DMH #103



Summary for Pond 101aP: Drain Manhole #101

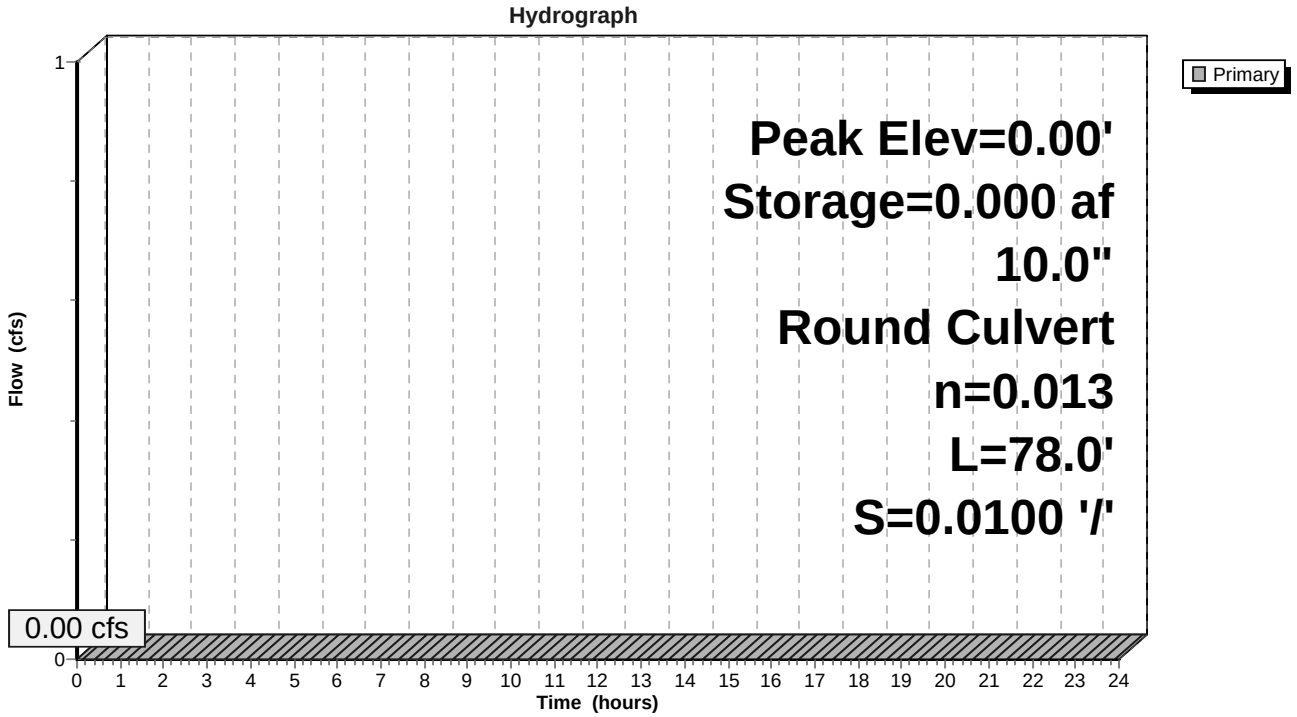
[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.Storage	Storage Description
#1	66.28'	0.002 af	**4.00'D x 5.72'H Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	66.28'	**10.0" Round 10" HDPE N-12** L= 78.0' Ke= 0.900 Inlet / Outlet Invert= 66.28' / 65.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.55 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=64.00' (Dynamic Tailwater)
└─**1=10" HDPE N-12** (Controls 0.00 cfs)

Pond 101aP: Drain Manhole #101



Summary for Pond ad-01: Outlet Structure

Inflow Area = 1.357 ac, 45.79% Impervious, Inflow Depth > 4.39" for 25 YR - 24 HR event
Inflow = 5.26 cfs @ 12.14 hrs, Volume= 0.496 af
Outflow = 5.22 cfs @ 12.14 hrs, Volume= 0.496 af, Atten= 1%, Lag= 0.0 min
Primary = 5.22 cfs @ 12.14 hrs, Volume= 0.496 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 65.22' @ 12.15 hrs Surf.Area= 13 sf Storage= 15 cf
Flood Elev= 70.50' Surf.Area= 13 sf Storage= 72 cf

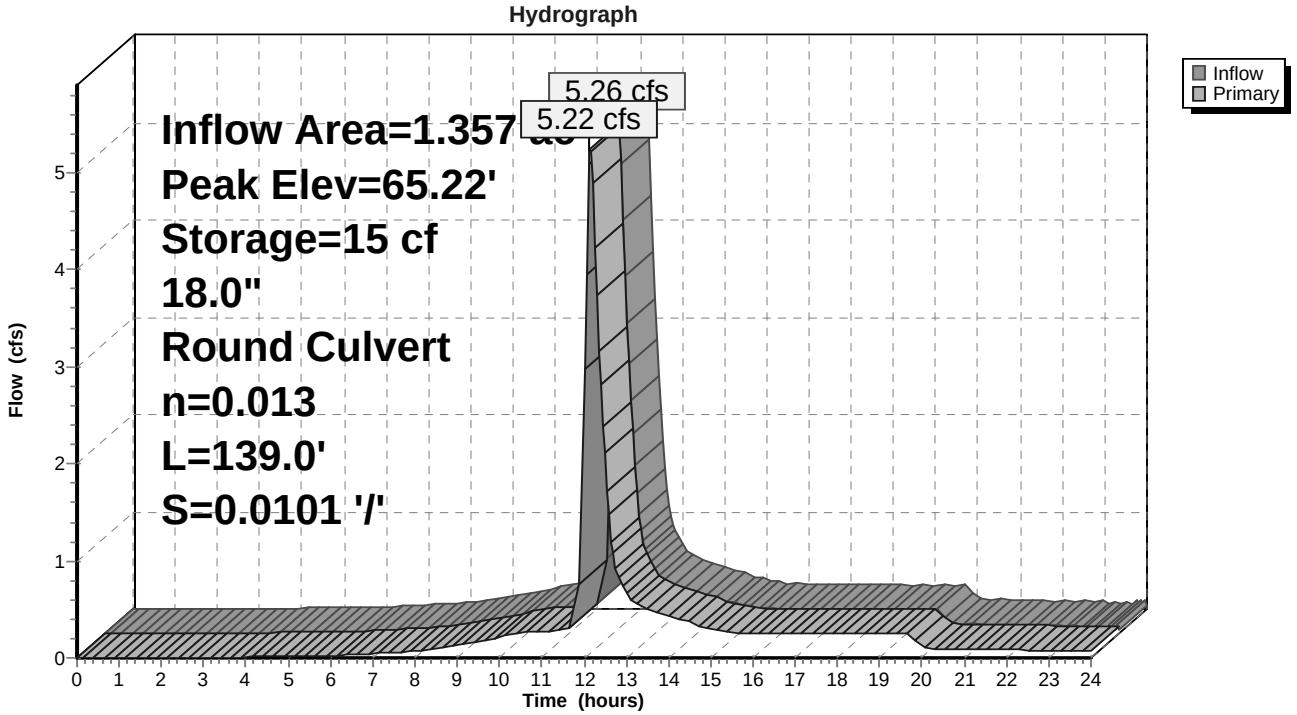
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.2 min (825.4 - 825.2)

Volume	Invert	Avail.Storage	Storage Description
#1	64.00'	72 cf	**4.00'D x 5.75'H Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	64.00'	**18.0" Round 18" HDPE N-12** L= 139.0' Ke= 0.500 Inlet / Outlet Invert= 64.00' / 62.59' S= 0.0101 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=5.22 cfs @ 12.14 hrs HW=65.20' TW=63.93' (Dynamic Tailwater)
└**1=18" HDPE N-12** (Outlet Controls 5.22 cfs @ 4.70 fps)

Pond ad-01: Outlet Structure



Summary for Pond cb-01: Area Drain

[93] Warning: Storage range exceeded by 0.04'
[58] Hint: Peaked 0.04' above defined flood level
[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=39)

Inflow Area = 0.281 ac, 77.71% Impervious, Inflow Depth > 5.18" for 25 YR - 24 HR event
Inflow = 1.55 cfs @ 12.09 hrs, Volume= 0.121 af
Outflow = 1.56 cfs @ 12.09 hrs, Volume= 0.121 af, Atten= 0%, Lag= 0.1 min
Primary = 1.56 cfs @ 12.09 hrs, Volume= 0.121 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 70.20' @ 12.10 hrs Surf.Area= 0.000 ac Storage= 0.001 af
Flood Elev= 70.16' Surf.Area= 0.000 ac Storage= 0.001 af

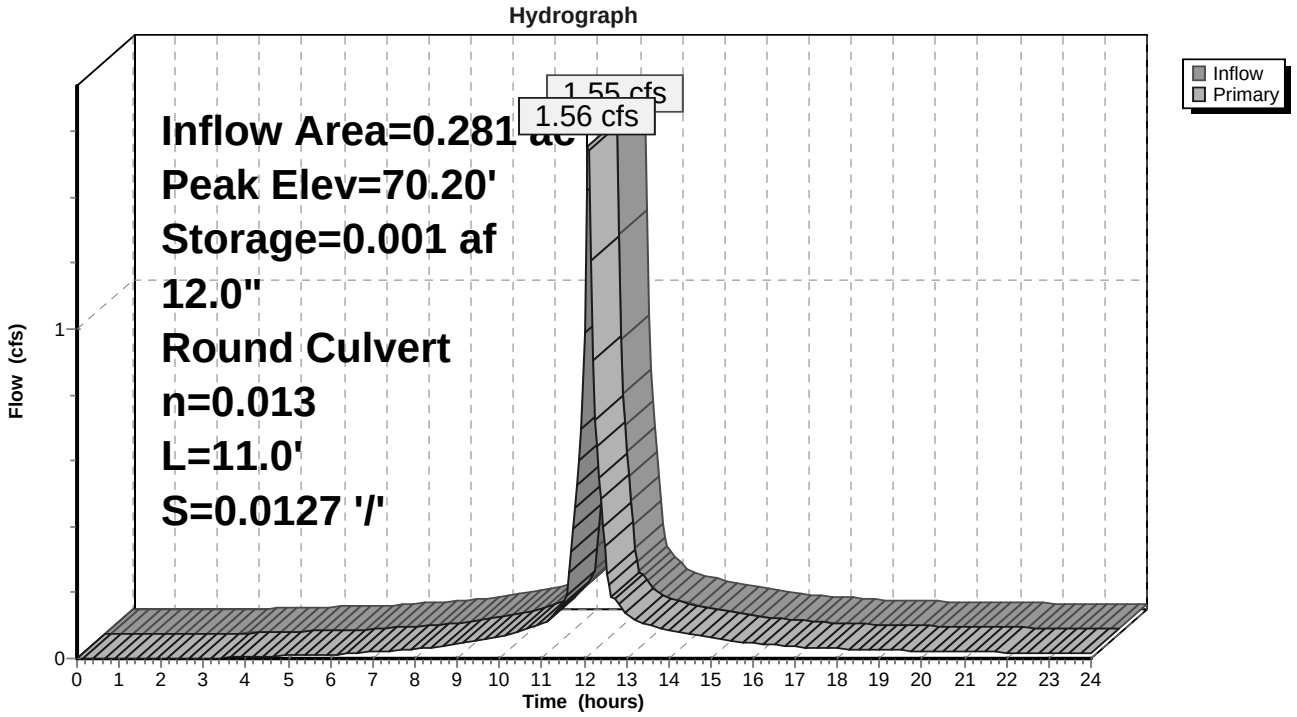
Plug-Flow detention time= 1.7 min calculated for 0.121 af (100% of inflow)
Center-of-Mass det. time= 1.6 min (774.1 - 772.5)

Volume	Invert	Avail.Storage	Storage Description
#1	68.14'	0.001 af	**4.00'D x 2.02'H Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	68.14'	**12.0" Round 12" HDPE N-12** L= 11.0' Ke= 0.900 Inlet / Outlet Invert= 68.14' / 68.00' S= 0.0127 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.41 cfs @ 12.09 hrs HW=70.18' TW=69.96' (Dynamic Tailwater)
↑—**1=12" HDPE N-12** (Inlet Controls 1.41 cfs @ 1.80 fps)

Pond cb-01: Area Drain



Summary for Pond cb-02: Area Drain

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 2.628 ac, 67.64% Impervious, Inflow Depth > 4.95" for 25 YR - 24 HR event
Inflow = 12.15 cfs @ 12.11 hrs, Volume= 1.083 af
Outflow = 12.17 cfs @ 12.11 hrs, Volume= 1.083 af, Atten= 0%, Lag= 0.0 min
Primary = 12.17 cfs @ 12.11 hrs, Volume= 1.083 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 63.99' @ 12.11 hrs Surf.Area= 13 sf Storage= 21 cf
Flood Elev= 72.08' Surf.Area= 13 sf Storage= 122 cf

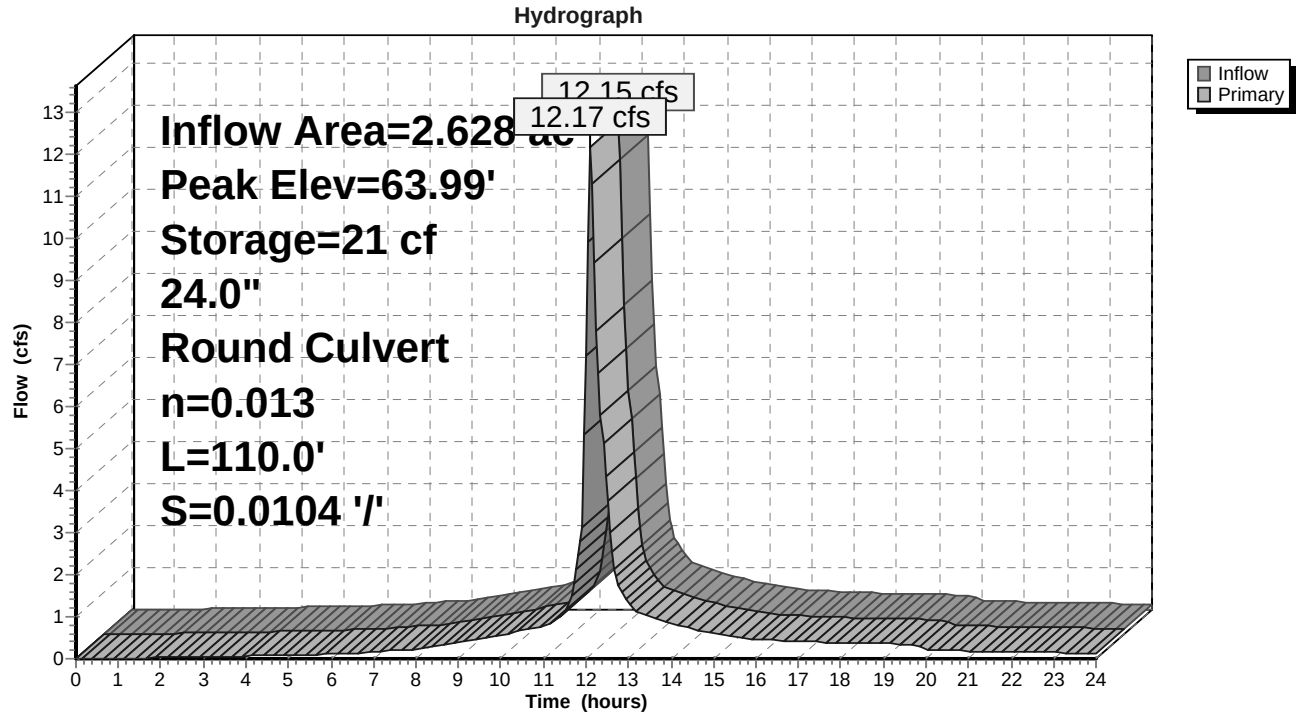
Plug-Flow detention time= 0.1 min calculated for 1.083 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (787.6 - 787.5)

Volume	Invert	Avail.Storage	Storage Description
#1	62.34'	122 cf	**4.00'D x 9.74'H Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	62.34'	**24.0" Round 24" HDPE N-12** L= 110.0' Ke= 0.500 Inlet / Outlet Invert= 62.34' / 61.20' S= 0.0104 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=11.90 cfs @ 12.11 hrs HW=63.97' TW=0.00' (Dynamic Tailwater)
↑**1=24" HDPE N-12** (Inlet Controls 11.90 cfs @ 4.35 fps)

Pond cb-02: Area Drain



Summary for Pond cb-03: Area Drain

Inflow Area = 0.593 ac, 82.34% Impervious, Inflow Depth > 5.34" for 25 YR - 24 HR event
Inflow = 3.19 cfs @ 12.11 hrs, Volume= 0.264 af
Outflow = 3.18 cfs @ 12.11 hrs, Volume= 0.264 af, Atten= 0%, Lag= 0.1 min
Primary = 3.18 cfs @ 12.11 hrs, Volume= 0.264 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 67.63' @ 12.11 hrs Surf.Area= 13 sf Storage= 21 cf
Flood Elev= 72.35' Surf.Area= 13 sf Storage= 80 cf

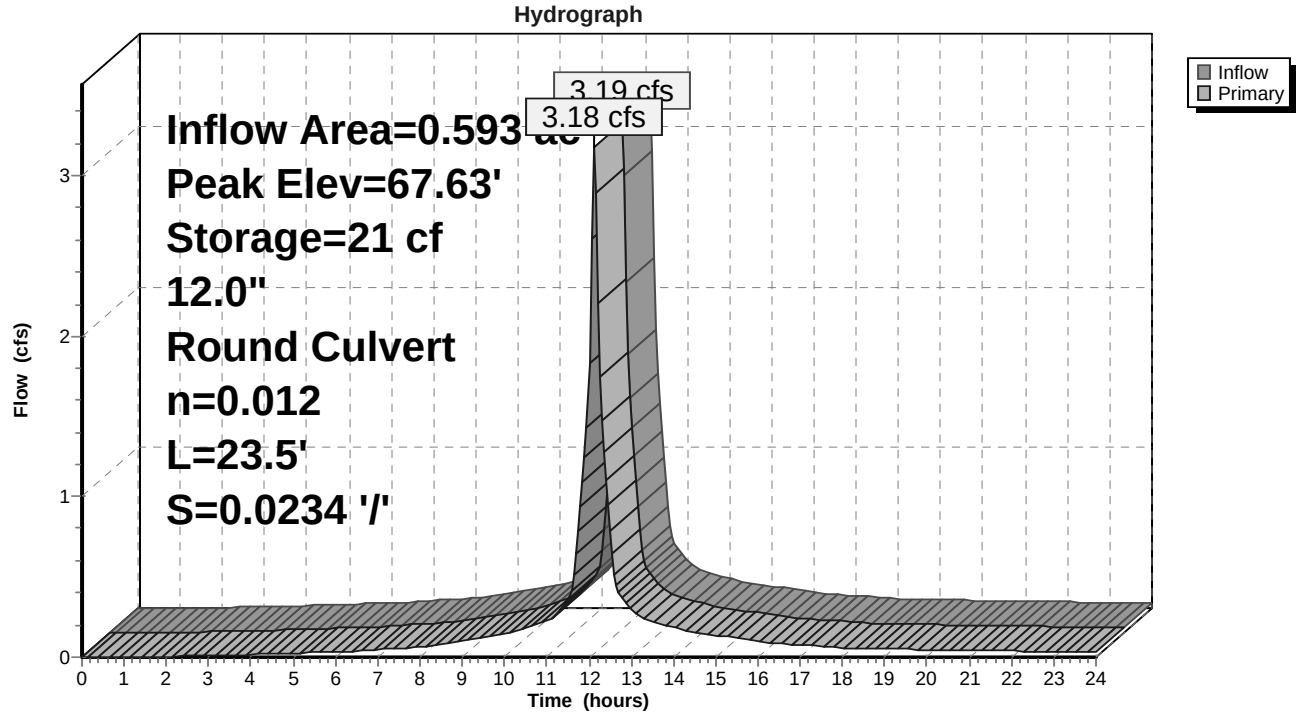
Plug-Flow detention time= 0.2 min calculated for 0.264 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (766.0 - 765.8)

Volume	Invert	Avail.Storage	Storage Description
#1	66.00'	80 cf	**4.00'D x 6.35'H Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	**12.0" Round 12" HDPE N-12** L= 23.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.00' / 65.45' S= 0.0234 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.12 cfs @ 12.11 hrs HW=67.59' TW=63.97' (Dynamic Tailwater)
└**1=12" HDPE N-12** (Inlet Controls 3.12 cfs @ 3.98 fps)

Pond cb-03: Area Drain



Summary for Pond FP1: FocalPoint 1

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=39)
[80] Warning: Exceeded Pond cb-01 by 0.19' @ 11.90 hrs (1.30 cfs 0.035 af)

Inflow Area = 1.194 ac, 46.32% Impervious, Inflow Depth > 4.40" for 25 YR - 24 HR event
Inflow = 4.60 cfs @ 12.14 hrs, Volume= 0.438 af
Outflow = 4.61 cfs @ 12.15 hrs, Volume= 0.438 af, Atten= 0%, Lag= 0.9 min
Primary = 4.61 cfs @ 12.15 hrs, Volume= 0.438 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 69.97' @ 12.15 hrs Surf.Area= 100 sf Storage= 1,778 cf
Flood Elev= 70.50' Surf.Area= 100 sf Storage= 2,571 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 31.5 min (830.2 - 798.7)

Volume	Invert	Avail.Storage	Storage Description
#1	65.75'	45 cf	**FocalPoint (Irregular)**Listed below (Recalc) 225 cf Overall x 20.0% Voids
#2	68.00'	2,526 cf	**Open Water Storage (Irregular)**Listed below (Recalc) -Impervious
		2,571 cf	Total Available Storage

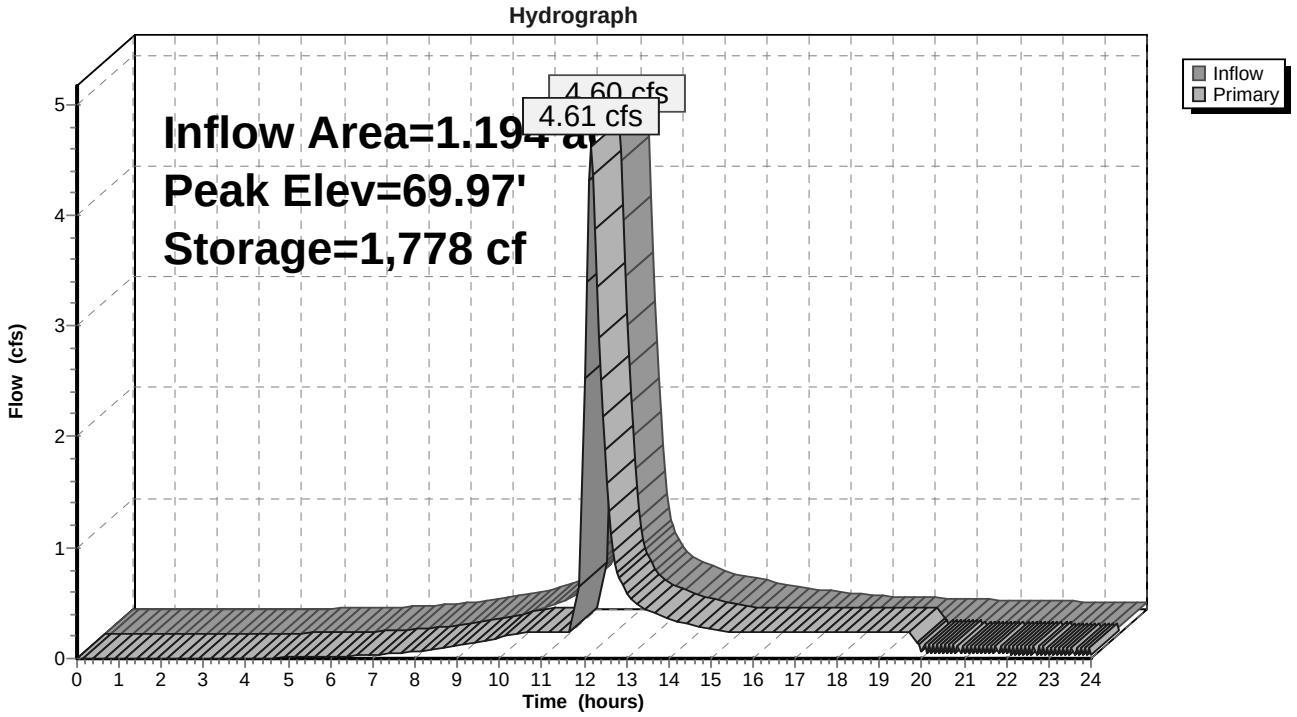
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
65.75	100	58.0	0	0	100
68.00	100	58.0	225	225	231

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
68.00	512	102.0	0	0	512
69.00	876	130.0	686	686	1,042
70.00	1,296	149.0	1,079	1,765	1,486
70.50	1,758	180.0	761	2,526	2,302

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	**18.0" Round 18" HDPE N-12** L= 1.0' Ke= 0.900 Inlet / Outlet Invert= 65.00' / 65.00' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	65.75'	**100.000 in/hr Exfiltration over Surface area**
#3	Device 1	69.75'	**48.0" Horiz. 48" Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.60 cfs @ 12.15 hrs HW=69.97' TW=65.21' (Dynamic Tailwater)
└**1=18" HDPE N-12** (Passes 4.60 cfs of 13.81 cfs potential flow)
  └**2=Exfiltration** (Exfiltration Controls 0.23 cfs)
  └**3=48" Grate** (Weir Controls 4.37 cfs @ 1.55 fps)

Pond FP1: FocalPoint 1



Summary for Pond FP2: FocalPoint 2

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=91)

Inflow Area = 0.163 ac, 41.95% Impervious, Inflow Depth > 4.26" for 25 YR - 24 HR event
Inflow = 0.74 cfs @ 12.09 hrs, Volume= 0.058 af
Outflow = 0.73 cfs @ 12.10 hrs, Volume= 0.058 af, Atten= 1%, Lag= 0.8 min
Primary = 0.73 cfs @ 12.10 hrs, Volume= 0.058 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 69.66' @ 12.10 hrs Surf.Area= 30 sf Storage= 158 cf
Flood Elev= 70.50' Surf.Area= 30 sf Storage= 515 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 6.8 min (787.8 - 780.9)

Volume	Invert	Avail.Storage	Storage Description
#1	66.75'	14 cf	**FocalPoint (Irregular)** Listed below (Recalc) 68 cf Overall x 20.0% Voids
#2	69.00'	502 cf	**Open Water Storage (Irregular)** Listed below (Recalc) -Impervious
		515 cf	Total Available Storage

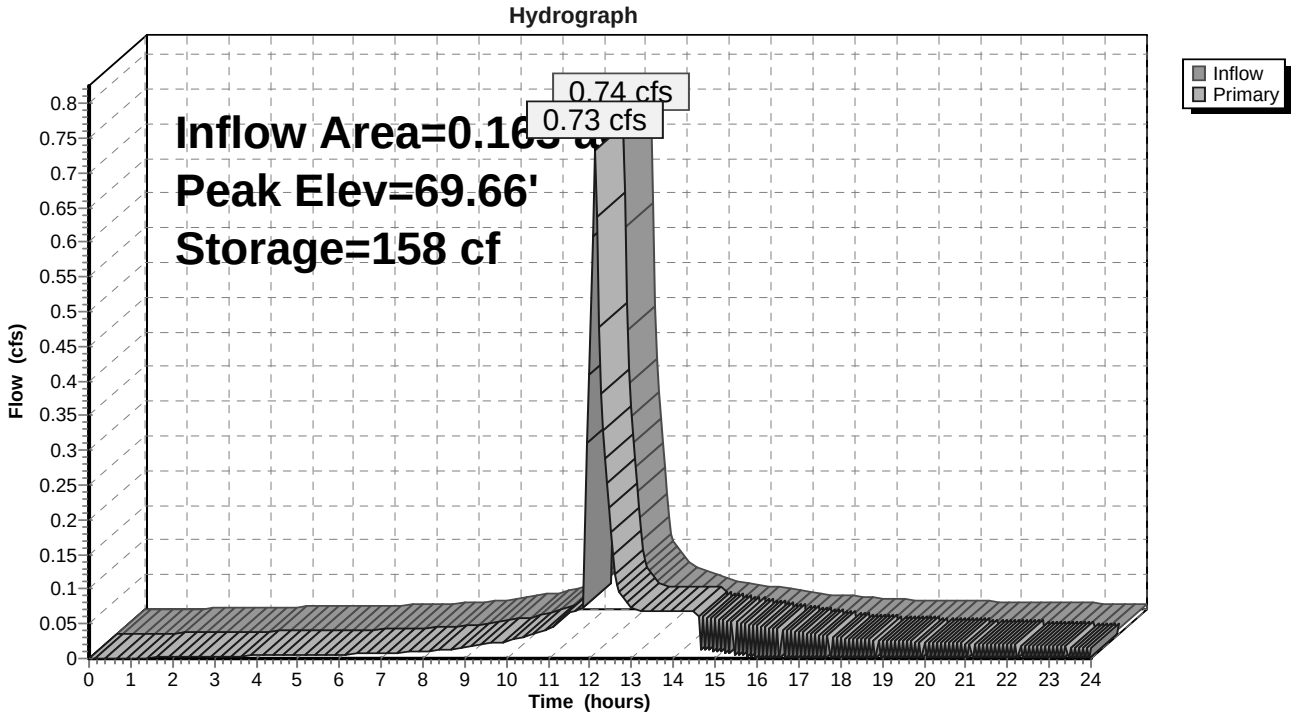
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
66.75	30	26.0	0	0	30
69.00	30	26.0	68	68	89

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
69.00	157	61.0	0	0	157
70.00	369	80.0	256	256	382
70.50	626	112.0	246	502	873

Device	Routing	Invert	Outlet Devices
#1	Primary	65.90'	**12.0" Round 12" HDPE N-12** L= 39.0' Ke= 0.500 Inlet / Outlet Invert= 65.90' / 65.50' S= 0.0103 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	66.75'	**100.000 in/hr Exfiltration over Surface area**
#3	Device 1	69.50'	**12.0" Horiz. 12" Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.73 cfs @ 12.10 hrs HW=69.66' TW=65.15' (Dynamic Tailwater)
└─**1=12" HDPE N-12** (Passes 0.73 cfs of 6.79 cfs potential flow)
  └─**2=Exfiltration** (Exfiltration Controls 0.07 cfs)
  └─**3=12" Grate** (Weir Controls 0.66 cfs @ 1.31 fps)

Pond FP2: FocalPoint 2



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

Subcatchment 11S: Roof Runoff 1 Grove St Runoff Area=7,252 sf 100.00% Impervious Runoff Depth>2.92"
Tc=6.0 min CN=98 Runoff=0.50 cfs 0.040 af

Subcatchment 12S: Roof Runoff 77 Third Runoff Area=21,184 sf 100.00% Impervious Runoff Depth>2.92"
Tc=6.0 min CN=98 Runoff=1.45 cfs 0.118 af

Subcatchment 20S: Offsite Flow Runoff Area=499 sf 0.00% Impervious Runoff Depth>0.80"
Tc=6.0 min CN=70 Runoff=0.01 cfs 0.001 af

Subcatchment P-1: Flow to FocalPoint 1 Runoff Area=4,554 sf 0.00% Impervious Runoff Depth>1.00"
Tc=6.0 min CN=74 Runoff=0.11 cfs 0.009 af

Subcatchment P-1A: Flow to FocalPoint 1 Runoff Area=12,252 sf 77.71% Impervious Runoff Depth>2.40"
Tc=6.0 min CN=93 Runoff=0.75 cfs 0.056 af

Subcatchment P-1B: Rain Guardian #1 Runoff Area=35,221 sf 41.39% Impervious Runoff Depth>1.71"
Flow Length=313' Tc=13.4 min CN=85 Runoff=1.27 cfs 0.115 af

Subcatchment P-1C: Flow to cb-03 Runoff Area=18,593 sf 75.46% Impervious Runoff Depth>2.40"
Flow Length=264' Tc=7.8 min CN=93 Runoff=1.08 cfs 0.085 af

Subcatchment P-1D: Flow to cb-02 Runoff Area=8,324 sf 94.85% Impervious Runoff Depth>2.81"
Tc=6.0 min CN=97 Runoff=0.56 cfs 0.045 af

Subcatchment P-2: Flow to FocalPoint 2 Runoff Area=4,116 sf 0.00% Impervious Runoff Depth>1.00"
Tc=6.0 min CN=74 Runoff=0.10 cfs 0.008 af

Subcatchment P-2A: From Rain Guardian Runoff Area=2,974 sf 100.00% Impervious Runoff Depth>2.92"
Tc=6.0 min CN=98 Runoff=0.20 cfs 0.017 af

Reach 3R: Roof to cb-03 Avg. Flow Depth=0.14' Max Vel=1.92 fps Inflow=0.50 cfs 0.040 af
n=0.013 L=175.0' S=0.0066 '/' Capacity=7.30 cfs Outflow=0.49 cfs 0.040 af

Reach 100R: Final Reach #100 Inflow=3.86 cfs 0.493 af
Outflow=3.86 cfs 0.493 af

Reach 200R: Final Reach #200 Inflow=0.01 cfs 0.001 af
Outflow=0.01 cfs 0.001 af

Pond 2P: DMH #103 Peak Elev=64.59' Storage=0.001 af Inflow=1.45 cfs 0.118 af
8.0" Round Culvert n=0.012 L=93.0' S=0.0004 '/' Outflow=1.44 cfs 0.118 af

Pond 101aP: Drain Manhole #101 Peak Elev=0.00' Storage=0.000 af
10.0" Round Culvert n=0.013 L=78.0' S=0.0100 '/' Primary=0.00 cfs 0.000 af

Pond ad-01: Outlet Structure Peak Elev=64.59' Storage=7 cf Inflow=1.64 cfs 0.205 af
18.0" Round Culvert n=0.013 L=139.0' S=0.0101 '/' Outflow=1.68 cfs 0.205 af

Pond cb-01: Area Drain Peak Elev=69.86' Storage=0.000 af Inflow=0.75 cfs 0.056 af
12.0" Round Culvert n=0.013 L=11.0' S=0.0127 '/' Outflow=0.73 cfs 0.056 af

Pond cb-02: Area Drain Peak Elev=63.17' Storage=10 cf Inflow=3.86 cfs 0.493 af
24.0" Round Culvert n=0.013 L=110.0' S=0.0104 '/' Outflow=3.86 cfs 0.493 af

Pond cb-03: Area Drain Peak Elev=66.78' Storage=10 cf Inflow=1.57 cfs 0.126 af
12.0" Round Culvert n=0.012 L=23.5' S=0.0234 '/' Outflow=1.57 cfs 0.126 af

Pond FP1: FocalPoint 1 Peak Elev=69.85' Storage=1,619 cf Inflow=1.90 cfs 0.180 af
Outflow=1.49 cfs 0.180 af

Pond FP2: FocalPoint 2 Peak Elev=69.56' Storage=130 cf Inflow=0.31 cfs 0.024 af
Outflow=0.22 cfs 0.025 af

Total Runoff Area = 2.639 ac Runoff Volume = 0.494 af Average Runoff Depth = 2.25"
32.65% Pervious = 0.862 ac 67.35% Impervious = 1.778 ac

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

Subcatchment 11S: Roof Runoff 1 Grove St Runoff Area=7,252 sf 100.00% Impervious Runoff Depth>4.51"
Tc=6.0 min CN=98 Runoff=0.75 cfs 0.063 af

Subcatchment 12S: Roof Runoff 77 Third Runoff Area=21,184 sf 100.00% Impervious Runoff Depth>4.51"
Tc=6.0 min CN=98 Runoff=2.21 cfs 0.183 af

Subcatchment 20S: Offsite Flow Runoff Area=499 sf 0.00% Impervious Runoff Depth>1.85"
Tc=6.0 min CN=70 Runoff=0.02 cfs 0.002 af

Subcatchment P-1: Flow to FocalPoint 1 Runoff Area=4,554 sf 0.00% Impervious Runoff Depth>2.16"
Tc=6.0 min CN=74 Runoff=0.26 cfs 0.019 af

Subcatchment P-1A: Flow to FocalPoint 1 Runoff Area=12,252 sf 77.71% Impervious Runoff Depth>3.95"
Tc=6.0 min CN=93 Runoff=1.20 cfs 0.093 af

Subcatchment P-1B: Rain Guardian #1 Runoff Area=35,221 sf 41.39% Impervious Runoff Depth>3.13"
Flow Length=313' Tc=13.4 min CN=85 Runoff=2.31 cfs 0.211 af

Subcatchment P-1C: Flow to cb-03 Runoff Area=18,593 sf 75.46% Impervious Runoff Depth>3.95"
Flow Length=264' Tc=7.8 min CN=93 Runoff=1.73 cfs 0.140 af

Subcatchment P-1D: Flow to cb-02 Runoff Area=8,324 sf 94.85% Impervious Runoff Depth>4.40"
Tc=6.0 min CN=97 Runoff=0.86 cfs 0.070 af

Subcatchment P-2: Flow to FocalPoint 2 Runoff Area=4,116 sf 0.00% Impervious Runoff Depth>2.16"
Tc=6.0 min CN=74 Runoff=0.23 cfs 0.017 af

Subcatchment P-2A: From Rain Guardian Runoff Area=2,974 sf 100.00% Impervious Runoff Depth>4.51"
Tc=6.0 min CN=98 Runoff=0.31 cfs 0.026 af

Reach 3R: Roof to cb-03 Avg. Flow Depth=0.17' Max Vel=2.19 fps Inflow=0.75 cfs 0.063 af
n=0.013 L=175.0' S=0.0066 '/' Capacity=7.30 cfs Outflow=0.75 cfs 0.063 af

Reach 100R: Final Reach #100 Inflow=9.63 cfs 0.821 af
Outflow=9.63 cfs 0.821 af

Reach 200R: Final Reach #200 Inflow=0.02 cfs 0.002 af
Outflow=0.02 cfs 0.002 af

Pond 2P: DMH #103 Peak Elev=66.76' Storage=0.001 af Inflow=2.21 cfs 0.183 af
8.0" Round Culvert n=0.012 L=93.0' S=0.0004 '/' Outflow=2.17 cfs 0.183 af

Pond 101aP: Drain Manhole #101 Peak Elev=0.00' Storage=0.000 af
10.0" Round Culvert n=0.013 L=78.0' S=0.0100 '/' Primary=0.00 cfs 0.000 af

Pond ad-01: Outlet Structure Peak Elev=64.98' Storage=12 cf Inflow=4.27 cfs 0.365 af
18.0" Round Culvert n=0.013 L=139.0' S=0.0101 '/' Outflow=4.25 cfs 0.365 af

Pond cb-01: Area Drain Peak Elev=70.04' Storage=0.001 af Inflow=1.20 cfs 0.093 af
12.0" Round Culvert n=0.013 L=11.0' S=0.0127 '/' Outflow=1.18 cfs 0.093 af

Pond cb-02: Area Drain Peak Elev=63.76' Storage=18 cf Inflow=9.64 cfs 0.821 af
24.0" Round Culvert n=0.013 L=110.0' S=0.0104 '/' Outflow=9.63 cfs 0.821 af

Pond cb-03: Area Drain Peak Elev=67.19' Storage=15 cf Inflow=2.48 cfs 0.203 af
12.0" Round Culvert n=0.012 L=23.5' S=0.0234 '/' Outflow=2.47 cfs 0.203 af

Pond FP1: FocalPoint 1 Peak Elev=69.93' Storage=1,725 cf Inflow=3.42 cfs 0.322 af
Outflow=3.74 cfs 0.322 af

Pond FP2: FocalPoint 2 Peak Elev=69.63' Storage=148 cf Inflow=0.54 cfs 0.043 af
Outflow=0.53 cfs 0.043 af

Total Runoff Area = 2.639 ac Runoff Volume = 0.823 af Average Runoff Depth = 3.74"
32.65% Pervious = 0.862 ac 67.35% Impervious = 1.778 ac

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

Subcatchment 11S: Roof Runoff 1 Grove St Runoff Area=7,252 sf 100.00% Impervious Runoff Depth>5.76"
Tc=6.0 min CN=98 Runoff=0.96 cfs 0.080 af

Subcatchment 12S: Roof Runoff 77 Third Runoff Area=21,184 sf 100.00% Impervious Runoff Depth>5.76"
Tc=6.0 min CN=98 Runoff=2.79 cfs 0.233 af

Subcatchment 20S: Offsite Flow Runoff Area=499 sf 0.00% Impervious Runoff Depth>2.80"
Tc=6.0 min CN=70 Runoff=0.04 cfs 0.003 af

Subcatchment P-1: Flow to FocalPoint 1 Runoff Area=4,554 sf 0.00% Impervious Runoff Depth>3.18"
Tc=6.0 min CN=74 Runoff=0.38 cfs 0.028 af

Subcatchment P-1A: Flow to FocalPoint 1 Runoff Area=12,252 sf 77.71% Impervious Runoff Depth>5.18"
Tc=6.0 min CN=93 Runoff=1.55 cfs 0.121 af

Subcatchment P-1B: Rain Guardian #1 Runoff Area=35,221 sf 41.39% Impervious Runoff Depth>4.29"
Flow Length=313' Tc=13.4 min CN=85 Runoff=3.14 cfs 0.289 af

Subcatchment P-1C: Flow to cb-03 Runoff Area=18,593 sf 75.46% Impervious Runoff Depth>5.18"
Flow Length=264' Tc=7.8 min CN=93 Runoff=2.24 cfs 0.184 af

Subcatchment P-1D: Flow to cb-02 Runoff Area=8,324 sf 94.85% Impervious Runoff Depth>5.64"
Tc=6.0 min CN=97 Runoff=1.09 cfs 0.090 af

Subcatchment P-2: Flow to FocalPoint 2 Runoff Area=4,116 sf 0.00% Impervious Runoff Depth>3.18"
Tc=6.0 min CN=74 Runoff=0.35 cfs 0.025 af

Subcatchment P-2A: From Rain Guardian Runoff Area=2,974 sf 100.00% Impervious Runoff Depth>5.76"
Tc=6.0 min CN=98 Runoff=0.39 cfs 0.033 af

Reach 3R: Roof to cb-03 Avg. Flow Depth=0.19' Max Vel=2.35 fps Inflow=0.96 cfs 0.080 af
n=0.013 L=175.0' S=0.0066 '/' Capacity=7.30 cfs Outflow=0.95 cfs 0.080 af

Reach 100R: Final Reach #100 Inflow=12.17 cfs 1.083 af
Outflow=12.17 cfs 1.083 af

Reach 200R: Final Reach #200 Inflow=0.04 cfs 0.003 af
Outflow=0.04 cfs 0.003 af

Pond 2P: DMH #103 Peak Elev=69.13' Storage=0.002 af Inflow=2.79 cfs 0.233 af
8.0" Round Culvert n=0.012 L=93.0' S=0.0004 '/' Outflow=2.74 cfs 0.233 af

Pond 101aP: Drain Manhole #101 Peak Elev=0.00' Storage=0.000 af
10.0" Round Culvert n=0.013 L=78.0' S=0.0100 '/' Primary=0.00 cfs 0.000 af

Pond ad-01: Outlet Structure Peak Elev=65.22' Storage=15 cf Inflow=5.26 cfs 0.496 af
18.0" Round Culvert n=0.013 L=139.0' S=0.0101 '/' Outflow=5.22 cfs 0.496 af

Pond cb-01: Area Drain Peak Elev=70.20' Storage=0.001 af Inflow=1.55 cfs 0.121 af
12.0" Round Culvert n=0.013 L=11.0' S=0.0127 '/' Outflow=1.56 cfs 0.121 af

Pond cb-02: Area Drain Peak Elev=63.99' Storage=21 cf Inflow=12.15 cfs 1.083 af
24.0" Round Culvert n=0.013 L=110.0' S=0.0104 '/' Outflow=12.17 cfs 1.083 af

Pond cb-03: Area Drain Peak Elev=67.63' Storage=21 cf Inflow=3.19 cfs 0.264 af
12.0" Round Culvert n=0.012 L=23.5' S=0.0234 '/' Outflow=3.18 cfs 0.264 af

Pond FP1: FocalPoint 1 Peak Elev=69.97' Storage=1,778 cf Inflow=4.60 cfs 0.438 af
Outflow=4.61 cfs 0.438 af

Pond FP2: FocalPoint 2 Peak Elev=69.66' Storage=158 cf Inflow=0.74 cfs 0.058 af
Outflow=0.73 cfs 0.058 af

Total Runoff Area = 2.639 ac Runoff Volume = 1.086 af Average Runoff Depth = 4.94"
32.65% Pervious = 0.862 ac 67.35% Impervious = 1.778 ac

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

Subcatchment 11S: Roof Runoff 1 Grove St Runoff Area=7,252 sf 100.00% Impervious Runoff Depth>6.93"
Tc=6.0 min CN=98 Runoff=1.14 cfs 0.096 af

Subcatchment 12S: Roof Runoff 77 Third Runoff Area=21,184 sf 100.00% Impervious Runoff Depth>6.93"
Tc=6.0 min CN=98 Runoff=3.34 cfs 0.281 af

Subcatchment 20S: Offsite Flow Runoff Area=499 sf 0.00% Impervious Runoff Depth>3.76"
Tc=6.0 min CN=70 Runoff=0.05 cfs 0.004 af

Subcatchment P-1: Flow to FocalPoint 1 Runoff Area=4,554 sf 0.00% Impervious Runoff Depth>4.19"
Tc=6.0 min CN=74 Runoff=0.50 cfs 0.036 af

Subcatchment P-1A: Flow to FocalPoint 1 Runoff Area=12,252 sf 77.71% Impervious Runoff Depth>6.34"
Tc=6.0 min CN=93 Runoff=1.87 cfs 0.148 af

Subcatchment P-1B: Rain Guardian #1 Runoff Area=35,221 sf 41.39% Impervious Runoff Depth>5.40"
Flow Length=313' Tc=13.4 min CN=85 Runoff=3.91 cfs 0.364 af

Subcatchment P-1C: Flow to cb-03 Runoff Area=18,593 sf 75.46% Impervious Runoff Depth>6.33"
Flow Length=264' Tc=7.8 min CN=93 Runoff=2.71 cfs 0.225 af

Subcatchment P-1D: Flow to cb-02 Runoff Area=8,324 sf 94.85% Impervious Runoff Depth>6.81"
Tc=6.0 min CN=97 Runoff=1.31 cfs 0.108 af

Subcatchment P-2: Flow to FocalPoint 2 Runoff Area=4,116 sf 0.00% Impervious Runoff Depth>4.19"
Tc=6.0 min CN=74 Runoff=0.45 cfs 0.033 af

Subcatchment P-2A: From Rain Guardian Runoff Area=2,974 sf 100.00% Impervious Runoff Depth>6.93"
Tc=6.0 min CN=98 Runoff=0.47 cfs 0.039 af

Reach 3R: Roof to cb-03 Avg. Flow Depth=0.21' Max Vel=2.49 fps Inflow=1.14 cfs 0.096 af
n=0.013 L=175.0' S=0.0066 '/' Capacity=7.30 cfs Outflow=1.14 cfs 0.096 af

Reach 100R: Final Reach #100 Inflow=14.81 cfs 1.332 af
Outflow=14.81 cfs 1.332 af

Reach 200R: Final Reach #200 Inflow=0.05 cfs 0.004 af
Outflow=0.05 cfs 0.004 af

Pond 2P: DMH #103 Peak Elev=71.95' Storage=0.002 af Inflow=3.34 cfs 0.281 af
8.0" Round Culvert n=0.012 L=93.0' S=0.0004 '/' Outflow=3.35 cfs 0.281 af

Pond 101aP: Drain Manhole #101 Peak Elev=0.00' Storage=0.000 af
10.0" Round Culvert n=0.013 L=78.0' S=0.0100 '/' Primary=0.00 cfs 0.000 af

Pond ad-01: Outlet Structure Peak Elev=65.47' Storage=18 cf Inflow=6.54 cfs 0.622 af
18.0" Round Culvert n=0.013 L=139.0' S=0.0101 '/' Outflow=6.55 cfs 0.622 af

Pond cb-01: Area Drain Peak Elev=70.35' Storage=0.001 af Inflow=1.87 cfs 0.148 af
12.0" Round Culvert n=0.013 L=11.0' S=0.0127 '/' Outflow=1.88 cfs 0.148 af

Pond cb-02: Area Drain Peak Elev=64.28' Storage=24 cf Inflow=14.82 cfs 1.332 af
24.0" Round Culvert n=0.013 L=110.0' S=0.0104 '/' Outflow=14.81 cfs 1.332 af

Pond cb-03: Area Drain Peak Elev=68.14' Storage=27 cf Inflow=3.84 cfs 0.321 af
12.0" Round Culvert n=0.012 L=23.5' S=0.0234 '/' Outflow=3.83 cfs 0.321 af

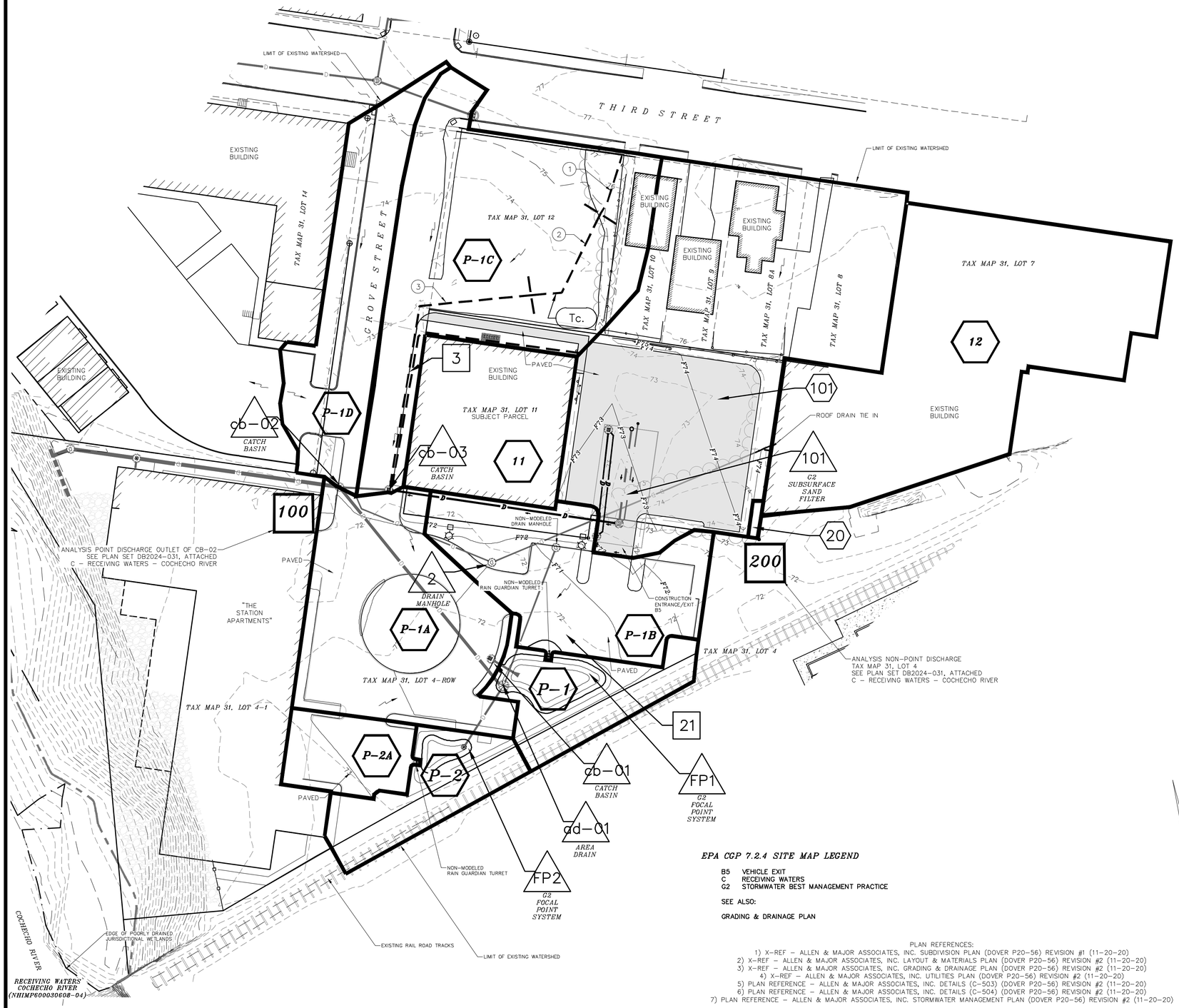
Pond FP1: FocalPoint 1 Peak Elev=70.01' Storage=1,825 cf Inflow=5.72 cfs 0.549 af
Outflow=5.73 cfs 0.549 af

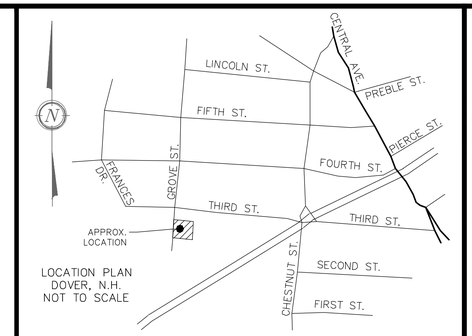
Pond FP2: FocalPoint 2 Peak Elev=69.69' Storage=166 cf Inflow=0.92 cfs 0.072 af
Outflow=0.92 cfs 0.072 af

Total Runoff Area = 2.639 ac Runoff Volume = 1.336 af Average Runoff Depth = 6.07"
32.65% Pervious = 0.862 ac 67.35% Impervious = 1.778 ac

Appendix II - Proposed Conditions Analysis

25 Yr - 24 Hr. Full Summary
2 Yr - 24 Hr. Node Listing
10 Yr - 24 Hr. Node Listing
25 Yr – 24 Hr. Node Listing
50 Yr - 24 Hr. Node Listing





LOCATION PLAN
DOVER, N.H.
NOT TO SCALE

NOTES:

1.) OWNER: PILLAR IMAGING, LLC
1 GROVE STREET
DOVER, NH 03820

APPLICANT: HAMPSHIRE CONTROLS CORP.
P.O. BOX 516
DOVER, NH 03821

2.) TAX MAP 31, LOT 11

3.) LOT AREA: 21,383 Sq. Ft., 0.49 Ac.

4.) S.C.R.D. BOOK 4943, PAGE 308

5.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL COORDINATES BASED ON NAD83. COORDINATES GATHERED USING TOPCON HYPER SR SURVEY GRADE GPS RECEIVERS.

6.) THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED WATERSHED CONDITIONS OF TAX MAP 31, LOT 11.

7.) HYDROCAD USES A SERIES OF NODE SUFFIXES FOR NUMBERING PURPOSES (S=SUBCATCHMENT, P=POND DEVICE, R=REACH), TO SIMPLIFY ANNOTATION THESE SUFFIXES ARE LEFT OFF THE WATERSHED PLANS AND NODE TYPE IS DENOTED BY THE SYMBOL SHAPE ACCORDING TO THE DISPLAYED LEGEND WHICH COINCIDES WITH HYDROCAD GRAPHICS.

8.) THIS PROJECT REFERS TO DRAINAGE DESIGNS FROM DOVER APPROVED PROJECT P20-56 AND WAIV-2023-0008. REFER TO DRAINAGE NARRATIVE AND WAIV-2023-0008 APPROVED DRAINAGE DOCUMENTS FOR FURTHER INFORMATION.

NRCS SOILS LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HYDROLOGIC SOIL GROUP
SfC	SUFFIELD SILT LOAM	C

SLOPE: A = 0-3% B = 3-8% C = 8-15% D = 15-25% E = 25-50% F = 50%+

DENOMINATOR: /Rk = ROCKY /VPD = VERY POORLY DRAINED /PD = POORLY DRAINED /SWPD = SOMEWHAT POORLY DRAINED /MWD = MODERATELY WELL DRAINED

SEE WEBSOIL USDA-NRCS

LINE TYPE LEGEND:

- 211 / 210 — EXISTING CONTOUR MINOR / EXISTING CONTOUR MAJOR
- PROPERTY LINE
- NRCS SOIL LINE
- WdA — NRCS SOIL LABEL
- LIMIT OF WATERSHED
- TIME OF CONCENTRATION PATH
- S.C.R.D. — STRAFFORD COUNTY REGISTRY OF DEEDS
- TYP. — TYPICAL
- FND — FOUND

SYMBOLS LEGEND:

- # — SUBCATCHMENT AREA SYMBOL
- # — FLOW REACH SYMBOL
- # — POND DEVICE SYMBOL
- Tc. / # — TIME OF CONCENTRATION SEGMENT

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

EPA CGP 7.2.4 SITE MAP LEGEND

B5 VEHICLE EXIT
C RECEIVING WATERS
G2 STORMWATER BEST MANAGEMENT PRACTICE

SEE ALSO:

GRADING & DRAINAGE PLAN

PLAN REFERENCES:
1) X-REF - ALLEN & MAJOR ASSOCIATES, INC. SUBDIVISION PLAN (DOVER P20-56) REVISION #1 (11-20-20)
2) X-REF - ALLEN & MAJOR ASSOCIATES, INC. LAYOUT & MATERIALS PLAN (DOVER P20-56) REVISION #2 (11-20-20)
3) X-REF - ALLEN & MAJOR ASSOCIATES, INC. GRADING & DRAINAGE PLAN (DOVER P20-56) REVISION #2 (11-20-20)
4) X-REF - ALLEN & MAJOR ASSOCIATES, INC. UTILITIES PLAN (DOVER P20-56) REVISION #2 (11-20-20)
5) PLAN REFERENCE - ALLEN & MAJOR ASSOCIATES, INC. DETAILS (C-503) (DOVER P20-56) REVISION #2 (11-20-20)
6) PLAN REFERENCE - ALLEN & MAJOR ASSOCIATES, INC. DETAILS (C-504) (DOVER P20-56) REVISION #2 (11-20-20)
7) PLAN REFERENCE - ALLEN & MAJOR ASSOCIATES, INC. STORMWATER MANAGEMENT PLAN (DOVER P20-56) REVISION #2 (11-20-20)

DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

SWPPP EPA SITE MAP (PROPOSED)

W-2 PROPOSED WATERSHED PLAN

NON-RESIDENTIAL SITE PLAN
LAND OF
PILLAR IMAGING, LLC.
1 GROVE STREET
DOVER, N.H.
TAX MAP 31, LOT 11

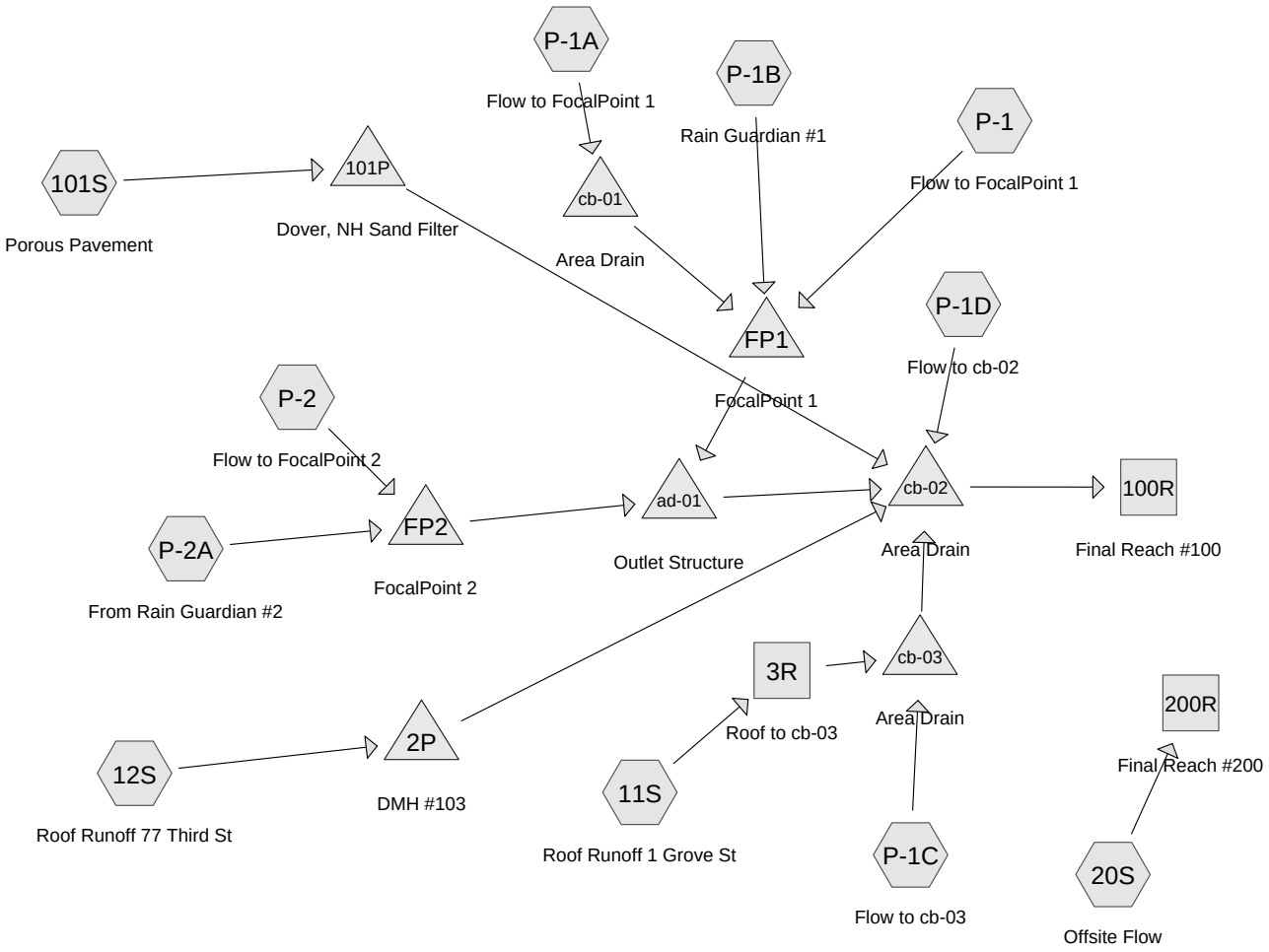
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 30 FT.
DATE : JUNE 24, 2024
FILE NO. : DB 2024 - 031

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY No. 14243 LICENSED PROFESSIONAL ENGINEER

SHEET 2 OF 2

NOT FOR CONSTRUCTION



Subcat Reach Pond Link

Routing Diagram for 24-031 W2
Prepared by Berry Surveying & Engineering, Printed 6/24/2024
HydroCAD® 10.00-25 s/n 07605 © 2019 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.611	74	>75% Grass cover, Good, HSG C (20S, 101S, P-1, P-1A, P-1B, P-1C, P-1D, P-2)
0.012	96	Gravel surface, HSG C (101S, P-1B)
1.272	98	Paved parking, HSG C (101S, P-1A, P-1B, P-1C, P-1D, P-2A)
0.726	98	Roofs, HSG C (11S, 12S, 101S, P-1C)
0.017	70	Woods, Good, HSG C (P-1C)
2.639	**92**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
2.639	HSG C	11S, 12S, 20S, 101S, P-1, P-1A, P-1B, P-1C, P-1D, P-2, P-2A
0.000	HSG D	
0.000	Other	
2.639		**TOTAL AREA**

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	0.000	0.611	0.000	0.000	0.611	>75% Grass cover, Good	20S, 101S, P-1, P-1A, P-1B, P-1C, P-1D, P-2
0.000	0.000	0.012	0.000	0.000	0.012	Gravel surface	101S, P-1B
0.000	0.000	1.272	0.000	0.000	1.272	Paved parking	101S, P-1A, P-1B, P-1C, P-1D, P-2A
0.000	0.000	0.726	0.000	0.000	0.726	Roofs	11S, 12S, 101S, P-1C
0.000	0.000	0.017	0.000	0.000	0.017	Woods, Good	P-1C
0.000	**0.000**	**2.639**	**0.000**	**0.000**	**2.639**	**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	2P	62.38	62.34	93.0	0.0004	0.012	8.0	0.0	0.0
2	101P	66.75	66.10	125.0	0.0052	0.012	12.0	0.0	0.0
3	101P	66.85	66.85	55.0	0.0000	0.012	6.0	0.0	0.0
4	101P	69.25	69.25	60.0	0.0000	0.012	12.0	0.0	0.0
5	ad-01	64.00	62.59	139.0	0.0101	0.013	18.0	0.0	0.0
6	cb-01	68.14	68.00	11.0	0.0127	0.013	12.0	0.0	0.0
7	cb-02	62.34	61.20	110.0	0.0104	0.013	24.0	0.0	0.0
8	cb-03	66.00	65.45	23.5	0.0234	0.012	12.0	0.0	0.0
9	FP1	65.00	65.00	1.0	0.0000	0.013	18.0	0.0	0.0
10	FP2	65.90	65.50	39.0	0.0103	0.013	12.0	0.0	0.0

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

Subcatchment 11S: Roof Runoff 1 Grove St Runoff Area=7,252 sf 100.00% Impervious Runoff Depth>5.76"
Tc=6.0 min CN=98 Runoff=0.96 cfs 0.080 af

Subcatchment 12S: Roof Runoff 77 Third Runoff Area=21,184 sf 100.00% Impervious Runoff Depth>5.76"
Tc=6.0 min CN=98 Runoff=2.79 cfs 0.233 af

Subcatchment 20S: Offsite Flow Runoff Area=115 sf 0.00% Impervious Runoff Depth>3.18"
Tc=6.0 min CN=74 Runoff=0.01 cfs 0.001 af

Subcatchment 101S: Porous Pavement Runoff Area=26,201 sf 68.75% Impervious Runoff Depth>4.87"
Tc=100.0 min CN=91 Runoff=0.96 cfs 0.244 af

Subcatchment P-1: Flow to FocalPoint 1 Runoff Area=4,554 sf 0.00% Impervious Runoff Depth>3.18"
Tc=6.0 min CN=74 Runoff=0.38 cfs 0.028 af

Subcatchment P-1A: Flow to FocalPoint 1 Runoff Area=12,252 sf 77.71% Impervious Runoff Depth>5.18"
Tc=6.0 min CN=93 Runoff=1.55 cfs 0.121 af

Subcatchment P-1B: Rain Guardian #1 Runoff Area=9,383 sf 60.94% Impervious Runoff Depth>4.73"
Tc=6.0 min CN=89 Runoff=1.12 cfs 0.085 af

Subcatchment P-1C: Flow to cb-03 Runoff Area=18,593 sf 77.97% Impervious Runoff Depth>5.18"
Flow Length=264' Tc=7.8 min CN=93 Runoff=2.24 cfs 0.184 af

Subcatchment P-1D: Flow to cb-02 Runoff Area=8,324 sf 94.85% Impervious Runoff Depth>5.64"
Tc=6.0 min CN=97 Runoff=1.09 cfs 0.090 af

Subcatchment P-2: Flow to FocalPoint 2 Runoff Area=4,116 sf 0.00% Impervious Runoff Depth>3.18"
Tc=6.0 min CN=74 Runoff=0.35 cfs 0.025 af

Subcatchment P-2A: From Rain Guardian Runoff Area=2,974 sf 100.00% Impervious Runoff Depth>5.76"
Tc=6.0 min CN=98 Runoff=0.39 cfs 0.033 af

Reach 3R: Roof to cb-03 Avg. Flow Depth=0.19' Max Vel=2.35 fps Inflow=0.96 cfs 0.080 af
n=0.013 L=175.0' S=0.0066 '/' Capacity=7.30 cfs Outflow=0.95 cfs 0.080 af

Reach 100R: Final Reach #100 Inflow=10.81 cfs 1.078 af
Outflow=10.81 cfs 1.078 af

Reach 200R: Final Reach #200 Inflow=0.01 cfs 0.001 af
Outflow=0.01 cfs 0.001 af

Pond 2P: DMH #103 Peak Elev=68.87' Storage=0.002 af Inflow=2.79 cfs 0.233 af
8.0" Round Culvert n=0.012 L=93.0' S=0.0004 '/' Outflow=2.75 cfs 0.233 af

Pond 101P: Dover, NH Sand Filter Peak Elev=69.99' Storage=2,571 cf Inflow=0.96 cfs 0.244 af
Outflow=0.94 cfs 0.199 af

Pond ad-01: Outlet Structure Peak Elev=64.95' Storage=12 cf Inflow=3.92 cfs 0.292 af
18.0" Round Culvert n=0.013 L=139.0' S=0.0101 '/' Outflow=3.89 cfs 0.292 af

Pond cb-01: Area Drain Peak Elev=70.08' Storage=0.001 af Inflow=1.55 cfs 0.121 af
12.0" Round Culvert n=0.013 L=11.0' S=0.0127 '/' Outflow=1.52 cfs 0.121 af

Pond cb-02: Area Drain Peak Elev=63.87' Storage=19 cf Inflow=10.83 cfs 1.078 af
24.0" Round Culvert n=0.013 L=110.0' S=0.0104 '/' Outflow=10.81 cfs 1.078 af

Pond cb-03: Area Drain Peak Elev=67.63' Storage=21 cf Inflow=3.19 cfs 0.264 af
12.0" Round Culvert n=0.012 L=23.5' S=0.0234 '/' Outflow=3.18 cfs 0.264 af

Pond FP1: FocalPoint 1 Peak Elev=69.93' Storage=1,725 cf Inflow=3.03 cfs 0.234 af
Outflow=3.20 cfs 0.234 af

Pond FP2: FocalPoint 2 Peak Elev=69.66' Storage=158 cf Inflow=0.74 cfs 0.058 af
Outflow=0.73 cfs 0.058 af

Total Runoff Area = 2.639 ac Runoff Volume = 1.124 af Average Runoff Depth = 5.11"
24.27% Pervious = 0.640 ac 75.73% Impervious = 1.998 ac

Summary for Subcatchment 11S: Roof Runoff 1 Grove St

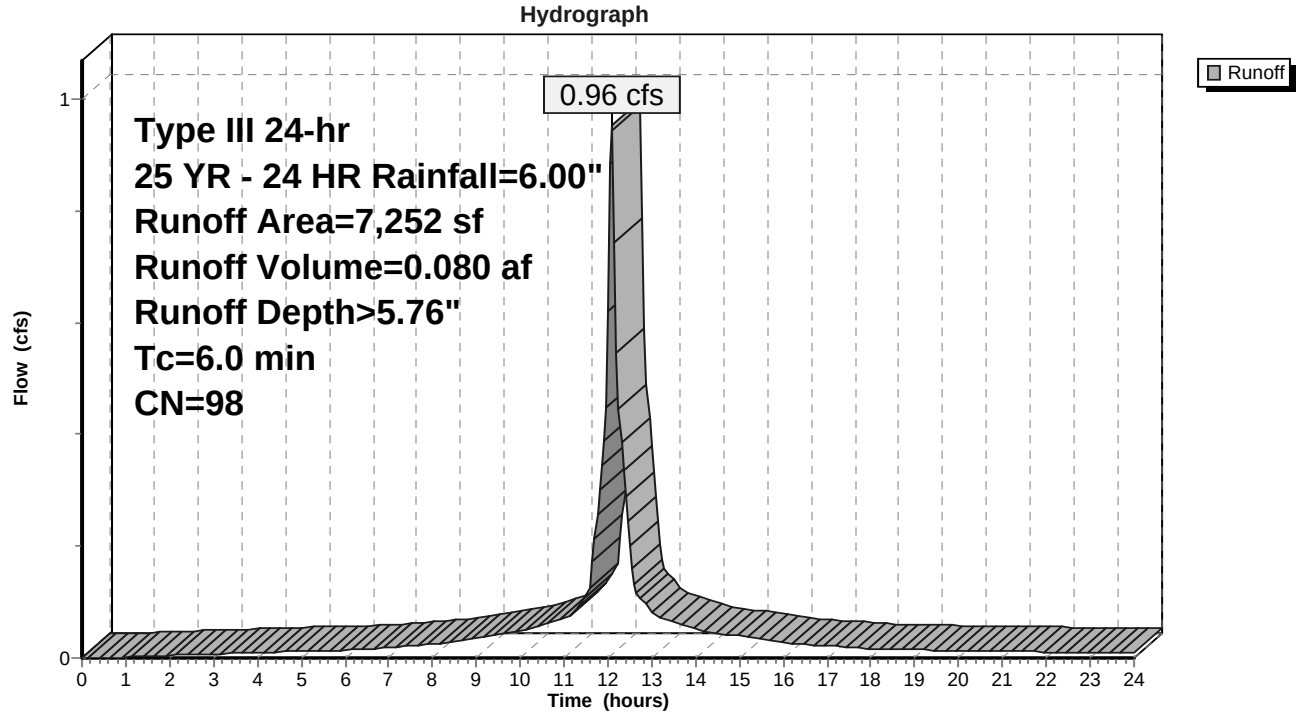
Runoff = 0.96 cfs @ 12.09 hrs, Volume= 0.080 af, Depth> 5.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
7,252	98	Roofs, HSG C
7,252		100.00% Impervious Area

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

Subcatchment 11S: Roof Runoff 1 Grove St



Summary for Subcatchment 12S: Roof Runoff 77 Third St

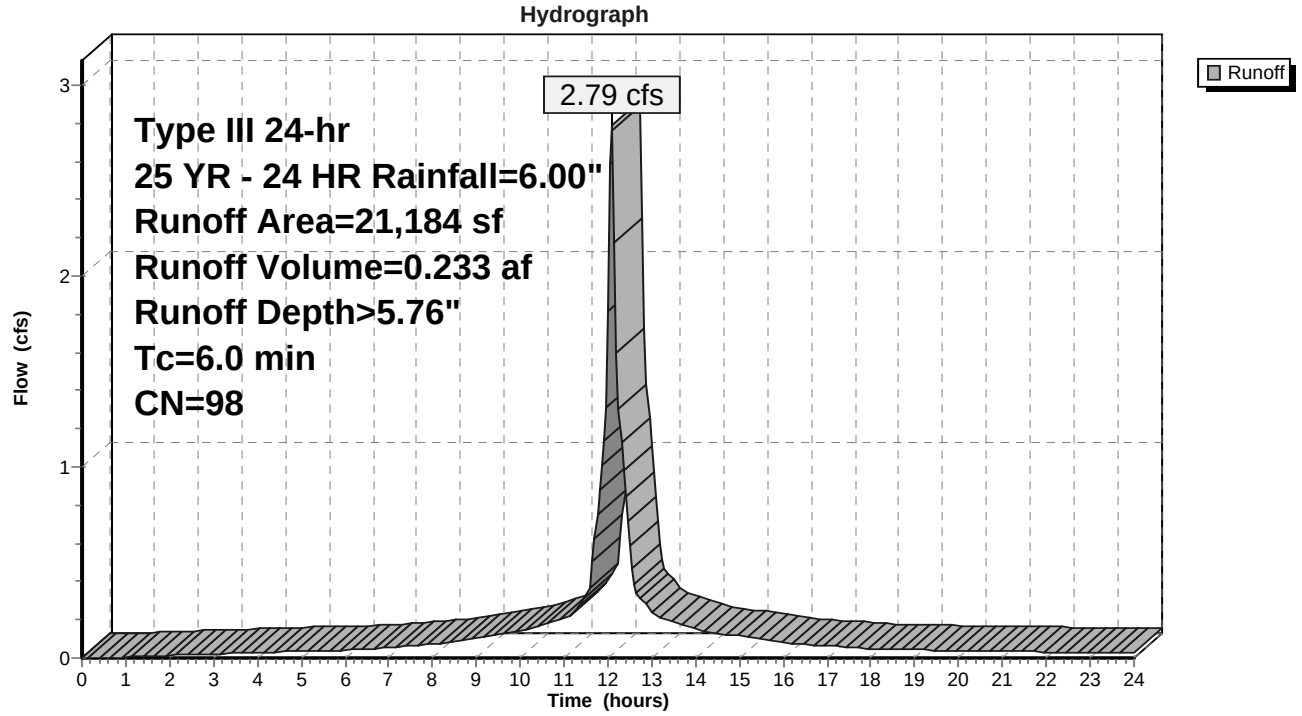
Runoff = 2.79 cfs @ 12.09 hrs, Volume= 0.233 af, Depth> 5.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
21,184	98	Roofs, HSG C
21,184		100.00% Impervious Area

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

Subcatchment 12S: Roof Runoff 77 Third St



Summary for Subcatchment 20S: Offsite Flow

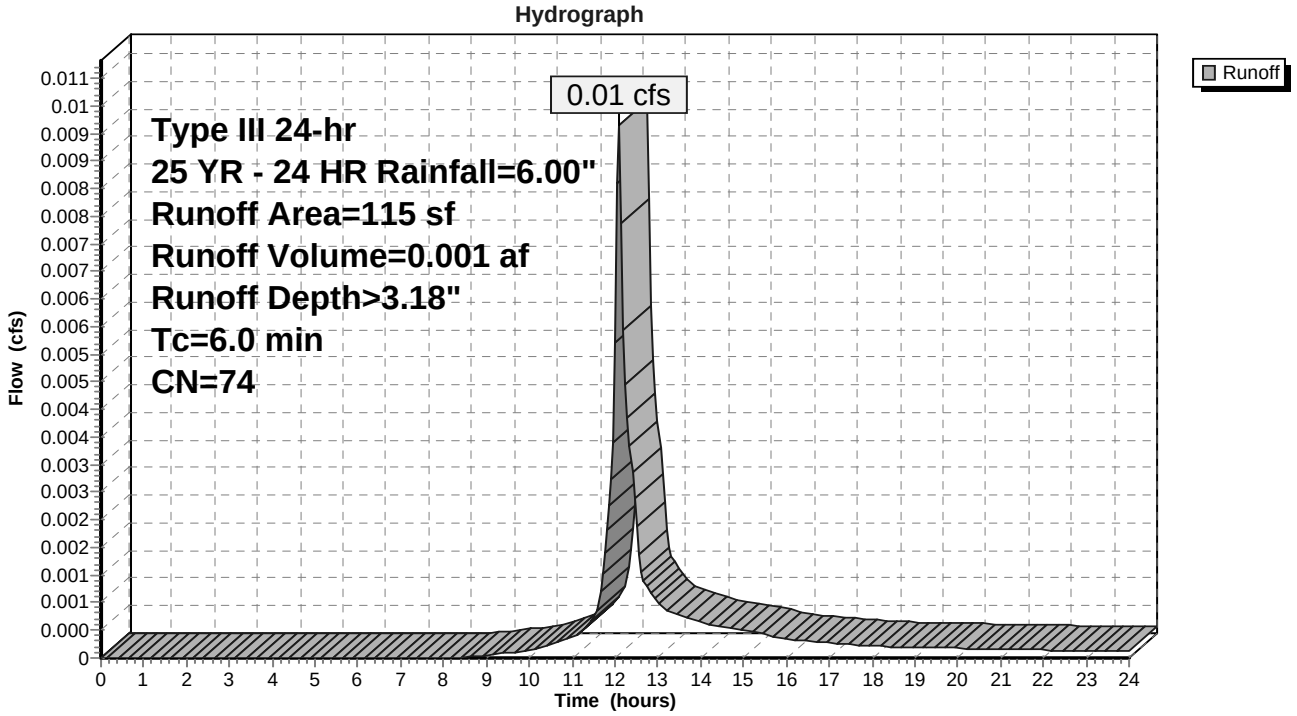
Runoff = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
115	74	>75% Grass cover, Good, HSG C
115		100.00% Pervious Area

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

Subcatchment 20S: Offsite Flow



Summary for Subcatchment 101S: Porous Pavement

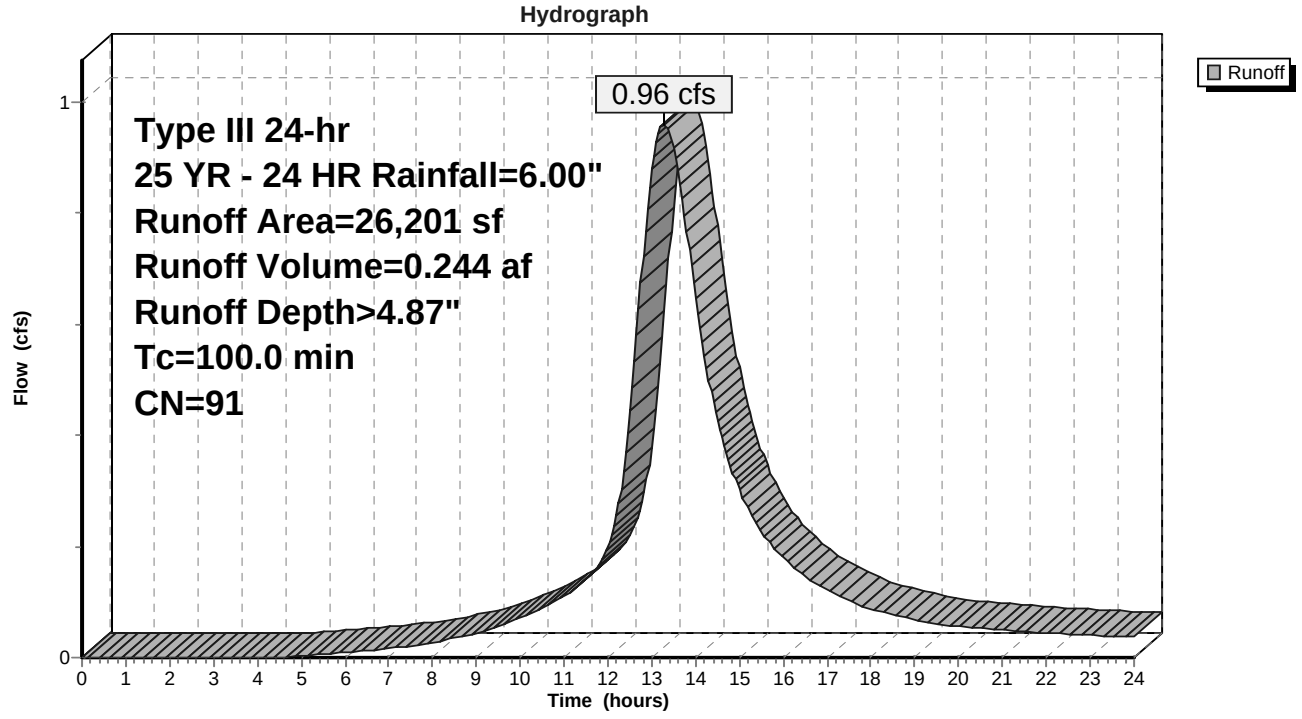
Runoff = 0.96 cfs @ 13.26 hrs, Volume= 0.244 af, Depth> 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
15,405	98	Paved parking, HSG C
2,607	98	Roofs, HSG C
7,740	74	>75% Grass cover, Good, HSG C
449	96	Gravel surface, HSG C
26,201	91	Weighted Average
8,189		31.25% Pervious Area
18,012		68.75% Impervious Area

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

Subcatchment 101S: Porous Pavement



Summary for Subcatchment P-1: Flow to FocalPoint 1

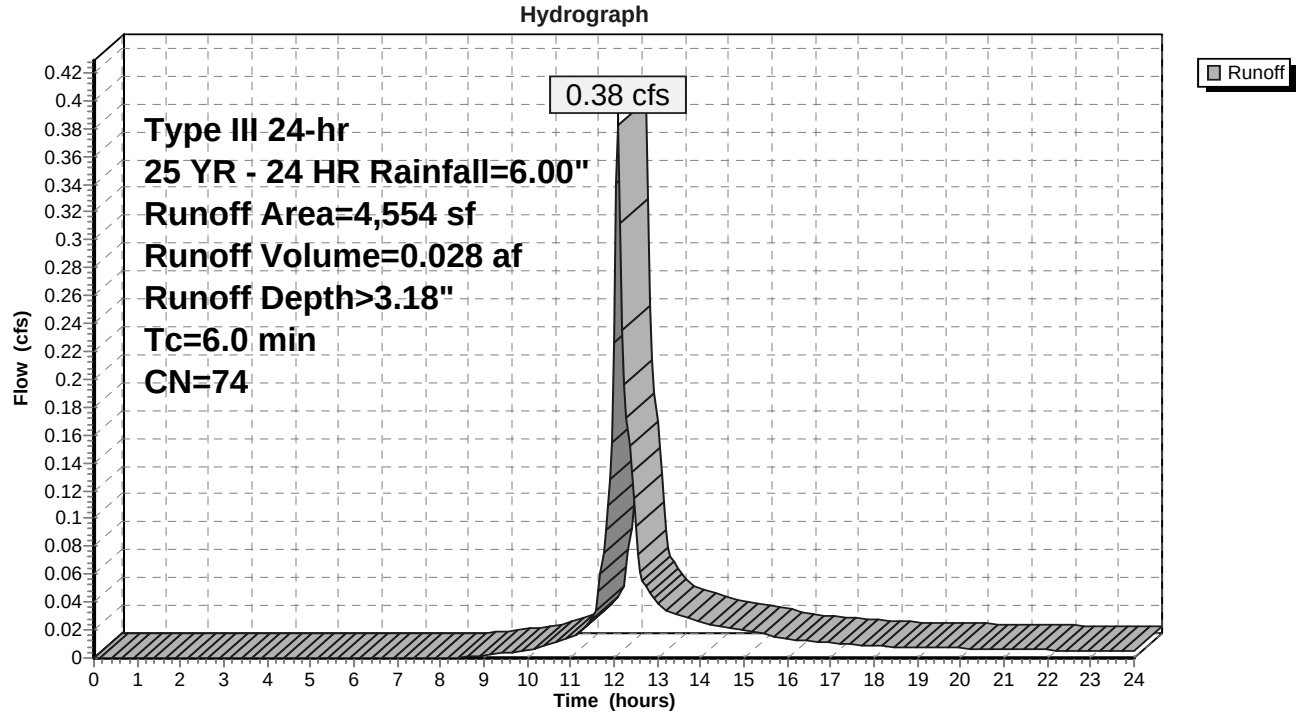
Runoff = 0.38 cfs @ 12.09 hrs, Volume= 0.028 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
4,554	74	>75% Grass cover, Good, HSG C
4,554		100.00% Pervious Area

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

Subcatchment P-1: Flow to FocalPoint 1



Summary for Subcatchment P-1A: Flow to FocalPoint 1

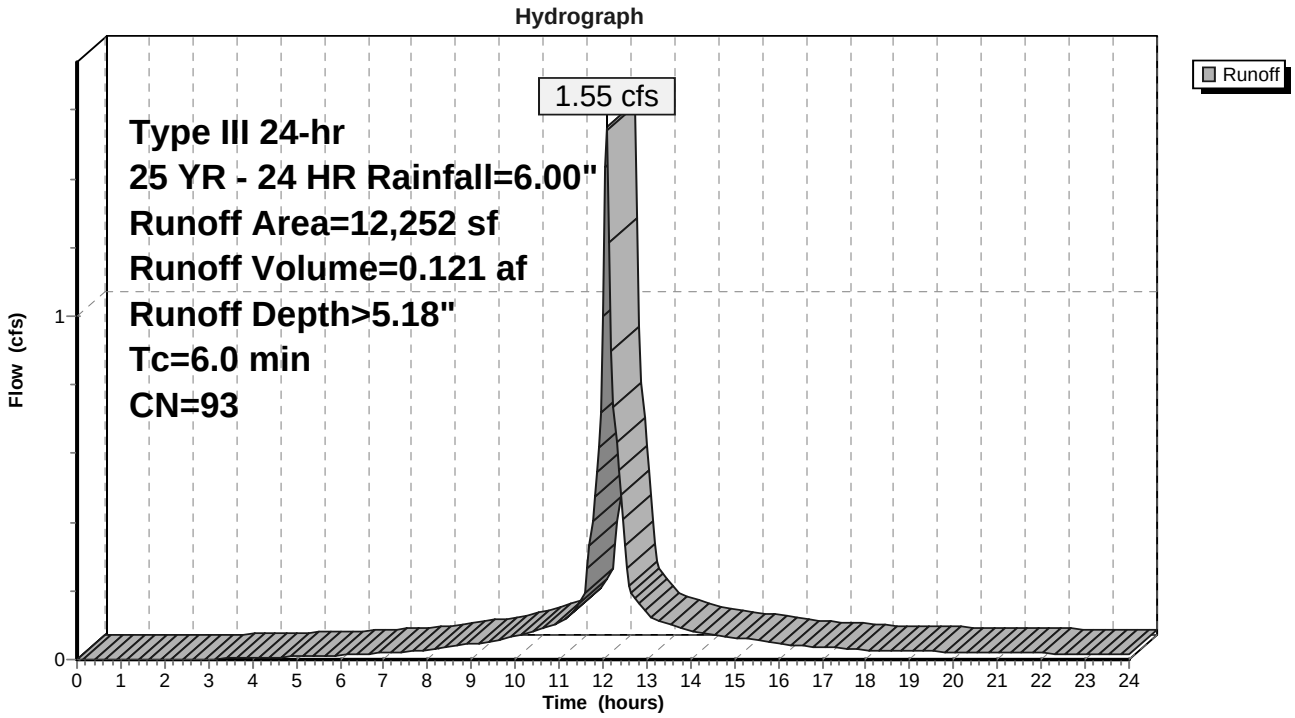
Runoff = 1.55 cfs @ 12.09 hrs, Volume= 0.121 af, Depth> 5.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
9,521	98	Paved parking, HSG C
2,731	74	>75% Grass cover, Good, HSG C
12,252	93	Weighted Average
2,731		22.29% Pervious Area
9,521		77.71% Impervious Area

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

Subcatchment P-1A: Flow to FocalPoint 1



Summary for Subcatchment P-1B: Rain Guardian #1

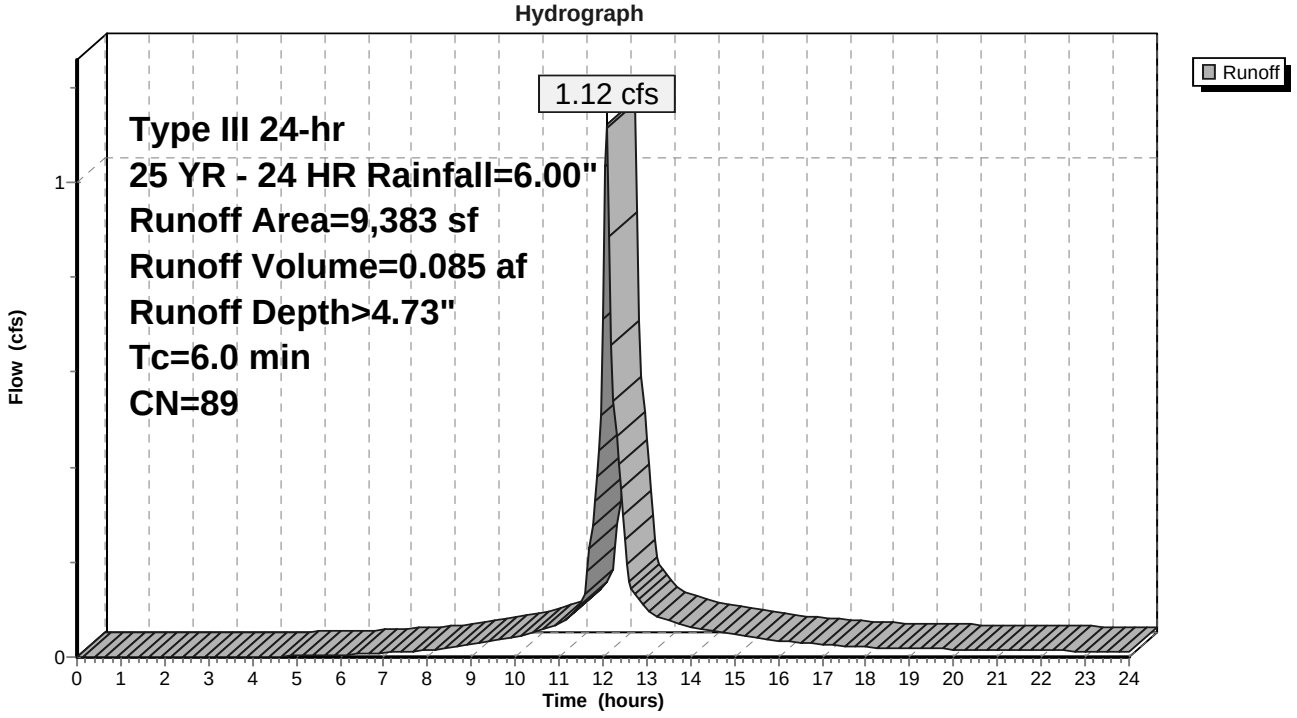
Runoff = 1.12 cfs @ 12.09 hrs, Volume= 0.085 af, Depth> 4.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
5,718	98	Paved parking, HSG C
3,580	74	>75% Grass cover, Good, HSG C
85	96	Gravel surface, HSG C
9,383	89	Weighted Average
3,665		39.06% Pervious Area
5,718		60.94% Impervious Area

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

Subcatchment P-1B: Rain Guardian #1



Summary for Subcatchment P-1C: Flow to cb-03

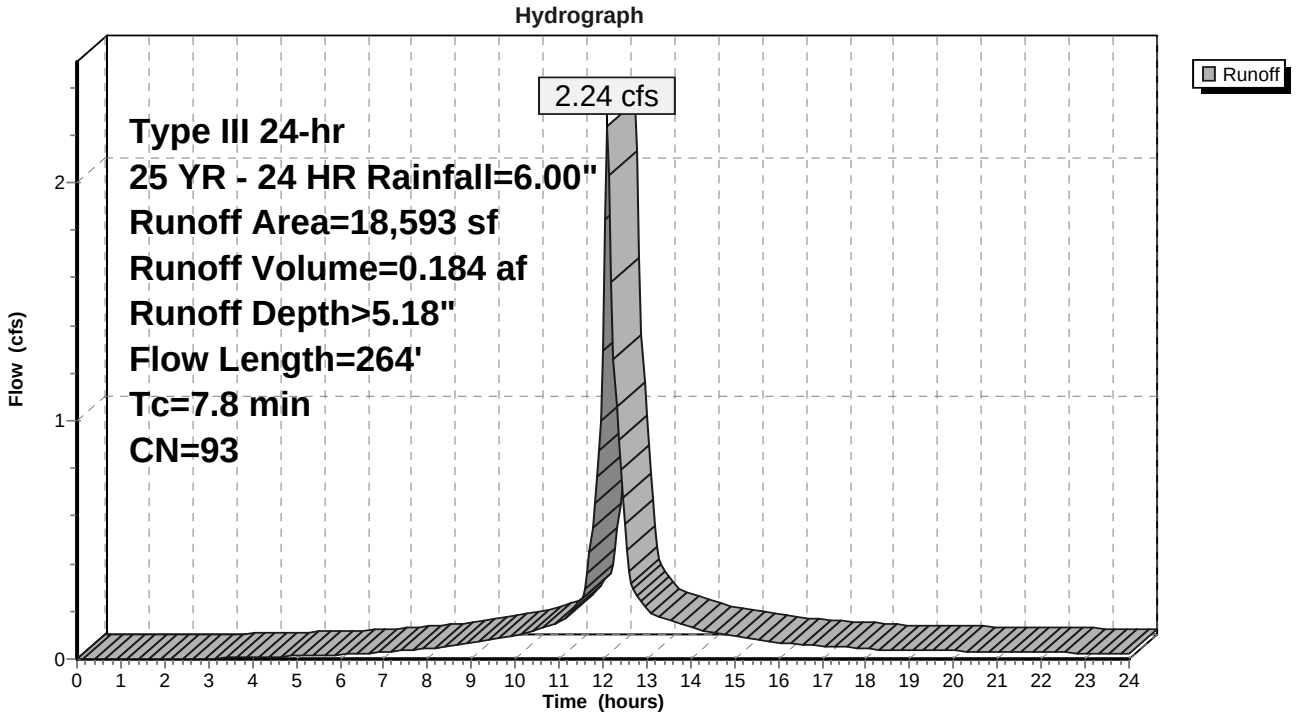
Runoff = 2.24 cfs @ 12.11 hrs, Volume= 0.184 af, Depth> 5.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
13,905	98	Paved parking, HSG C
3,348	74	>75% Grass cover, Good, HSG C
592	98	Roofs, HSG C
748	70	Woods, Good, HSG C
18,593	93	Weighted Average
4,096		22.03% Pervious Area
14,497		77.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	35	0.0727	0.10		**Sheet Flow, Segment #1** Woods: Light underbrush n= 0.400 P2= 3.15"
1.0	66	0.0152	1.13		**Sheet Flow, Segment #2** Smooth surfaces n= 0.011 P2= 3.15"
1.2	163	0.0123	2.25		**Shallow Concentrated Flow, Sergment #3** Paved Kv= 20.3 fps
7.8	264	Total			

Subcatchment P-1C: Flow to cb-03



Summary for Subcatchment P-1D: Flow to cb-02

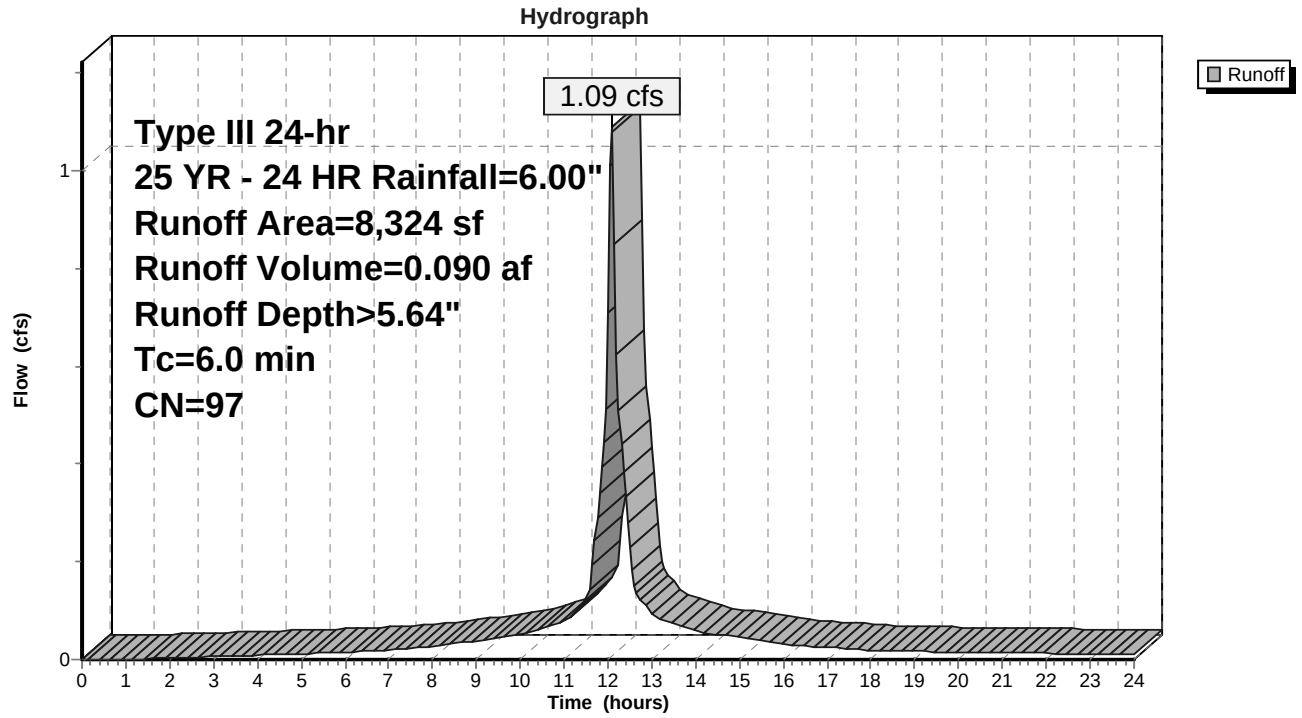
Runoff = 1.09 cfs @ 12.09 hrs, Volume= 0.090 af, Depth> 5.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
7,895	98	Paved parking, HSG C
429	74	>75% Grass cover, Good, HSG C
8,324	97	Weighted Average
429		5.15% Pervious Area
7,895		94.85% Impervious Area

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

Subcatchment P-1D: Flow to cb-02



Summary for Subcatchment P-2: Flow to FocalPoint 2

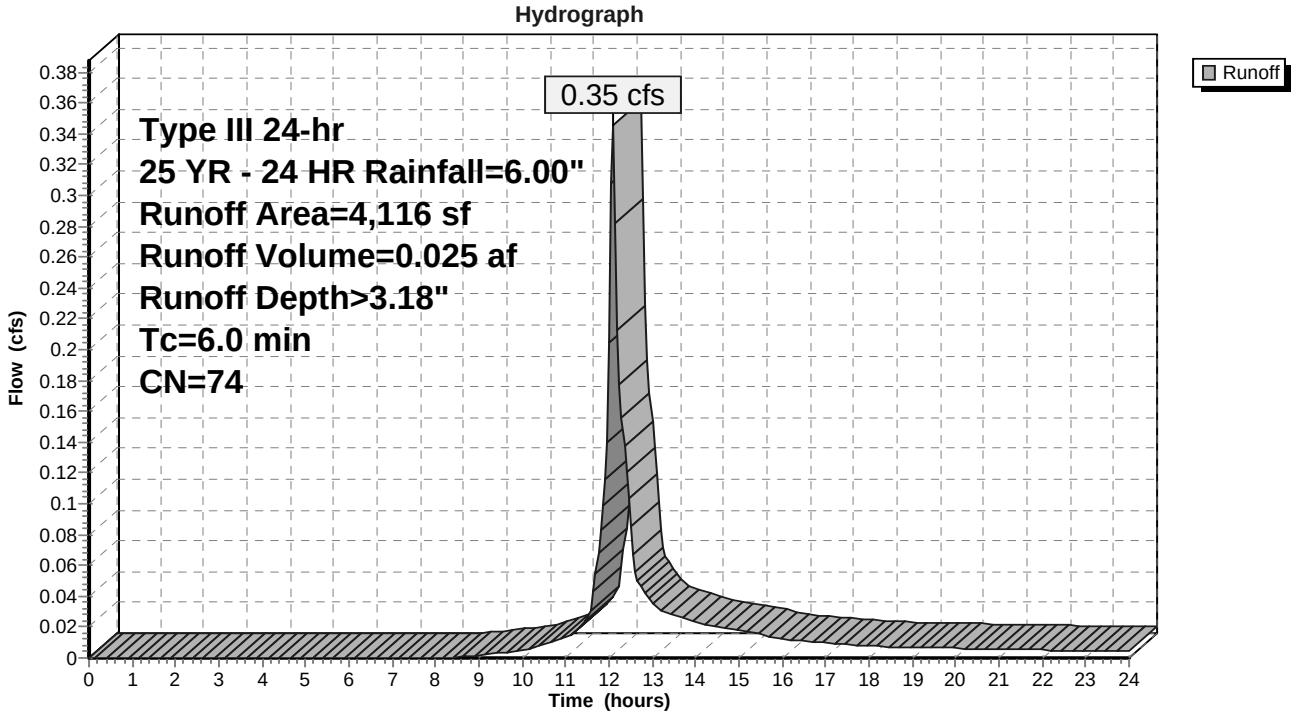
Runoff = 0.35 cfs @ 12.09 hrs, Volume= 0.025 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
4,116	74	>75% Grass cover, Good, HSG C
4,116		100.00% Pervious Area

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

Subcatchment P-2: Flow to FocalPoint 2



Summary for Subcatchment P-2A: From Rain Guardian #2

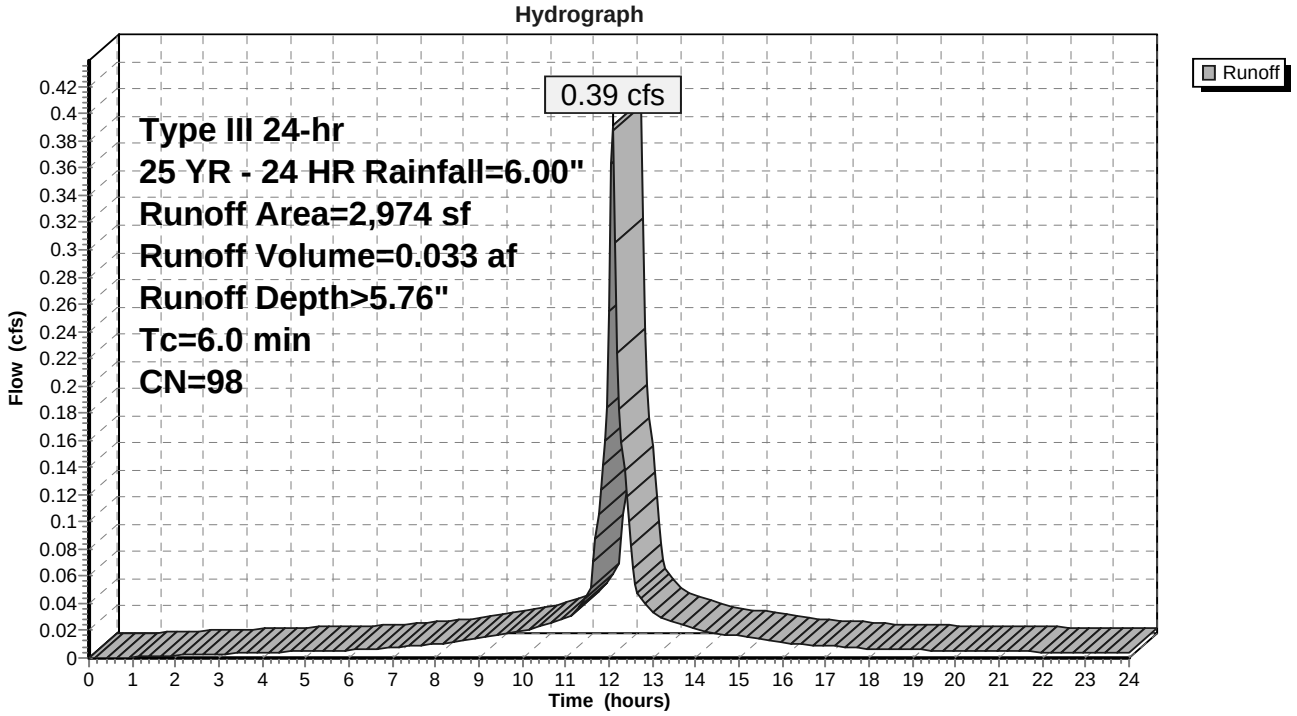
Runoff = 0.39 cfs @ 12.09 hrs, Volume= 0.033 af, Depth> 5.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 YR - 24 HR Rainfall=6.00"

Area (sf)	CN	Description
2,974	98	Paved parking, HSG C
2,974		100.00% Impervious Area

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

Subcatchment P-2A: From Rain Guardian #2



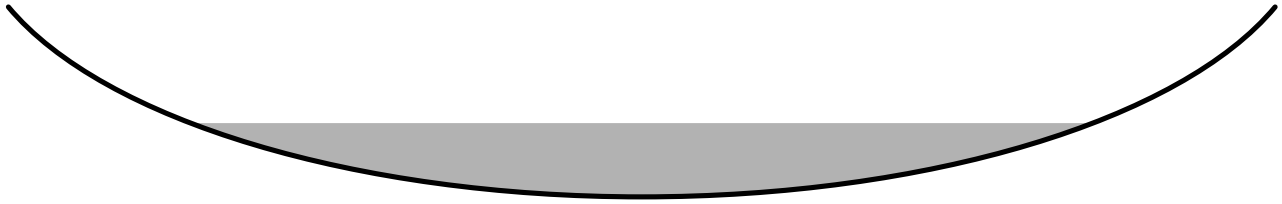
Summary for Reach 3R: Roof to cb-03

Inflow Area = 0.166 ac,100.00% Impervious, Inflow Depth > 5.76" for 25 YR - 24 HR event
Inflow = 0.96 cfs @ 12.09 hrs, Volume= 0.080 af
Outflow = 0.95 cfs @ 12.10 hrs, Volume= 0.080 af, Atten= 1%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.35 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 0.76 fps, Avg. Travel Time= 3.8 min

Peak Storage= 70 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 0.50' Flow Area= 1.7 sf, Capacity= 7.30 cfs

5.00' x 0.50' deep Parabolic Channel, n= 0.013 Asphalt, smooth
Length= 175.0' Slope= 0.0066 '/'
Inlet Invert= 73.50', Outlet Invert= 72.35'



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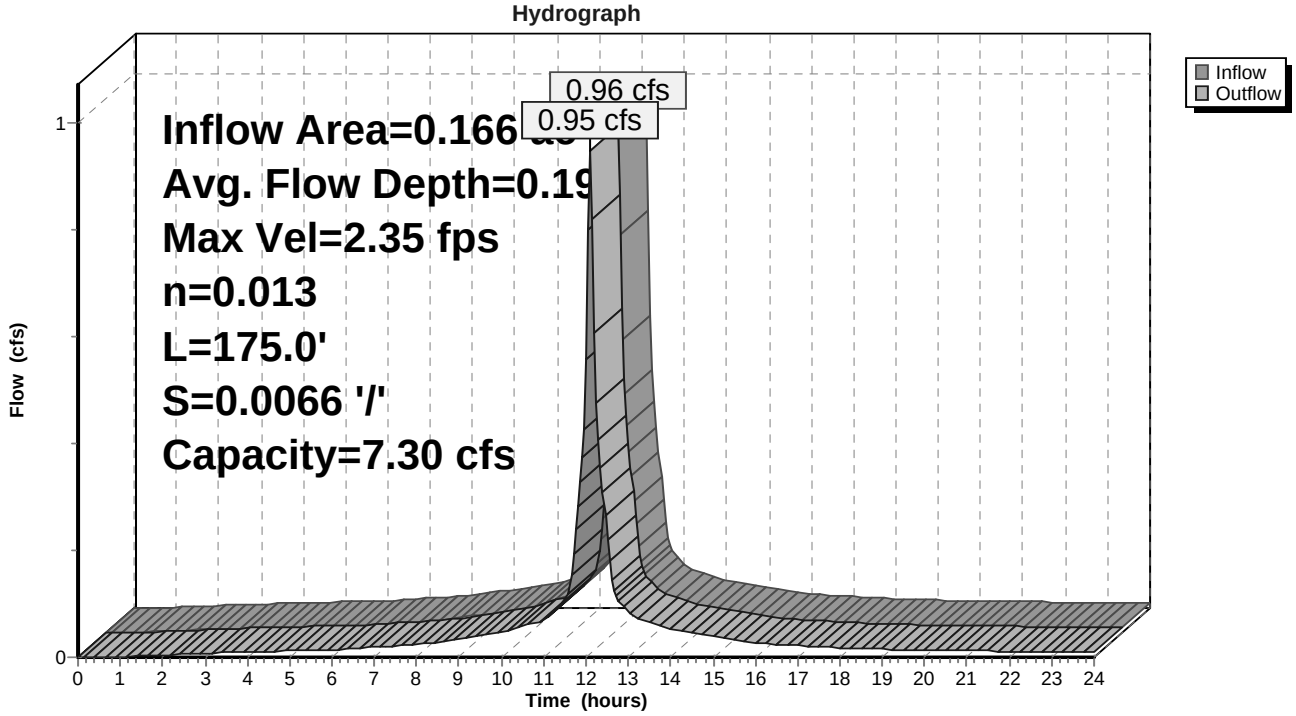
Reach 3R: Roof to cb-03



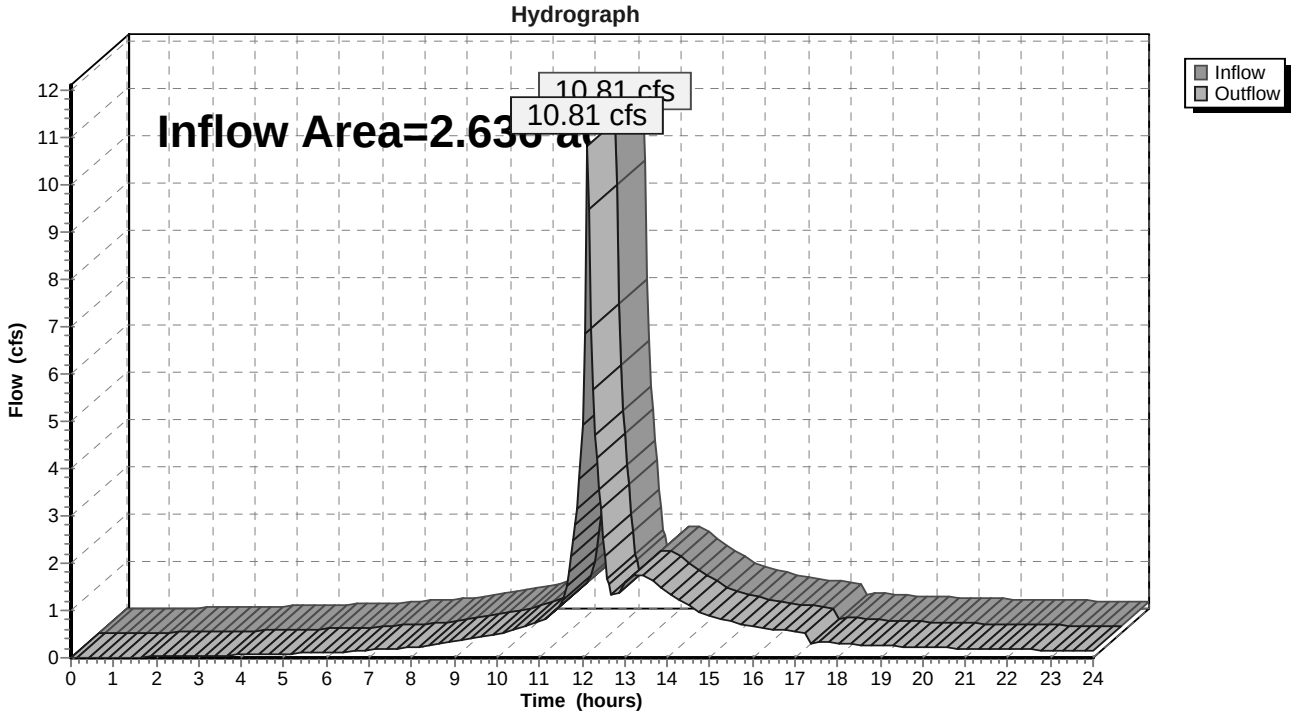
Summary for Reach 100R: Final Reach #100

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

Inflow Area = 2.636 ac, 75.81% Impervious, Inflow Depth > 4.91" for 25 YR - 24 HR event
Inflow = 10.81 cfs @ 12.11 hrs, Volume= 1.078 af
Outflow = 10.81 cfs @ 12.11 hrs, Volume= 1.078 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 100R: Final Reach #100



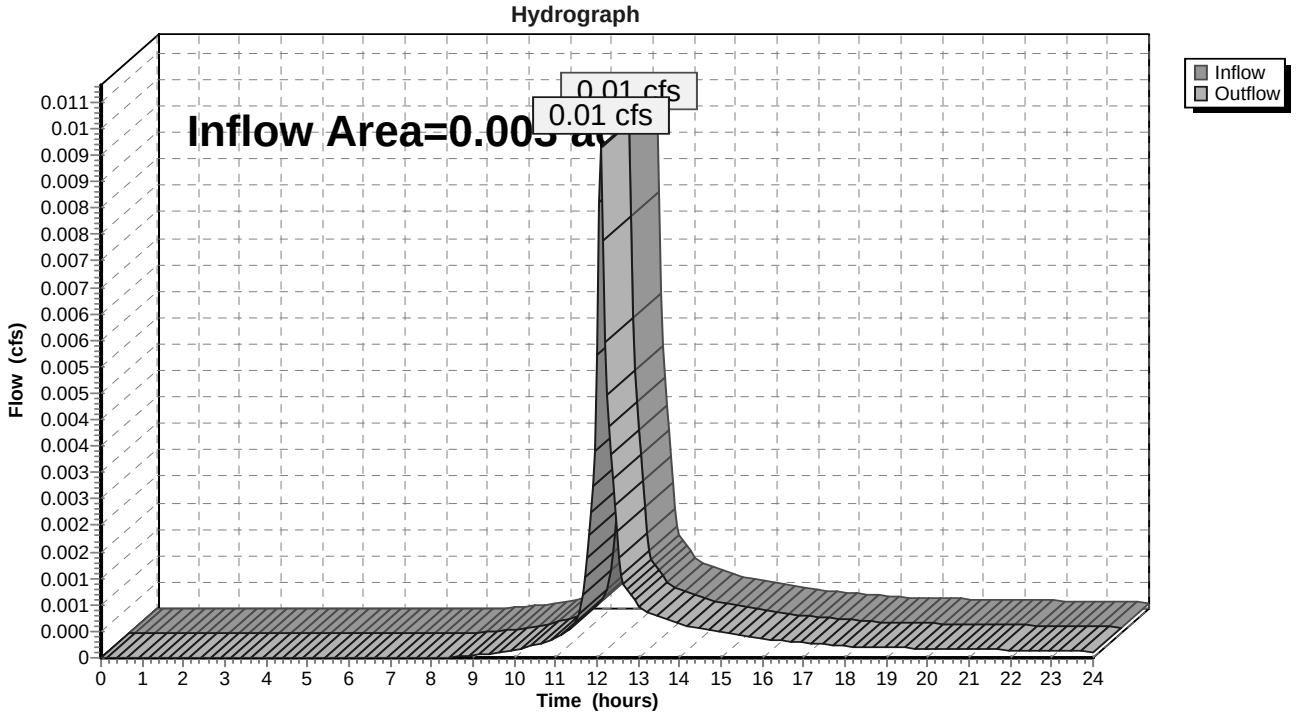
Summary for Reach 200R: Final Reach #200

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

Inflow Area = 0.003 ac, 0.00% Impervious, Inflow Depth > 3.18" for 25 YR - 24 HR event
Inflow = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af
Outflow = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Reach 200R: Final Reach #200



Summary for Pond 2P: DMH #103

Inflow Area = 0.486 ac,100.00% Impervious, Inflow Depth > 5.76" for 25 YR - 24 HR event
Inflow = 2.79 cfs @ 12.09 hrs, Volume= 0.233 af
Outflow = 2.75 cfs @ 12.10 hrs, Volume= 0.233 af, Atten= 2%, Lag= 0.7 min
Primary = 2.75 cfs @ 12.10 hrs, Volume= 0.233 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 68.87' @ 12.10 hrs Surf.Area= 0.000 ac Storage= 0.002 af

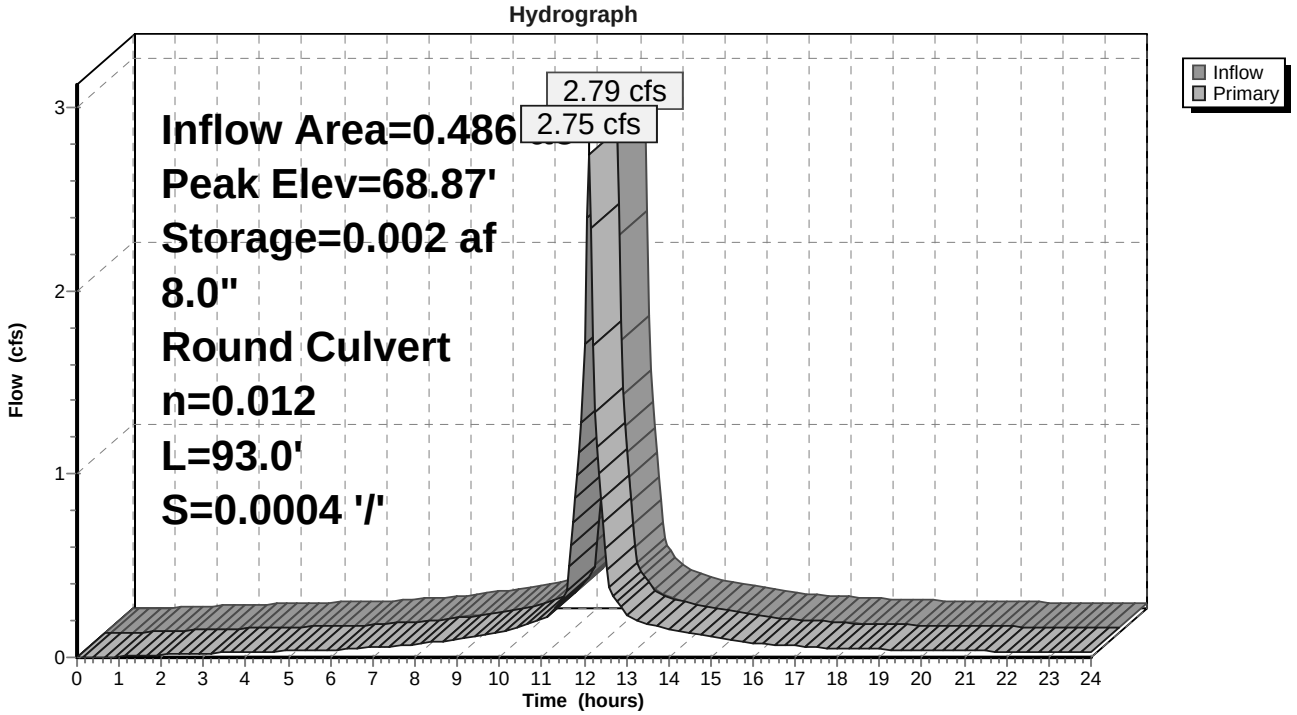
Plug-Flow detention time= 0.6 min calculated for 0.233 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (745.2 - 744.7)

Volume	Invert	Avail.Storage	Storage Description
#1	62.38'	0.002 af	**4.00'D x 8.62'H Basin**

Device	Routing	Invert	Outlet Devices
#1	Primary	62.38'	**8.0" Round 8" HDPE n-12** L= 93.0' Ke= 0.300 Inlet / Outlet Invert= 62.38' / 62.34' S= 0.0004 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=2.65 cfs @ 12.10 hrs HW=68.81' TW=63.84' (Dynamic Tailwater)
1=8" HDPE n-12 (Outlet Controls 2.65 cfs @ 7.58 fps)

Pond 2P: DMH #103



Summary for Pond 101P: Dover, NH Sand Filter

Inflow Area = 0.601 ac, 68.75% Impervious, Inflow Depth > 4.87" for 25 YR - 24 HR event
Inflow = 0.96 cfs @ 13.26 hrs, Volume= 0.244 af
Outflow = 0.94 cfs @ 13.42 hrs, Volume= 0.199 af, Atten= 2%, Lag= 9.2 min
Primary = 0.94 cfs @ 13.42 hrs, Volume= 0.199 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 69.99' @ 13.42 hrs Surf.Area= 5,902 sf Storage= 2,571 cf
Flood Elev= 70.35' Surf.Area= 5,902 sf Storage= 2,875 cf

Plug-Flow detention time= 120.0 min calculated for 0.199 af (81% of inflow)
Center-of-Mass det. time= 55.5 min (912.7 - 857.2)

Volume	Invert	Avail.Storage	Storage Description
#1	66.85'	386 cf	**6" Stone Layer below Sand Filter (Irregular)** Listed below (Recalc) 975 cf Overall - 11 cf Embedded = 964 cf x 40.0% Voids
#2	67.35'	1,170 cf	**18" SAND FILTER LAYER (Irregular)** Listed below (Recalc) 2,925 cf Overall x 40.0% Voids
#3	68.85'	1,139 cf	**18" Stone Layer above Sand Filter (Irregular)** Listed below (Recalc) 2,925 cf Overall - 78 cf Embedded = 2,847 cf x 40.0% Voids
#4	69.18'	39 cf	**8.0" Round 8" DISTRIBUTION PIPE (2)** x 2 Inside #3 L= 56.0'
#5	66.85'	11 cf	**6.0" Round 6" U.D.** Inside #1 L= 55.0'
#6	69.25'	39 cf	**12.0" Round 12" U.D. High Flow By-pass** Inside #3 L= 50.0'
#7	69.18'	118 cf	**5.00'D x 3.00'H CB #1 & #2 Vertical Cone/Cylinder** x 2
#8	66.75'	67 cf	**4.00'D x 5.33'H Outlet DMH**
		2,968 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
66.85	1,950	190.0	0	0	1,950
67.35	1,950	190.0	975	975	2,045

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
67.35	1,950	190.0	0	0	1,950
68.85	1,950	190.0	2,925	2,925	2,235

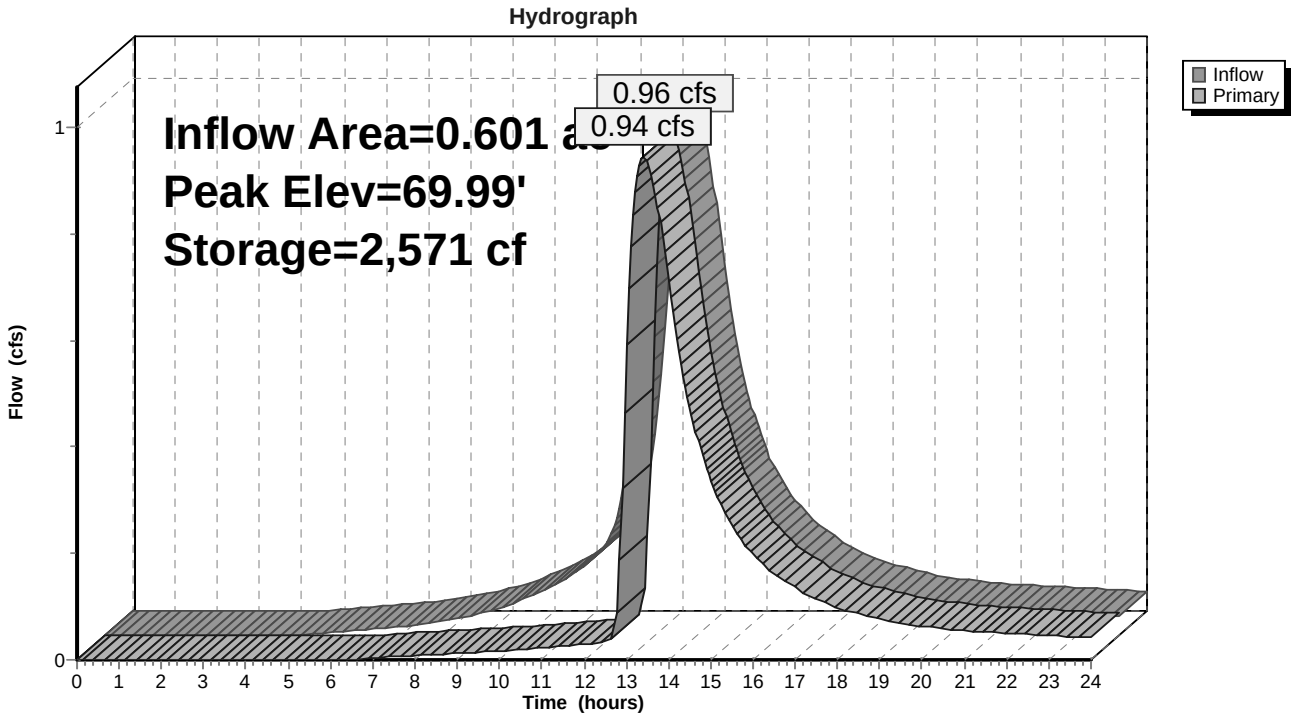
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
68.85	1,950	190.0	0	0	1,950
70.35	1,950	190.0	2,925	2,925	2,235

Device	Routing	Invert	Outlet Devices
#1	Primary	66.75'	**12.0" Round 12" HDPE N-12** L= 125.0' Ke= 0.500 Inlet / Outlet Invert= 66.75' / 66.10' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	66.85'	**6.0" Round 6" HDPE N-12 UD**

			L= 55.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 66.85' / 66.85' S= 0.0000 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.20 sf
#3	Device 2	66.85'	**1.0" Vert. 1" Orifice** C= 0.600
#4	Device 1	69.25'	**12.0" Round 12" HDPE N-12 UD**
			L= 60.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 69.25' / 69.25' S= 0.0000 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.94 cfs @ 13.42 hrs HW=69.99' TW=62.88' (Dynamic Tailwater)
- **1=12" HDPE N-12** (Passes 0.94 cfs of 4.87 cfs potential flow)
  - **2=6" HDPE N-12 UD** (Passes 0.05 cfs of 1.12 cfs potential flow)
    - **3=1" Orifice** (Orifice Controls 0.05 cfs @ 8.48 fps)
  - **4=12" HDPE N-12 UD** (Barrel Controls 0.90 cfs @ 2.00 fps)

Pond 101P: Dover, NH Sand Filter



Summary for Pond ad-01: Outlet Structure

Inflow Area = 0.764 ac, 54.73% Impervious, Inflow Depth > 4.59" for 25 YR - 24 HR event
Inflow = 3.92 cfs @ 12.12 hrs, Volume= 0.292 af
Outflow = 3.89 cfs @ 12.12 hrs, Volume= 0.292 af, Atten= 1%, Lag= 0.1 min
Primary = 3.89 cfs @ 12.12 hrs, Volume= 0.292 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 64.95' @ 12.13 hrs Surf.Area= 13 sf Storage= 12 cf
Flood Elev= 70.50' Surf.Area= 13 sf Storage= 72 cf

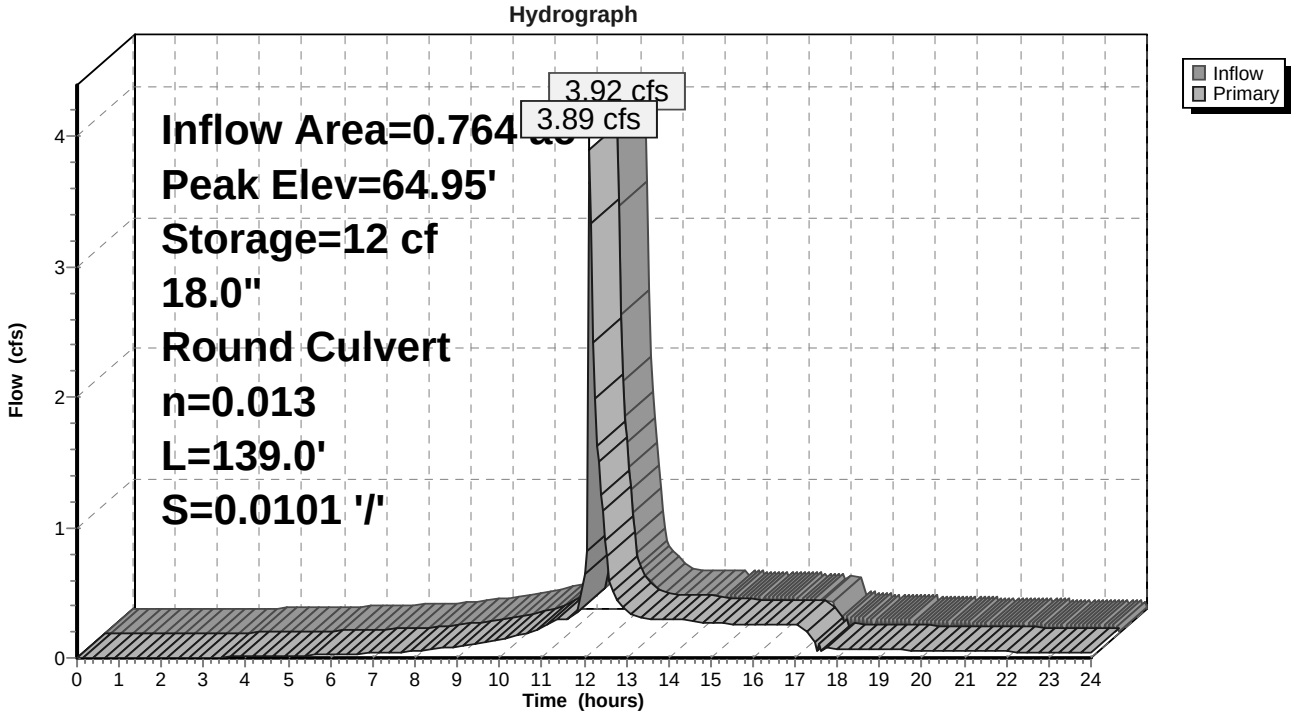
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.2 min (814.2 - 814.0)

Volume	Invert	Avail.Storage	Storage Description
#1	64.00'	72 cf	**4.00'D x 5.75'H Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	64.00'	**18.0" Round 18" HDPE N-12** L= 139.0' Ke= 0.500 Inlet / Outlet Invert= 64.00' / 62.59' S= 0.0101 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=3.29 cfs @ 12.12 hrs HW=64.92' TW=63.81' (Dynamic Tailwater)
└**1=18" HDPE N-12** (Outlet Controls 3.29 cfs @ 4.12 fps)

Pond ad-01: Outlet Structure



Summary for Pond cb-01: Area Drain

Inflow Area = 0.281 ac, 77.71% Impervious, Inflow Depth > 5.18" for 25 YR - 24 HR event
Inflow = 1.55 cfs @ 12.09 hrs, Volume= 0.121 af
Outflow = 1.52 cfs @ 12.09 hrs, Volume= 0.121 af, Atten= 2%, Lag= 0.1 min
Primary = 1.52 cfs @ 12.09 hrs, Volume= 0.121 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 70.08' @ 12.15 hrs Surf.Area= 0.000 ac Storage= 0.001 af
Flood Elev= 70.16' Surf.Area= 0.000 ac Storage= 0.001 af

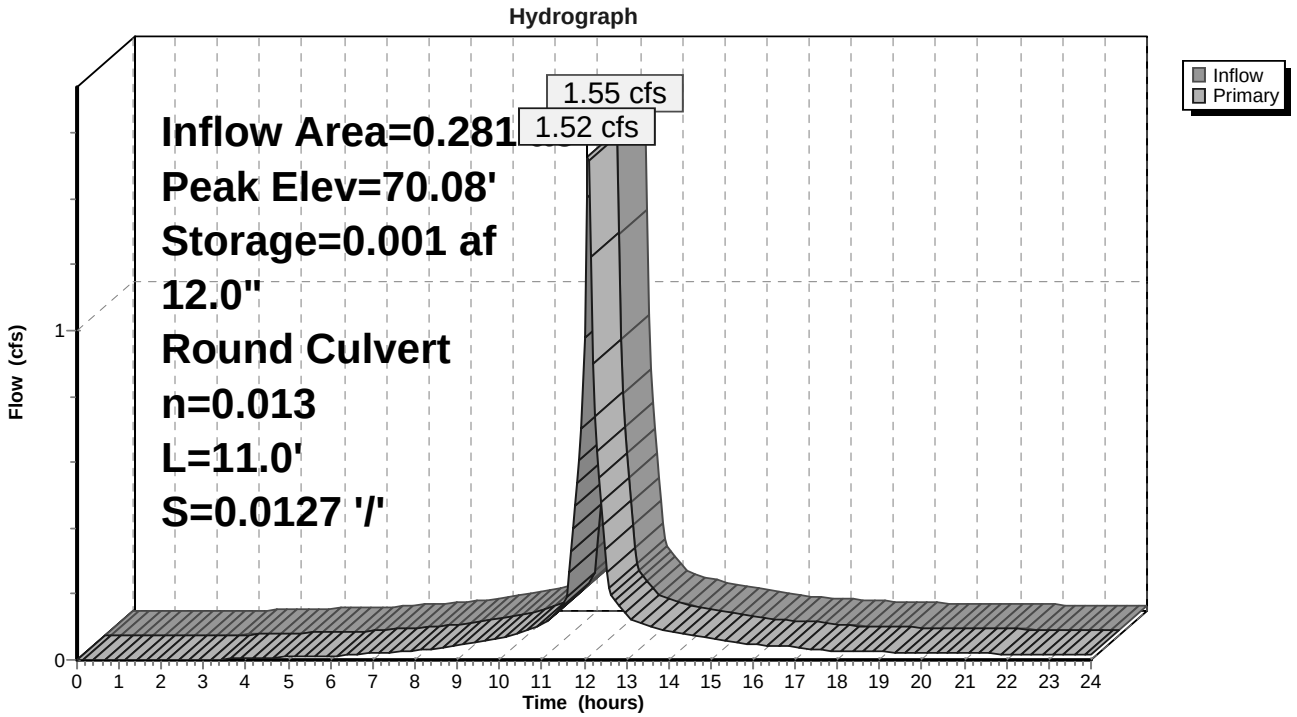
Plug-Flow detention time= 1.1 min calculated for 0.121 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (773.6 - 772.5)

Volume	Invert	Avail.Storage	Storage Description
#1	68.14'	0.001 af	**4.00'D x 2.02'H Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	68.14'	**12.0" Round 12" HDPE N-12** L= 11.0' Ke= 0.900 Inlet / Outlet Invert= 68.14' / 68.00' S= 0.0127 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.45 cfs @ 12.09 hrs HW=69.89' TW=69.87' (Dynamic Tailwater)
└**1=12" HDPE N-12** (Inlet Controls 0.45 cfs @ 0.58 fps)

Pond cb-01: Area Drain



Summary for Pond cb-02: Area Drain

Inflow Area = 2.636 ac, 75.81% Impervious, Inflow Depth > 4.91" for 25 YR - 24 HR event
Inflow = 10.83 cfs @ 12.11 hrs, Volume= 1.078 af
Outflow = 10.81 cfs @ 12.11 hrs, Volume= 1.078 af, Atten= 0%, Lag= 0.0 min
Primary = 10.81 cfs @ 12.11 hrs, Volume= 1.078 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 63.87' @ 12.11 hrs Surf.Area= 13 sf Storage= 19 cf
Flood Elev= 72.08' Surf.Area= 13 sf Storage= 122 cf

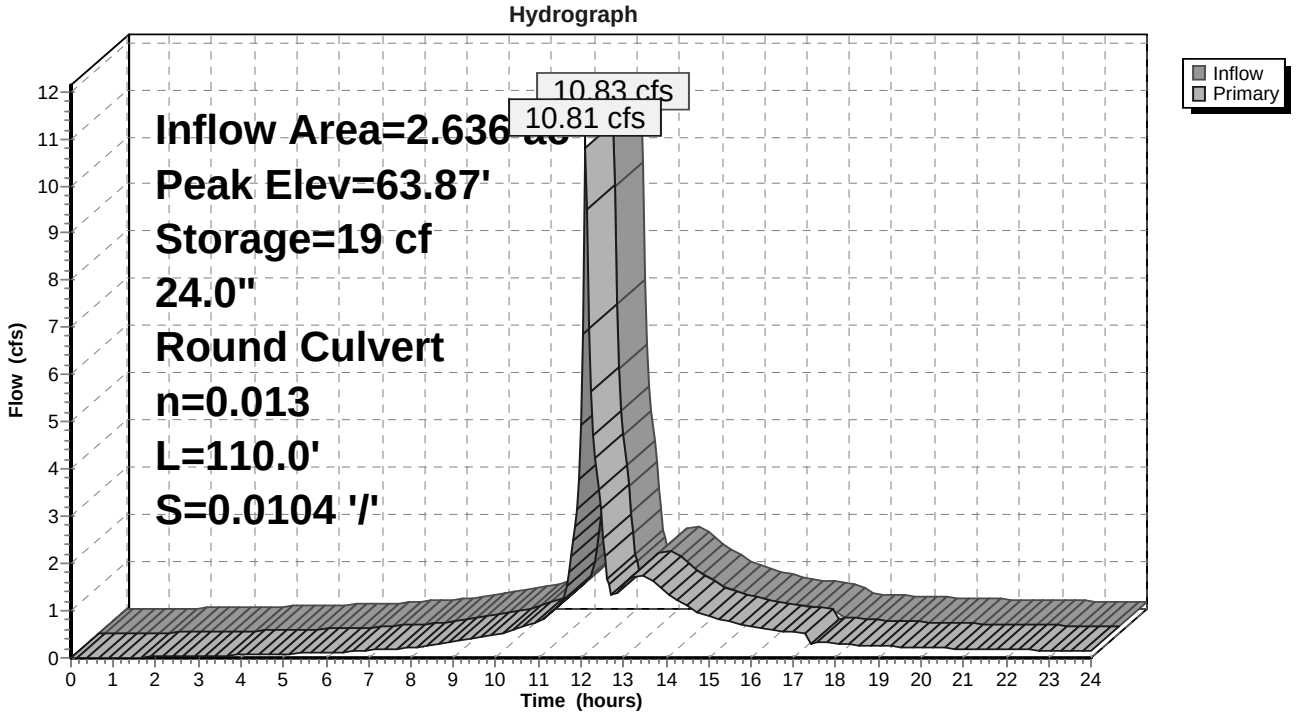
Plug-Flow detention time= 0.1 min calculated for 1.078 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (800.5 - 800.5)

Volume	Invert	Avail.Storage	Storage Description
#1	62.34'	122 cf	**4.00'D x 9.74'H Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	62.34'	**24.0" Round 24" HDPE N-12** L= 110.0' Ke= 0.500 Inlet / Outlet Invert= 62.34' / 61.20' S= 0.0104 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=10.33 cfs @ 12.11 hrs HW=63.82' TW=0.00' (Dynamic Tailwater)
└**1=24" HDPE N-12** (Inlet Controls 10.33 cfs @ 4.14 fps)

Pond cb-02: Area Drain



Summary for Pond cb-03: Area Drain

Inflow Area = 0.593 ac, 84.15% Impervious, Inflow Depth > 5.34" for 25 YR - 24 HR event
Inflow = 3.19 cfs @ 12.11 hrs, Volume= 0.264 af
Outflow = 3.18 cfs @ 12.11 hrs, Volume= 0.264 af, Atten= 0%, Lag= 0.1 min
Primary = 3.18 cfs @ 12.11 hrs, Volume= 0.264 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 67.63' @ 12.11 hrs Surf.Area= 13 sf Storage= 21 cf
Flood Elev= 72.35' Surf.Area= 13 sf Storage= 80 cf

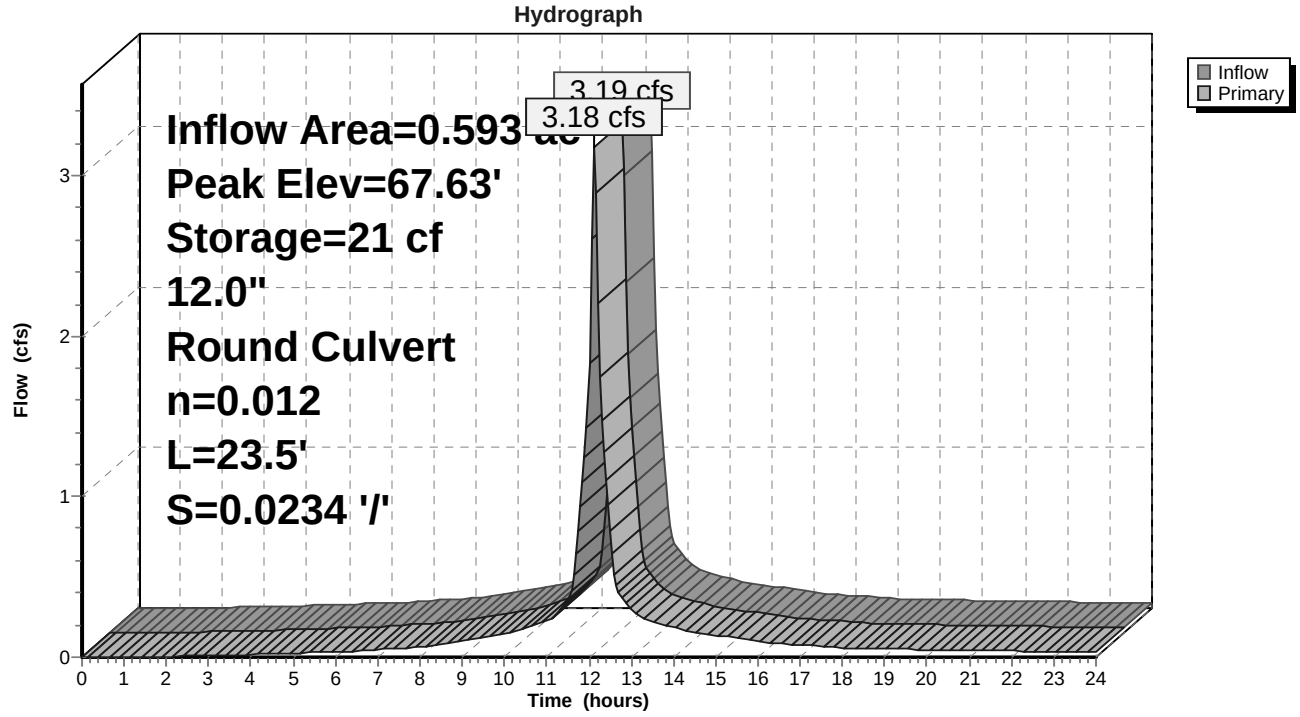
Plug-Flow detention time= 0.2 min calculated for 0.264 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (766.0 - 765.8)

Volume	Invert	Avail.Storage	Storage Description
#1	66.00'	80 cf	**4.00'D x 6.35'H Structure**

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	**12.0" Round 12" HDPE N-12** L= 23.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.00' / 65.45' S= 0.0234 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.12 cfs @ 12.11 hrs HW=67.59' TW=63.83' (Dynamic Tailwater)
└**1=12" HDPE N-12** (Inlet Controls 3.12 cfs @ 3.98 fps)

Pond cb-03: Area Drain



Summary for Pond FP1: FocalPoint 1

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=64)
[80] Warning: Exceeded Pond cb-01 by 0.15' @ 12.00 hrs (1.17 cfs 0.019 af)

Inflow Area = 0.601 ac, 58.19% Impervious, Inflow Depth > 4.67" for 25 YR - 24 HR event
Inflow = 3.03 cfs @ 12.09 hrs, Volume= 0.234 af
Outflow = 3.20 cfs @ 12.12 hrs, Volume= 0.234 af, Atten= 0%, Lag= 1.8 min
Primary = 3.20 cfs @ 12.12 hrs, Volume= 0.234 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 69.93' @ 12.12 hrs Surf.Area= 100 sf Storage= 1,725 cf
Flood Elev= 70.50' Surf.Area= 100 sf Storage= 2,571 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 35.3 min (820.5 - 785.2)

Volume	Invert	Avail.Storage	Storage Description
#1	65.75'	45 cf	**FocalPoint (Irregular)**Listed below (Recalc) 225 cf Overall x 20.0% Voids
#2	68.00'	2,526 cf	**Open Water Storage (Irregular)**Listed below (Recalc) -Impervious
		2,571 cf	Total Available Storage

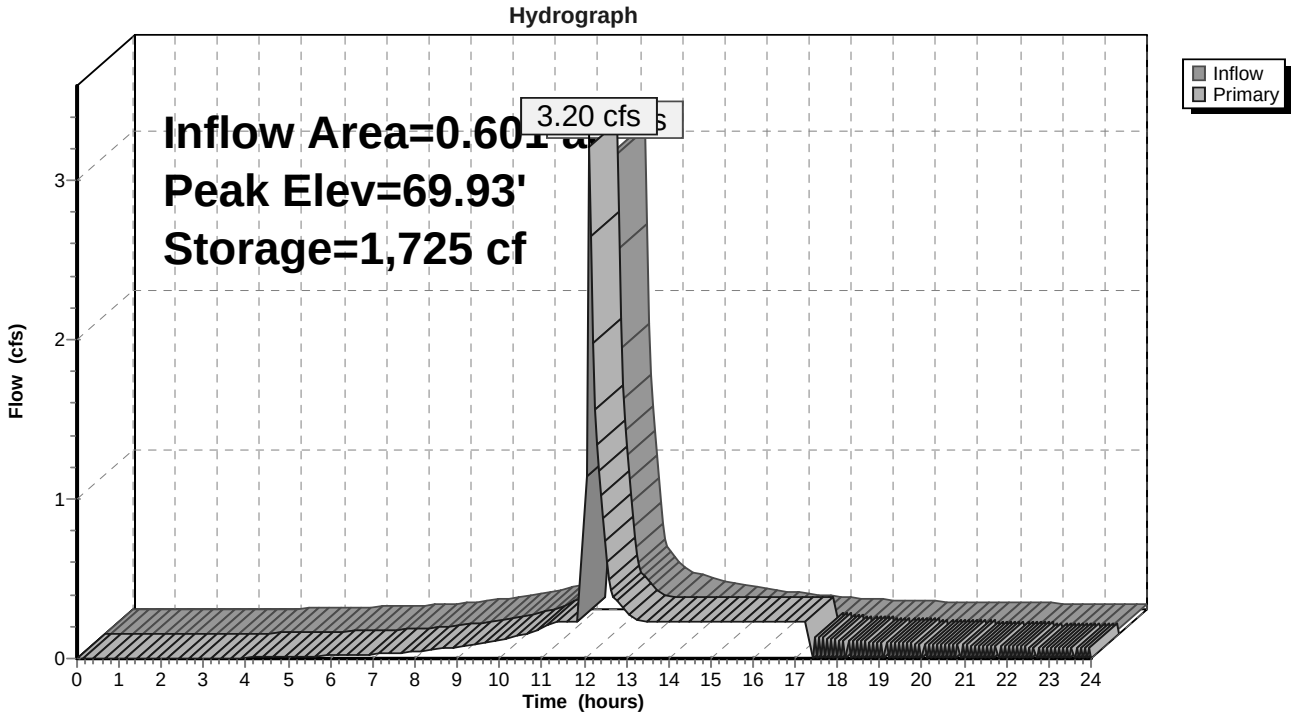
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
65.75	100	58.0	0	0	100
68.00	100	58.0	225	225	231

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
68.00	512	102.0	0	0	512
69.00	876	130.0	686	686	1,042
70.00	1,296	149.0	1,079	1,765	1,486
70.50	1,758	180.0	761	2,526	2,302

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	**18.0" Round 18" HDPE N-12** L= 1.0' Ke= 0.900 Inlet / Outlet Invert= 65.00' / 65.00' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	65.75'	**100.000 in/hr Exfiltration over Surface area**
#3	Device 1	69.75'	**48.0" Horiz. 48" Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.84 cfs @ 12.12 hrs HW=69.91' TW=64.92' (Dynamic Tailwater)
└**1=18" HDPE N-12** (Passes 2.84 cfs of 13.70 cfs potential flow)
  └**2=Exfiltration** (Exfiltration Controls 0.23 cfs)
  └**3=48" Grate** (Weir Controls 2.61 cfs @ 1.30 fps)

Pond FP1: FocalPoint 1



Summary for Pond FP2: FocalPoint 2

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=91)

Inflow Area = 0.163 ac, 41.95% Impervious, Inflow Depth > 4.26" for 25 YR - 24 HR event
Inflow = 0.74 cfs @ 12.09 hrs, Volume= 0.058 af
Outflow = 0.73 cfs @ 12.10 hrs, Volume= 0.058 af, Atten= 1%, Lag= 0.8 min
Primary = 0.73 cfs @ 12.10 hrs, Volume= 0.058 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 69.66' @ 12.10 hrs Surf.Area= 30 sf Storage= 158 cf
Flood Elev= 70.50' Surf.Area= 30 sf Storage= 515 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 6.8 min (787.8 - 780.9)

Volume	Invert	Avail.Storage	Storage Description
#1	66.75'	14 cf	**FocalPoint (Irregular)** Listed below (Recalc) 68 cf Overall x 20.0% Voids
#2	69.00'	502 cf	**Open Water Storage (Irregular)** Listed below (Recalc) -Impervious
		515 cf	Total Available Storage

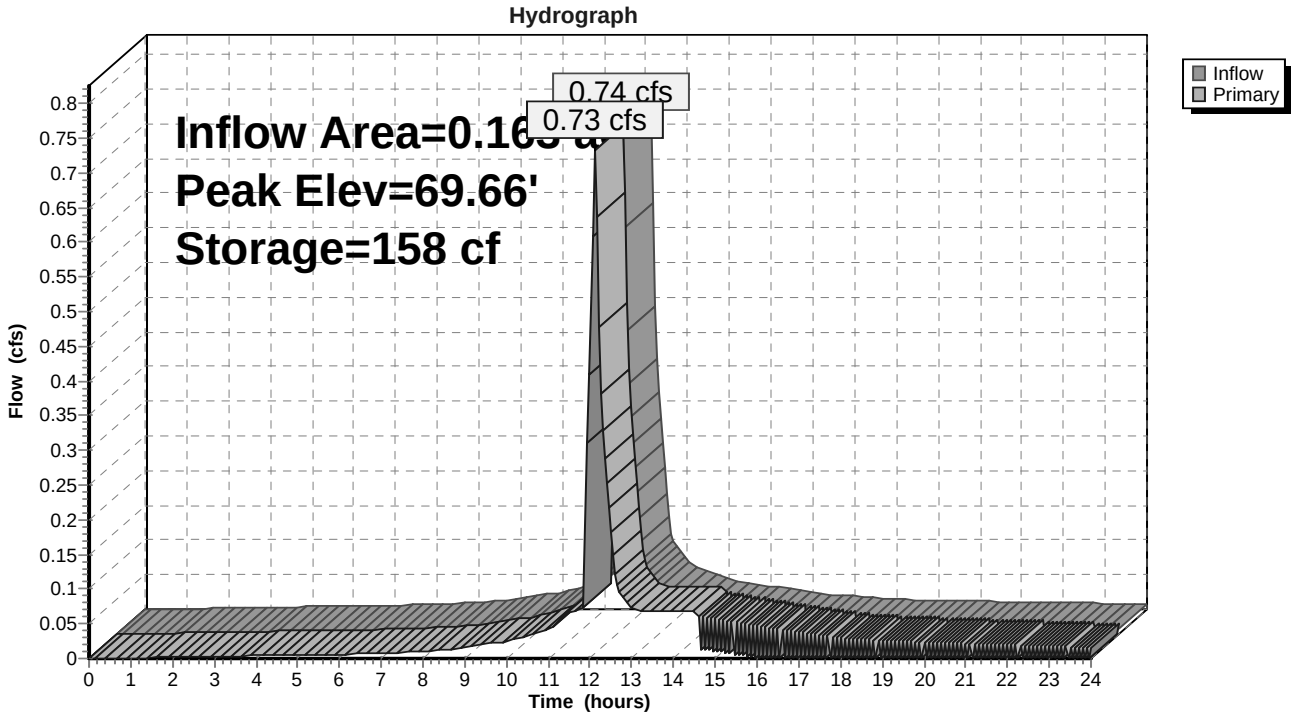
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
66.75	30	26.0	0	0	30
69.00	30	26.0	68	68	89

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
69.00	157	61.0	0	0	157
70.00	369	80.0	256	256	382
70.50	626	112.0	246	502	873

Device	Routing	Invert	Outlet Devices
#1	Primary	65.90'	**12.0" Round 12" HDPE N-12** L= 39.0' Ke= 0.500 Inlet / Outlet Invert= 65.90' / 65.50' S= 0.0103 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	66.75'	**100.000 in/hr Exfiltration over Surface area**
#3	Device 1	69.50'	**12.0" Horiz. 12" Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.73 cfs @ 12.10 hrs HW=69.66' TW=64.91' (Dynamic Tailwater)
└─**1=12" HDPE N-12** (Passes 0.73 cfs of 6.79 cfs potential flow)
  └─**2=Exfiltration** (Exfiltration Controls 0.07 cfs)
  └─**3=12" Grate** (Weir Controls 0.66 cfs @ 1.31 fps)

Pond FP2: FocalPoint 2



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

Subcatchment 11S: Roof Runoff 1 Grove St Runoff Area=7,252 sf 100.00% Impervious Runoff Depth>2.92"
Tc=6.0 min CN=98 Runoff=0.50 cfs 0.040 af

Subcatchment 12S: Roof Runoff 77 Third Runoff Area=21,184 sf 100.00% Impervious Runoff Depth>2.92"
Tc=6.0 min CN=98 Runoff=1.45 cfs 0.118 af

Subcatchment 20S: Offsite Flow Runoff Area=115 sf 0.00% Impervious Runoff Depth>1.00"
Tc=6.0 min CN=74 Runoff=0.00 cfs 0.000 af

Subcatchment 101S: Porous Pavement Runoff Area=26,201 sf 68.75% Impervious Runoff Depth>2.17"
Tc=100.0 min CN=91 Runoff=0.44 cfs 0.109 af

Subcatchment P-1: Flow to FocalPoint 1 Runoff Area=4,554 sf 0.00% Impervious Runoff Depth>1.00"
Tc=6.0 min CN=74 Runoff=0.11 cfs 0.009 af

Subcatchment P-1A: Flow to FocalPoint 1 Runoff Area=12,252 sf 77.71% Impervious Runoff Depth>2.40"
Tc=6.0 min CN=93 Runoff=0.75 cfs 0.056 af

Subcatchment P-1B: Rain Guardian #1 Runoff Area=9,383 sf 60.94% Impervious Runoff Depth>2.03"
Tc=6.0 min CN=89 Runoff=0.50 cfs 0.037 af

Subcatchment P-1C: Flow to cb-03 Runoff Area=18,593 sf 77.97% Impervious Runoff Depth>2.40"
Flow Length=264' Tc=7.8 min CN=93 Runoff=1.08 cfs 0.085 af

Subcatchment P-1D: Flow to cb-02 Runoff Area=8,324 sf 94.85% Impervious Runoff Depth>2.81"
Tc=6.0 min CN=97 Runoff=0.56 cfs 0.045 af

Subcatchment P-2: Flow to FocalPoint 2 Runoff Area=4,116 sf 0.00% Impervious Runoff Depth>1.00"
Tc=6.0 min CN=74 Runoff=0.10 cfs 0.008 af

Subcatchment P-2A: From Rain Guardian Runoff Area=2,974 sf 100.00% Impervious Runoff Depth>2.92"
Tc=6.0 min CN=98 Runoff=0.20 cfs 0.017 af

Reach 3R: Roof to cb-03 Avg. Flow Depth=0.14' Max Vel=1.92 fps Inflow=0.50 cfs 0.040 af
n=0.013 L=175.0' S=0.0066 '/' Capacity=7.30 cfs Outflow=0.49 cfs 0.040 af

Reach 100R: Final Reach #100 Inflow=3.87 cfs 0.484 af
Outflow=3.87 cfs 0.484 af

Reach 200R: Final Reach #200 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 2P: DMH #103 Peak Elev=64.59' Storage=0.001 af Inflow=1.45 cfs 0.118 af
8.0" Round Culvert n=0.012 L=93.0' S=0.0004 '/' Outflow=1.44 cfs 0.118 af

Pond 101P: Dover, NH Sand Filter Peak Elev=69.62' Storage=2,240 cf Inflow=0.44 cfs 0.109 af
Outflow=0.24 cfs 0.070 af

Pond ad-01: Outlet Structure Peak Elev=64.31' Storage=4 cf Inflow=0.45 cfs 0.126 af
18.0" Round Culvert n=0.013 L=139.0' S=0.0101 '/' Outflow=0.46 cfs 0.126 af

Pond cb-01: Area Drain Peak Elev=69.49' Storage=0.000 af Inflow=0.75 cfs 0.056 af
12.0" Round Culvert n=0.013 L=11.0' S=0.0127 '/' Outflow=0.74 cfs 0.056 af

Pond cb-02: Area Drain Peak Elev=63.18' Storage=11 cf Inflow=3.87 cfs 0.484 af
24.0" Round Culvert n=0.013 L=110.0' S=0.0104 '/' Outflow=3.87 cfs 0.484 af

Pond cb-03: Area Drain Peak Elev=66.78' Storage=10 cf Inflow=1.57 cfs 0.126 af
12.0" Round Culvert n=0.012 L=23.5' S=0.0234 '/' Outflow=1.57 cfs 0.126 af

Pond FP1: FocalPoint 1 Peak Elev=69.49' Storage=1,206 cf Inflow=1.35 cfs 0.101 af
Outflow=0.23 cfs 0.102 af

Pond FP2: FocalPoint 2 Peak Elev=69.56' Storage=130 cf Inflow=0.31 cfs 0.024 af
Outflow=0.22 cfs 0.025 af

Total Runoff Area = 2.639 ac Runoff Volume = 0.523 af Average Runoff Depth = 2.38"
24.27% Pervious = 0.640 ac 75.73% Impervious = 1.998 ac

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

Subcatchment 11S: Roof Runoff 1 Grove St Runoff Area=7,252 sf 100.00% Impervious Runoff Depth>4.51"
Tc=6.0 min CN=98 Runoff=0.75 cfs 0.063 af

Subcatchment 12S: Roof Runoff 77 Third Runoff Area=21,184 sf 100.00% Impervious Runoff Depth>4.51"
Tc=6.0 min CN=98 Runoff=2.21 cfs 0.183 af

Subcatchment 20S: Offsite Flow Runoff Area=115 sf 0.00% Impervious Runoff Depth>2.16"
Tc=6.0 min CN=74 Runoff=0.01 cfs 0.000 af

Subcatchment 101S: Porous Pavement Runoff Area=26,201 sf 68.75% Impervious Runoff Depth>3.67"
Tc=100.0 min CN=91 Runoff=0.73 cfs 0.184 af

Subcatchment P-1: Flow to FocalPoint 1 Runoff Area=4,554 sf 0.00% Impervious Runoff Depth>2.16"
Tc=6.0 min CN=74 Runoff=0.26 cfs 0.019 af

Subcatchment P-1A: Flow to FocalPoint 1 Runoff Area=12,252 sf 77.71% Impervious Runoff Depth>3.95"
Tc=6.0 min CN=93 Runoff=1.20 cfs 0.093 af

Subcatchment P-1B: Rain Guardian #1 Runoff Area=9,383 sf 60.94% Impervious Runoff Depth>3.53"
Tc=6.0 min CN=89 Runoff=0.85 cfs 0.063 af

Subcatchment P-1C: Flow to cb-03 Runoff Area=18,593 sf 77.97% Impervious Runoff Depth>3.95"
Flow Length=264' Tc=7.8 min CN=93 Runoff=1.73 cfs 0.140 af

Subcatchment P-1D: Flow to cb-02 Runoff Area=8,324 sf 94.85% Impervious Runoff Depth>4.40"
Tc=6.0 min CN=97 Runoff=0.86 cfs 0.070 af

Subcatchment P-2: Flow to FocalPoint 2 Runoff Area=4,116 sf 0.00% Impervious Runoff Depth>2.16"
Tc=6.0 min CN=74 Runoff=0.23 cfs 0.017 af

Subcatchment P-2A: From Rain Guardian Runoff Area=2,974 sf 100.00% Impervious Runoff Depth>4.51"
Tc=6.0 min CN=98 Runoff=0.31 cfs 0.026 af

Reach 3R: Roof to cb-03 Avg. Flow Depth=0.17' Max Vel=2.19 fps Inflow=0.75 cfs 0.063 af
n=0.013 L=175.0' S=0.0066 '/' Capacity=7.30 cfs Outflow=0.75 cfs 0.063 af

Reach 100R: Final Reach #100 Inflow=6.33 cfs 0.814 af
Outflow=6.33 cfs 0.814 af

Reach 200R: Final Reach #200 Inflow=0.01 cfs 0.000 af
Outflow=0.01 cfs 0.000 af

Pond 2P: DMH #103 Peak Elev=66.71' Storage=0.001 af Inflow=2.21 cfs 0.183 af
8.0" Round Culvert n=0.012 L=93.0' S=0.0004 '/' Outflow=2.18 cfs 0.183 af

Pond 101P: Dover, NH Sand Filter Peak Elev=69.87' Storage=2,471 cf Inflow=0.73 cfs 0.184 af
Outflow=0.68 cfs 0.141 af

Pond ad-01: Outlet Structure Peak Elev=64.67' Storage=8 cf Inflow=2.04 cfs 0.218 af
18.0" Round Culvert n=0.013 L=139.0' S=0.0101 '/' Outflow=2.05 cfs 0.218 af

Pond cb-01: Area Drain Peak Elev=69.90' Storage=0.001 af Inflow=1.20 cfs 0.093 af
12.0" Round Culvert n=0.013 L=11.0' S=0.0127 '/' Outflow=1.18 cfs 0.093 af

Pond cb-02: Area Drain Peak Elev=63.44' Storage=14 cf Inflow=6.33 cfs 0.814 af
24.0" Round Culvert n=0.013 L=110.0' S=0.0104 '/' Outflow=6.33 cfs 0.814 af

Pond cb-03: Area Drain Peak Elev=67.19' Storage=15 cf Inflow=2.48 cfs 0.203 af
12.0" Round Culvert n=0.012 L=23.5' S=0.0234 '/' Outflow=2.47 cfs 0.203 af

Pond FP1: FocalPoint 1 Peak Elev=69.86' Storage=1,631 cf Inflow=2.28 cfs 0.175 af
Outflow=1.69 cfs 0.175 af

Pond FP2: FocalPoint 2 Peak Elev=69.63' Storage=148 cf Inflow=0.54 cfs 0.043 af
Outflow=0.53 cfs 0.043 af

Total Runoff Area = 2.639 ac Runoff Volume = 0.858 af Average Runoff Depth = 3.90"
24.27% Pervious = 0.640 ac 75.73% Impervious = 1.998 ac

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

Subcatchment 11S: Roof Runoff 1 Grove St Runoff Area=7,252 sf 100.00% Impervious Runoff Depth>5.76"
Tc=6.0 min CN=98 Runoff=0.96 cfs 0.080 af

Subcatchment 12S: Roof Runoff 77 Third Runoff Area=21,184 sf 100.00% Impervious Runoff Depth>5.76"
Tc=6.0 min CN=98 Runoff=2.79 cfs 0.233 af

Subcatchment 20S: Offsite Flow Runoff Area=115 sf 0.00% Impervious Runoff Depth>3.18"
Tc=6.0 min CN=74 Runoff=0.01 cfs 0.001 af

Subcatchment 101S: Porous Pavement Runoff Area=26,201 sf 68.75% Impervious Runoff Depth>4.87"
Tc=100.0 min CN=91 Runoff=0.96 cfs 0.244 af

Subcatchment P-1: Flow to FocalPoint 1 Runoff Area=4,554 sf 0.00% Impervious Runoff Depth>3.18"
Tc=6.0 min CN=74 Runoff=0.38 cfs 0.028 af

Subcatchment P-1A: Flow to FocalPoint 1 Runoff Area=12,252 sf 77.71% Impervious Runoff Depth>5.18"
Tc=6.0 min CN=93 Runoff=1.55 cfs 0.121 af

Subcatchment P-1B: Rain Guardian #1 Runoff Area=9,383 sf 60.94% Impervious Runoff Depth>4.73"
Tc=6.0 min CN=89 Runoff=1.12 cfs 0.085 af

Subcatchment P-1C: Flow to cb-03 Runoff Area=18,593 sf 77.97% Impervious Runoff Depth>5.18"
Flow Length=264' Tc=7.8 min CN=93 Runoff=2.24 cfs 0.184 af

Subcatchment P-1D: Flow to cb-02 Runoff Area=8,324 sf 94.85% Impervious Runoff Depth>5.64"
Tc=6.0 min CN=97 Runoff=1.09 cfs 0.090 af

Subcatchment P-2: Flow to FocalPoint 2 Runoff Area=4,116 sf 0.00% Impervious Runoff Depth>3.18"
Tc=6.0 min CN=74 Runoff=0.35 cfs 0.025 af

Subcatchment P-2A: From Rain Guardian Runoff Area=2,974 sf 100.00% Impervious Runoff Depth>5.76"
Tc=6.0 min CN=98 Runoff=0.39 cfs 0.033 af

Reach 3R: Roof to cb-03 Avg. Flow Depth=0.19' Max Vel=2.35 fps Inflow=0.96 cfs 0.080 af
n=0.013 L=175.0' S=0.0066 '/' Capacity=7.30 cfs Outflow=0.95 cfs 0.080 af

Reach 100R: Final Reach #100 Inflow=10.81 cfs 1.078 af
Outflow=10.81 cfs 1.078 af

Reach 200R: Final Reach #200 Inflow=0.01 cfs 0.001 af
Outflow=0.01 cfs 0.001 af

Pond 2P: DMH #103 Peak Elev=68.87' Storage=0.002 af Inflow=2.79 cfs 0.233 af
8.0" Round Culvert n=0.012 L=93.0' S=0.0004 '/' Outflow=2.75 cfs 0.233 af

Pond 101P: Dover, NH Sand Filter Peak Elev=69.99' Storage=2,571 cf Inflow=0.96 cfs 0.244 af
Outflow=0.94 cfs 0.199 af

Pond ad-01: Outlet Structure Peak Elev=64.95' Storage=12 cf Inflow=3.92 cfs 0.292 af
18.0" Round Culvert n=0.013 L=139.0' S=0.0101 '/' Outflow=3.89 cfs 0.292 af

Pond cb-01: Area Drain Peak Elev=70.08' Storage=0.001 af Inflow=1.55 cfs 0.121 af
12.0" Round Culvert n=0.013 L=11.0' S=0.0127 '/' Outflow=1.52 cfs 0.121 af

Pond cb-02: Area Drain Peak Elev=63.87' Storage=19 cf Inflow=10.83 cfs 1.078 af
24.0" Round Culvert n=0.013 L=110.0' S=0.0104 '/' Outflow=10.81 cfs 1.078 af

Pond cb-03: Area Drain Peak Elev=67.63' Storage=21 cf Inflow=3.19 cfs 0.264 af
12.0" Round Culvert n=0.012 L=23.5' S=0.0234 '/' Outflow=3.18 cfs 0.264 af

Pond FP1: FocalPoint 1 Peak Elev=69.93' Storage=1,725 cf Inflow=3.03 cfs 0.234 af
Outflow=3.20 cfs 0.234 af

Pond FP2: FocalPoint 2 Peak Elev=69.66' Storage=158 cf Inflow=0.74 cfs 0.058 af
Outflow=0.73 cfs 0.058 af

Total Runoff Area = 2.639 ac Runoff Volume = 1.124 af Average Runoff Depth = 5.11"
24.27% Pervious = 0.640 ac 75.73% Impervious = 1.998 ac

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

Subcatchment 11S: Roof Runoff 1 Grove St Runoff Area=7,252 sf 100.00% Impervious Runoff Depth>6.93"
Tc=6.0 min CN=98 Runoff=1.14 cfs 0.096 af

Subcatchment 12S: Roof Runoff 77 Third Runoff Area=21,184 sf 100.00% Impervious Runoff Depth>6.93"
Tc=6.0 min CN=98 Runoff=3.34 cfs 0.281 af

Subcatchment 20S: Offsite Flow Runoff Area=115 sf 0.00% Impervious Runoff Depth>4.19"
Tc=6.0 min CN=74 Runoff=0.01 cfs 0.001 af

Subcatchment 101S: Porous Pavement Runoff Area=26,201 sf 68.75% Impervious Runoff Depth>6.00"
Tc=100.0 min CN=91 Runoff=1.17 cfs 0.301 af

Subcatchment P-1: Flow to FocalPoint 1 Runoff Area=4,554 sf 0.00% Impervious Runoff Depth>4.19"
Tc=6.0 min CN=74 Runoff=0.50 cfs 0.036 af

Subcatchment P-1A: Flow to FocalPoint 1 Runoff Area=12,252 sf 77.71% Impervious Runoff Depth>6.34"
Tc=6.0 min CN=93 Runoff=1.87 cfs 0.148 af

Subcatchment P-1B: Rain Guardian #1 Runoff Area=9,383 sf 60.94% Impervious Runoff Depth>5.87"
Tc=6.0 min CN=89 Runoff=1.38 cfs 0.105 af

Subcatchment P-1C: Flow to cb-03 Runoff Area=18,593 sf 77.97% Impervious Runoff Depth>6.33"
Flow Length=264' Tc=7.8 min CN=93 Runoff=2.71 cfs 0.225 af

Subcatchment P-1D: Flow to cb-02 Runoff Area=8,324 sf 94.85% Impervious Runoff Depth>6.81"
Tc=6.0 min CN=97 Runoff=1.31 cfs 0.108 af

Subcatchment P-2: Flow to FocalPoint 2 Runoff Area=4,116 sf 0.00% Impervious Runoff Depth>4.19"
Tc=6.0 min CN=74 Runoff=0.45 cfs 0.033 af

Subcatchment P-2A: From Rain Guardian Runoff Area=2,974 sf 100.00% Impervious Runoff Depth>6.93"
Tc=6.0 min CN=98 Runoff=0.47 cfs 0.039 af

Reach 3R: Roof to cb-03 Avg. Flow Depth=0.21' Max Vel=2.49 fps Inflow=1.14 cfs 0.096 af
n=0.013 L=175.0' S=0.0066 '/' Capacity=7.30 cfs Outflow=1.14 cfs 0.096 af

Reach 100R: Final Reach #100 Inflow=13.11 cfs 1.328 af
Outflow=13.11 cfs 1.328 af

Reach 200R: Final Reach #200 Inflow=0.01 cfs 0.001 af
Outflow=0.01 cfs 0.001 af

Pond 2P: DMH #103 Peak Elev=71.68' Storage=0.002 af Inflow=3.34 cfs 0.281 af
8.0" Round Culvert n=0.012 L=93.0' S=0.0004 '/' Outflow=3.31 cfs 0.281 af

Pond 101P: Dover, NH Sand Filter Peak Elev=70.08' Storage=2,648 cf Inflow=1.17 cfs 0.301 af
Outflow=1.16 cfs 0.255 af

Pond ad-01: Outlet Structure Peak Elev=65.13' Storage=14 cf Inflow=4.59 cfs 0.363 af
18.0" Round Culvert n=0.013 L=139.0' S=0.0101 '/' Outflow=4.63 cfs 0.363 af

Pond cb-01: Area Drain Peak Elev=70.33' Storage=0.001 af Inflow=1.87 cfs 0.148 af
12.0" Round Culvert n=0.013 L=11.0' S=0.0127 '/' Outflow=1.90 cfs 0.148 af

Pond cb-02: Area Drain Peak Elev=64.09' Storage=22 cf Inflow=13.09 cfs 1.328 af
24.0" Round Culvert n=0.013 L=110.0' S=0.0104 '/' Outflow=13.11 cfs 1.328 af

Pond cb-03: Area Drain Peak Elev=68.14' Storage=27 cf Inflow=3.84 cfs 0.321 af
12.0" Round Culvert n=0.012 L=23.5' S=0.0234 '/' Outflow=3.83 cfs 0.321 af

Pond FP1: FocalPoint 1 Peak Elev=69.94' Storage=1,735 cf Inflow=3.78 cfs 0.290 af
Outflow=3.67 cfs 0.290 af

Pond FP2: FocalPoint 2 Peak Elev=69.69' Storage=166 cf Inflow=0.92 cfs 0.072 af
Outflow=0.92 cfs 0.072 af

Total Runoff Area = 2.639 ac Runoff Volume = 1.375 af Average Runoff Depth = 6.25"
24.27% Pervious = 0.640 ac 75.73% Impervious = 1.998 ac

Appendix III - Calculations, Charts, & Graphs

Extreme Precipitation Tables
NCRS USDA Web-Soil Map
Sand Filter #101 Treatment Sheet
Stormwater System Management: Inspection & Maintenance Manual & Plan
Green SnoPro Utilization Chart
Ksat Values for New Hampshire Soils, SSSNNE Special Publication #5, 2009
Watershed Report Card, 303(d) List, & ORW List
Filtrexx Construction Specifications

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Metadata for Point

Smoothing	Yes
State	
Location	
Latitude	43.198 degrees North
Longitude	70.879 degrees West
Elevation	20 feet
Date/Time	Tue Jun 18 2024 09:49:21 GMT-0400 (Eastern Daylight Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.03	**1yr**	0.70	0.98	1.20	1.54	2.00	2.60	2.87	**1yr**	2.30	2.76	3.16	3.88	4.45	**1yr**
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	3.37	3.87	4.60	5.24	**2yr**
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	4.49	**5yr**	3.52	4.32	4.94	5.81	6.57	**5yr**
10yr	0.40	0.63	0.80	1.09	1.42	1.85	**10yr**	1.22	1.69	2.18	2.83	3.66	4.75	5.42	**10yr**	4.20	5.21	5.95	6.93	7.80	**10yr**
25yr	0.46	0.74	0.94	1.30	1.72	2.27	**25yr**	1.49	2.09	2.70	3.53	4.61	6.00	6.95	**25yr**	5.31	6.68	7.62	8.77	9.79	**25yr**
50yr	0.52	0.83	1.06	1.49	2.00	2.67	**50yr**	1.73	2.46	3.18	4.19	5.49	7.17	8.40	**50yr**	6.35	8.07	9.19	10.47	11.64	**50yr**
100yr	0.58	0.94	1.21	1.71	2.32	3.13	**100yr**	2.01	2.89	3.75	4.96	6.53	8.57	10.15	**100yr**	7.58	9.76	11.08	12.52	13.84	**100yr**
200yr	0.64	1.05	1.36	1.95	2.70	3.68	**200yr**	2.33	3.40	4.43	5.89	7.79	10.25	12.26	**200yr**	9.07	11.79	13.36	14.97	16.46	**200yr**
500yr	0.76	1.25	1.62	2.36	3.31	4.54	**500yr**	2.85	4.22	5.50	7.37	9.81	12.98	15.75	**500yr**	11.49	15.15	17.14	18.97	20.72	**500yr**

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Strafford County, New Hampshire

June 18, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

70° 52' 51" W
70° 52' 38" W
43° 11' 57" N
43° 11' 51" N
347200
347230
347260
347290
347320
347350
347380
347410
347440
347470
4784660
4784630
4784600
4784570
4784540
4784510
4784480
Grove St
SfC
SfE
W
Soil Map may not be valid at this scale.
Map Scale: 1:1,340 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 15 30 60 90
Feet
0 50 100 200 300
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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 24, Aug 22, 2023

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
SfC	Suffield silt loam, 8 to 15 percent slopes	7.8	82.5%
SfE	Suffield silt loam, 15 to 35 percent slopes	1.3	13.5%
W	Water	0.4	3.9%
Totals for Area of Interest		**9.5**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The

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

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

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

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

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

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

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

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

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

Strafford County, New Hampshire

SfC—Suffield silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9d8v
Elevation: 0 to 250 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Suffield and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Suffield

Typical profile

H1 - 0 to 19 inches: silt loam
H2 - 19 to 28 inches: silt loam
H3 - 28 to 41 inches: silty clay

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F144AY017NH - Well Drained Lake Plain
Hydric soil rating: No

Minor Components

Not named

Percent of map unit: 9 percent
Hydric soil rating: No

Buxton

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

Rock outcrop

Percent of map unit: 1 percent
Hydric soil rating: No

SfE—Suffield silt loam, 15 to 35 percent slopes

Map Unit Setting

National map unit symbol: 9d8w
Elevation: 0 to 210 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Suffield and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Suffield

Typical profile

H1 - 0 to 19 inches: silt loam
H2 - 19 to 28 inches: silt loam
H3 - 28 to 41 inches: silty clay

Properties and qualities

Slope: 15 to 35 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F144AY017NH - Well Drained Lake Plain
Hydric soil rating: No

Minor Components

Not named

Percent of map unit: 14 percent
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Hydric soil rating: No

W—Water

Map Unit Composition

Water (less than 40 acres): 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

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NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name: **Sand Filter #101**

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).	
0.60	ac	A = Area draining to the practice	
0.41	ac	A_I = Impervious area draining to the practice	
0.69	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.67	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.40	ac-in	WQV= 1" x Rv x A	
1,459	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
365	cf	25% x WQV (check calc for sediment forebay volume)	
1,094	cf	75% x WQV (check calc for surface sand filter volume)	
Deep Sump		Method of Pretreatment? (not required for clean or roof runoff)	
N/A	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
Calculate time to drain if system IS NOT underdrained:			
N/A	sf	A_{SA} = Surface area of the practice	
N/A	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
		If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
N/A	Yes/No	(Use the calculations below)	
-	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ 72-hrs
Calculate time to drain if system IS underdrained:			
68.81	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
0.04	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
20.27	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	≤ 72-hrs
67.35	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
66.85	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
0.50	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	≥ 1'
67.35	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	≥ 1'
67.35	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	≥ 1'
70.08	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
70.35	ft	Elevation of the top of the practice	
YES		50 peak elevation ≤ Elevation of the top of the practice	← yes
If a surface sand filter or underground sand filter is proposed:			
YES	ac	Drainage Area check.	< 10 ac
1,914	cf	V = Volume of storage[3] (attach a stage-storage table)	≥ 75%WQV
18.0	inches	D_{FC} = Filter course thickness	18", or 24" if within GPA
Sheet	P-101	Note what sheet in the plan set contains the filter course specification.	
YES	Yes/No	Access grate provided?	← yes

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 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	
	: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:			
		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	**≤ 5:1**
	inches	D_{FC} = Filter course thickness	**12", or 18" if within GPA mod. 304.1 (see spec)**
Sheet		Note what sheet in the plan set contains the filter course spec.	

1. Rate of the limiting layer (either the filter course or the underlying soil). $Ksat_{design}$ includes factor of safey. 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 stucture, 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:

Summary for Pond 101P: Dover, NH Sand Filter

Inflow Area = 0.601 ac, 68.75% Impervious, Inflow Depth > 6.00" for 50 YR - 24 HR event
Inflow = 1.17 cfs @ 13.26 hrs, Volume= 0.301 af
Outflow = 1.16 cfs @ 13.38 hrs, Volume= 0.255 af, Atten= 1%, Lag= 7.2 min
Primary = 1.16 cfs @ 13.38 hrs, Volume= 0.255 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 70.08' @ 13.38 hrs Surf.Area= 5,902 sf Storage= 2,648 cf
Flood Elev= 70.35' Surf.Area= 5,902 sf Storage= 2,875 cf

Plug-Flow detention time= 106.5 min calculated for 0.255 af (85% of inflow)
Center-of-Mass det. time= 49.2 min (901.3 - 852.0)

Volume	Invert	Avail.Storage	Storage Description
#1	66.85'	386 cf	**6" Stone Layer below Sand Filter (Irregular)** Listed below (Recalc) 975 cf Overall - 11 cf Embedded = 964 cf x 40.0% Voids
#2	67.35'	1,170 cf	**18" SAND FILTER LAYER (Irregular)** Listed below (Recalc) 2,925 cf Overall x 40.0% Voids
#3	68.85'	1,139 cf	**18" Stone Layer above Sand Filter (Irregular)** Listed below (Recalc) 2,925 cf Overall - 78 cf Embedded = 2,847 cf x 40.0% Voids
#4	69.18'	39 cf	**8.0" Round 8" DISTRIBUTION PIPE (2)** x 2 Inside #3 L= 56.0'
#5	66.85'	11 cf	**6.0" Round 6" U.D.** Inside #1 L= 55.0'
#6	69.25'	39 cf	**12.0" Round 12" U.D. High Flow By-pass** Inside #3 L= 50.0'
#7	69.18'	118 cf	**5.00'D x 3.00'H CB #1 & #2 Vertical Cone/Cylinder** x 2
#8	66.75'	67 cf	**4.00'D x 5.33'H Outlet DMH**
		2,968 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
66.85	1,950	190.0	0	0	1,950
67.35	1,950	190.0	975	975	2,045

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
67.35	1,950	190.0	0	0	1,950
68.85	1,950	190.0	2,925	2,925	2,235

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
68.85	1,950	190.0	0	0	1,950
70.35	1,950	190.0	2,925	2,925	2,235

Device	Routing	Invert	Outlet Devices
#1	Primary	66.75'	**12.0" Round 12" HDPE N-12** L= 125.0' Ke= 0.500 Inlet / Outlet Invert= 66.75' / 66.10' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	66.85'	**6.0" Round 6" HDPE N-12 UD**

			L= 55.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 66.85' / 66.85' S= 0.0000 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.20 sf
#3	Device 2	66.85'	**1.0" Vert. 1" Orifice** C= 0.600
#4	Device 1	69.25'	**12.0" Round 12" HDPE N-12 UD**
			L= 60.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 69.25' / 69.25' S= 0.0000 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.16 cfs @ 13.38 hrs HW=70.08' TW=62.94' (Dynamic Tailwater)
- **1=12" HDPE N-12** (Passes 1.16 cfs of 4.94 cfs potential flow)
  - **2=6" HDPE N-12 UD** (Passes 0.05 cfs of 1.14 cfs potential flow)
    - **3=1" Orifice** (Orifice Controls 0.05 cfs @ 8.60 fps)
  - **4=12" HDPE N-12 UD** (Barrel Controls 1.11 cfs @ 2.16 fps)

Stage-Area-Storage for Pond 101P: Dover, NH Sand Filter

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
66.75	0	68.87	1,609	70.99	2,908
66.79	1	68.91	1,640	71.03	2,910
66.83	1	68.95	1,672	71.07	2,912
66.87	17	68.99	1,704	71.11	2,914
66.91	49	69.03	1,736	71.15	2,916
66.95	81	69.07	1,767	71.19	2,918
66.99	114	69.11	1,799	71.23	2,920
67.03	146	69.15	1,831	71.27	2,922
67.07	178	69.19	1,863	71.31	2,924
67.11	211	69.23	1,897	71.35	2,927
67.15	243	69.27	1,931	71.39	2,929
67.19	275	69.31	1,966	71.43	2,931
67.23	308	69.35	2,002	71.47	2,933
67.27	340	69.39	2,037	71.51	2,935
67.31	372	69.43	2,073	71.55	2,937
67.35	404	69.47	2,109	71.59	2,939
67.39	436	69.51	2,145	71.63	2,941
67.43	467	69.55	2,182	71.67	2,943
67.47	499	69.59	2,218	71.71	2,945
67.51	531	69.63	2,254	71.75	2,947
67.55	563	69.67	2,290	71.79	2,949
67.59	594	69.71	2,326	71.83	2,951
67.63	626	69.75	2,362	71.87	2,953
67.67	658	69.79	2,397	71.91	2,956
67.71	689	69.83	2,433	71.95	2,958
67.75	721	69.87	2,467	71.99	2,960
67.79	753	69.91	2,502	72.03	2,962
67.83	784	69.95	2,536	72.07	2,964
67.87	816	69.99	2,570	72.11	2,966
67.91	848	70.03	2,605	72.15	**2,967**
67.95	880	70.07	2,639		
67.99	911	70.11	2,673		
68.03	943	70.15	2,707		
68.07	975	70.19	2,741		
68.11	1,006	70.23	2,775		
68.15	1,038	70.27	2,808		
68.19	1,070	70.31	2,841		
68.23	1,101	70.35	2,875		
68.27	1,133	70.39	2,877		
68.31	1,165	70.43	2,879		
68.35	1,197	70.47	2,881		
68.39	1,228	70.51	2,883		
68.43	1,260	70.55	2,885		
68.47	1,292	70.59	2,887		
68.51	1,323	70.63	2,889		
68.55	1,355	70.67	2,891		
68.59	1,387	70.71	2,893		
68.63	1,419	70.75	2,895		
68.67	1,450	70.79	2,897		
68.71	1,482	70.83	2,900		
68.75	1,514	70.87	2,902		
68.79	1,545	70.91	2,904		
68.83	1,577	70.95	2,906		

WQV Storage Table
WQV = 1,459 CF
WQV Elev: 68.68'

Stage-Area-Storage for Pond 101P: Dover, NH Sand Filter

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
66.75	0	68.87	1,609	70.99	2,908
66.79	1	68.91	1,640	71.03	2,910
66.83	1	68.95	1,672	71.07	2,912
66.87	17	68.99	1,704	71.11	2,914
66.91	49	69.03	1,736	71.15	2,916
66.95	81	69.07	1,767	71.19	2,918
66.99	114	69.11	1,799	71.23	2,920
67.03	146	69.15	1,831	71.27	2,922
67.07	178	69.19	1,863	71.31	2,924
67.11	211	69.23	1,897	71.35	2,927
67.15	243	69.27	1,931	71.39	2,929
67.19	275	69.31	1,966	71.43	2,931
67.23	308	69.35	2,002	71.47	2,933
67.27	340	69.39	2,037	71.51	2,935
67.31	372	69.43	2,073	71.55	2,937
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67.43	467	69.55	2,182	71.67	2,943
67.47	499	69.59	2,218	71.71	2,945
67.51	531	69.63	2,254	71.75	2,947
67.55	563	69.67	2,290	71.79	2,949
67.59	594	69.71	2,326	71.83	2,951
67.63	626	69.75	2,362	71.87	2,953
67.67	658	69.79	2,397	71.91	2,956
67.71	689	69.83	2,433	71.95	2,958
67.75	721	69.87	2,467	71.99	2,960
67.79	753	69.91	2,502	72.03	2,962
67.83	784	69.95	2,536	72.07	2,964
67.87	816	69.99	2,570	72.11	2,966
67.91	848	70.03	2,605	72.15	**2,967**
67.95	880	70.07	2,639		
67.99	911	70.11	2,673		
68.03	943	70.15	2,707		
68.07	975	70.19	2,741		
68.11	1,006	70.23	2,775		
68.15	1,038	70.27	2,808		
68.19	1,070	70.31	2,841		
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68.55	1,355	70.67	2,891		
68.59	1,387	70.71	2,893		
68.63	1,419	70.75	2,895		
68.67	1,450	70.79	2,897		
68.71	1,482	70.83	2,900		
68.75	1,514	70.87	2,902		
68.79	1,545	70.91	2,904		
68.83	1,577	70.95	2,906		

Total Storage Table
Lowest Outlet = 69.25'
Volume of Storage = 1,914 CF

Stage-Discharge for Pond 101P: Dover, NH Sand Filter

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
66.75	0.00	68.87	0.04	70.99	3.13
66.79	0.00	68.91	0.04	71.03	3.21
66.83	0.00	68.95	0.04	71.07	3.29
66.87	0.00	68.99	0.04	71.11	3.37
66.91	0.00	69.03	0.04	71.15	3.45
66.95	0.01	69.07	0.04	71.19	3.52
66.99	0.01	69.11	0.04	71.23	3.60
67.03	0.01	69.15	0.04	71.27	3.67
67.07	0.01	69.19	0.04	71.31	3.74
67.11	0.01	69.23	0.04	71.35	3.81
67.15	0.01	69.27	0.04	71.39	3.87
67.19	0.01	69.31	0.04	71.43	3.94
67.23	0.02	69.35	0.05	71.47	4.01
67.27	0.02	69.39	0.06	71.51	4.07
67.31	0.02	69.43	0.08	71.55	4.13
67.35	0.02	69.47	0.10	71.59	4.20
67.39	0.02	69.51	0.13	71.63	4.26
67.43	0.02	69.55	0.17	71.67	4.32
67.47	0.02	69.59	0.21	71.71	4.38
67.51	0.02	69.63	0.26	71.75	4.44
67.55	0.02	69.67	0.32	71.79	4.50
67.59	0.02	69.71	0.38	71.83	4.55
67.63	0.02	69.75	0.45	71.87	4.61
67.67	0.02	69.79	0.52	71.91	4.67
67.71	0.02	69.83	0.60	71.95	4.72
67.75	0.02	69.87	0.68	71.99	4.78
67.79	0.02	69.91	0.76	72.03	4.83
67.83	0.03	69.95	0.85	72.07	4.89
67.87	0.03	69.99	0.94	72.11	4.94
67.91	0.03	70.03	1.04	72.15	**4.99**
67.95	0.03	70.07	1.13		
67.99	0.03	70.11	1.23		
68.03	0.03	70.15	1.33		
68.07	0.03	70.19	1.43		
68.11	0.03	70.23	1.53		
68.15	0.03	70.27	1.63		
68.19	0.03	70.31	1.72		
68.23	0.03	70.35	1.81		
68.27	0.03	70.39	1.90		
68.31	0.03	70.43	1.98		
68.35	0.03	70.47	2.05		
68.39	0.03	70.51	2.11		
68.43	0.03	70.55	2.14		
68.47	0.03	70.59	2.14		
68.51	0.03	70.63	2.26		
68.55	0.03	70.67	2.37		
68.59	0.03	70.71	2.48		
68.63	0.03	70.75	2.58		
68.67	0.04	70.79	2.68		
68.71	0.04	70.83	2.78		
68.75	0.04	70.87	2.87		
68.79	0.04	70.91	2.96		
68.83	0.04	70.95	3.05		

WQV Discharge Table
WQV Elev: 68.68'
WQV Discharge = 0.04 CFS

PROPOSED LEGEND:

- FLOW ARROW
- TEMPORARY BENCHMARK (T.B.M.)
- E101 / E6 — DETAIL SHEET / DETAIL
- F211 — CONTOUR MINOR, PROPOSED
- F210 — CONTOUR MAJOR, PROPOSED
- D — DRAINAGE CULVERT
- SHOULDER
- CENTER LINE
- BUILDING SETBACK LINE
- U.D — UNDER DRAIN
- E109.31 — EXISTING SPOT ELEVATION
- F109.31 — PROPOSED SPOT ELEVATION
- CATCH BASIN W/ STRUCTURE
- DRAIN MANHOLE W/ STRUCTURE
- PROPOSED BITUMINOUS CONCRETE

NOTES:

1.) OWNER: PILLAR IMAGING, LLC
1 GROVE STREET
DOVER, MN 03820

APPLICANT: HAMPSHIRE CONTROLS CORP.
P.O. BOX 516
DOVER, NH 03821

2.) TAX MAP 31, LOT 11

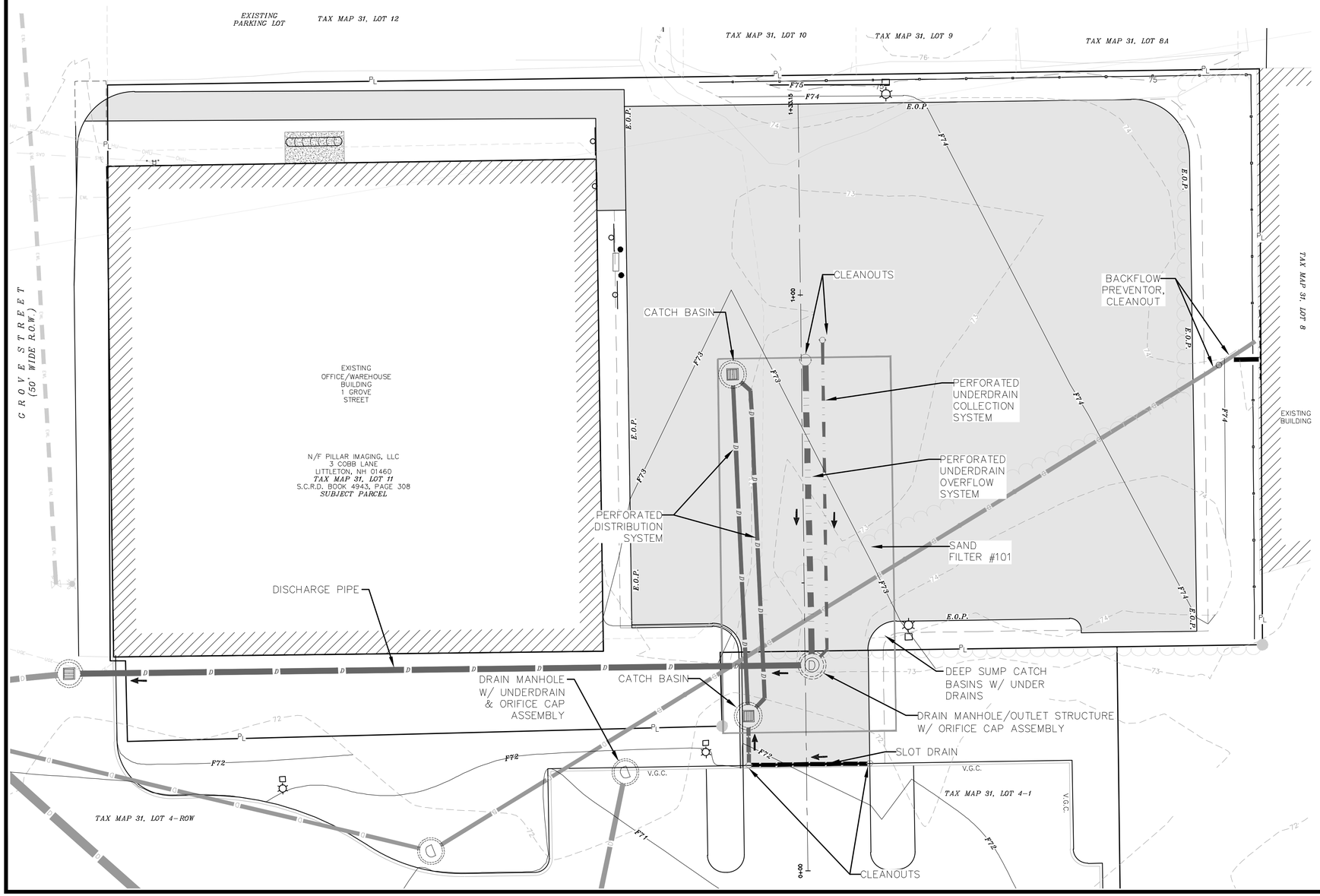
3.) LOT AREA: 21,383 Sq. Ft., 0.49 Ac.

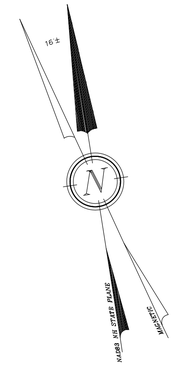
4.) S.C.R.D. BOOK 4943, PAGE 308

5.) EXISTING CONDITIONS INFORMATION IS BASED ON A SURVEY PERFORMED BY BERRY SURVEYING & ENGINEERING, FOR DETAILS SEE EXISTING CONDITIONS PLAN AND PLAN SET COMPLETED.

6.) THE INTENT OF THIS PLAN IS TO DEMONSTRATE THE DRAINAGE INFRASTRUCTURE THAT REQUIRES PERIODIC INSPECTION AND MAINTENANCE. IT IS TO ACCOMPANY A DOCUMENT ENTITLES "INSPECTION AND MAINTENANCE MANUAL, STORMWATER SYSTEM MANAGEMENT PUBLISHED BY BERRY SURVEYING & ENGINEERING ON THE SAME DATE.

NOTE: HALF SCALE PLANS, (11-INCHES X 17-INCHES) WILL HAVE A SCALE THAT IS TWICE THE PUBLISHED SCALE.





GRAPHIC SCALE

20 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

INSPECTION, OPERATIONS, AND MAINTENANCE PLAN
NON-RESIDENTIAL SITE PLAN
LAND OF
PILLAR IMAGING, LLC.
1 GROVE STREET
DOVER, N.H.
TAX MAP 31, LOT 11

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 10 FT.
DATE : JUNE 24, 2024
FILE NO. : DB 2024 - 031

STATE OF NEW HAMPSHIRE - KENNETH A. BERRY No. 14241 LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

BERRY SURVEYING & ENGINEERING
335 Second Crown Point Road
Barrington, NH 03825
Phone: (603) 332-2863
Fax: (603) 335-4623
www.BerrySurveying.Com

Stormwater System Management:

Inspection and Maintenance Manual

1 Grove Street
Dover, NH 03820

Prepared for:

Hampshire Controls Corp.
P.O. Box 516
Dover, NH 03821

Land of

Pillar Imaging, LLC
1 Grove Street
Dover, NH 03820

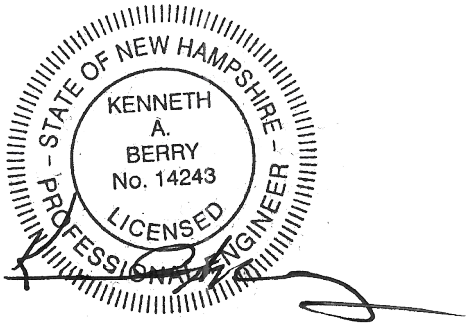
1 Grove Street, Dover, NH
Tax Map 31, Lot 11

Prepared By

Berry Surveying & Engineering
335 Second Crown Point Road
Barrington, NH 03825
603-332-2863

Project Number:
DB2024-031

June 24, 2024



Stormwater System Management:

Inspection and Maintenance Manual

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I&M Plan Attached – 1 Page

Control of Invasive Plants, NH Department of Agriculture Attached – 4 Pages

Introduction

The Best Management Practices (BMP) described in this manual are specified in more detail within the plan set giving design details and specifications. The New Hampshire Stormwater Manual, Volume 2, Post-Construction Best Management Practices Selection & Design (December 2008, NHDES & US EPA) is included by reference to this manual. Additional details, construction specifications, and example drawings are provided within this reference. (http://des.nh.gov/organization/divisions/water/stormwater/)

The BMP's are covered below in the general order in which the storm water flows. Each BMP has a description and maintenance consideration listed. A Check List table is proved after the narrative to summarize the maintenance responsibilities and schedule. A Log Form is also provided for the owners use.

For details regarding the design of the Storm Water System see also Drainage Analysis & Sediment and Erosion Control Plan also published by Berry Surveying & Engineering dated June 24, 2024. See also plan set completed for Hampshire Controls Corp. dated June 24, 2024, as revised.

Michael J. Pilon, PhD, President of Hampshire Controls Corp., is responsible for the Stormwater System Operation and Maintenance that will be constructed on this property. A significant step in this responsibility is the Inspection and Maintenance of each component of the system. Ongoing, semi-annual, and annual inspection and maintenance requirement are documented below and must be taken seriously. Failure of any component of the system can result in surface water run-off ponding and/or freezing in the parking lots, leaving the developed site untreated, and/or causing violations to issued permits. The owner must maintain, and have available, plans of the Stormwater System in order properly inspect and maintain the system. (Reduced copies attached.) Michael J. Pilon, PhD, is responsible to ensure that any subsequent owner, owners association, or subcontractor has copies of the Log Form and Annual Report records and fully understands the responsibilities of this plan. The grantor owner will ensure this document is provided to the grantee owner by duplicating the Ownership Responsibility Sheet which is found toward the back of this document, which will be maintained with the Inspection & Maintenance Logs, provided to the City of Dover Engineering Department, DPW, Dover Community Services with the Annual Report.

Hampshire Controls Corp. is proposing to develop a twenty-five (25) space parking lot with a sand filter to support the existing operation at the facility.

The following drainage features will all require periodic inspections and maintenance based on this manual:

Sand Filter #101

Deep Sump Catch Basin

Drain Manhole/Outlet Structure W/ underdrain & Orifice Cap Assembly

Cleanouts

Perforated Underdrains (Distribution, Collection, High Flow)

Stabilization for Long Term Cover

Underground Sand Filter (Dover, NH Design)

Description: The intent of a sand filter in general is to treat surface water runoff to enhance the water quality prior to discharge into the environment. In this instance of the Dover, New Hampshire inspired Sand Filter Design, the intent is to pre-treat runoff for gross solids, litter and trash, and course sediment in a catch basin with deep sumps and hoods, and to remove additional finer sediment through distribution through crushed stone to and through a sand filter. After filtration, any runoff that cannot infiltrate into the soil will be intercepted by an underdrain where it is discharged through a drain manhole and culvert pipe to a gravity day-light. The underdrain system will be equipped with multiple clean-outs. During construction it is important that the ground surface not be exposed to traffic or construction equipment to preserve the infiltration capabilities, if any, of the existing soil. Construction specifications are included in the plan set and reference is made to New Hampshire Stormwater Manual, Volume 2, 4-3 Treatment Practices, 4b Underground Sand Filter System and EPA Storm Water Technology Fact Sheet, Sand Filter.

The Dover, NH Sand Filter is intended to be treated as a Low Impact Development design feature and each catch basin will accept runoff from an area less than ¼ acre to maximize the pre-treatment capabilities of the deep sumps and hoods and to treat surface water runoff as close to the source as source. The storage capacity of the sand filter is to be designed to accept the Water Quality Volume. (WQV) This application is appropriate in redevelopment site situations where Green Infrastructure applications such as a rain garden or gravel wetland is not practical.

Maintenance Considerations:
Sand Filters should be inspected at least twice annually and following any rainfall event exceeding 0.25 inches in a twenty-four hour period. Maintenance rehabilitation will be conducted as warranted by each inspection. Trash and debris will be removed at each inspection from the catch basin grates and semi-annually from the sumps. The initial inspiration of the Dover NH Sand Filter was that it can be maintained by equipment normally owned by the municipality commonly used for catch basin / drain manhole maintenance. A maintenance / access port in the hood is a critical component of the design so that hose and hydraulic cleaning can be conducted in the distribution culvert.

The outlet to the collection underdrain consists of a 1” orifice in a threaded end-cap within the concrete outlet structure. The inlet manifold and threaded pipe outlet manifold system is designed so that the system can be completely drained. The orifice requires periodic inspection, initially on a semi-annual basis. This time increment may need to be adjusted based on the experience on the maintenance of the device.

On an annual basis the infiltration capabilities need to be confirmed by evaluation the drawdown time. If the sand filter system does not drain within 72-hours following a

rainfall event, a qualified professional will assess the condition of the sand filter to determine measures required to restore the functionality. This is normally the direct result of sediment accumulation which will be removed to restore the filter media ratio.

Also on an annual basis the vegetation growth in an around the level spreader should be inspected to ensure healthy condition and proper operation. Invasive species need to be removed along with dead or diseased vegetation.

Deep Sump Catch Basin

Description: A deep sump catch basin consists of a manhole-type structure with an inlet grate, an outlet pipe connected to the piped drainage system, and a sump with a depth several times the diameter of the outlet pipe. The inlet grate is located at the surface, and is sometimes combined with a vertical inlet integrated with a street or parking area curb. The sump's purpose is to capture coarse sediments and debris from the runoff intercepted by the structure. The outlet pipe can be fitted with a "hood" consisting of a cast metal or formed plastic fitting, designed to prevent floating materials from exiting the structure. Deep sump catch basins used as pretreatment are most effective if sited "off-line" since flow-through basins are more susceptible to sediment re-suspension. All pretreatment deep sump catch basins will have an outlet pipe hood which extends one-foot below the outlet invert and will include a hood vent. During construction the catch basins will be protected by inlet protection per the approved construction plans. Hoods are to be installed during initial construction. See SWM Volume 2, 4-4.5 Pre-treatment Practices, 5. Pre-treatment Swales, page 144.

Maintenance Considerations:

Catch basins may require frequent maintenance. Depending on location, this may require several cleanings of the sumps each year. At a minimum, it is recommended that catch basins be inspected at least twice annually, once following snow-melt and once following leaf drop, and cleaned as indicated by inspection. Sediment should be removed when it approaches half the sump depth. If floating hydrocarbons are observed during an inspection, the material should be removed immediately by skimming, absorbent materials, or other method and disposed in conformance with applicable state and federal regulations. Cleaning may require Vacuum-truck instead of "clam-shell" to avoid damage to hood. Damaged hoods should be replaced when noted by inspection.

Stabilization for Long Term Cover

Vegetated Stabilization – Original Planting

All areas that are disturbed during construction will be stabilized with vegetated material within 30 days of breaking ground. Construction will be managed in such a manner that

erosion is prevented and that no abutter's property will be subjected to any siltation, unless otherwise permitted. All areas to be planted with grass for long-term cover will follow the specification and on Sheet C-102 using seeding mixture C, as follows:

Mixture	Pounds per Acre	Pounds per 1,000 Sq. Ft.
Tall Fescue	24	0.55
Creeping Red Fescue	24	0.55
Total	48	1.10

Conservation Mix

Mixture	Pounds per Acre	Pounds per 1,000 Sq. Ft.
Tall Fescue	15	0.35
Creeping Red Fescue	15	0.35
Annual Ryegrass	5	0.12
Perennial Ryegrass	5	0.12
Kentucky Bluegrass	15	0.35
White Clover	7	0.16
Total	**62**	**1.45**

Conservation Mix will used to stabilize all 2:1 slopes. As the site is to be stabilized with erosion control mix as a mulch, the vegetation should be established with a high percentage of white clover for growth to be established. Conservation Mix will also be used to plant and stabilize the erosion control mix mulch. Seed will originally be applied by hydroseeding which includes a tackifier.

Snow Storage Areas & Winter Maintenance

Description: The effective use of salt and sand for winter maintenance is both a cost and an environmental consideration. In accordance with City of Dover Chapter 153-14 A, Snow and ice removal shall be performed by a contractor certified by the "Green SnoPro" program, or approved equivalent, following the Best Management Practices for the application of deicing materials. The use of salt for deicing will be minimized. De-icing logs will be maintained for the development.

Maintenance Considerations: Snow will be stockpiled in designated area during the course of the winter and any excess snow will be taken off-site and disposed of in an appropriate area. As the snow is melting in the spring, sand will be swept and removed

from the site. The catch basin sumps will be scheduled for one of the two annual cleanings in the early spring.

Reference is made to the NHDES Green SnoPro program and Minnesota Pollution Control Agency document “Winter Parking Lot and Sidewalk Maintenance Manual”.

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.

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.

See the attached pages prepared by the New Hampshire Department of Agriculture.

Annual Report

Description: The owner is responsible to keep an **I & M Activity Log** that documents inspection, maintenance and repairs to the storm water management system, and a **Deicing Log** to track the amount and type of deicing material applied to the site. The original owner is responsible to ensure that any subsequent owner (s) have copies of the Stormwater System Management: Inspection and Maintenance Manual, copies of past logs and check lists. This includes any owner association for potential condominium conversion of the property. The Annual Report will be prepared and submitted to the City of Dover Community Services Department with copies of both logs and check lists no later than December 15th of each year. Upon an ownership change, the Annual Report will include the Transfer of Ownership Responsibility Forms duplicated from the form found below.

The plan set that accompanies this project includes a grading and drainage plan, construction details, and a sediment & erosion control plan. The Inspection and Maintenance Plan is attached.

Respectfully
BERRY SURVEYING & ENGINEERING

Kevin R. Poulin, PE
Design Engineer &
Project Manager

Kenneth A. Berry, PE, LLS
CPSWQ, CPESC, CESSWI
Principal, VP – Technical Operations

STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

Inspection & Maintenance Manual Checklist

Commercial Development

Hampshire Controls Corp.
1 Grove Street
Dover, NH

☑	Date	BMP / System	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
		Pavement Sweeping	3-4 Times Per Year	N/A	N/A
		Litter/Trash Removal	Routinely	Inspect dumpsters, outdoor waste receptacles area, and yard areas.	Parcel will be free of litter/trash.
		Deicing Agents	N/A	N/A	Use salt as the primary agent for roadway safety during winter.
		Invasive Species	Two times per year.	Inspect for Invasive Species	Remove and dispose invasive species.
		Closed Drainage System:			
		Drainage Pipes	1 time per 2 years	Check for sediment accumulation & clogging.	Less than 2" sediment depth
		Deep Sump Catch Basins /	2 times per year	Check for sediment accumulation & clogging.	Sediment accumulated to a depth of 2 feet.

		Outlet Structures			
☑	**Date**	**BMP / System**	**Minimum Inspection Frequency**	**Minimum Inspection Requirements**	**Maintenance / Cleanout Threshold**
		Sand Filter	Annually	72-Hour drawdown time evaluation and vegetation evaluation. Underdrain flushing.	Take corrective measures of filtration media if required. Flush underdrain clean-outs with a hose.
		Winter Maintenance	Ongoing	Remove snow as directed.	Ongoing
		Post Winter Maintenance	Annually	Remove excess sand, gross solids, and repair vegetation and plantings	Parcel will be free of excess sand, litter/trash. Vegetation per approved plans.
		Annual Report	1 time per year	Submit Annual Report to Dover Engineering Dept. and kept on file by the owner.	Report to be submitted on or before December 15th each year. Make copies available to NHDES upon request.

Inspection Checklist: Page 3

Sand Filter #101

Deep Sump Catch Basin

Drain Manhole/Outlet Structure W/ underdrain & Orifice Cap Assembly

Cleanouts

Perforated Underdrains (Distribution, Collection, High Flow)

Stabilization for Long Term Cover

STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

Inspection & Maintenance Manual Log Form

Commercial Development

Hampshire Controls Corp.
1 Grove Street
Dover, NH

BMP / System	Date Inspected	Inspector	Cleaning/Repair (List Items & Comments)	Repair Date	Performed By:

STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

Deicing Log Form

Commercial Development
Hampshire Controls Corp.
1 Grove Street
Dover, NH

Date	Amount Applied	Performed By:	Date	Amount Applied	Performed By:

STORMWATER SYSTEM OPERATION & MAINTENANCE PLAN CERTIFICATION

Owner	Responsibility
Name: MICHAEL J. PILON, PHD Address: 1 Grove Street DOVER, NH 03820 Telephone: 508-353-5340 E-Mail: Michael.pilon@hampshirecontrols.com	The owner is responsible for the conduct of all construction activities, and ultimate compliance with all the provisions of the Stormwater System Operation & Maintenance Plan and the implementation of the Inspection and Maintenance Manual.

OWNER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: _____ Date: _____

Printed Name:

Representing:

Control of Invasive Plants

New Hampshire
Department of Agriculture,
Markets & Food
Douglas Cygan
603-271-3488
doug.cygan@agr.nh.gov

This guide lists garden plants and weeds which are already causing significant changes to natural areas in the Mid-Atlantic. **Measures for controlling each species are indicated by number, e.g., (3), in the text with a full explanation at the end of this article.** Click on the word Control: to jump to that section. Then click your "back" button to return to the text. Following each section suggested alternative plants are given. These alternatives are native plants, well adapted and needing little care, attractive to birds and butterflies, and an important part of the food web for our indigenous species.

INVASIVE TREES

NORWAY MAPLE (*Acer platanoides*) has large leaves similar to sugar maple. To easily confirm that the plant is Norway maple, break off a leaf and if it's truly Norway maple it will exude milky white sap. Fall foliage is yellow. (Exception: cultivars such as 'Crimson King,' which have red leaves in spring or summer, may have red autumn leaves.) The leaves turn color late, usually in late October after native trees have dropped their foliage. This tree suppresses growth of grass, garden plants, and forest understory beneath it, at least as far as the drip-line. Its wind-borne seeds can germinate and grow in deep shade. The presence of young Norway maples in our woodlands is increasing.

Control: (1); (7), (8), (9), or (10); (11) in mid-October to early November, before the leaves turn color.

TREE OF HEAVEN (*Ailanthus altissima*), is incredibly tough and can grow in the poorest conditions. It produces huge quantities of wind-borne seeds, grows rapidly, and secretes a toxin that kills other plants. Its long compound leaves, with 11-25 lance-shaped leaflets, smell like peanut butter or burnt coffee when crushed. Once established, this tree cannot be removed by mechanical means alone.

Control: (1) - seedlings only. Herbicide - use Garlon 3a (9) with no more than a 1" gap between cuts, or (10); plus (11) on re-growth. Or paint bottom 12" of bark with Garlon 4 Ultra (in February or March to protect surrounding plants). USE MAXIMUM STRENGTH SPECIFIED ON LABEL for all herbicide applications on Ailanthus. Glyphosate is not effective against Ailanthus.

INVASIVE SHRUBS

AUTUMN OLIVE (*Eleagnus umbellata*): Formerly recommended for erosion control and wildlife value, these have proved highly invasive and diminish the overall quality of wildlife habitat.

Control: (1) - up to 4" diameter trunks; (7) or (10) or bury stump. Do not mow.

MULTIFLORA ROSE (*Rosa multiflora*), formerly recommended for erosion control, hedges, and wildlife habitat, becomes a huge shrub that chokes out all other vegetation and is too dense for many species of birds to nest in, though a few favor it. In shade, it grows up trees like a vine. It is covered with white flowers in June. (Our native roses have fewer flowers, mostly pink.) Distinguish multiflora by its size, and by the presence of very hard, curved thorns, and a fringed edge to the leaf stalk.

Control: (1) - pull seedlings, dig out larger plants at least 6" from the crown and 6" down; (4) on extensive infestations; (10) or (11). It may remain green in winter, so herbicide may *applied when other plants are dormant. For foliar application, mix Rodeo with extra sticker-spreader, or use Roundup Sure Shot Foam on small plants.*

BUSH HONEYSUCKLES (*Lonicera spp.*), including Belle, Amur, Morrow's, and Tatarian honeysuckle. (In our region, assume that any honeysuckle is exotic unless it is a scarlet-flowered vine). Bush honeysuckles create denser shade than native shrubs, reducing plant diversity and eliminating nest sites for many forest interior species.
Control: (2) on ornamentals; (1); on shady sites only, brush cut in early spring and again in early fall (3); (4) during the growing season; (7); or (10) late in the growing season.

BLUNT-LEAVED PRIVET (*Ligustrum* obtusifolium). *Control:* (1); (7) or (10); or trim off all flowers. Do not cut back or mow.

BURNING BUSH, WINGED EUONYMUS (*Euonymus alatus*), identified by wide, corky wings on the branches.
Control: (1); (7) or (10); or trim off all flowers.

JAPANESE BARBERRY (*Berberis thunbergii*), and all cultivars and varieties.
Control: (1); (7) or (10); or trim off all flowers.

INVASIVE WOODY VINES

All of these vines shade out the shrubs and young trees of the forest understory, eventually killing them, and changing the open structure of the forest into a dense tangle. DO NOT PLANT NEXT TO OPEN SPACE.

JAPANESE HONEYSUCKLE (*Lonicera japonica*), including Hall's honeysuckle, has gold-and-white flowers with a heavenly scent and sweet nectar in June. This is probably the familiar honeysuckle of your childhood. It is a rampant grower that spirals around trees, often strangling them.
Control: (1); (3); (10); (11) in fall or early spring when native vegetation is dormant. Plan to re-treat repeatedly.

ORIENTAL BITTERSWEET (*Celastrus orbiculatus*) has almost completely displaced American bittersweet (*C. scandens*). The Asian plant has its flowers and bright orange seed capsules in clusters all along the stem, while the native species bears them only at the branch tips.
Control: (1); keep ornamental plants cut back, remove all fruits as soon as they open, and bag or burn fruits; to eradicate use Garlon 3a (10).

JAPANESE KNOTWEED, MEXICAN BAMBOO (*Polygonum cuspidatum*) can grow in shade. The stems have knotty joints, reminiscent of bamboo. It grows 6-10' tall and has large pointed oval or triangular leaves.
Control: Cut at least 3 times each growing season and/or treat with Rodeo (10) or (11). In gardens, heavy mulch or dense shade may kill it.

INVASIVE HERBACEOUS PLANTS

GARLIC MUSTARD (*Alliaria petiolata*, *A. officinalis*), a white-flowered biennial with rough, scalloped leaves (kidney-, heart- or arrow-shaped), recognizable by the smell of garlic and taste of mustard when its leaves are crushed. (The odor fades by fall.)
Control: Pull before it flowers in spring (1), removing crown and roots. Tamp down soil afterwards. Once it has flowered, cut (2), being careful not to scatter seed, then bag and burn or send to the landfill. (11) may be appropriate in some settings.

JAPANESE STILT GRASS (*Microstegium vimineum*) can be identified by its lime-green color and a line of silvery hairs down the middle of the 2-3" long blade. It tolerates sun or dense shade and quickly invades areas left bare or disturbed by tilling or flooding. An annual grass, it builds up a large seed bank in the soil.

Control: Easily pulled in early to mid-summer (1) - be sure to pull before it goes to seed. If seeds have formed, bag and burn or send to landfill. Mowing weekly or when it has just begun to flower may prevent it from setting seed (3). Use glyphosate (11) or herbicidal soap (less effective) on large infestations. Follow up with (5) in spring.

MILE-A-MINUTE VINE, DEVIL'S TAIL TEARTHUMB (*Polygonum perfoliatum*), a rapidly growing annual vine with triangular leaves, barbed stems, and turquoise berries in August which are spread by birds. It quickly covers and shades out herbaceous plants.
Control: same as for stilt grass.

SPOTTED KNAPWEED (*Centaurea maculosa*), a biennial with thistle-like flowers.
Control: Do NOT pull (1) unless the plant is young and the ground is very soft - the tap root will break off and produce several new plants. Wear sturdy gloves. (2); (6); (10) or (11).

CONTROL MEASURES

(1) PULL seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs.
(2) DEADHEAD to prevent spread of seeds of invasive plants. Cut off seeds or fruits before they ripen. Bag, and burn or send to a landfill.
(3) MOW or CUTTING at least 4 times a season to deplete plants' store of nutrients and carbohydrates, reduce seed formation, and kill or minimize spread of plants. If necessary, repeat each year.
(4) CONTROLLED BURNING during the spring, repeated over several years, allows native vegetation to compete more effectively with the invasive species. This requires a permit. Spot treatment with glyphosate in late fall can be used to make this method more effective.
(5) Use a CORN-BASED PRE-EMERGENCE HERBICIDE on annual weeds. This product is also an organic fertilizer, i.e., it can stimulate growth of existing plants, including weeds, so it is appropriate for lawns and gardens but may not be appropriate in woodlands.
(6) In lawns, SPOT TREAT with BROAD-LEAF WEEDKILLER. Good lawn-care practices (test soil; use lime and fertilizer only when soil test shows a need; mow high and frequently; leave clippings on lawn) reduce weed infestations.
(7) CUT DOWN the tree. Grind out the stump, or clip off re-growth.
(8) GIRDLE tree: cut through the bark and growing layer (cambium) all around the trunk, about 6" above the ground. Girdling is most effective in spring when the sap is rising, and from middle to late summer when the tree is sending down food to the roots. Clip off sucker sprouts.
(9) FRILL: Using a machete, hatchet or similar device, hack scars (several holes in larger trees) downward into the cambium layer, and squirt in glyphosate (or triclopyr if recommended in text above). Follow label directions for Injection and Frill Applications. This is most effective from middle to late summer. Clip off any sucker sprouts or treat with glyphosate.
(10) CUT STEM / CUT STUMP WITH GLYPHOSATE (or triclopyr if specified above). Follow label directions for Cut Stump Application. Clip off sucker sprouts or paint with glyphosate. See Note on Herbicides.
(11) FOLIAR SPRAY WITH GLYPHOSATE herbicide (see Note on Herbicides). Use a backpack or garden sprayer or mist blower, following label directions. Avoid overspray and/or dripping onto non-target plants, because glyphosate kills most plants except moss. If it rolls off waxy or grass-like foliage, use additional sticker-spreader. Deciduous trees, shrubs, and perennials move nutrients down to the roots in late summer. Glyphosate is particularly effective at this time and when plants have just gone out of flowering. Several invasive species retain their foliage after native plants have lost theirs, and resume growth earlier in spring than most natives. This allows you to treat them without harming the natives. However, the plant must be actively growing for the herbicide to work. Retreatments may be necessary the following year if suckering occurs or the plant hasn't been entirely killed.

NOTE ON HERBICIDES: It is highly recommended that small populations try to be controlled using non-chemical methods wherever feasible. However, for large infestations, and for a few plants specified above, herbicide use is essential. Apply herbicides carefully to avoid non-target plants, glyphosate is the least environmentally damaging herbicide in most cases. Add food coloring for visibility, and a soap-based sticker such as Cide-Kick. Glyphosate is ineffective on some

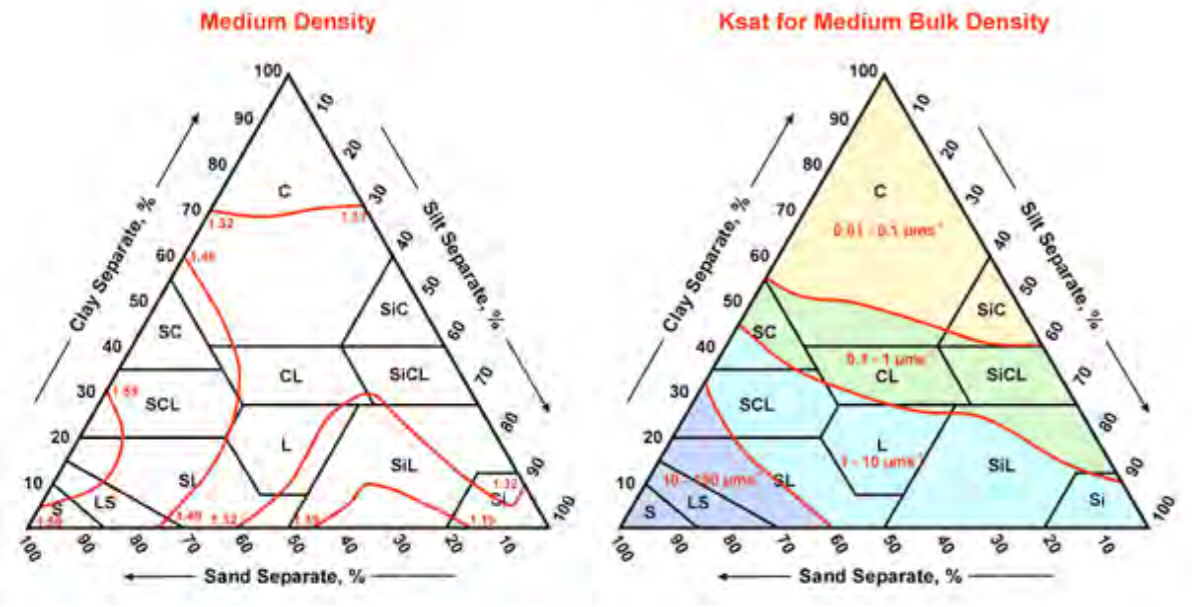
plants; for these, triclopyr (Garlon) may be indicated. When using herbicides, read the entire label and observe all precautions listed, including proper disposal. If in doubt, call your local Cooperative Extension Service.

Pavement Temp. (°F) and Trend (↑ ↓)	Weather Condition	Maintenance Actions	Application Rate (lbs/per 1000 sq.ft.)			
			Salt Prewetted/Pretreated with salt brine	Salt Prewetted/Pretreated with other blends	Dry salt	Winter sand
>30 ↑	Snow	Plow, treat intersections only				Not recommended
	Frz. Rain	Apply chemical				Not recommended
30 ↓	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				Not recommended
25 - 30 ↑	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				Not recommended
25 - 30 ↓	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				3.25
20 - 25 ↑	Snow or frz. Rain	Plow and Apply chemical				3.25 for frz. Rain
20 - 25 ↓	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				3.25
15 - 20 ↑	Snow	Plow and apply chemical				Not recommended
	Frz. Rain	Apply chemical				3.25
15 - 20 ↓	Snow or Frz. Rain	Plow and apply chemical				3.25 for frz. Rain
0 to 15 ↑↓	Snow	Plow, treat with blends, sand hazardous areas	Not recommended		Not recommended	5.0 and spot-treat as needed
< 0	Snow	Plow, treat with blends, sand hazardous areas	Not recommended		Not recommended	5.0 and spot-treat as needed

Table 19. Application Rates for Deicing

These rates & table format are based on road application guidelines (Mn Snow & Ice Control Field Handbook, Manual 2005-1). Develop your own application rates by adjusting your current rates incrementally downward toward these guidelines. Where temperature categories overlap, select the rate most applicable to your situation.

K_{sat} VALUES
FOR
NEW HAMPSHIRE SOILS
(Including Hydrologic and DES Soil Lot Sizing Groups)



From: Guide for Estimating Ksat from Soil Properties (**Exhibit 618-9**). (http://soils.usda.gov/technical/handbook/contents/part618ex.html)

Sponsored by the Society of Soil Scientists of Northern New England
SSSNNE Special Publication No. 5
September, 2009

K_{sat} VALUES FOR NEW HAMPSHIRE SOILS

ABOUT THE SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND

The Society of Soil Scientists of Northern New England (SSSNNE) is a non-profit professional organization of soil scientists, both in the private and public sectors, which is dedicated to the advancement of soil science. The Society fosters the profession of soil classification, mapping and interpretation, and encourages the dissemination of information concerning soil science. With the intent of contributing to the general human welfare, the Society seeks to educate the public on the wise use of soils and the associated natural resources.

INTRODUCTION

The publication "K_{sat} Values for New Hampshire Soils" is designed to assist soil scientists, engineers, and other professionals by assembling tables of existing data for all soil series currently on the state soil legend with regard to K_{sat} values and hydrologic groupings (Hyd.Grp.). The need for this information has become more important since the adoption by the New Hampshire Department of Environmental Services of the revised Alteration of Terrain rules for stormwater management. Additional information has been provided for each soil series with regard to landform, temperature regime (Temp.), soil textures, NHDES Soil Lot Size Groupings (Group), whether the soil is a Spodosol (Spodosol?) and other information which will be valuable to a variety of soil information users.

The data for each soil series has been sorted 3 ways for ease of searching:

Table A-Sorted by Numerical Legend
Table B-Sorted by Soil Series Name
Table C-Sorted by NHDES Soil Group for Establishing Lot Size

The report represents cumulative efforts by private soil scientists and NHDES staff with assistance from the USDA Natural Resource Conservation Service.

Comments or inquires on the information in this publication may be directed to the Board of Directors at the following address:

Society of Soil Scientists
of Northern New England
PO Box 76
Durham, NH 03824

SATURATED HYDRAULIC CONDUCTIVITY (K_{SAT})

K_{sat} refers to the ease with which pores in a saturated soil transmit water. The estimates presented here are expressed in terms of inches per hour (NRCS official data presents K_{sat} in both micrometers per second and inches per hour). K_{sat} values are based on soil characteristics observed in the field, particularly structure, consistence, porosity, and texture. (USDA NRCS, Web Soil Survey)

Saturated flow occurs when the soil water pressure is positive; that is, when the soil matric potential is zero (satiated wet condition). In most soils this situation takes place when about 95 percent of the total pore space is filled with water. The remaining 5 percent is filled with entrapped air. Saturated hydraulic conductivity cannot be used to describe water movement under unsaturated conditions. (Soil Survey Manual, 1993)

It is commonly known that soil features (and thus data) for a certain soil series name may be slightly different from one county soil survey to the next and the range in characteristics (via the Typical Pedon) may be slightly different. For example – a Marlow soil (series) in Carroll County may have a higher sand content in its B horizon as opposed to a Marlow soil (series) in Coos County; resulting in a slightly different Ksat range for the B horizon.

The K_{sat} data for this publication was obtained from the USDA-NRCS Soil Data Mart using the Typical Pedon from the county that best reflected the soil and/or had the most acres of that soil. This data is presented in B and C horizons only as it is assumed that the topsoil (A or A_p horizon) will be removed in typical construction practices.

References:

Web Soil Survey. *Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/.*

Soil Data Mart. *http://soildatamart.nrcs.usda.gov/.*

Soil Survey Manual. *Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.*

HYDROLOGIC SOIL GROUPS

Hydrologic group is a group of soils having the same runoff potential under similar storm and cover conditions.

Hydrologic groups are used in equations that estimate runoff from rainfall. These estimates are needed for solving hydrologic problems that arise in planning stormwater management, watershed protection, and flood-prevention projects and for planning or designing structures for the use, control, and disposal of water.

Classifications assigned to soils were based on the use of rainfall-runoff data from small watersheds and infiltrometer plots. From these data, relationships between soil properties and hydrologic groups were established. Assignment of soils to hydrologic groups is based on the relationship between soil properties and hydrologic groups. Wetness characteristics, permeability after prolonged wetting, and depth to very slowly permeable layers are properties that assist in estimating hydrologic groups. Minimum annual steady ponded infiltration rate for a bare ground surface determines the hydrologic soil groups.

Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonally high water table, intake rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. (The influence of ground cover is treated independently, not in hydrologic soil groups.).

The soils in the United States are placed into four groups, A, B, C, and D, and three dual classes, *A/D, B/D,* and *C/D.* In the definitions of the classes, infiltration rate is the rate at which water enters the soil at the surface and is controlled by the surface conditions. Transmission rate is the rate at which water moves in the soil and is controlled by soil properties. Definitions of the classes are as follows:

Group A- Saturated hydraulic conductivity is very high or in the upper half of high and internal free water occurrence is very deep. Soils in this group have low runoff potential when thoroughly wet. Water is transmitted freely through the soil. Group A soils typically have less than 10 percent clay and more than 90 percent sand or gravel and have gravel or sand textures. Some soils having loamy sand, sandy loam, loam or silt loam textures may be placed in this group if they are well aggregated, of low bulk density, or contain greater than 35 percent rock fragments. The limits on the diagnostic physical characteristics of group A are as follows. The saturated hydraulic conductivity of all soil layers exceeds 40.0 micrometers per second (5.67 inches per hour). The depth to any water impermeable layer is greater than 50 centimeters [20 inches]. The depth to the water table is greater than 60 centimeters [24 inches]. Soils that are deeper than 100 centimeters [40 inches] to a water impermeable layer are in group A if the saturated hydraulic conductivity of all soil layers within 100 centimeters [40 inches] of the surface exceeds 10 micrometers per second (1.42 inches per hour).

Group B- Saturated hydraulic conductivity is in the lower half of high or in the upper half of moderately high and free water occurrence is deep or very deep. Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded. Group B soils typically have between 10 percent and 20 percent clay and 50 percent to 90 percent sand and have loamy sand or sandy loam textures. Some soils having loam, silt loam, silt, or sandy clay loam textures may be placed in this group if they are well aggregated, of low bulk density, or contain greater than 35 percent rock fragments. The limits on the diagnostic physical characteristics of group B are as follows. The saturated hydraulic conductivity in the least transmissive layer between the surface and 50 centimeters [20 inches] ranges from 10.0 micrometers per second (1.42 inches per hour) to 40.0 micrometers per second (5.67 inches per hour). The depth to any water impermeable layer is greater than 50 centimeters [20 inches]. The depth to the water table is greater than 60 centimeters [24 inches]. Soils that are deeper than 100 centimeters [40 inches] to a water impermeable layer or water table are in group B if the saturated hydraulic conductivity of all soil layers within 100 centimeters [40 inches] of the surface exceeds 4.0 micrometers per second (0.57 inches per hour) but is less than 10.0 micrometers per second (1.42 inches per hour).

Group C- Saturated hydraulic conductivity is in the lower half of moderately high or in the upper half of moderately low and internal free water occurrence is deeper than shallow. Soils in this group have moderately high runoff potential when thoroughly wet. Water transmission through the soil is somewhat restricted. Group C soils typically have between 20 percent and 40 percent clay and less than 50 percent sand and have loam, silt loam, sandy clay loam, clay loam, and silty clay loam textures. Some soils having clay, silty clay, or sandy clay textures may be placed in this group if they are well aggregated, of low bulk density, or contain greater than 35 percent rock fragments. The limits on the diagnostic physical characteristics of group C are as follows. The saturated hydraulic conductivity in the least transmissive layer between the surface and 50 centimeters [20 inches] is between 1.0 micrometers per second (0.14 inches per hour) and 10.0 micrometers per second (1.42 inches per hour). The depth to any water impermeable layer is greater than 50 centimeters [20 inches]. The depth to the water table is greater than 60 centimeters [24 inches]. Soils that are deeper than 100 centimeters [40 inches] to a restriction or water table are in group C if the saturated hydraulic conductivity of all soil layers within 100 centimeters [40 inches] of the surface exceeds 0.40 micrometers per second (0.06 inches per hour) but is less than 4.0 micrometers per second (0.57 inches per hour). .

Group D- Saturated hydraulic conductivity is below the upper half of moderately low, and/or internal free water occurrence is shallow or very shallow and transitory through permanent. Soils in this group have high runoff potential when thoroughly wet. Water movement through the soil is restricted or very restricted. Group D soils typically have greater than 40 percent clay, less than 50 percent sand, and have clayey textures. In some areas, they also have high shrink-swell potential. All soils with a depth to a water impermeable layer less than 50 centimeters [20 inches] and all soils with a water table within 60 centimeters [24 inches] of the surface are in this group, although some may have a dual classification, as described in the next section, if they can be adequately drained. The limits on the physical diagnostic characteristics of group D are as follows. For soils with a water impermeable layer at a depth between 50 centimeters and 100 centimeters [20 and 40 inches], the saturated hydraulic conductivity in the least transmissive soil layer is less than or equal to 1.0 micrometers per second (0.14 inches per hour). For soils that are deeper than 100 centimeters [40 inches] to a restriction or water table, the saturated hydraulic

conductivity of all soil layers within 100 centimeters [40 inches] of the surface is less than or equal to 0.40 micrometers per second (0.06 inches per hour).

Dual hydrologic soil groups-Certain wet soils are placed in group D based solely on the presence of a water table within 60 centimeters [24 inches] of the surface even though the saturated hydraulic conductivity may be favorable for water transmission. If these soils can be adequately drained, then they are assigned to dual hydrologic soil groups *(A/D, B/D,* and *C/D)* based on their saturated hydraulic conductivity and the water table depth when drained. The first letter applies to the drained condition and the second to the undrained condition. For the purpose of hydrologic soil group, adequately drained means that the seasonal high water table is kept at least 60 centimeters [24 inches] below the surface in a soil where it would be higher in a natural state.

References:

National Engineering Handbook, Natural Resource Conservation Service, U.S. Department of Agriculture.

Soil Data Mart. *http://soildatamart.nrcs.usda.gov/*.

Soil Survey Manual. *Soil Survey Division Staff. 1993. Soil survey manual. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 18.*

TABLE A

NUMERICAL LEGEND

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Occum	1	0.6	2.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	mesic	loamy	no	loamy over loamy sand
Suncook	2	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	occasionally flooded
Lim	3	0.6	2.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	mesic	loamy	no	
Pootatuck	4	0.6	6.0	6.00	20.0	B	3	Flood Plain (Bottom Land)	mesic	loamy	no	single grain in C
Rippowam	5	0.6	6.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	mesic	loamy	no	
Saco	6	0.6	2.0	6.00	20.0	D	6	Flood Plain (Bottom Land)	mesic	silty	no	strata
Hadley	8	0.6	2.0	0.60	6.0	B	2	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand
Winooski	9	0.6	6.0	0.60	6.0	B		Flood Plain (Bottom Land)	mesic	silty over loamy	no	
Merrimac	10	2.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	mesic	gravelly sand	no	loamy cap
Gloucester	11	6.0	20.0	6.00	20.0	A	1	Sandy Till	mesic	sandy-skeletal	no	loamy cap
Hinckley	12	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	
Sheepscot	14	6.0	20.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly coarse sand
Searsport	15	6.0	20.0	6.00	20.0	D	6	Outwash and Stream Terraces	frigid	sandy	no	organic over sand
Saugatuck	16	0.06	0.2	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	yes	ortstein
Colton, gravelly	21	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly surface
Colton	22	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	
Masardis	23	6.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	slate, loamy cap
Agawam	24	6.0	20.0	20.00	100.0	B	2	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Windsor	26	6.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	mesic	sandy	no	
Groveton	27	0.6	2.0	0.60	6.0	B	2	Outwash and Stream Terraces	frigid	loamy	yes	loamy over sandy
Madawaska	28	0.6	2.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Woodbridge	29	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	mesic	loamy	no	sandy loam in Cd
Unadilla	30	0.6	2.0	2.00	20.0	B	2	Terraces and glacial lake plains	mesic	silty	no	silty over gravelly
Hartland	31	0.6	2.0	0.20	2.0	B	2	Terraces and glacial lake plains	mesic	silty	no	very fine sandy loam
Boxford	32	0.1	0.2	0.00	0.2	C	3	Silt and Clay Deposits	mesic	fine	no	silty clay loam
Scitico	33	0.0	0.2	0.00	0.2	C	5	Silt and Clay Deposits	mesic	fine	no	
Wareham	34	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Champlain	35	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	gravelly sand	no	
Adams	36	6.0	20.0	20.00	99.0	A	1	Outwash and Stream Terraces	frigid	sandy	yes	
Melrose	37	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	silty clay loam in C
Eldridge	38	6.0	20.0	0.06	0.6	C	3	Sandy/loamy over silt/clay	mesic	sandy over loamy	no	
Millis	39					C	3	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Canton	42	2.0	6.0	6.00	20.0	B	2	Loose till, sandy textures	mesic	loamy over sandy	no	loamy over loamy sand
Montauk	44	0.6	6.0	0.06	0.6	C	3	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Henniker	46	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Madawaska, aquentic	48	0.6	2.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Whitman	49	0.0	0.2	0.00	0.2	D	6	Firm, platy, loamy till	mesic	loamy	no	mucky loam
Hermon	55	2.0	20.0	6.00	20.0	A	1	Sandy Till	frigid	sandy-skeletal	yes	loamy cap
Becket	56	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	yes	gravelly sandy loam in Cd
Waumbeck	58	2.0	20.0	6.00	20.0	B	3	Loose till, sandy textures	frigid	sandy-skeletal	yes	very cobbly loamy sand
Charlton	62	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	mesic	loamy	no	fine sandy loam
Paxton	66	0.6	2.0	0.00	0.2	C	3	Firm, platy, loamy till	mesic	loamy	no	
Sutton	68	0.6	6.0	0.60	6.0	B	3	Loose till, loamy textures	mesic	loamy	no	
Berkshire	72	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	yes	fine sandy loam
Marlow	76	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Peru	78	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	
Thorndike	84	0.6	2.0	0.60	2.0	C/D	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	less than 20 in. deep
Hollis	86	0.6	6.0	0.60	6.0	C/D	4	Loose till, bedrock	mesic	loamy	no	less than 20 in. deep
Winnecook	88	0.6	2.0	0.60	2.0	C	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Chatfield	89	0.6	6.0	0.60	6.0	B	4	Loose till, bedrock	mesic	loamy	no	20 to 40 in. deep
Hogback	91	2.0	6.0	2.00	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Lyman	92	2.0	6.0	2.00	6.0	A/D	4	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Woodstock	93	2.0	6.0	2.00	6.0	C/D	4	Loose till, bedrock	frigid	loamy	no	less than 20 in. deep
Rawsonville	98	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Tunbridge	99	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Ondawa	101	0.6	6.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	frigid	loamy	no	loamy over loamy sand
Sunday	102	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	occasionally flooded
Winooski	103	0.6	6.0	0.60	6.0	B	3	Flood Plain (Bottom Land)	mesic	silty	no	very fine sandy loam
Podunk	104	0.6	6.0	6.00	20.0	B	3	Flood Plain (Bottom Land)	frigid	loamy	no	loamy to coarse sand in C
Rumney	105	0.6	6.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	frigid	loamy	no	
Hadley	108	0.6	2.0	0.60	6.0	B	2	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand, occ flooded
Limerick	109	0.6	2.0	0.60	2.0	C	5	Flood Plain (Bottom Land)	mesic	silty	no	
Scarboro	115	6.0	20.0	6.00	20.0	D	6	Outwash and Stream Terraces	mesic	sandy	no	organic over sand, non stony
Finch	116					C	3	Outwash and Stream Terraces	frigid	sandy	yes	cemented (ortstein)
Sudbury	118	2.0	6.0	2.00	20.0	B	3	Outwash and Stream Terraces	mesic	sandy	no	loam over gravelly sand
Telos	123	0.6	2.0	0.02	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Chesuncook	126	0.6	2.0	0.02	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Allagash	127	0.6	2.0	6.00	20.0	B	2	Outwash and Stream Terraces	frigid	loamy over sandy	yes	loamy over sandy
Elliottsville	128	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	frigid	loamy	yes	20 to 40 in. deep
Hitchcock	130	0.6	2.0	0.06	0.6	B	3	Terraces and glacial lake plains	mesic	silty	no	silt loam to silt in C
Burnham	131	0.2	6.0	0.02	0.2	D	6	Firm, platy, silty till, schist & phylitte	frigid	loamy	no	organic over silt
Dartmouth	132	0.6	2.0	0.06	0.6	B	3	Terraces and glacial lake plains	mesic	silty	no	thin strata silty clay loam
Monson	133	0.6	2.0	0.60	2.0	D	4	Friable till, silty, schist & phyllite	frigid	loamy	yes	less than 20 in. deep
Maybid	134	0.0	0.2	0.00	0.2	D	6	Silt and Clay Deposits	mesic	fine	no	silt over clay
Shapleigh	136					C/D	4	Sandy Till	mesic	sandy	yes	less than 20 in. deep
Monadnock	142	0.6	2.0	2.00	6.0	B	2	Loose till, sandy textures	frigid	loamy over sandy, sandy-skeletal	yes	gravelly loamy sand in C
Acton	146	2.0	20.0	2.00	20.0	B	3	Loose till, sandy textures	mesic	sandy-skeletal	no	cobbly loamy sand
Vassalboro	150					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Success	154	2.0	6.0	6.00	20.0	A	1	Sandy Till	frigid	sandy-skeletal	yes	cemented
Canterbury	166	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Sunapee	168	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	
Waskish	195					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Ondawa	201	0.6	6.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	frigid	loamy	no	occ flood, loamy over l. sand
Sunday	202	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	frequently flooded
Fryeburg	208	0.6	2.0	2.00	6.0	B	2	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Charles	209	0.6	100.0	0.60	100.0	C	5	Flood Plain (Bottom Land)	frigid	silty	no	
Warwick	210	2.0	6.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	loamy-skeletal	no	loamy over slate gravel
Naumburg	214	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	frigid	sandy	yes	
Boscawen	220	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	no	loamy cap
Bemis	224	0.6	0.2	0.00	0.2	C	5	Firm, platy, loamy till	cryic	loamy	no	
Bice	226	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	no	sandy loam
Lanesboro	228	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	channery silt loam in Cd
Poocham	230	0.6	2.0	0.20	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	silt loam in C
Buxton	232	0.1	0.6	0.00	0.2	C	3	Silt and Clay Deposits	frigid	fine	no	silty clay
Scantic	233	0.0	0.2	0.00	0.2	D	5	Silt and Clay Deposits	frigid	fine	no	
Biddeford	234	0.0	0.2	0.00	0.2	D	6	Silt and Clay Deposits	frigid	fine	no	organic over clay
Buckland	237	0.6	2.0	0.06	0.2	C	3	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Elmridge	238	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	mesic	loamy over clayey	no	
Brayton	240	0.6	2.0	0.06	0.6	C	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Lyme	246	0.6	6.0	0.60	6.0	C	5	Loose till, sandy textures	frigid	loamy	no	
Millsite	251	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	no	20 to 40 in. deep
Macomber	252	0.6	2.0	0.60	2.0	C	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Lombard	259	0.6	6.0	2.00	20.0	C/D	2	Weathered bedrock, phyllite	frigid	loamy	no	very channery
Sunapee var	269	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	frigid dystrudept
Chatfield Var.	289	0.6	6.0	0.60	6.0	B	3	Loose till, bedrock	mesic	loamy	no	mwd to swpd
Greenwood	295					A/D	6	Organic Materials - Freshwater	frigid	hemic	no	deep organic
Catden	296					A/D	6	Organic Materials - Freshwater	mesic	sapric	no	deep organic
Lovewell	307	0.6	2.0	0.60	2.0	B	3	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Quonset	310	2.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	shale
Deerfield	313	6.0	20.0	20.00	100.0	B	3	Outwash and Stream Terraces	mesic	sandy	no	single grain in C

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Pipestone	314					B	5	Outwash and Stream Terraces	mesic	sandy	yes	
Mashpee	315	6.0	20.0	6.00	20.0	B	5	Outwash and Stream Terraces	mesic	sandy	yes	
Bernardston	330	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Roundabout	333	0.2	2.0	0.06	0.6	C	5	Terraces and glacial lake plains	frigid	silty	no	silt loam in the C
Pittstown	334	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Elmwood	338	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	
Stissing	340	0.6	2.0	0.06	0.2	C	5	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	
Cardigan	357	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy	no	20 to 40 in. deep
Kearsarge	359	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy	no	less than 20 in. deep
Dutchess	366	0.6	2.0	0.60	2.0	B	2	Friable till, silty, schist & phyllite	mesic	loamy	no	very channery
Dixfield	378	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Timakwa	393			6.00	100.0	D	6	Organic Materials - Freshwater	mesic	sandy or sandy-skeletal	no	organic over sand
Chocorua	395			6.00	20.0	D	6	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Ipswich	397					D	6	Tidal Flat	mesic	hemic/sapric	no	deep organic
Suncook	402	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	frequent flooding
Metallak	404	6.0	100.0	6.00	100.0	B	3	Flood Plain (Bottom Land)	frigid	loamy over sandy	no	sandy or sandy-skeletal
Medomak	406	0.6	2.0	0.60	2.0	D	6	Flood Plain (Bottom Land)	frigid	silty	no	organic over silt
Haven	410	0.6	2.0	20.00	100.0	B	2	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Duane	413	6.0	20.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	cemented (ortstein)
Moosilauke	414	6.0	20.0	6.00	20.0	C	5	Loose till, sandy textures	frigid	sandy	no	
Grange	433	0.6	2.0	0.60	2.0	C	5	Outwash and Stream Terraces	frigid	co. loamy over sandy (skeletal)	no	
Swanton	438	2.0	6.0	0.00	0.2	C	5	Sandy/loamy over silt/clay	frigid	co. loamy over clayey	no	
Shaker	439	2.0	6.0	0.00	0.2	C	5	Sandy/loamy over silt/clay	mesic	co. loamy over clayey	no	
Chichester	442	0.6	2.0	2.00	6.0	B		Loose till, sandy textures	frigid	loamy over sandy	no	loamy over loamy sand
Newfields	444	0.6	2.0	0.60	2.0	B	3	Loose till, sandy textures	mesic	loamy over sandy	no	sandy or sandy-skeletal
Scituate	448	0.6	2.0	0.06	0.2	C	3	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Metacomet	458	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Pennichuck	460	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy-skeletal	no	20 to 40 in. deep
Gilmanton	478	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	no	fine sandy loam in Cd
Ossipee	495			0.20	2.0	D	6	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Natchaug	496			0.20	2.0	D	6	Organic Materials - Freshwater	mesic	loamy	no	organic over loam
Pawcatuck	497			20.00	100.0	D	6	Tidal Flat	mesic	sandy or sandy-skeletal	no	organic over sand
Abenaki	501	0.6	2.0	6.00	99.0	B	2	Outwash and Stream Terraces	frigid	loamy over sandy-skeletal	no	loamy over gravelly
Cohas	505	0.6	2.0	0.60	100.0	C	5	Flood Plain (Bottom Land)	frigid	co. loamy over sandy (skeletal)	no	
Hoosic	510	2.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	slate, loamy cap
Ninigret	513	0.6	6.0	6.00	20.0	B	3	Outwash and Stream Terraces	mesic	loamy over sandy	no	sandy or sandy-skeletal
Leicester	514	0.6	6.0	0.60	20.0	C	5	Loose till, loamy textures	mesic	loamy	no	
Au Gres	516					B	5	Outwash and Stream Terraces	frigid	sandy	yes	single grain, loose
Machias	520	2.0	6.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy or sandy-skeletal	yes	strata sand/gravel in C
Stetson	523	0.6	6.0	6.00	20.0	B	2	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	loamy over gravelly
Caesar	526	20.0	100.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	coarse sand	no	
Scio	531	0.6	2.0	0.60	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	gravelly sand in 2C
Belgrade	532	0.6	2.0	0.06	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	strata of fine sand
Raynham	533	0.2	2.0	0.06	0.2	C	5	Terraces and glacial lake plains	mesic	silty	no	
Binghamville	534	0.2	2.0	0.06	0.2	D	5	Terraces and glacial lake plains	mesic	silty	no	
Suffield	536	0.6	2.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	mesic	silty over clayey	no	deep to clay C
Squamscott	538	6.0	20.0	0.06	0.6	C	5	Sandy/loamy over silt/clay	mesic	sandy over loamy	yes	
Raypol	540	0.6	2.0	6.00	100.0	D	5	Outwash and Stream Terraces	mesic	co. loamy over sandy (skeletal)	no	
Walpole	546	2.0	6.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Peacham	549	0.6	2.0	0.00	0.2	D	6	Firm, platy, silty till, schist & phylitte	frigid	loamy	no	organic over loam
Skerry	558	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Plaisted	563	0.6	2.0	0.06	0.6	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Howland	566	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	silt loam, platy in Cd
Monarda	569	0.2	2.0	0.02	0.2	D	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Bangor	572	0.6	2.0	0.60	2.0	B	2	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Dixmont	578	0.6	2.0	0.60	2.0	C	3	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam, platy in C
Cabot	589	0.6	2.0	0.06	0.2	D	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Westbrook	597			0.00	2.0	D	6	Tidal Flat	mesic	loamy	no	organic over loam
Mundal	610	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	gravelly sandy loam in Cd
Croghan	613	20.0	100.0	20.00	100.0	B	3	Outwash and Stream Terraces	frigid	sandy	yes	single grain in C
Kinsman	614	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	frigid	sandy	yes	
Salmon	630	0.6	2.0	0.60	2.0	B	2	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Nicholville	632	0.6	2.0	0.60	2.0	C	3	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Pemi	633	0.6	2.0	0.06	0.6	C	5	Terraces and glacial lake plains	frigid	silty	no	
Pillsbury	646	0.6	2.0	0.06	0.2	C	5	Firm, platy, loamy till	frigid	silty	no	
Ridgebury	656	0.6	6.0	0.00	0.2	C	5	Firm, platy, loamy till	mesic	loamy	no	
Canaan	663	2.0	20.0	2.00	20.0	C	4	Weathered Bedrock Till	frigid	loamy-skeletal	yes	less than 20 in. deep
Redstone	665	2.0	6.0	6.00	20.0	A	1	Weathered Bedrock Till	frigid	fragmental	yes	loamy cap
Sisk	667	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	cryic	loamy	yes	sandy loam in Cd
Surplus	669	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	cryic	loamy	yes	mwd, sandy loam in Cd
Glebe	671	2.0	6.0	2.00	6.0	C	4	Loose till, bedrock	cryic	loamy	yes	20 to 40 in. deep
Saddleback	673	0.6	2.0	0.60	2.0	C/D	4	Loose till, bedrock	cryic	loamy	yes	less than 20 in. deep
Ricker	674	2.0	6.0	2.00	6.0	A	4	Organic over bedrock (up to 4" of mineral)	cryic	fibric to hemic	no	well drained, less than 20 in. deep
Houghtonville	795	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	yes	cobbly fine sandy loam
Matunuck	797			20.00	100.0	D	6	Tidal Flat	mesic	sandy	no	organic over sand
Meadowsedge	894					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Bucksport	895					D	6	Organic Materials - Freshwater	frigid	sapric	no	deep organic
Colonel	927	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	loam in Cd
Pondicherry	992			6.00	20.0	D	6	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Wonsqueak	995			0.20	2.0	D	6	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Glover	NA	0.6	2.0	0.60	2	D	4	Friable till, silty, schist & phyllite	frigid	loamy	no	less than 20 in. deep

no longer recognized
organic materials

TABLE B

SOIL SERIES

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Abenaki	501	0.6	2.0	6.00	99.0	B	2	Outwash and Stream Terraces	frigid	loamy over sandy-skeletal	no	loamy over gravelly
Acton	146	2.0	20.0	2.00	20.0	B	3	Loose till, sandy textures	mesic	sandy-skeletal	no	cobbly loamy sand
Adams	36	6.0	20.0	20.00	99.0	A	1	Outwash and Stream Terraces	frigid	sandy	yes	
Agawam	24	6.0	20.0	20.00	100.0	B	2	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Allagash	127	0.6	2.0	6.00	20.0	B	2	Outwash and Stream Terraces	frigid	loamy over sandy	yes	loamy over sandy
Au Gres	516					B	5	Outwash and Stream Terraces	frigid	sandy	yes	single grain, loose
Bangor	572	0.6	2.0	0.60	2.0	B	2	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam
Becket	56	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	yes	gravelly sandy loam in Cd
Belgrade	532	0.6	2.0	0.06	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	strata of fine sand
Bemis	224	0.6	0.2	0.00	0.2	C	5	Firm, platy, loamy till	cryic	loamy	no	
Berkshire	72	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	yes	fine sandy loam
Bernardston	330	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Bice	226	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	no	sandy loam
Biddeford	234	0.0	0.2	0.00	0.2	D	6	Silt and Clay Deposits	frigid	fine	no	organic over clay
Binghamville	534	0.2	2.0	0.06	0.2	D	5	Terraces and glacial lake plains	mesic	silty	no	
Boscawen	220	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	no	loamy cap
Boxford	32	0.1	0.2	0.00	0.2	C	3	Silt and Clay Deposits	mesic	fine	no	silty clay loam
Brayton	240	0.6	2.0	0.06	0.6	C	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Buckland	237	0.6	2.0	0.06	0.2	C	3	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Bucksport	895					D	6	Organic Materials - Freshwater	frigid	sapric	no	deep organic
Burnham	131	0.2	6.0	0.02	0.2	D	6	Firm, platy, silty till, schist & phylitte	frigid	loamy	no	organic over silt
Buxton	232	0.1	0.6	0.00	0.2	C	3	Silt and Clay Deposits	frigid	fine	no	silty clay
Cabot	589	0.6	2.0	0.06	0.2	D	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Caesar	526	20.0	100.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	coarse sand	no	
Canaan	663	2.0	20.0	2.00	20.0	C	4	Weathered Bedrock Till	frigid	loamy-skeletal	yes	less than 20 in. deep
Canterbury	166	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Canton	42	2.0	6.0	6.00	20.0	B	2	Loose till, sandy textures	mesic	loamy over sandy	no	loamy over loamy sand
Cardigan	357	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy	no	20 to 40 in. deep
Catden	296					A/D	6	Organic Materials - Freshwater	mesic	sapric	no	deep organic
Champlain	35	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	gravelly sand	no	
Charles	209	0.6	100.0	0.60	100.0	C	5	Flood Plain (Bottom Land)	frigid	silty	no	
Charlton	62	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	mesic	loamy	no	fine sandy loam
Chatfield	89	0.6	6.0	0.60	6.0	B	4	Loose till, bedrock	mesic	loamy	no	20 to 40 in. deep
Chatfield Var.	289	0.6	6.0	0.60	6.0	B	3	Loose till, bedrock	mesic	loamy	no	mwd to swpd
Chesuncook	126	0.6	2.0	0.02	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Chichester	442	0.6	2.0	2.00	6.0	B		Loose till, sandy textures	frigid	loamy over sandy	no	loamy over loamy sand
Chocorua	395			6.00	20.0	D	6	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Cohas	505	0.6	2.0	0.60	100.0	C	5	Flood Plain (Bottom Land)	frigid	co. loamy over sandy (skeletal)	no	
Colonel	927	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	loam in Cd
Colton	22	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	
Colton, gravelly	21	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly surface
Croghan	613	20.0	100.0	20.00	100.0	B	3	Outwash and Stream Terraces	frigid	sandy	yes	single grain in C
Dartmouth	132	0.6	2.0	0.06	0.6	B	3	Terraces and glacial lake plains	mesic	silty	no	thin strata silty clay loam
Deerfield	313	6.0	20.0	20.00	100.0	B	3	Outwash and Stream Terraces	mesic	sandy	no	single grain in C
Dixfield	378	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Dixmont	578	0.6	2.0	0.60	2.0	C	3	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam, platy in C
Duane	413	6.0	20.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	cemented (ortstein)
Dutchess	366	0.6	2.0	0.60	2.0	B	2	Friable till, silty, schist & phyllite	mesic	loamy	no	very channery
Eldridge	38	6.0	20.0	0.06	0.6	C	3	Sandy/loamy over silt/clay	mesic	sandy over loamy	no	
Elliottsville	128	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	frigid	loamy	yes	20 to 40 in. deep
Elmridge	238	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	mesic	loamy over clayey	no	
Elmwood	338	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	
Finch	116					C	3	Outwash and Stream Terraces	frigid	sandy	yes	cemented (ortstein)

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Fryeburg	208	0.6	2.0	2.00	6.0	B	2	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Gilmanton	478	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	no	fine sandy loam in Cd
Glebe	671	2.0	6.0	2.00	6.0	C	4	Loose till, bedrock	cryic	loamy	yes	20 to 40 in. deep
Gloucester	11	6.0	20.0	6.00	20.0	A	1	Sandy Till	mesic	sandy-skeletal	no	loamy cap
Glover	NA	0.6	2.0	0.60	2	D	4	Friable till, silty, schist & phyllite	frigid	loamy	no	less than 20 in. deep
Grange	433	0.6	2.0	0.60	2.0	C	5	Outwash and Stream Terraces	frigid	co. loamy over sandy (skeletal)	no	
Greenwood	295					A/D	6	Organic Materials - Freshwater	frigid	hemic	no	deep organic
Groveton	27	0.6	2.0	0.60	6.0	B	2	Outwash and Stream Terraces	frigid	loamy	yes	loamy over sandy
Hadley	8	0.6	2.0	0.60	6.0	B	2	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand
Hadley	108	0.6	2.0	0.60	6.0	B	2	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand, occ flooded
Hartland	31	0.6	2.0	0.20	2.0	B	2	Terraces and glacial lake plains	mesic	silty	no	very fine sandy loam
Haven	410	0.6	2.0	20.00	100.0	B	2	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Henniker	46	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Hermon	55	2.0	20.0	6.00	20.0	A	1	Sandy Till	frigid	sandy-skeletal	yes	loamy cap
Hinckley	12	6.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	
Hitchcock	130	0.6	2.0	0.06	0.6	B	3	Terraces and glacial lake plains	mesic	silty	no	silt loam to silt in C
Hogback	91	2.0	6.0	2.00	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Hollis	86	0.6	6.0	0.60	6.0	C/D	4	Loose till, bedrock	mesic	loamy	no	less than 20 in. deep
Hoosic	510	2.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	slate, loamy cap
Houghtonville	795	0.6	6.0	0.60	6.0	B	2	Loose till, loamy textures	frigid	loamy	yes	cobbly fine sandy loam
Howland	566	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	silt loam, platy in Cd
Ipswich	397					D	6	Tidal Flat	mesic	hemic/sapric	no	deep organic
Kearsarge	359	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy	no	less than 20 in. deep
Kinsman	614	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	frigid	sandy	yes	
Lanesboro	228	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	channery silt loam in Cd
Leicester	514	0.6	6.0	0.60	20.0	C	5	Loose till, loamy textures	mesic	loamy	no	
Lim	3	0.6	2.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	mesic	loamy	no	
Limerick	109	0.6	2.0	0.60	2.0	C	5	Flood Plain (Bottom Land)	mesic	silty	no	
Lombard	259	0.6	6.0	2.00	20.0	C/D	2	Weathered bedrock, phyllite	frigid	loamy	no	very channery
Lovewell	307	0.6	2.0	0.60	2.0	B	3	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Lyman	92	2.0	6.0	2.00	6.0	A/D	4	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Lyme	246	0.6	6.0	0.60	6.0	C	5	Loose till, sandy textures	frigid	loamy	no	
Machias	520	2.0	6.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy or sandy-skeletal	yes	strata sand/gravel in C
Macomber	252	0.6	2.0	0.60	2.0	C	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Madawaska	28	0.6	2.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Madawaska, aquer	48	0.6	2.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Marlow	76	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Masardis	23	6.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	slate, loamy cap
Mashpee	315	6.0	20.0	6.00	20.0	B	5	Outwash and Stream Terraces	mesic	sandy	yes	
Matunuck	797			20.00	100.0	D	6	Tidal Flat	mesic	sandy	no	organic over sand
Maybid	134	0.0	0.2	0.00	0.2	D	6	Silt and Clay Deposits	mesic	fine	no	silt over clay
Meadowsedge	894					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Medomak	406	0.6	2.0	0.60	2.0	D	6	Flood Plain (Bottom Land)	frigid	silty	no	organic over silt
Melrose	37	2.0	6.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	silty clay loam in C
Merrimac	10	2.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	mesic	gravelly sand	no	loamy cap
Metacomet	458	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Metallak	404	6.0	100.0	6.00	100.0	B	3	Flood Plain (Bottom Land)	frigid	loamy over sandy	no	sandy or sandy-skeletal
Millis	39					C	3	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Millsite	251	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	no	20 to 40 in. deep
Monadnock	142	0.6	2.0	2.00	6.0	B	2	Loose till, sandy textures	frigid	oamy over sandy, sandy-skeleta	yes	gravelly loamy sand in C
Monarda	569	0.2	2.0	0.02	0.2	D	5	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Monson	133	0.6	2.0	0.60	2.0	D	4	Friable till, silty, schist & phyllite	frigid	loamy	yes	less than 20 in. deep
Montauk	44	0.6	6.0	0.06	0.6	C	3	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Moosilauke	414	6.0	20.0	6.00	20.0	C	5	Loose till, sandy textures	frigid	sandy	no	

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Mundal	610	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	gravelly sandy loam in Cd
Natchaug	496			0.20	2.0	D	6	Organic Materials - Freshwater	mesic	loamy	no	organic over loam
Naumburg	214	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	frigid	sandy	yes	
Newfields	444	0.6	2.0	0.60	2.0	B	3	Loose till, sandy textures	mesic	loamy over sandy	no	sandy or sandy-skeletal
Nicholville	632	0.6	2.0	0.60	2.0	C	3	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Ninigret	513	0.6	6.0	6.00	20.0	B	3	Outwash and Stream Terraces	mesic	loamy over sandy	no	sandy or sandy-skeletal
Occum	1	0.6	2.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	mesic	loamy	no	loamy over loamy sand
Ondawa	101	0.6	6.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	frigid	loamy	no	loamy over loamy sand
Ondawa	201	0.6	6.0	6.00	20.0	B	2	Flood Plain (Bottom Land)	frigid	loamy	no	occ flood, loamy over l. sand
Ossipee	495			0.20	2.0	D	6	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Pawcatuck	497			20.00	100.0	D	6	Tidal Flat	mesic	sandy or sandy-skeletal	no	organic over sand
Paxton	66	0.6	2.0	0.00	0.2	C	3	Firm, platy, loamy till	mesic	loamy	no	
Peacham	549	0.6	2.0	0.00	0.2	D	6	Firm, platy, silty till, schist & phylitte	frigid	loamy	no	organic over loam
Pemi	633	0.6	2.0	0.06	0.6	C	5	Terraces and glacial lake plains	frigid	silty	no	
Pennichuck	460	0.6	2.0	0.60	2.0	B	4	Friable till, silty, schist & phyllite	mesic	loamy-skeletal	no	20 to 40 in. deep
Peru	78	0.6	2.0	0.06	0.6	C	3	Firm, platy, loamy till	frigid	loamy	yes	
Pillsbury	646	0.6	2.0	0.06	0.2	C	5	Firm, platy, loamy till	frigid	silty	no	
Pipestone	314					B	5	Outwash and Stream Terraces	mesic	sandy	yes	
Pittstown	334	0.6	2.0	0.06	0.2	C	3	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Plaisted	563	0.6	2.0	0.06	0.6	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Podunk	104	0.6	6.0	6.00	20.0	B	3	Flood Plain (Bottom Land)	frigid	loamy	no	loamy to coarse sand in C
Pondicherry	992			6.00	20.0	D	6	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Poocham	230	0.6	2.0	0.20	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	silt loam in C
Pootatuck	4	0.6	6.0	6.00	20.0	B	3	Flood Plain (Bottom Land)	mesic	loamy	no	single grain in C
Quonset	310	2.0	20.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	sandy-skeletal	no	shale
Rawsonville	98	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Raynham	533	0.2	2.0	0.06	0.2	C	5	Terraces and glacial lake plains	mesic	silty	no	
Raypol	540	0.6	2.0	6.00	100.0	D	5	Outwash and Stream Terraces	mesic	co. loamy over sandy (skeletal)	no	
Redstone	665	2.0	6.0	6.00	20.0	A	1	Weathered Bedrock Till	frigid	fragmental	yes	loamy cap
Ricker	674	2.0	6.0	2.00	6.0	A	4	rganic over bedrock (up to 4" of minera	cryic	fibric to hemic	no	well drained, less than 20 in. deep
Ridgebury	656	0.6	6.0	0.00	0.2	C	5	Firm, platy, loamy till	mesic	loamy	no	
Rippowam	5	0.6	6.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	mesic	loamy	no	
Roundabout	333	0.2	2.0	0.06	0.6	C	5	Terraces and glacial lake plains	frigid	silty	no	silt loam in the C
Rumney	105	0.6	6.0	6.00	20.0	C	5	Flood Plain (Bottom Land)	frigid	loamy	no	
Saco	6	0.6	2.0	6.00	20.0	D	6	Flood Plain (Bottom Land)	mesic	silty	no	strata
Saddleback	673	0.6	2.0	0.60	2.0	C/D	4	Loose till, bedrock	cryic	loamy	yes	less than 20 in. deep
Salmon	630	0.6	2.0	0.60	2.0	B	2	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Saugatuck	16	0.06	0.2	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	yes	ortstein
Scantic	233	0.0	0.2	0.00	0.2	D	5	Silt and Clay Deposits	frigid	fine	no	
Scarboro	115	6.0	20.0	6.00	20.0	D	6	Outwash and Stream Terraces	mesic	sandy	no	organic over sand, non stony
Scio	531	0.6	2.0	0.60	2.0	B	3	Terraces and glacial lake plains	mesic	silty	no	gravelly sand in 2C
Scitico	33	0.0	0.2	0.00	0.2	C	5	Silt and Clay Deposits	mesic	fine	no	
Scituate	448	0.6	2.0	0.06	0.2	C	3	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Searsport	15	6.0	20.0	6.00	20.0	D	6	Outwash and Stream Terraces	frigid	sandy	no	organic over sand
Shaker	439	2.0	6.0	0.00	0.2	C	5	Sandy/loamy over silt/clay	mesic	co. loamy over clayey	no	
Shapleigh	136					C/D	4	Sandy Till	mesic	sandy	yes	less than 20 in. deep
Sheepscot	14	6.0	20.0	6.00	20.0	B	3	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly coarse sand
Sisk	667	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	cryic	loamy	yes	sandy loam in Cd
Skerry	558	0.6	2.0	0.06	0.6	C	3	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Squamscott	538	6.0	20.0	0.06	0.6	C	5	Sandy/loamy over silt/clay	mesic	sandy over loamy	yes	
Stetson	523	0.6	6.0	6.00	20.0	B	2	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	loamy over gravelly
Stissing	340	0.6	2.0	0.06	0.2	C	5	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	
Success	154	2.0	6.0	6.00	20.0	A	1	Sandy Till	frigid	sandy-skeletal	yes	cemented
Sudbury	118	2.0	6.0	2.00	20.0	B	3	Outwash and Stream Terraces	mesic	sandy	no	loam over gravelly sand

Soil Series	legend number	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Group	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Suffield	536	0.6	2.0	0.00	0.2	C	3	Sandy/loamy over silt/clay	mesic	silty over clayey	no	deep to clay C
Sunapee	168	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	
Sunapee var	269	0.6	2.0	0.60	6.0	B	3	Loose till, loamy textures	frigid	loamy	yes	frigid dystrudept
Suncook	2	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	occasionally flooded
Suncook	402	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	mesic	sandy	no	frequent flooding
Sunday	102	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	occasionally flooded
Sunday	202	6.0	20.0	6.00	20.0	A	1	Flood Plain (Bottomland)	frigid	sandy	no	frequently flooded
Surplus	669	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	cryic	loamy	yes	mwd, sandy loam in Cd
Sutton	68	0.6	6.0	0.60	6.0	B	3	Loose till, loamy textures	mesic	loamy	no	
Swanton	438	2.0	6.0	0.00	0.2	C	5	Sandy/loamy over silt/clay	frigid	co. loamy over clayey	no	
Telos	123	0.6	2.0	0.02	0.2	C	3	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Thorndike	84	0.6	2.0	0.60	2.0	C/D	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	less than 20 in. deep
Timakwa	393			6.00	100.0	D	6	Organic Materials - Freshwater	mesic	sandy or sandy-skeletal	no	organic over sand
Tunbridge	99	0.6	6.0	0.60	6.0	C	4	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Unadilla	30	0.6	2.0	2.00	20.0	B	2	Terraces and glacial lake plains	mesic	silty	no	silty over gravelly
Vassalboro	150					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Walpole	546	2.0	6.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Wareham	34	6.0	20.0	6.00	20.0	C	5	Outwash and Stream Terraces	mesic	sandy	no	
Warwick	210	2.0	6.0	20.00	100.0	A	1	Outwash and Stream Terraces	mesic	loamy-skeletal	no	loamy over slate gravel
Waskish	195					D	6	Organic Materials - Freshwater	frigid	peat	no	deep organic
Waumbeck	58	2.0	20.0	6.00	20.0	B	3	Loose till, sandy textures	frigid	sandy-skeletal	yes	very cobbly loamy sand
Westbrook	597			0.00	2.0	D	6	Tidal Flat	mesic	loamy	no	organic over loam
Whitman	49	0.0	0.2	0.00	0.2	D	6	Firm, platy, loamy till	mesic	loamy	no	mucky loam
Windsor	26	6.0	20.0	6.00	20.0	A	1	Outwash and Stream Terraces	mesic	sandy	no	
Winnecook	88	0.6	2.0	0.60	2.0	C	4	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Winooski	9	0.6	6.0	0.60	6.0	B		Flood Plain (Bottom Land)	mesic	silty over loamy	no	
Winooski	103	0.6	6.0	0.60	6.0	B	3	Flood Plain (Bottom Land)	mesic	silty	no	very fine sandy loam
Wonsqueak	995			0.20	2.0	D	6	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Woodbridge	29	0.6	2.0	0.00	0.6	C	3	Firm, platy, loamy till	mesic	loamy	no	sandy loam in Cd
Woodstock	93	2.0	6.0	2.00	6.0	C/D	4	Loose till, bedrock	frigid	loamy	no	less than 20 in. deep

no longer recognized
organic materials

TABLE C

NHDES SOIL GROUPINGS

Soil Series	number	NHDES Soil Group	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Adams	36	1	6.0	20.0	20.00	99.0	A	Outwash and Stream Terraces	frigid	sandy	yes	
Boscawen	220	1	6.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	frigid	sandy-skeletal	no	loamy cap
Caesar	526	1	20.0	100.0	20.00	100.0	A	Outwash and Stream Terraces	mesic	coarse sand	no	
Champlain	35	1	6.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	frigid	gravelly sand	no	
Colton	22	1	6.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	
Colton, gravelly	21	1	6.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly surface
Gloucester	11	1	6.0	20.0	6.00	20.0	A	Sandy Till	mesic	sandy-skeletal	no	loamy cap
Hermon	55	1	2.0	20.0	6.00	20.0	A	Sandy Till	frigid	sandy-skeletal	yes	loamy cap
Hinckley	12	1	6.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	mesic	sandy-skeletal	no	
Hoosic	510	1	2.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	mesic	sandy-skeletal	no	slate, loamy cap
Masardis	23	1	6.0	20.0	6.00	20.0	A	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	slate, loamy cap
Merrimac	10	1	2.0	20.0	6.00	20.0	A	Outwash and Stream Terraces	mesic	gravelly sand	no	loamy cap
Quonset	310	1	2.0	20.0	20.00	100.0	A	Outwash and Stream Terraces	mesic	sandy-skeletal	no	shale
Redstone	665	1	2.0	6.0	6.00	20.0	A	Weathered Bedrock Till	frigid	fragmental	yes	loamy cap
Success	154	1	2.0	6.0	6.00	20.0	A	Sandy Till	frigid	sandy-skeletal	yes	cemented
Suncook	2	1	6.0	20.0	6.00	20.0	A	Flood Plain (Bottomland)	mesic	sandy	no	occasionally flooded
Suncook	402	1	6.0	20.0	6.00	20.0	A	Flood Plain (Bottomland)	mesic	sandy	no	frequent flooding
Sunday	102	1	6.0	20.0	6.00	20.0	A	Flood Plain (Bottomland)	frigid	sandy	no	occasionally flooded
Sunday	202	1	6.0	20.0	6.00	20.0	A	Flood Plain (Bottomland)	frigid	sandy	no	frequently flooded
Warwick	210	1	2.0	6.0	20.00	100.0	A	Outwash and Stream Terraces	mesic	loamy-skeletal	no	loamy over slate gravel
Windsor	26	1	6.0	20.0	6.00	20.0	A	Outwash and Stream Terraces	mesic	sandy	no	
Abenaki	501	2	0.6	2.0	6.00	99.0	B	Outwash and Stream Terraces	frigid	loamy over sandy-skeletal	no	loamy over gravelly
Agawam	24	2	6.0	20.0	20.00	100.0	B	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Allagash	127	2	0.6	2.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	loamy over sandy	yes	loamy over sandy
Bangor	572	2	0.6	2.0	0.60	2.0	B	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam
Berkshire	72	2	0.6	6.0	0.60	6.0	B	Loose till, loamy textures	frigid	loamy	yes	fine sandy loam
Bice	226	2	0.6	6.0	0.60	6.0	B	Loose till, loamy textures	frigid	loamy	no	sandy loam
Canton	42	2	2.0	6.0	6.00	20.0	B	Loose till, sandy textures	mesic	loamy over sandy	no	loamy over loamy sand
Charlton	62	2	0.6	6.0	0.60	6.0	B	Loose till, loamy textures	mesic	loamy	no	fine sandy loam
Dutchess	366	2	0.6	2.0	0.60	2.0	B	Friable till, silty, schist & phyllite	mesic	loamy	no	very channery
Fryeburg	208	2	0.6	2.0	2.00	6.0	B	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Groveton	27	2	0.6	2.0	0.60	6.0	B	Outwash and Stream Terraces	frigid	loamy	yes	loamy over sandy
Hadley	8	2	0.6	2.0	0.60	6.0	B	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand
Hadley	108	2	0.6	2.0	0.60	6.0	B	Flood Plain (Bottom Land)	mesic	silty	no	strata of fine sand, occ flooded
Hartland	31	2	0.6	2.0	0.20	2.0	B	Terraces and glacial lake plains	mesic	silty	no	very fine sandy loam
Haven	410	2	0.6	2.0	20.00	100.0	B	Outwash and Stream Terraces	mesic	loamy over sandy	no	loamy over sand/gravel
Houghtonville	795	2	0.6	6.0	0.60	6.0	B	Loose till, loamy textures	frigid	loamy	yes	cobbly fine sandy loam
Lombard	259	2	0.6	6.0	2.00	20.0	C/D	Weathered bedrock, phyllite	frigid	loamy	no	very channery
Monadnock	142	2	0.6	2.0	2.00	6.0	B	Loose till, sandy textures	frigid	oamy over sandy, sandy-skeleta	yes	gravelly loamy sand in C
Occum	1	2	0.6	2.0	6.00	20.0	B	Flood Plain (Bottom Land)	mesic	loamy	no	loamy over loamy sand
Ondawa	101	2	0.6	6.0	6.00	20.0	B	Flood Plain (Bottom Land)	frigid	loamy	no	loamy over loamy sand
Ondawa	201	2	0.6	6.0	6.00	20.0	B	Flood Plain (Bottom Land)	frigid	loamy	no	occ flood, loamy over l. sand
Salmon	630	2	0.6	2.0	0.60	2.0	B	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Stetson	523	2	0.6	6.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	loamy over gravelly
Unadilla	30	2	0.6	2.0	2.00	20.0	B	Terraces and glacial lake plains	mesic	silty	no	silty over gravelly
Chichester	442	2	0.6	2.0	2.00	6.0	B	Loose till, sandy textures	frigid	loamy over sandy	no	loamy over loamy sand
Acton	146	3	2.0	20.0	2.00	20.0	B	Loose till, sandy textures	mesic	sandy-skeletal	no	cobbly loamy sand
Becket	56	3	0.6	2.0	0.06	0.6	C	Firm, platy, sandy till	frigid	loamy	yes	gravelly sandy loam in Cd
Belgrade	532	3	0.6	2.0	0.06	2.0	B	Terraces and glacial lake plains	mesic	silty	no	strata of fine sand
Bernardston	330	3	0.6	2.0	0.06	0.2	C	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Boxford	32	3	0.1	0.2	0.00	0.2	C	Silt and Clay Deposits	mesic	fine	no	silty clay loam

Soil Series	number	NHDES Soil Group	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Buckland	237	3	0.6	2.0	0.06	0.2	C	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Buxton	232	3	0.1	0.6	0.00	0.2	C	Silt and Clay Deposits	frigid	fine	no	silty clay
Canterbury	166	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	no	loam in Cd
Chatfield Var.	289	3	0.6	6.0	0.60	6.0	B	Loose till, bedrock	mesic	loamy	no	mwd to swpd
Chesuncook	126	3	0.6	2.0	0.02	0.2	C	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Colonel	927	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	yes	loam in Cd
Croghan	613	3	20.0	100.0	20.00	100.0	B	Outwash and Stream Terraces	frigid	sandy	yes	single grain in C
Dartmouth	132	3	0.6	2.0	0.06	0.6	B	Terraces and glacial lake plains	mesic	silty	no	thin strata silty clay loam
Deerfield	313	3	6.0	20.0	20.00	100.0	B	Outwash and Stream Terraces	mesic	sandy	no	single grain in C
Dixfield	378	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Dixmont	578	3	0.6	2.0	0.60	2.0	C	Friable till, silty, schist & phyllite	frigid	loamy	yes	silt loam, platy in C
Duane	413	3	6.0	20.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	cemented (ortstein)
Eldridge	38	3	6.0	20.0	0.06	0.6	C	Sandy/loamy over silt/clay	mesic	sandy over loamy	no	
Elmridge	238	3	2.0	6.0	0.00	0.2	C	Sandy/loamy over silt/clay	mesic	loamy over clayey	no	
Elmwood	338	3	2.0	6.0	0.00	0.2	C	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	
Finch	116	3					C	Outwash and Stream Terraces	frigid	sandy	yes	cemented (ortstein)
Gilmanton	478	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	no	fine sandy loam in Cd
Henniker	46	3	0.6	2.0	0.06	0.6	C	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Hitchcock	130	3	0.6	2.0	0.06	0.6	B	Terraces and glacial lake plains	mesic	silty	no	silt loam to silt in C
Howland	566	3	0.6	2.0	0.06	0.2	C	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	silt loam, platy in Cd
Lanesboro	228	3	0.6	2.0	0.06	0.2	C	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	channery silt loam in Cd
Lovewell	307	3	0.6	2.0	0.60	2.0	B	Flood Plain (Bottom Land)	frigid	silty	no	very fine sandy loam
Machias	520	3	2.0	6.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	sandy or sandy-skeletal	yes	strata sand/gravel in C
Madawaska	28	3	0.6	2.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Madawaska, aquer	48	3	0.6	2.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	loamy over sandy	yes	sandy or sandy-skeletal
Marlow	76	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	yes	fine sandy loam in Cd
Melrose	37	3	2.0	6.0	0.00	0.2	C	Sandy/loamy over silt/clay	frigid	loamy over clayey	no	silty clay loam in C
Metacomet	458	3	0.6	2.0	0.06	0.6	C	Firm, platy, sandy till	frigid	loamy	no	loamy sand in Cd
Metallak	404	3	6.0	100.0	6.00	100.0	B	Flood Plain (Bottom Land)	frigid	loamy over sandy	no	sandy or sandy-skeletal
Millis	39	3					C	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Montauk	44	3	0.6	6.0	0.06	0.6	C	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Mundal	610	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	yes	gravelly sandy loam in Cd
Newfields	444	3	0.6	2.0	0.60	2.0	B	Loose till, sandy textures	mesic	loamy over sandy	no	sandy or sandy-skeletal
Nicholville	632	3	0.6	2.0	0.60	2.0	C	Terraces and glacial lake plains	frigid	silty	yes	very fine sandy loam
Ninigret	513	3	0.6	6.0	6.00	20.0	B	Outwash and Stream Terraces	mesic	loamy over sandy	no	sandy or sandy-skeletal
Paxton	66	3	0.6	2.0	0.00	0.2	C	Firm, platy, loamy till	mesic	loamy	no	
Peru	78	3	0.6	2.0	0.06	0.6	C	Firm, platy, loamy till	frigid	loamy	yes	
Pittstown	334	3	0.6	2.0	0.06	0.2	C	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	channery silt loam in Cd
Plaisted	563	3	0.6	2.0	0.06	0.6	C	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd
Podunk	104	3	0.6	6.0	6.00	20.0	B	Flood Plain (Bottom Land)	frigid	loamy	no	loamy to coarse sand in C
Poocham	230	3	0.6	2.0	0.20	2.0	B	Terraces and glacial lake plains	mesic	silty	no	silt loam in C
Pootatuck	4	3	0.6	6.0	6.00	20.0	B	Flood Plain (Bottom Land)	mesic	loamy	no	single grain in C
Scio	531	3	0.6	2.0	0.60	2.0	B	Terraces and glacial lake plains	mesic	silty	no	gravelly sand in 2C
Scituate	448	3	0.6	2.0	0.06	0.2	C	Firm, platy, sandy till	mesic	loamy	no	loamy sand in Cd
Sheepscot	14	3	6.0	20.0	6.00	20.0	B	Outwash and Stream Terraces	frigid	sandy-skeletal	yes	gravelly coarse sand
Sisk	667	3	0.6	2.0	0.00	0.6	C	Firm, platy, loamy till	cryic	loamy	yes	sandy loam in Cd
Skerry	558	3	0.6	2.0	0.06	0.6	C	Firm, platy, sandy till	frigid	loamy	yes	loamy sand in Cd
Sudbury	118	3	2.0	6.0	2.00	20.0	B	Outwash and Stream Terraces	mesic	sandy	no	loam over gravelly sand
Suffield	536	3	0.6	2.0	0.00	0.2	C	Sandy/loamy over silt/clay	mesic	silty over clayey	no	deep to clay C
Sunapee	168	3	0.6	2.0	0.60	6.0	B	Loose till, loamy textures	frigid	loamy	yes	
Sunapee var	269	3	0.6	2.0	0.60	6.0	B	Loose till, loamy textures	frigid	loamy	yes	frigid dystrudept
Surplus	669	3	0.6	2.0	0.00	0.6	C	Firm, platy, loamy till	cryic	loamy	yes	mwd, sandy loam in Cd
Sutton	68	3	0.6	6.0	0.60	6.0	B	Loose till, loamy textures	mesic	loamy	no	
Telos	123	3	0.6	2.0	0.02	0.2	C	Firm, platy, silty till, schist & phyllite	frigid	loamy	yes	channery silt loam in Cd

Soil Series	number	NHDES Soil Group	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Waumbeck	58	3	2.0	20.0	6.00	20.0	B	Loose till, sandy textures	frigid	sandy-skeletal	yes	very cobbly loamy sand
Winooski	103	3	0.6	6.0	0.60	6.0	B	Flood Plain (Bottom Land)	mesic	silty	no	very fine sandy loam
Woodbridge	29	3	0.6	2.0	0.00	0.6	C	Firm, platy, loamy till	mesic	loamy	no	sandy loam in Cd
Winooski	9	3	0.6	6.0	0.60	6.0	B	Flood Plain (Bottom Land)	mesic	silty over loamy	no	
Canaan	663	4	2.0	20.0	2.00	20.0	C	Weathered Bedrock Till	frigid	loamy-skeletal	yes	less than 20 in. deep
Cardigan	357	4	0.6	2.0	0.60	2.0	B	Friable till, silty, schist & phyllite	mesic	loamy	no	20 to 40 in. deep
Chatfield	89	4	0.6	6.0	0.60	6.0	B	Loose till, bedrock	mesic	loamy	no	20 to 40 in. deep
Elliottsville	128	4	0.6	2.0	0.60	2.0	B	Friable till, silty, schist & phyllite	frigid	loamy	yes	20 to 40 in. deep
Glebe	671	4	2.0	6.0	2.00	6.0	C	Loose till, bedrock	cryic	loamy	yes	20 to 40 in. deep
Glover	NA	4	0.6	2.0	0.60	2	D	Friable till, silty, schist & phyllite	frigid	loamy	no	less than 20 in. deep
Hogback	91	4	2.0	6.0	2.00	6.0	C	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Hollis	86	4	0.6	6.0	0.60	6.0	C/D	Loose till, bedrock	mesic	loamy	no	less than 20 in. deep
Kearsarge	359	4	0.6	2.0	0.60	2.0	B	Friable till, silty, schist & phyllite	mesic	loamy	no	less than 20 in. deep
Lyman	92	4	2.0	6.0	2.00	6.0	A/D	Loose till, bedrock	frigid	loamy	yes	less than 20 in. deep
Macomber	252	4	0.6	2.0	0.60	2.0	C	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Millsite	251	4	0.6	6.0	0.60	6.0	C	Loose till, bedrock	frigid	loamy	no	20 to 40 in. deep
Monson	133	4	0.6	2.0	0.60	2.0	D	Friable till, silty, schist & phyllite	frigid	loamy	yes	less than 20 in. deep
Pennichuck	460	4	0.6	2.0	0.60	2.0	B	Friable till, silty, schist & phyllite	mesic	loamy-skeletal	no	20 to 40 in. deep
Rawsonville	98	4	0.6	6.0	0.60	6.0	C	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Ricker	674	4	2.0	6.0	2.00	6.0	A	rganic over bedrock (up to 4" of minera	cryic	fibric to hemic	no	well drained, less than 20 in. deep
Saddleback	673	4	0.6	2.0	0.60	2.0	C/D	Loose till, bedrock	cryic	loamy	yes	less than 20 in. deep
Shapleigh	136	4					C/D	Sandy Till	mesic	sandy	yes	less than 20 in. deep
Thorndike	84	4	0.6	2.0	0.60	2.0	C/D	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	less than 20 in. deep
Tunbridge	99	4	0.6	6.0	0.60	6.0	C	Loose till, bedrock	frigid	loamy	yes	20 to 40 in. deep
Winnecook	88	4	0.6	2.0	0.60	2.0	C	Friable till, silty, schist & phyllite	frigid	loamy-skeletal	yes	20 to 40 in. deep
Woodstock	93	4	2.0	6.0	2.00	6.0	C/D	Loose till, bedrock	frigid	loamy	no	less than 20 in. deep
Au Gres	516	5					B	Outwash and Stream Terraces	frigid	sandy	yes	single grain, loose
Bemis	224	5	0.6	0.2	0.00	0.2	C	Firm, platy, loamy till	cryic	loamy	no	
Binghamville	534	5	0.2	2.0	0.06	0.2	D	Terraces and glacial lake plains	mesic	silty	no	
Brayton	240	5	0.6	2.0	0.06	0.6	C	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Cabot	589	5	0.6	2.0	0.06	0.2	D	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Charles	209	5	0.6	100.0	0.60	100.0	C	Flood Plain (Bottom Land)	frigid	silty	no	
Cohas	505	5	0.6	2.0	0.60	100.0	C	Flood Plain (Bottom Land)	frigid	co. loamy over sandy (skeletal)	no	
Grange	433	5	0.6	2.0	0.60	2.0	C	Outwash and Stream Terraces	frigid	co. loamy over sandy (skeletal)	no	
Kinsman	614	5	6.0	20.0	6.00	20.0	C	Outwash and Stream Terraces	frigid	sandy	yes	
Leicester	514	5	0.6	6.0	0.60	20.0	C	Loose till, loamy textures	mesic	loamy	no	
Lim	3	5	0.6	2.0	6.00	20.0	C	Flood Plain (Bottom Land)	mesic	loamy	no	
Limerick	109	5	0.6	2.0	0.60	2.0	C	Flood Plain (Bottom Land)	mesic	silty	no	
Lyme	246	5	0.6	6.0	0.60	6.0	C	Loose till, sandy textures	frigid	loamy	no	
Mashpee	315	5	6.0	20.0	6.00	20.0	B	Outwash and Stream Terraces	mesic	sandy	yes	
Monarda	569	5	0.2	2.0	0.02	0.2	D	Firm, platy, silty till, schist & phyllite	frigid	loamy	no	
Moosilauke	414	5	6.0	20.0	6.00	20.0	C	Loose till, sandy textures	frigid	sandy	no	
Naumburg	214	5	6.0	20.0	6.00	20.0	C	Outwash and Stream Terraces	frigid	sandy	yes	
Pemi	633	5	0.6	2.0	0.06	0.6	C	Terraces and glacial lake plains	frigid	silty	no	
Pillsbury	646	5	0.6	2.0	0.06	0.2	C	Firm, platy, loamy till	frigid	silty	no	
Pipestone	314	5					B	Outwash and Stream Terraces	mesic	sandy	yes	
Raynham	533	5	0.2	2.0	0.06	0.2	C	Terraces and glacial lake plains	mesic	silty	no	
Raypol	540	5	0.6	2.0	6.00	100.0	D	Outwash and Stream Terraces	mesic	co. loamy over sandy (skeletal)	no	
Ridgebury	656	5	0.6	6.0	0.00	0.2	C	Firm, platy, loamy till	mesic	loamy	no	
Rippowam	5	5	0.6	6.0	6.00	20.0	C	Flood Plain (Bottom Land)	mesic	loamy	no	
Roundabout	333	5	0.2	2.0	0.06	0.6	C	Terraces and glacial lake plains	frigid	silty	no	silt loam in the C
Rumney	105	5	0.6	6.0	6.00	20.0	C	Flood Plain (Bottom Land)	frigid	loamy	no	

Soil Series	number	NHDES Soil Group	Ksat low - B in/hr	Ksat high - B in/hr	Ksat low - C in/hr	Ksat high - C in/hr	Hyd. Grp.	Land Form	Temp.	Soil Textures	Spodosol ?	Other
Saugatuck	16	5	0.06	0.2	6.00	20.0	C	Outwash and Stream Terraces	mesic	sandy	yes	ortstein
Scantic	233	5	0.0	0.2	0.00	0.2	D	Silt and Clay Deposits	frigid	fine	no	
Scitico	33	5	0.0	0.2	0.00	0.2	C	Silt and Clay Deposits	mesic	fine	no	
Shaker	439	5	2.0	6.0	0.00	0.2	C	Sandy/loamy over silt/clay	mesic	co. loamy over clayey	no	
Squamscott	538	5	6.0	20.0	0.06	0.6	C	Sandy/loamy over silt/clay	mesic	sandy over loamy	yes	
Stissing	340	5	0.6	2.0	0.06	0.2	C	Firm, platy, silty till, schist & phyllite	mesic	loamy	no	
Swanton	438	5	2.0	6.0	0.00	0.2	C	Sandy/loamy over silt/clay	frigid	co. loamy over clayey	no	
Walpole	546	5	2.0	6.0	6.00	20.0	C	Outwash and Stream Terraces	mesic	sandy	no	
Wareham	34	5	6.0	20.0	6.00	20.0	C	Outwash and Stream Terraces	mesic	sandy	no	
Biddeford	234	6	0.0	0.2	0.00	0.2	D	Silt and Clay Deposits	frigid	fine	no	organic over clay
Bucksport	895	6					D	Organic Materials - Freshwater	frigid	sapric	no	deep organic
Burnham	131	6	0.2	6.0	0.02	0.2	D	Firm, platy, silty till, schist & phylitte	frigid	loamy	no	organic over silt
Catden	296	6					A/D	Organic Materials - Freshwater	mesic	sapric	no	deep organic
Chocorua	395	6			6.00	20.0	D	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Greenwood	295	6					A/D	Organic Materials - Freshwater	frigid	hemic	no	deep organic
Ipswich	397	6					D	Tidal Flat	mesic	hemic/sapric	no	deep organic
Matunuck	797	6			20.00	100.0	D	Tidal Flat	mesic	sandy	no	organic over sand
Maybid	134	6	0.0	0.2	0.00	0.2	D	Silt and Clay Deposits	mesic	fine	no	silt over clay
Meadowsedge	894	6					D	Organic Materials - Freshwater	frigid	peat	no	deep organic
Medomak	406	6	0.6	2.0	0.60	2.0	D	Flood Plain (Bottom Land)	frigid	silty	no	organic over silt
Natchaug	496	6			0.20	2.0	D	Organic Materials - Freshwater	mesic	loamy	no	organic over loam
Ossipee	495	6			0.20	2.0	D	Organic Materials - Freshwater	frigid	loamy	no	organic over loam
Pawcatuck	497	6			20.00	100.0	D	Tidal Flat	mesic	sandy or sandy-skeletal	no	organic over sand
Peacham	549	6	0.6	2.0	0.00	0.2	D	Firm, platy, silty till, schist & phylitte	frigid	loamy	no	organic over loam
Pondicherry	992	6			6.00	20.0	D	Organic Materials - Freshwater	frigid	sandy or sandy-skeletal	no	organic over sand
Saco	6	6	0.6	2.0	6.00	20.0	D	Flood Plain (Bottom Land)	mesic	silty	no	strata
Scarboro	115	6	6.0	20.0	6.00	20.0	D	Outwash and Stream Terraces	mesic	sandy	no	organic over sand, non stony
Searsport	15	6	6.0	20.0	6.00	20.0	D	Outwash and Stream Terraces	frigid	sandy	no	organic over sand
Timakwa	393	6			6.00	100.0	D	Organic Materials - Freshwater	mesic	sandy or sandy-skeletal	no	organic over sand
Vassalboro	150	6					D	Organic Materials - Freshwater	frigid	peat	no	deep organic
Waskish	195	6					D	Organic Materials - Freshwater	frigid	peat	no	deep organic
Westbrook	597	6			0.00	2.0	D	Tidal Flat	mesic	loamy	no	organic over loam
Whitman	49	6	0.0	0.2	0.00	0.2	D	Firm, platy, loamy till	mesic	loamy	no	mucky loam
Wonsqueak	995	6			0.20	2.0	D	Organic Materials - Freshwater	frigid	loamy	no	organic over loam

no longer recognized organic materials denotes break betweenSoil Group

Sorted by DES Soil Group for Establishing Lot Size
K_{sat} B and C horizons
SSSNNE pub no. 5

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Welcome to New Hampshire's Watershed Report Cards built from the DRAFT 2020, 305(b)/303(d)

Each Watershed Report Card covers a single 12-digit Hydrologic Unit Code (HUC12), on average a 34 square mile area. Each Watershed Report Card has three components;

1. REPORT CARD - A one page card that summarizes the overall use support for Aquatic Life Integrity, Primary Contact (i.e. Swimming), and Secondary Contact (i.e. Boating) Designated Uses on every Assessment Unit ID (AUID) within the HUC12.
2. HUC 12 MAP - A map of the watershed with abbreviated labels for each AUID within the HUC12.
3. ASSESSMENT DETAILS - Anywhere from one to forty pages with the detailed assessment information for each and every AUID in the Report Card and Map.

How are the Surface Water Quality Assessment determinations made?

All readily available data with reliable Quality Assurance/Quality Control is used in the biennial surface water quality assessments. For a full understanding of how the Surface Water Quality Standards (Env-Wq 1700) are translated into surface water quality assessments we urge the reader to review the 2020 Consolidated Assessment and Listing Methodology (CALM).

Where can I find more advanced mapping resources?

GIS files are available by assessment cycle at the NHDES FTP site.

I'd like to see the more raw water quality data?

The web mapping tool allows you to download the data used in the assessment of the primary contact and aquatic life designated uses by clicking on the "Data Access Waterbody Data (Aquatic Life and Swimming Uses)" link for any assessment unit.

How are assessments coded in the report card?

Assessment outcomes are displayed on a color scale as well as an alpha numeric scale that provides additional distinctions for the designated use and parameter level assessments as outlined in the table below.

		Severe Not Supporting, Severe	**Poor** Not Supporting, Marginal	**Likely Bad** Insufficient Information – Potentially Not Supporting	**No Data** No Data	**Likely Good** Insufficient Information – Potentially Full Supporting	**Marginal** Full Support, Marginal	**Good** Full Support, Good
CATEGORY	**Description**							
Category 2	Meets standards						2-M or 2-OBS	2-G
Category 3	Insufficient Information			3-PNS	3-ND	3-PAS		
Category 4	Does not Meet Standards;							
4A	TMDL* Completed	4A-P	4A-M or 4A-T					
4B	Other enforceable measure will correct the issue.	4B-P	4B-M or 4B-T					
4C	Non-pollutant (i.e. exotic weeds)	4C-P	4C-M					
Category 5	TMDL* Needed	5-P	5-M or 5-T					

* TMDL stands for Total Maximum Daily Load studies

Watershed 305(b) Assessment Summary Report:

Assessment Cycle: Draft 2020

HUC 12: 010600030608

HUC 12 Name: Lower Cocheco River

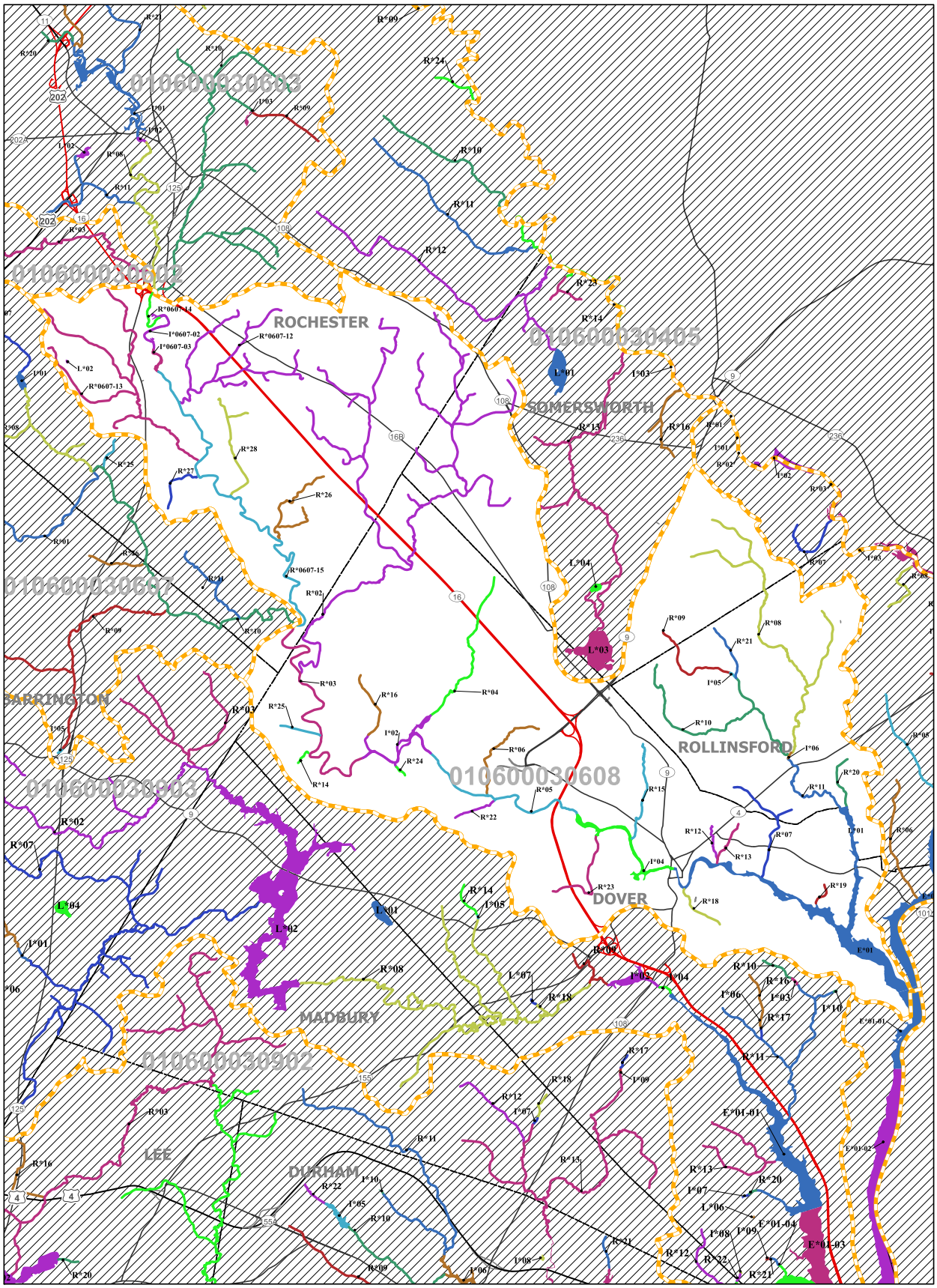
(Locator map on next page only applies to this HUC12)

Good	Meets water quality standards/thresholds by a relatively large margin.
Marginal	Meets water quality standards/thresholds but only marginally.
Likely Good	Limited data available, however, the data that is available suggests that the parameter is Potentially Attaining Standards (PAS).
No Current Data	Insufficient information to make an assessment decision.
Likely Bad	Limited data available, however, the data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards.
Poor	Not meeting water quality standards/thresholds. The impairment is marginal.
Severe	Not meeting water quality standards/thresholds. The impairment is more severe and causes poor water quality.

Assessment Unit ID	Map Label	Assessment Unit Name	Aquatic Life	Fish Consump.	Swimming	Boating
NHEST600030608-01	E*01	Cocheco River		5-M	5-P	4A-M
NHIMP600030607-02	I*0607-02	Cocheco River - Gonic Dam Pond	5-M	4A-M	4A-P	2-G
NHIMP600030607-03	I*0607-03	Cocheco River - Mill Pond Dam	3-PNS	4A-M	3-ND	3-ND
NHIMP600030608-02	I*02	Cocheco River - Watson Waldron Dam	5-M	4A-M	3-PAS	3-ND
NHIMP600030608-04	I*04	Cocheco River - Central Ave Dam	5-M	4A-M	3-PAS	3-ND
NHIMP600030608-05	I*05	Conservation Pond Dam	3-ND	4A-M	3-ND	3-ND
NHIMP600030608-06	I*06	Fresh Creek - Farm Pond	3-ND	4A-M	3-ND	3-ND
NHLAK600030608-01	L*01	Fresh Creek Pond	5-M	4A-M	4A-P	3-ND
NHLAK600030608-02	L*02	Unnamed Pond	3-ND	4A-M	3-PAS	3-PAS
NHRIV600030607-12	R*0607-12	Unnamed Tributary - To Cocheco River	3-ND	4A-M	3-ND	3-ND
NHRIV600030607-13	R*0607-13	Unnamed Brook - To Cocheco River	3-ND	4A-M	3-ND	3-ND

NHRIV600030607-14	R*0607-14	Cocheco River	3-ND	4A-M	3-ND	3-ND
NHRIV600030607-15	R*0607-15	Cocheco River	5-M	4A-M	2-G	2-G
NHRIV600030608-02	R*02	Blackwater Brook-Clark Brook	3-ND	4A-M	4A-P	3-ND
NHRIV600030608-03	R*03	Cocheco River - Unnamed Brook	5-M	4A-M	4A-M	3-ND
NHRIV600030608-04	R*04	Reyners Brook	3-ND	4A-M	4A-P	3-ND
NHRIV600030608-05	R*05	Cocheco River	5-M	4A-M	4A-M	3-ND
NHRIV600030608-06	R*06	Indian Brook	5-P	4A-M	4A-P	3-ND
NHRIV600030608-07	R*07	Emerson Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-08	R*08	Fresh Creek - Twombly Brook	5-P	4A-M	4A-M	3-ND
NHRIV600030608-09	R*09	Unnamed Brook - Rollins Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-10	R*10	Rollins Brook	5-P	4A-M	4A-P	3-ND
NHRIV600030608-11	R*11	Fresh Creek	3-PNS	4A-M	4A-P	4A-M
NHRIV600030608-12	R*12	Unnamed Tributary - To Cocheco River (Dover (Downstream Of Portland Ave))	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-13	R*13	Unnamed Tributary - To Cocheco River - (Dover (Upstream Of Atlantic Ave))	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-14	R*14	Unnamed Trib. To Cocheco River, Dover (From Landfill)	5-M	4A-M	3-ND	3-ND
NHRIV600030608-15	R*15	Berry Brook	5-M	4A-M	4A-P	2-G
NHRIV600030608-16	R*16	Jackson Brook	3-ND	4A-M	4A-P	3-ND
NHRIV600030608-18	R*18	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-19	R*19	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-20	R*20	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-21	R*21	Unnamed Brook - To Rollins Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-22	R*22	Horn Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-23	R*23	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-24	R*24	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-25	R*25	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-26	R*26	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-27	R*27	Unnamed Brook	3-ND	4A-M	3-ND	3-ND
NHRIV600030608-28	R*28	Unnamed Brook	3-ND	4A-M	3-ND	3-ND

AUIDs For HUC12: 010600030608 - Lower Cocheco River



HUC12 Boundaries
Town Boundaries
Major Roads
Interstate Highway
US Highway
State Highway

Assessment Unit Coloring
AUs Ending with:
0 =
1 =
2 =
3 =
4 =
5 =
6 =
7 =
8 =
9 =

N
W E
S

Abbrv. Label	HUC 12
L*07	010700060201

AUID = NHLAK700060201-03

Assessment Unit IDs are derived from the HUC12 they reside within. The labels have been shortened on this map for presentation purposes.
Example: the Label "L*03" in HUC12 = 010700060201 represents AUID = "NHLAK700060201-03"
In rare cases where an AUID extends beyond the boundary of a single HUC12, additional portions of the end of the HUC 12 number have also been replaced.

0 0.6 1.2 1.8 2.4 Miles

Scale:1:59,820

S:\WD-Watershed\WQ_Planning\305b_303d\2020\Report_Cards\HUC12_maps

Assessment Unit ID: NHIMP600030608-04
Assessment Unit Name: Cocheco River - Central Ave Dam
Town(s) Primary Town is Listed First: Dover

Size: 20 ACRES
Assessment Unit Category: 5-M
Beach: N

Draft 2020, 305(b)/303(d) - All Reviewed Parameters by Assessment Unit

Designated Use Description	Desig. Use Category	Parameter Name	Parameter Threatened (Y/N)	Last Sample	Last Exceed	Parameter Category	TMDL Priority
Aquatic Life Integrity	5-M	ALKALINITY, CARBONATE AS CACO3	N	1999	1999	3-ND	
		ALUMINUM	N	2007	1999	3-ND	
		AMMONIA (TOTAL)	N	2018	N/A	2-G	
		ARSENIC	N	2004	N/A	3-ND	
		CADMIUM	N	1999	1999	3-ND	
		CHLORIDE	N	2018	N/A	3-PAS	
		COPPER	N	1999	1998	3-ND	
		Chlorophyll-a	N	2019	NLV	No Stnd	
		DISSOLVED OXYGEN SATURATION	N	2018	2016	3-PNS	
		IRON	N	2004	N/A	3-ND	
		LEAD	N	1999	1999	3-ND	
		OXYGEN, DISSOLVED	N	2018	2016	3-PNS	
		PH	N	2018	2016	5-M	LOW
		TURBIDITY	N	2014	2004	3-ND	
		ZINC	N	1999	N/A	3-ND	
Fish Consumption	4A-M	ARSENIC	N	2004	2004	3-ND	

Good	Marginal	Likely Good	No Current Data	Likely Bad	Poor	Severe
Meets water quality standards/thresholds by a relatively large margin.	Meets water quality standards/thresholds but only marginally.	Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS)	Insufficient information to make an assessment decision.	Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards.	Not meeting water quality standards/thresholds. The impairment is marginal.	Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality.

Fish Consumption	4A-M	COPPER	N	1999	N/A	3-ND	
		MERCURY - FISH CONSUMPTION ADVISORY	N			4A-M	
		ZINC	N	1999	N/A	3-ND	
Potential Drinking Water Supply	2-G	ARSENIC	N	2004	2004	3-ND	
		COPPER	N	1999	N/A	3-ND	
		ESCHERICHIA COLI	N	2013	2013	3-ND	
		FECAL COLIFORM	N	1993	1993	3-ND	
		IRON	N	2004	2004	3-ND	
		ZINC	N	1999	N/A	3-ND	
Primary Contact Recreation	3-PAS	CHLOROPHYLL-A	N	2019	2002	3-PAS	
		ESCHERICHIA COLI	N	2013	2011	3-ND	
Secondary Contact Recreation	3-ND	ESCHERICHIA COLI	N	2013	N/A	3-ND	
Wildlife	3-ND						

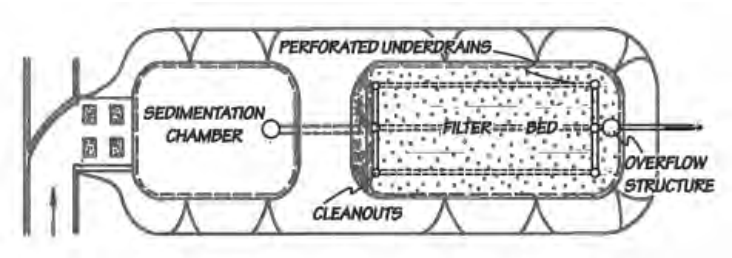
Good	**Marginal**	**Likely Good**	**No Current Data**	**Likely Bad**	**Poor**	**Severe**
Meets water quality standards/thresholds by a relatively large margin.	Meets water quality standards/thresholds but only marginally.	Limited data available. The data that is available suggests that the parameter is Potentially Attaining Standards (PAS)	Insufficient information to make an assessment decision.	Limited data available The data that is available suggests that the parameter is Potentially Not Supporting (PNS) water quality standards.	Not meeting water quality standards/thresholds. The impairment is marginal.	Not meeting water quality standards/thresholds The impairment is more severe and causes poor water quality.

Sand Filter Factsheet

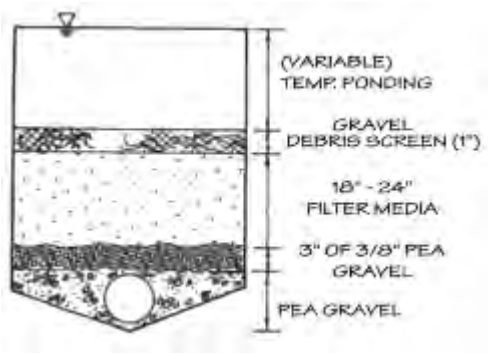
Sand Filter is a system which provides filtering of runoff through a sand filter media and temporary storage of runoff within the void spaces prior to discharge by way of an underdrain. Sand filters are generally used for overflow conditions of the primary BMP, and as such often include a pretreatment device to allow coarse settlements to settle out of the water. The top surface of the filter is kept clear of vegetation. General design specifications for sand filter systems are provided in the most recent version of *The New Hampshire Stormwater Manual, Volume 2: Post-Construction Best Management Practices Selection and Design*.

Sample Design

Plan View



Section View



Examples images from the *New Hampshire Stormwater Manual, Volume 2,* p. 104

Pollutant Export Rate by Land Use[1]

Source Category by Land Use	Land Surface Cover	P Load Export Rate[1] (lbs./acre/year)	N Load Export Rate[2] (lbs./acre/year)
Commercial (COM) and Industrial (IND)	Directly connected impervious	1.78	15
Multi-Family (MFR) and High-Density Residential (HDR)	Directly connected impervious	2.32	14.1
Medium-Density Residential (MDR)	Directly connected impervious	1.96	14.1
Low-Density Residential (LDR) - "Rural"	Directly connected impervious	1.52	14.1

[1] From NH Small MS4 General Permit, Appendix F

General Equations

Physical Storage Capacity: Depth of Runoff * Drainage Area
Cost: Physical Storage Capacity * Cost Index * Adjustment Factor[1]
Yearly Pollutant Removal: Pollutant Load Export Rate * Drainage Area * Efficiency

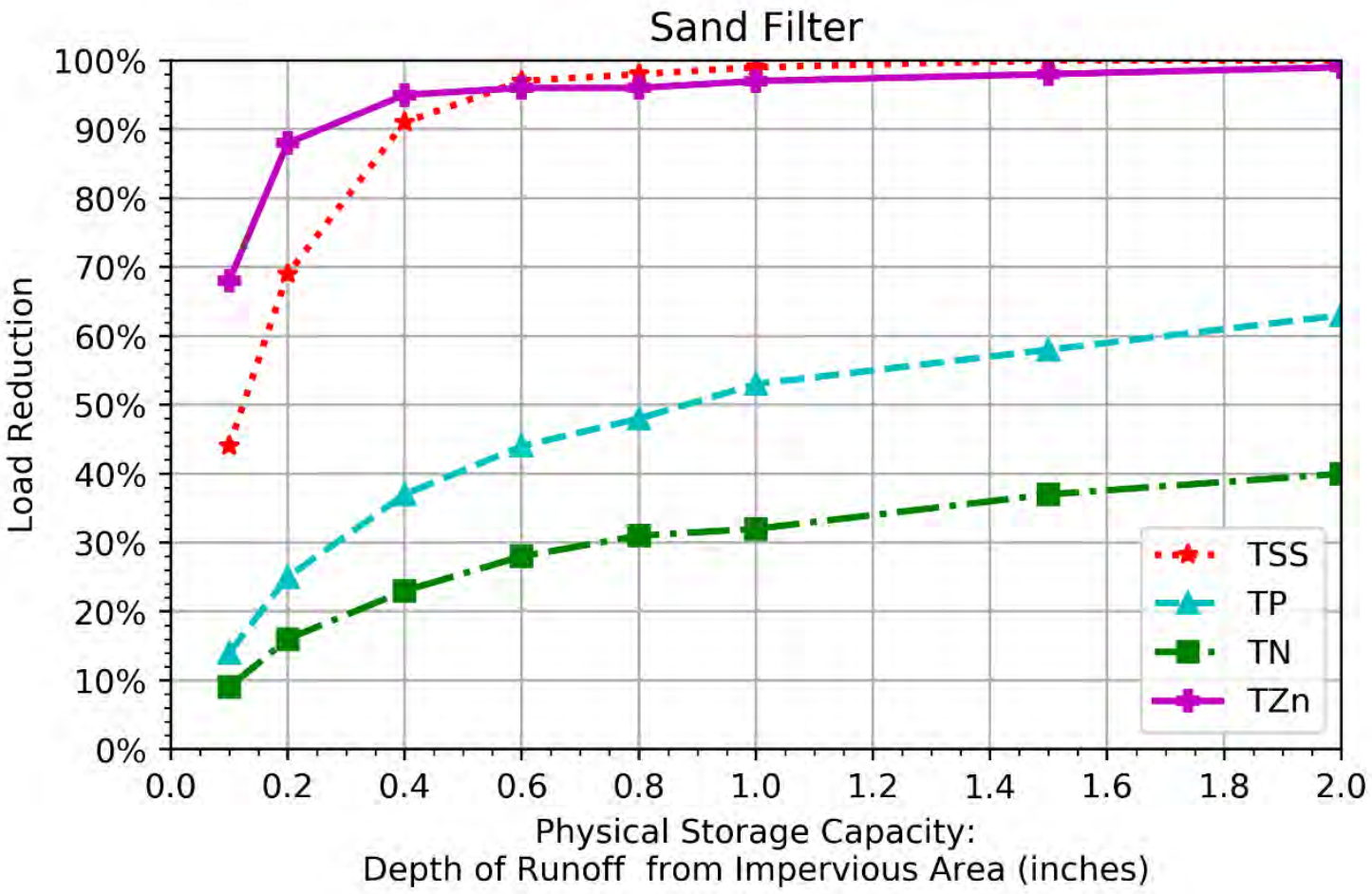
Cost (2023)[1,2]

	Materials and Installation Cost ($/ft^3)	Design Cost ($/ft^3)	Total Cost ($/ft^3)
Rural	13.92	7.49	21.41
Mixed	27.84	14.99	42.83
Urban	41.76	22.48	64.24

[1] EPA Memorandum "Methodology for developing cost estimates for Opti-Tool." Februrary 20, 2016
[2] Converted from 2010 to 2023 dollars using U.S. Department of Labor (USDOL). (2012). Bureau of Labor Statistics consumer price index inflation calculator. http://www.bls.gov/data/inflation_calculator.htm

Prepared By:
University of New Hampshire
Stormwater Center
Durham, NH
www.unh.edu/unhsc
February 2023

BMP Performance Curve for Sand Filter



Sand Filter BMP Performance Table								
BMP Capacity: Depth of Runoff from Impervious Area (inches)	0.1	0.2	0.4	0.6	0.8	1.0	1.5	2.0
Cumulative TSS Phosphorus Load Reduction	44%	69%	91%	97%	98%	99%	100%	100%
Cumulative Phosphorus Load Reduction	14%	25%	37%	44%	48%	53%	58%	63%
Cumulative Nitrogen Load Reduction	9%	16%	23%	28%	31%	32%	37%	40%
Cumulative Zinc Phosphorus Load Reduction	68%	88%	95%	96%	96%	97%	98%	99%

2018	NHIMP400010606-02	ANDROSCOGGIN RIVER - CROSS POWER D/	BERLIN	22 ACRES	Primary Contact Recreatior	Escherichia coli	4B-M				Non-ORW
2018	NHIMP400010606-03	ANDROSCOGGIN RIVER - CASCADE DAM	BERLIN, GORHAM	50 ACRES	Fish Consumption	Dioxin (including 2,3,7,8-TCDD)	4B-M				Non-ORW
2018	NHIMP400010606-03	ANDROSCOGGIN RIVER - CASCADE DAM	BERLIN, GORHAM	50 ACRES	Primary Contact Recreatior	Escherichia coli	4B-M				Non-ORW
2018	NHIMP400010606-04	ANDROSCOGGIN RIVER - GORHAM DAM	GORHAM	64.541 ACRES	Fish Consumption	Dioxin (including 2,3,7,8-TCDD)	4B-M				Non-ORW
2018	NHIMP400020101-01-01	MOOSE RIVER	RANDOLPH	0.568 ACRES							ORW
2018	NHIMP400020101-01-02	MOOSE BROOK - TOWN POOL-RAVINE BEA	RANDOLPH	1.38 ACRES	Primary Contact Recreatior	Escherichia coli	4A-M	9/21/2010	NEW HAMPSHIRE STATEWIDE E	39276	ORW
2018	NHIMP400020101-02-02	MOOSE BROOK - MOOSE BROOK STATE PA	GORHAM	1.38 ACRES	Primary Contact Recreatior	Escherichia coli	4A-P	9/21/2010	NEW HAMPSHIRE STATEWIDE E	39275	Non-ORW
2018	NHIMP400020102-01	PEABODY RIVER - WILDCAT MOUNTAIN D/	PINKHAMS GRANT	1.5 ACRES							ORW
2018	NHIMP400020102-02	ANDROSCOGGIN RIVER DAM	GORHAM	3 ACRES	Fish Consumption	Dioxin (including 2,3,7,8-TCDD)	4B-M				Non-ORW
2018	NHIMP400020102-03	UNNAMED BROOK - NINETEENMILE BROO	GREENS GRANT	0.092 ACRES							ORW
2018	NHIMP400020103-01	ANDROSCOGGIN RIVER - REFLECTION PON	SHELBURNE	56.219 ACRES	Aquatic Life Integrity	pH	5-M				Non-ORW
2018	NHIMP400020103-01	ANDROSCOGGIN RIVER - REFLECTION PON	SHELBURNE	56.219 ACRES	Fish Consumption	Dioxin (including 2,3,7,8-TCDD)	4B-M				Non-ORW
2018	NHIMP400020103-02	RATTLE RIVER - RATTLE BROOK DAM	SHELBURNE	0.01 ACRES							ORW
2018	NHIMP600020101-01	SACO RIVER - WILLEY HOUSE DAM	HARTS LOCATION	2 ACRES							ORW
2018	NHIMP600020105-01	CUTLER RIVER	PINKHAMS GRANT	0.15 ACRES							ORW
2018	NHIMP600020105-02	MESERVE BROOK	JACKSON	0.25 ACRES							ORW
2018	NHIMP600020105-04	GOODRICH FALLS DAM-ELLIS RIVER	BARTLETT	3 ACRES	Aquatic Life Integrity	pH	5-M				Non-ORW
2018	NHIMP600020106-01	ALBANY BROOK - FIRE PROTECTION POND	BARTLETT	0.2 ACRES							Review OneStop GIS
2018	NHIMP600020203-01	DRY BROOK DAM - TR SWIFT RIVER	ALBANY	0.5 ACRES							ORW
2018	NHIMP600020203-02	TRIB TO LOWER SWIFT RIVER	ALBANY	0.093 ACRES							ORW
2018	NHIMP600020702-01-02	DAN HOLE RIVER - MILL POND TOWN BEA(	OSSIPEE	1.38 ACRES	Primary Contact Recreatior	Escherichia coli	4A-P	9/21/2010	NEW HAMPSHIRE STATEWIDE E	39276	Non-ORW
2018	NHIMP600020901-03	COLD BROOK - MILL BROOK	FREEDOM	2 ACRES	Aquatic Life Integrity	Dissolved oxygen saturation	5-P				Non-ORW
2018	NHIMP600020901-03	COLD BROOK - MILL BROOK	FREEDOM	2 ACRES	Aquatic Life Integrity	pH	5-M				Non-ORW
2018	NHIMP600030405-03	SALMON FALLS RIVER - GREAT FALLS UPPE	SOMERSWORTH	50 ACRES	Aquatic Life Integrity	Non-Native Aquatic Plants	4C-P				Non-ORW
2018	NHIMP600030405-03	SALMON FALLS RIVER - GREAT FALLS UPPE	SOMERSWORTH	50 ACRES	Aquatic Life Integrity	pH	5-M				Non-ORW
2018	NHIMP600030405-04	SALMON FALLS RIVER - BAXTER MILL DAM	ROCHESTER	157 ACRES	Aquatic Life Integrity	Non-Native Aquatic Plants	4C-P				Non-ORW
2018	NHIMP600030405-04	SALMON FALLS RIVER - BAXTER MILL DAM	ROCHESTER	157 ACRES	Aquatic Life Integrity	pH	5-M				Non-ORW
2018	NHIMP600030405-04	SALMON FALLS RIVER - BAXTER MILL DAM	ROCHESTER	157 ACRES	Primary Contact Recreatior	Escherichia coli	4A-M	9/21/2010	NEW HAMPSHIRE STATEWIDE E	39272	Non-ORW
2018	NHIMP600030406-02	SALMON FALLS RIVER - LOWER GREAT FAL	SOMERSWORTH	33 ACRES	Aquatic Life Integrity	Non-Native Aquatic Plants	4C-P				Non-ORW
2018	NHIMP600030406-02	SALMON FALLS RIVER - LOWER GREAT FAL	SOMERSWORTH	33 ACRES	Primary Contact Recreatior	Escherichia coli	4A-M	9/21/2010	NEW HAMPSHIRE STATEWIDE E	39272	Non-ORW
2018	NHIMP600030406-03	SALMON FALLS RIVER - ROLLINSFORD DAN	ROLLINSFORD, SOMERSWORTH	57 ACRES	Aquatic Life Integrity	Non-Native Aquatic Plants	4C-P				Non-ORW
2018	NHIMP600030406-03	SALMON FALLS RIVER - ROLLINSFORD DAN	ROLLINSFORD, SOMERSWORTH	57 ACRES	Aquatic Life Integrity	Oxygen, Dissolved	2-G	11/22/1999	SALMON FALLS	11114	Non-ORW
2018	NHIMP600030406-03	SALMON FALLS RIVER - ROLLINSFORD DAN	ROLLINSFORD, SOMERSWORTH	57 ACRES	Aquatic Life Integrity	pH	5-M				Non-ORW
2018	NHIMP600030406-04	SALMON FALLS RIVER - SOUTH BERWICK D	ROLLINSFORD	58 ACRES	Aquatic Life Integrity	Non-Native Aquatic Plants	4C-P				Non-ORW
2018	NHIMP600030406-04	SALMON FALLS RIVER - SOUTH BERWICK D	ROLLINSFORD	58 ACRES	Aquatic Life Integrity	pH	5-M				Non-ORW
2018	NHIMP600030406-04	SALMON FALLS RIVER - SOUTH BERWICK D	ROLLINSFORD	58 ACRES	Primary Contact Recreatior	Chlorophyll-a	5-M				Non-ORW
2018	NHIMP600030406-04	SALMON FALLS RIVER - SOUTH BERWICK D	ROLLINSFORD	58 ACRES	Primary Contact Recreatior	Escherichia coli	4A-M	9/21/2010	NEW HAMPSHIRE STATEWIDE E	39272	Non-ORW
2018	NHIMP600030601-02	COCHECO RIVER - COCHECO DAM I	FARMINGTON	4 ACRES							ORW
2018	NHIMP600030601-04	MEYER POND DAM	NEW DURHAM	0.87 ACRES							ORW
2018	NHIMP600030601-05	UNNAMED BROOK - MEYER WILDLIFE PON	NEW DURHAM	2.087 ACRES							ORW
2018	NHIMP600030603-01	COCHECO RIVER - CITY DAM 1	ROCHESTER	50 ACRES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M				Non-ORW
2018	NHIMP600030603-01	COCHECO RIVER - CITY DAM 1	ROCHESTER	50 ACRES	Aquatic Life Integrity	Non-Native Aquatic Plants	4C-M				Non-ORW
2018	NHIMP600030603-01	COCHECO RIVER - CITY DAM 1	ROCHESTER	50 ACRES	Aquatic Life Integrity	Oxygen, Dissolved	5-M				Non-ORW
2018	NHIMP600030603-01	COCHECO RIVER - CITY DAM 1	ROCHESTER	50 ACRES	Aquatic Life Integrity	pH	5-M				Non-ORW
2018	NHIMP600030603-02	COCHECO RIVER - HATFIELD DAM	ROCHESTER	1 ACRES	Aquatic Life Integrity	pH	5-M				Non-ORW
2018	NHIMP600030603-02	COCHECO RIVER - HATFIELD DAM	ROCHESTER	1 ACRES	Primary Contact Recreatior	Escherichia coli	4A-M	9/30/2013	44 Bacteria Impaired Waters	55220	Non-ORW
2018	NHIMP600030604-01	UNNAMED BROOK - SHERBURNE BROOK D	NORTHWOOD	4.558 ACRES							ORW
2018	NHIMP600030604-02	UNNAMED BROOK - GARBOSKI BEAVER PC	STRAFFORD	0.453 ACRES							ORW
2018	NHIMP600030605-01	WILDLIFE POND DAM	STRAFFORD	5.885 ACRES							ORW
2018	NHIMP600030605-02	KENNETH HILL POND	STRAFFORD	28.331 ACRES							ORW
2018	NHIMP600030605-05	UNNAMED BROOK - FARM POND	BARRINGTON	0.523 ACRES							ORW
2018	NHIMP600030607-02	COCHECO RIVER - GONIC DAM POND	ROCHESTER	18 ACRES	Aquatic Life Integrity	pH	5-M				Non-ORW
2018	NHIMP600030607-02	COCHECO RIVER - GONIC DAM POND	ROCHESTER	18 ACRES	Primary Contact Recreatior	Escherichia coli	4A-P	9/21/2010	NEW HAMPSHIRE STATEWIDE E	39272	Non-ORW
2018	NHIMP600030608-02	COCHECO RIVER - WATSON WALDRON DA	DOVER	54 ACRES	Aquatic Life Integrity	pH	5-M				Non-ORW
2018	NHIMP600030608-04	COCHECO RIVER - CENTRAL AVE DAM	DOVER	20 ACRES	Aquatic Life Integrity	pH	5-M				Non-ORW
2018	NHIMP600030608-04	COCHECO RIVER - CENTRAL AVE DAM	DOVER	20 ACRES	Primary Contact Recreatior	Escherichia coli	2-G	9/21/2010	NEW HAMPSHIRE STATEWIDE E	39272	Non-ORW
2018	NHIMP600030701-01	LAMPREY RIVER	DEERFIELD	40 ACRES	Aquatic Life Integrity	pH	5-M				Non-ORW
2018	NHIMP600030702-01	BEAVER POND DAM - NORTH BRANCH RIV	DEERFIELD	62.24 ACRES							ORW
2018	NHIMP600030702-01-02	BEAVER POND - BEAVER POND BEACH	DEERFIELD	1.38 ACRES							ORW
2018	NHIMP600030708-01	BROWN BROOK - PISCASSIC RIVER	FREMONT	0.3 ACRES							ORW
2018	NHIMP600030708-03	PISCASSIC RIVER	NEWMARKET	4 ACRES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M				Non-ORW
2018	NHIMP600030708-03	PISCASSIC RIVER	NEWMARKET	4 ACRES	Aquatic Life Integrity	Oxygen, Dissolved	5-P				Non-ORW
2018	NHIMP600030708-03	PISCASSIC RIVER	NEWMARKET	4 ACRES	Aquatic Life Integrity	pH	5-M				Non-ORW
2018	NHIMP600030709-02	LAMPREY RIVER - WISWALL DAM	DURHAM, LEE	30 ACRES	Aquatic Life Integrity	pH	5-M				Non-ORW
2018	NHIMP600030709-03	LAMPREY RIVER - MACALLEN DAM	DURHAM, NEWMARKET	120 ACRES	Aquatic Life Integrity	pH	5-P				Non-ORW
2018	NHIMP600030803-03	EXETER RIVER	FREMONT, BRENTWOOD	24 ACRES	Aquatic Life Integrity	pH	5-M				Non-ORW
2018	NHIMP600030806-08	CLEMSON POND	EXETER	5.668 ACRES	Primary Contact Recreatior	Escherichia coli	4B-M				Non-ORW
2018	NHIMP600030901-02	WINNICUT RIVER DAM POND	GREENLAND	1 ACRES	Aquatic Life Integrity	Oxygen, Dissolved	5-P				Non-ORW
2018	NHIMP600030901-02	WINNICUT RIVER DAM POND	GREENLAND	1 ACRES	Aquatic Life Integrity	pH	5-M				Non-ORW
2018	NHIMP600030901-02	WINNICUT RIVER DAM POND	GREENLAND	1 ACRES	Primary Contact Recreatior	Escherichia coli	4A-P	9/21/2010	NEW HAMPSHIRE STATEWIDE E	39272	Non-ORW
2018	NHIMP600030902-04	OYSTER RIVER - MILL POND DAM	DURHAM	24 ACRES	Aquatic Life Integrity	Dissolved oxygen saturation	5-M				Non-ORW
2018	NHIMP600030902-04	OYSTER RIVER - MILL POND DAM	DURHAM	24 ACRES	Aquatic Life Integrity	Oxygen, Dissolved	5-P				Non-ORW
2018	NHIMP600030902-04	OYSTER RIVER - MILL POND DAM	DURHAM	24 ACRES	Aquatic Life Integrity	pH	5-P				Non-ORW
2018	NHIMP600030902-04	OYSTER RIVER - MILL POND DAM	DURHAM	24 ACRES	Primary Contact Recreatior	Chlorophyll-a	5-M				Non-ORW

SWPPP Cut Sheet:

Filtrexx® Sediment Control

Sediment & Perimeter Control Technology

PURPOSE & DESCRIPTION

Filtrexx® Sediment control is a three-dimensional tubular sediment control and storm water runoff filtration device typically used for **perimeter control** of sediment and other soluble pollutants (such as phosphorus and petroleum hydrocarbons), on and around construction activities.

APPLICATION

Filtrexx® Sediment control is to be installed down slope of any disturbed area requiring erosion and sediment control and filtration of soluble pollutants from runoff. Sediment control is effective when installed perpendicular to sheet or low concentrated flow. Acceptable applications include:

- Site perimeters
- Above and below disturbed areas subject to sheet runoff, interrill and rill erosion
- Above and below exposed and erodable slopes
- Around area drains or inlets located in a 'sump'
- On compacted soils where trenching of silt fence is difficult or impossible
- Around sensitive trees where trenching of silt fence is not beneficial for tree survival or may unnecessarily disturb established vegetation.
- On frozen ground where trenching of silt fence is impossible.
- On paved surfaces where trenching of silt fence is impossible.

INSTALLATION

1. Sediment control used for perimeter control of sediment and soluble pollutants in storm runoff shall meet Filtrexx® Soxx™ Material Specifications and use Certified Filtrexx® FilterMedia™.
2. Contractor is required to be Filtrexx® Certified™, or use pre-filled Filtrexx® Sediment control products manufactured by a Filtrexx® Certified Manufacturer™ as determined by Filtrexx® International, LLC (440-926-2607 or visit www.filtrexx.com). Certification shall be considered current if appropriate identification is shown during time of bid or at time of application. Look for the Filtrexx® Certified™ Seal.
3. Sediment control will be placed at locations indicated on plans as directed by the Engineer.
4. Sediment control should be installed parallel to the base of the slope or other disturbed area. In extreme conditions (i.e., 2:1 slopes), a second Sediment control shall be constructed at the top of the slope.
5. Effective Soxx™ height in the field should be as follows: 8" Diameter Sediment control = 6.5" high, 12" Diameter Sediment control = 9.5" high, 18" Diameter SiltSoxx™ = 14.5" high, 24" Diameter Sediment control = 19" high.
6. Stakes shall be installed through the middle of the Sediment control on 10 ft (3m) centers, using 2 in (50mm) by 2 in (50mm) by 3 ft (1m) hard wood stakes. In the event staking is not possible, i.e., when Sediment control is used on pavement, heavy concrete blocks shall be used behind the Sediment control to help stabilize during rainfall/runoff events.
7. Staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.
8. Loose compost may be backfilled along the upslope side of the Sediment control, filling the seam between the soil surface and the device, improving filtration and sediment retention.
9. If the Sediment control is to be left as a permanent filter or part of the natural landscape, it may be seeded at time of installation for

establishment of permanent vegetation. The Engineer will specify seed requirements.

10. Filtrexx® Sediment control is not to be used in perennial, ephemeral, or intermittent streams.

See design drawing schematic for correct Filtrexx® Sediment control installation (Figure 1.1).

INSPECTION AND MAINTENANCE

Routine inspection should be conducted within 24 hrs of a runoff event or as designated by the regulating authority. Sediment control should be regularly inspected to make sure they maintain their shape and are producing adequate hydraulic flow-through. If ponding becomes excessive, additional Sediment control may be required to reduce effective slope length or sediment removal may be necessary. Sediment control shall be inspected until area above has been permanently stabilized and construction activity has ceased

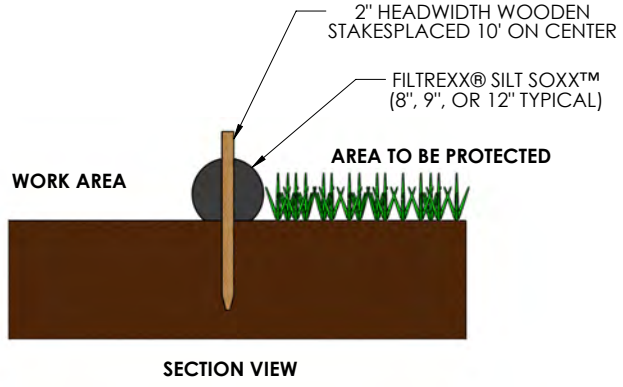
1. The Contractor shall maintain the Sediment control in a functional condition at all times and it shall be routinely inspected.
2. If the Sediment control has been damaged, it shall be repaired, or replaced if beyond repair.
3. The Contractor shall remove sediment at the base of the upslope side of the Sediment control when accumulation has reached 1/2 of the effective height of the Sediment control, or as directed by the Engineer. Alternatively, a new Sediment control can be placed on top of and slightly behind the original one creating more sediment storage capacity without soil disturbance.
4. Sediment control shall be maintained until disturbed area above the device has been permanently stabilized and construction activity has ceased.
5. The FilterMedia™ will be dispersed on site once disturbed area has been permanently stabilized, construction activity has ceased, or as determined by the Engineer.
6. For long-term sediment and pollution control applications, Sediment control can be seeded at the time of installation to create a vegetative filtering system for prolonged and increased filtration of sediment and soluble pollutants (contained vegetative filter strip). The appropriate seed mix shall be determined by the Engineer.

Slope Percent	Maximum Slope Length Above Sediment Control in Feet (meters)*				
	8 in (200 mm) Sediment control	12 in (300 mm) Sediment control	18 in (450 mm) Sediment control	24 in (600mm) Sediment control	32 in (800mm) Sediment control
	6.5 in (160 mm)**	9.5 in (240 mm) **	14.5 in (360 mm) **	19 in (480 mm) **	26 in (650 mm) **
2 (or less)	600 (180)	750 (225)	1000 (300)	1300 (400)	1650 (500)
5	400 (120)	500 (150)	550 (165)	650 (200)	750 (225)
10	200 (60)	250 (75)	300 (90)	400 (120)	500 (150)
15	140 (40)	170 (50)	200 (60)	325 (100)	450 (140)
20	100 (30)	125 (38)	140 (42)	260 (80)	400 (120)
25	80 (24)	100 (30)	110 (33)	200 (60)	275 (85)
30	60 (18)	75 (23)	90 (27)	130 (40)	200 (60)
35	60 (18)	75 (23)	80 (24)	115 (35)	150 (45)
40	60 (18)	75 (23)	80 (24)	100 (30)	125 (38)
45	40 (12)	50 (15)	60 (18)	80 (24)	100 (30)
50	40 (12)	50 (15)	55 (17)	65 (20)	75 (23)

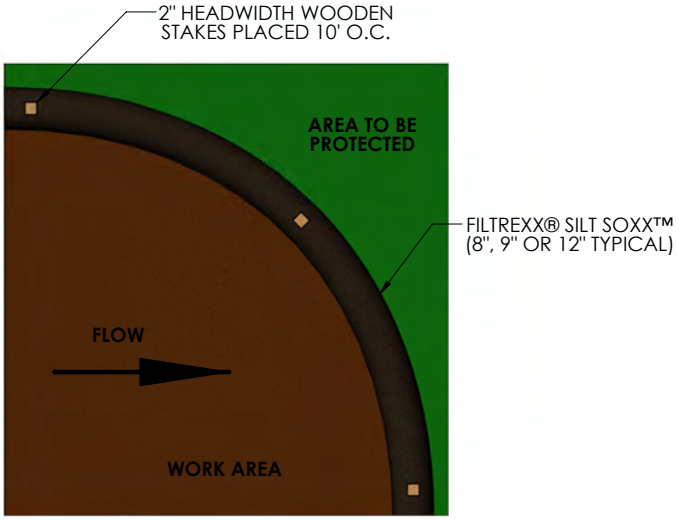
* Based on a failure point of 36 in (0.9 m) super silt fence (wire reinforced) at 1000 ft (303 m) of slope, watershed width equivalent to receiving length of sediment control device, 1 in/ 24 hr (25 mm/24 hr) rain event.

** Effective height of Sediment control after installation and with constant head from runoff as determined by Ohio State University.

FILTREXX® SILT SOXX™

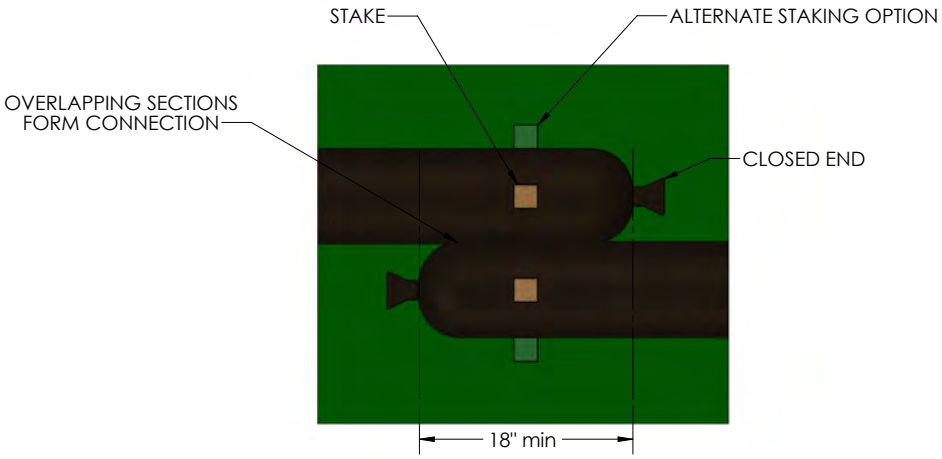


SECTION VIEW

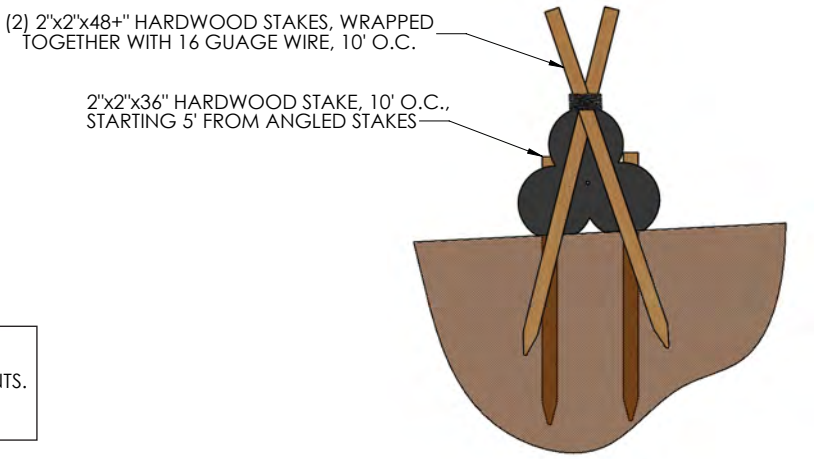


TOP VIEW

COMPOST SOCK CONNECTION/ATTACHMENT DETAIL



FILTREXX® PYRAMID STAKING DETAIL



NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILT SOXX™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

SWPPP Cut Sheet:

Filtrexx® Inlet Protection

Sediment & Perimeter Control Technology

PURPOSE & DESCRIPTION

Filtrexx® Inlet protection is a three-dimensional tubular sediment control and storm water runoff filtration device typically used for storm drain **inlet protection** of sediment and soluble pollutants (such as phosphorus and petroleum hydrocarbons) on and around construction activities.

APPLICATION

Drain inlets are located in areas that receive runoff from surrounding lands, often exposed and disturbed soils, and are located at a low point, or in a sump. Inlet protection used around drain inlets (or *Drain* Inlet protection) should completely enclose the circumference of the drain and where possible should not be placed on a grade or slope. Inlet protection used around drain inlets should never be the only form of site sediment control and should be accompanied by erosion control/slope stabilization practices, such as Slope protection or rolled erosion control blankets (RECB). Inlet protection should never be placed where they divert runoff flow from the drain inlet, or on top of the inlet, which can cause flooding. Under high runoff and sediment loading conditions placement of 1-2 in (25-50 mm) diameter rock (AASHTO #2) may be placed around the outer circumference of the Inlet protection up to ½ the height of the Inlet protection. This will slow runoff velocity as it contacts the Inlet protection and will reduce sediment build-up and clogging of the Inlet protection.

Curb inlets are generally located on paved surfaces and are designed to rapidly drain storm runoff from roadways to prevent flooding that poses a hazard to vehicular traffic. Inlet protection devices should be placed in a manner which intercepts runoff prior to entering the inlet, but does not block or divert runoff from the inlet. To prevent diversion of runoff, Inlet protection used around curbs (or *Curb* Inlet protection) should be used in low points, or sumps, and minor slopes or grades. Inlet protection should never be placed in or on the curb inlet drain, or placed in a manner than obstructs vehicular traffic. Inlet protection height should be at least 1 in (25 mm) lower than top of curb inlet to allow for overflow into the drain and not over the curb. Maximum sediment removal efficiency occurs when minor ponding exists behind Inlet protection but should never lead to flooding.

Curb sediment containment systems are used to reduce the sediment and pollutant load flowing to a curb inlet. They are generally placed on paved surfaces perpendicular to runoff flow and should be lower than the height of the curb. Curb sediment containment systems should never cause flooding or placed where they are a hazard to vehicular traffic. Inlet protection used for curb sediment containment (or *Curb Sediment Containment* Inlet protection) can be placed on a grade but should never be placed directly upslope from curb inlet where it may inadvertently divert runoff from entering curb inlet.

INSTALLATION

1. Inlet protection used for inlet protection to reduce sediment and soluble pollutants entering storm drains shall meet Filtrexx® FilterSoxx™ Material Specifications and use Certified Filtrexx® FilterMedia™.
2. Contractor is required to be a Filtrexx® Certified™ Installer as determined by Filtrexx® International, LLC (440-926-2607 or visit web site at Filtrexx.com). Certification shall be considered current if appropriate identification is shown during time of bid or at time of application (current list of installers can be found at www.filtrexx.com). Look for the Filtrexx® Certified™ Installer Seal.

3. Filtrexx® Inlet protection shall be placed at locations indicated on plans as directed by the Engineer. Inlet protection should be installed in a pattern that allows complete protection of the inlet area.
4. Installation of curb Inlet protection will ensure a minimal overlap of at least 1 ft (300mm) on either side of the opening being protected. The Inlet protection will be anchored to the soil behind the curb using staples, stakes or other devices capable of holding the Inlet protection in place.
5. Standard Inlet protection for curb inlet protection and curb sediment containment will use 8 in (200mm) diameter Inlet protection, and drain inlets on soil will use 12 in (300mm) or 18 in (450mm) diameter Inlet protection. In severe flow situations, larger Inlet protection may be specified by the Engineer. During curb installation, Inlet protection shall be compacted to be slightly shorter than curb height.
6. If Inlet protection becomes clogged with debris and sediment, they shall be maintained so as to assure proper drainage and water flow into the storm drain. In severe storm events, overflow of the Inlet protection may be acceptable in order to keep the area from flooding.
7. Curb and drain Inlet protection shall be positioned so as to provide a permeable physical barrier to the drain itself, allowing sediment to collect on the outside of the Inlet protection.
8. For drains and inlets that have only curb cuts, without street grates, a spacer is required in order to keep the Inlet protection away from the drain opening. This spacer should be a hog wire screen bent to overlap the grate opening and keep the sock from falling into the opening. Use at least one spacer for every 4 ft (1.2m) of curb drain opening. The wire grid also prevents other floatable waste from passing over the Inlet protection.
9. Stakes shall be installed through the middle of the drain Inlet protection on 5 ft (1.5m) centers, using 2 in (50mm) x 2 in (50mm) x 3 ft (1m) wood stakes.
10. Staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.

INSPECTION AND MAINTENANCE

Routine inspection should be conducted within 24 hrs of a runoff event or as designated by the regulating authority. Inlet protection should be regularly inspected to make sure they maintain their shape and are producing adequate hydraulic flow-through. If ponding becomes excessive, additional Inlet protection may be required or sediment removal may be necessary. Inlet protection shall be inspected until contributing drainage area has been permanently stabilized and construction activity has ceased

1. The Contractor shall maintain the Inlet protection in a functional condition at all times and it shall be routinely inspected.
2. If the Inlet protection has been damaged, it shall be repaired, or replaced if beyond repair.
3. The Contractor shall remove sediment at the base of the upslope side of the Inlet protection when accumulation has reached 1/2 of the effective height of the Inlet protection, or as directed by the Engineer. Alternatively, for drain Inlet protection a new Soxx™ may be placed on top of the original increasing the sediment storage capacity without soil disturbance.
4. Inlet protection shall be maintained until disturbed area above or around the device has been permanently stabilized and construction activity has ceased.
5. Regular maintenance includes lifting the Inlet protection and cleaning around and under them as sediment collects.
6. The FilterMedia™ will be removed from paved areas or dispersed on site soil or behind curb once disturbed area has been permanently stabilized, construction activity has ceased, or as determined by the Engineer.

Table 2.4 Spacing for Curb Sediment Containment Systems.

Grade (%)	Spacing (ft)	Spacing (mm)
0.5	100	30
1.0	50	15
2.0	25	8
3.0	16	5
4.0	13	4
5.0	10	3

Source: Fifield, 2001.

Figure 2.1. Engineering Design Drawing for Curb and Drain Inlet Protection

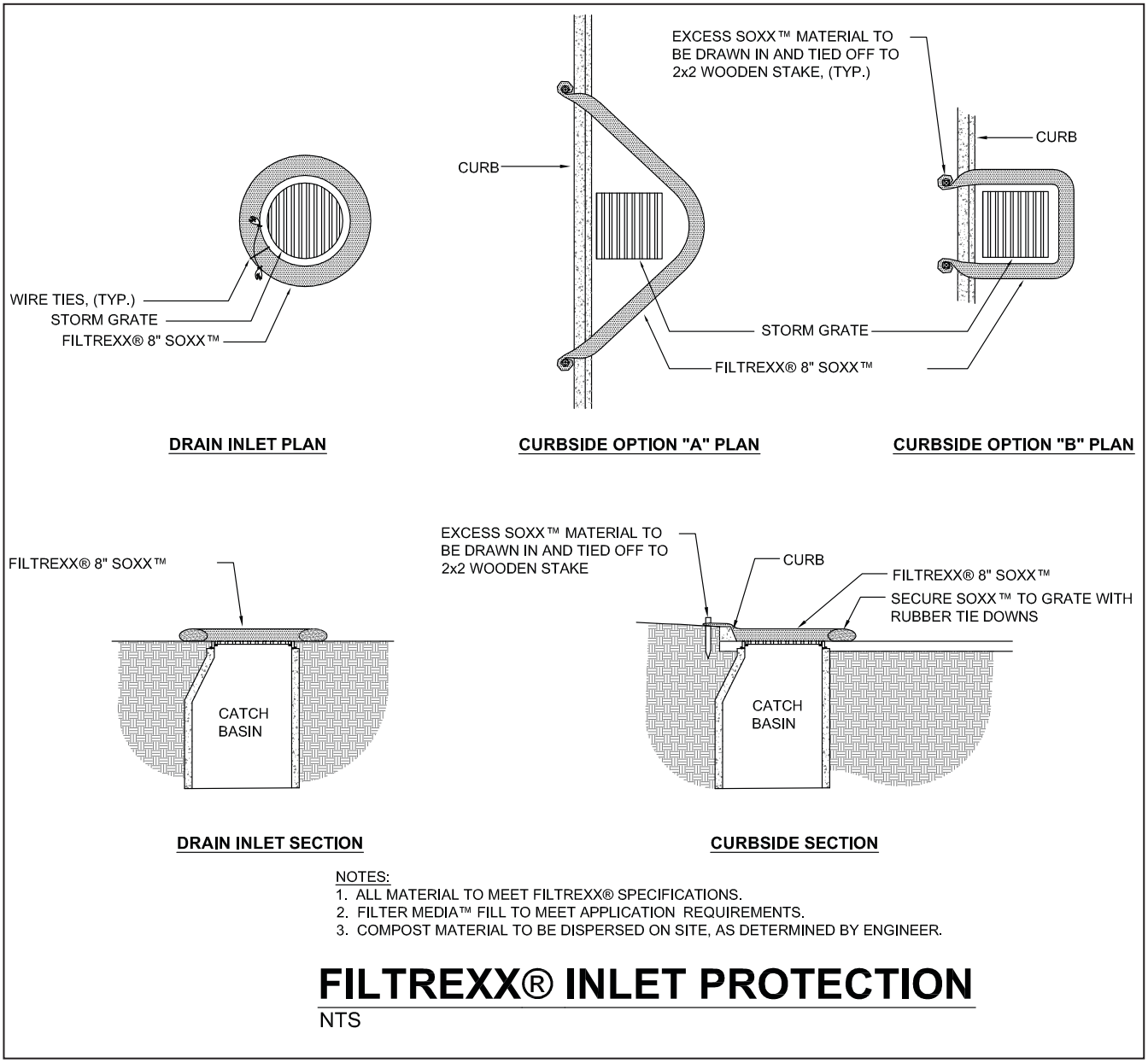
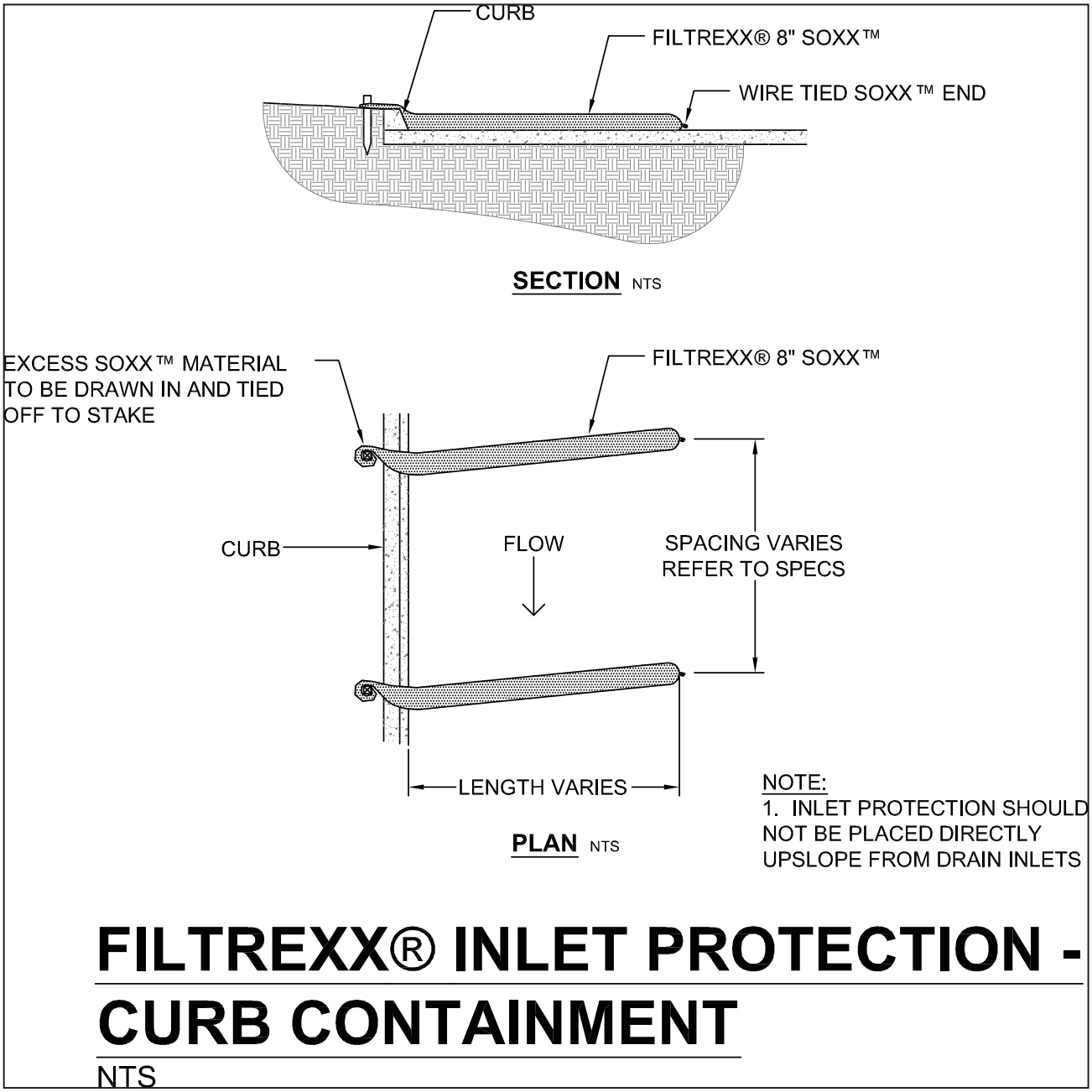


Figure 2.2. Engineering Design Drawing for Curb Sediment Containment Inlet Protection



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SHEET 2 ~ EXISTING CONDITIONS PLAN
SHEET 3 ~ SITE PLAN
SHEET 4 ~ GRADING & DRAINAGE PLAN
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SHEET 6 ~ EROSION & SEDIMENT CONTROL PLAN
SHEET 7 ~ CROSS SECTIONS
SHEET 8 ~ LANDSCAPING PLAN
SHEET 9 ~ LIGHTING PLAN
SHEET 10 ~ E101-EROSION & SEDIMENT CONTROL DETAILS
SHEET 11 ~ C101-CONSTRUCTION DETAILS
SHEET 12 ~ C102-CONSTRUCTION DETAILS
SHEET 13 ~ C103-CONSTRUCTION DETAILS
SHEET 14 ~ L101-LANDSCAPING DETAILS

NON-RESIDENTIAL SITE PLAN FOR HAMPSHIRE CONTROLS CORP. 1 GROVE STREET DOVER, N.H. TAX MAP 31, LOT 11

NOTE:

BERRY SURVEYING & ENGINEERING HAS PREPARED AN INSPECTION & MAINTENANCE MANUAL AS PART OF THIS PROJECTS DOCUMENTATION. ALL USERS ARE BOUND TO THIS DOCUMENT AS PART OF THE APPROVAL OF THE PLANNING BOARD. COPIES OF THE YEARLY INSPECTIONS ARE TO BE DELIVERED TO THE CITY OF DOVER COMMUNITY SERVICES DEPARTMENT.

OWNER: PILLAR IMAGING, LLC
1 GROVE STREET
DOVER, NH 03820

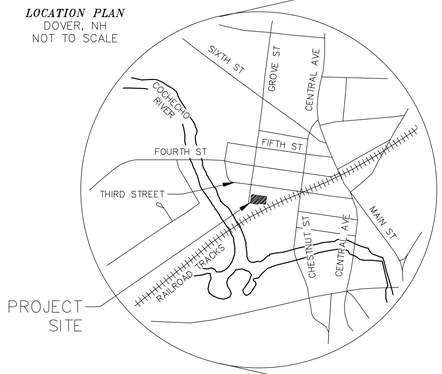
APPLICANT: HAMPSHIRE CONTROLS CORP.
P.O. BOX 516
DOVER, NH 03821

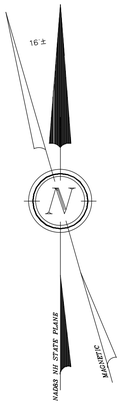
SURVEYOR OF RECORD: KENNETH A. BERRY, PE, LLS
CPSWQ, CPESC, CESSWI
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825
(603) 332-2863

ENGINEER OF RECORD: KENNETH A. BERRY, PE, LLS
CPSWQ, CPESC, CESSWI
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825
(603) 332-2863

WETLAND SCIENTIST: DEIDRA BENJAMIN, CWS
100 LEAVITT ROAD
PITTSFIELD, NH 03263
(603)-496-3307

LOCATION PLAN
DOVER, NH
NOT TO SCALE





VICINITY SKETCH
DOVER, NH
SCALE: 1" = 300' ±

WHETHER OR NOT OTHERWISE EXPRESSLY RECITED ON THIS SITE PLAN, THE SITE PLAN APPROVAL GRANTED IS CONDITIONED ON FAITHFUL AND DILIGENT ADHERENCE BY THE OWNER/SUBDIVIDER/DEVELOPER OF ALL TERMS, CONDITIONS, PROVISIONS AND SPECIFICATIONS OF THE CITY OF DOVER LAND SITE PLAN REGULATIONS AS AMENDED OR AS MAY LATER BE AMENDED, IN EFFECT ON THE DATE OF APPROVAL, UNLESS OR EXCEPT INSOFAR AS EXPRESSLY WAIVED, IN ANY PARTICULAR, BELOW. NON – ADHERENCE MAY RESULT IN A REVOCATION OF APPROVAL. ANY VARIATION FROM THE APPROVED PLAN WILL REQUIRE A RESUBMISSION FOR SITE PLAN APPROVAL.

REQUIRED PERMITS & APPROVALS:

1.) CITY OF DOVER PLANNING BOARD APPROVAL: PENDING

2.) STORMWATER MANAGEMENT PLAN: PENDING

GENERAL PLAN SET NOTES:

1.) 11x17" PLANS ARE TWICE THE PUBLISHED SCALE.

2.) ALL PLANS ARE CONSIDERED TO BE NOT FOR CONSTRUCTION UNLESS THEY CONTAIN THE APPROVAL STAMP OF THE CITY OF DOVER.

OWNER'S SIGNATURE DATE

APPROVED DOVER

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR
No. 805
KENNETH A. BERRY
SIGNATURE

DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

COVER PAGE

NON-RESIDENTIAL SITE PLAN
LAND OF
PILLAR IMAGING, LLC.
1 GROVE STREET
DOVER, N.H.
TAX MAP 31, LOT 11

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : AS SHOWN
DATE : JUNE 24, 2024
FILE NO. : DB 2024 – 031

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 10575
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

ABBREVIATION LEGEND:

E.O.P.	EDGE OF PAVEMENT
V.G.C.	VERTICAL GRANITE CURB
BITUM.	BITUMINOUS
E.S.H.W.T	ESTIMATE SEASONAL HIGH WATER TABLE
TYP.	TYPICAL
U.G.E	UNDER GROUND ELECTRIC / UTILITY
CLDI	CONCRETE LINED DUCTILE IRON
DI	DUCTILE IRON
F.P.	FIRE PROTECTION
U.D.	UNDER DRAIN
C.O.	CLEAN OUT
CMP	CORRUGATED METAL PIPE
INV.	INVERT
ELEV.	ELEVATION
HDPE	HIGH DENSITY POLYETHYLENE
RCP	REINFORCED CONCRETE PIPE
RECB	ROLLED EROSION CONTROL BLANKET
F.G.	FINISHED GRADE
E.G.	EXISTING GRADE
E.T.W.	EDGE OF TRAVELED WAY
T.B.R.	TO BE REMOVED
PL	PROPERTY LINE
EL	EASEMENT LINE
CL	CENTER LINE
CF	CUBIC FEET
P.C.	POINT OF CURVATURE
P.T.	POINT OF TANGENCY
P.V.C.	POINT OF VERTICAL CURVE
P.V.I.	POINT OF VERTICAL INTERSECTION
P.V.T.	POINT OF VERTICAL TANGENCY
EX.	EXISTING
PROP.	PROPOSED
STA.	STATION
BMP	BEST MANAGEMENT PRACTICE
'/,	FEET / FEET
TP	TEST PIT

SSL ( ) ~ {SIZE} SINGLE SOLID LINE (COLOR W=WHITE, Y=YELLOW)
DSL ( ) ~ {SIZE} DOUBLE SOLID LINE (COLOR W=WHITE, Y=YELLOW)
SSB ( ) ~ {SIZE} SINGLE SOLID W/ BROKEN LINE (COLOR W=WHITE, Y=YELLOW)
SBL ( ) ~ {SIZE} SINGLE BROKEN LINE (COLOR W=WHITE, Y=YELLOW)
DBL ( ) ~ {SIZE} DOUBLE BROKEN LINE (COLOR W=WHITE, Y=YELLOW)

EXISTING LEGEND:

- IRON PIPE ~FND~
- IRON BOUND ~FND~
- DRILL HOLE ~FND~
- UTILITY POLE
- SIGNAGE
- DRAINAGE CULVERT
- DRAIN MANHOLE
- SEWER MANHOLE
- CATCH BASIN
- WATER GATE VALVE
- FIRE HYDRANT
- GAS VALVE
- SEWER LINE
- WATER LINE
- OVERHEAD UTILITIES
- UNDERGROUND UTILITIES
- GAS LINE
- BUILDING SETBACK LINE
- CONTOUR LINE, MINOR
- CONTOUR LINE, MAJOR
- ZONING DISTRICT LINE
- EDGE OF GRAVEL TRAVEL WAY
- EASEMENT

PROPOSED LEGEND:

- LIGHT TYPE "A" MOUNTED ON POLE
- DRAIN MANHOLE W/ STRUCTURE
- CATCH BASIN W/ STRUCTURE
- SIGNAGE
- TEMPORARY BENCHMARK (T.B.M.)
- DETAIL SHEET / DETAIL
- CONTOUR MINOR, PROPOSED
- CONTOUR MAJOR, PROPOSED
- DRAIN CULVERT
- SHOULDER
- CENTER LINE
- BUILDING SETBACK LINE
- SILT FENCE / EROSION MIX BERM
- FILTREXX 8" – 12" SILT SOXX AS SPECIFIED
- ORANGE CONSTRUCTION PERIMETER FENCE
- PERIMETER CONTROL
- NRCS SOIL DELINEATION
- LIMIT OF SUBSURFACE SAND FILTER
- SOIL TYPE
- PROPOSED SPOT ELEVATION
- PROPOSED BITUMINOUS CONCRETE
- SNOW STORAGE

LEGEND:

TREES:

CF – FLOWERING DOGWOOD/Cornus Florida (6)

SHRUBS:

CS – RED OSIER DOGWOOD/Cornus sericea (6)

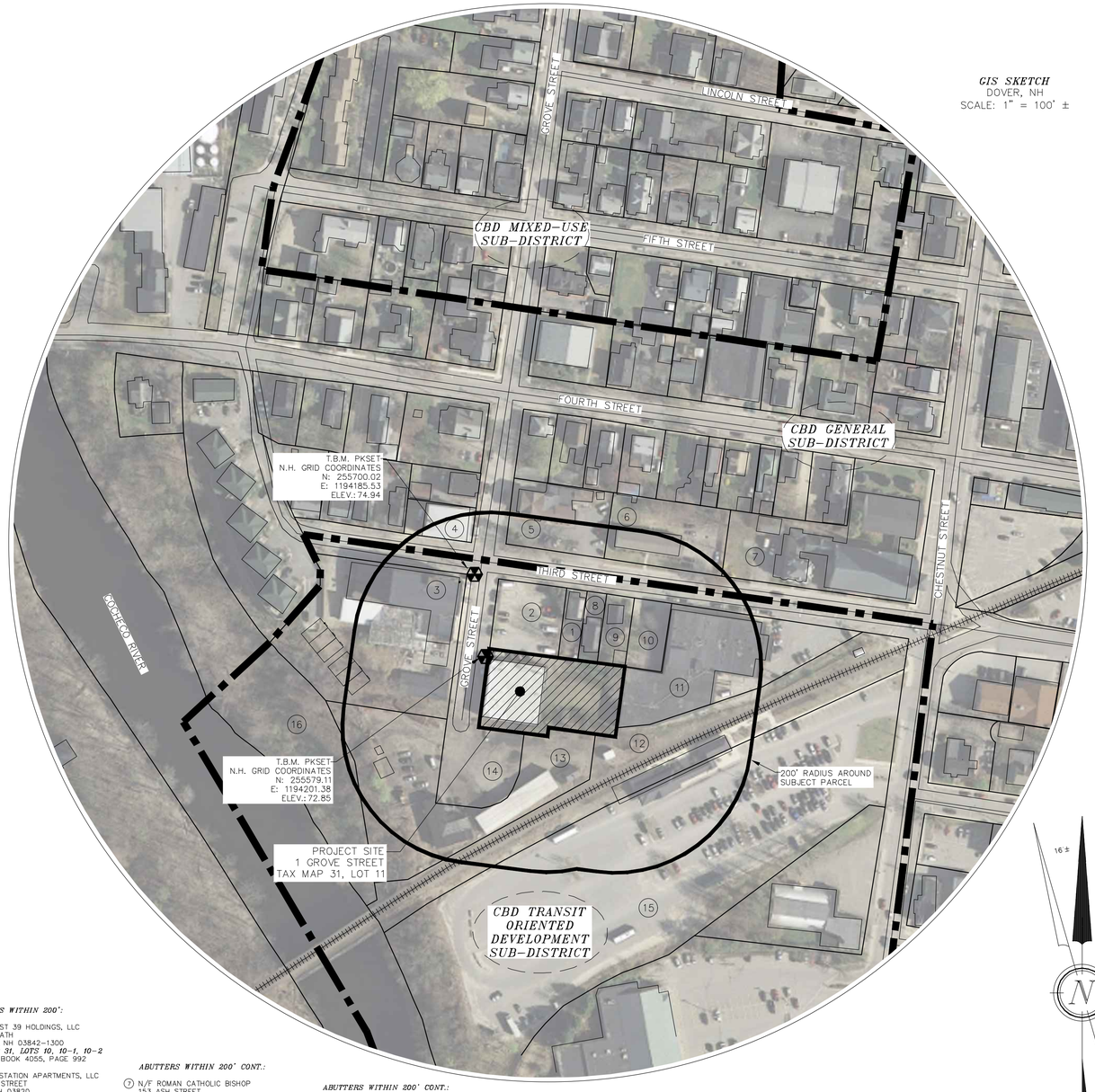
VD – ARROWWOOD/Viburnum dentatum (2)

HP – PEEGEE HYDRANGEA/Hydrangea paniculata "Grandiflora" (7)

GRASSES:

KF – FEATHER REED GRASS/Calamagrostis acutiflora (26)

GIS SKETCH
DOVER, NH
SCALE: 1" = 100' ±



SIGN ID NUMBER	SIGN SIZE (WIDTH x HEIGHT)	SIGN	TEXT DIMENSIONS	NO. OF SIGNS	BACKGROUND	LEGEND	BORDER	POST SIZE & QUANTITY
R7–8	12"x18"	RESERVED PARKING	SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT – FHWA	1	WHITE	GREEN W/ WHITE SYMBOL ON BLUE	RED	SQUARE (1)
R7–8a	12"x6"	VAN ACCESSIBLE	SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT – FHWA	1	WHITE	GREEN	GREEN	SQUARE (0)
D9–11b	24"x24"		SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT – FHWA	1	BLUE	WHITE	WHITE	U–CHANNEL (1)
D9–11b	12"x18"	ACCESSIBLE VAN PARKING USE LADT	SEE STANDARD HIGHWAY SIGNS 2004 EDITION PUBLISHED BY USDOT – FHWA	1	BLUE	WHITE	WHITE	U–CHANNEL (1)

ABUTTERS WITHIN 200':

1. N/F ERNEST 39 HOLDINGS, LLC
8 BEAR PATH
HAMPTON, NH 03842–1300
TAX MAP 31, LOTS 10, 10–1, 10–2
S.C.R.D. BOOK 4055, PAGE 992

2. N/F THE STATION APARTMENTS, LLC
35 THIRD STREET
DOVER, NH 03820
TAX MAP 31, LOT 12
S.C.R.D. BOOK 4966, PAGE 790

3. N/F 5 GROVE STREET RESIDENCES, LLC
8 GROVE STREET, STE 100
DOVER, NH 03820
TAX MAP 31, LOT 14
S.C.R.D. BOOK 4495, PAGE 589

4. N/F DWBH VENTURES LLC.
13152 WINSTANLEY WAY
SAN DIEGO, CA 92130
TAX MAP 31, LOT 15
S.C.R.D. BOOK 5154, PAGE 484

5. N/F ABK REALTY MANAGEMENT, LLC
35 THIRD STREET
DOVER, NH 03820–3316
TAX MAP 31, LOT 22
S.C.R.D. BOOK, 3669, PAGE 49

6. N/F PEAK RENTAL HOLDINGS, LLC
P.O. BOX 253
STRATHAM, NH 03885
TAX MAP 31, LOT 23
S.C.R.D. BOOK 4142, PAGE 462

ABUTTERS WITHIN 200' CONT.:

7. N/F ROMAN CATHOLIC BISHOP
153 ASH STREET
MANCHESTER, NH 03104
TAX MAP 31, LOT 24

8. N/F GRASS, ARTHUR
82 THIRD STREET
DOVER, NH 03820
TAX MAP 31, LOT 9
S.C.R.D. BOOK 1271, PAGE 604

9. N/F LYDSTON, JOHN A.
PO BOX 334
PORTSMOUTH, NH 03802
TAX MAP 31, LOT 8A
S.C.R.D. BOOK 4206, PAGE 540

10. N/F THIRD STREET HOLDINGS, LLC
7 CHURCH STREET, UNIT B
DEERFIELD, NH 03037
TAX MAP 31, LOT 6
S.C.R.D. BOOK 5006, PAGE 673

11. N/F THIRD STREET HOLDINGS, LLC
7 CHURCH STREET, UNIT B
DEERFIELD, NH 03037
TAX MAP 31, LOT 7
S.C.R.D. BOOK 5006, PAGE 673

ABUTTERS WITHIN 200' CONT.:

12. N/F BOSTON & MAINE RR
C/O GUILFORD TRANS.
IRON HORSE PARK
HIGH STREET
NORTH BILLERICA, MA 01862
TAX MAP 31, LOT 4
S.C.R.D. BOOK 1322, PAGE 189

13. N/F THE STATION APARTMENTS, LLC
35 THIRD STREET
DOVER, NH 03820
TAX MAP 31, LOT 4–1
S.C.R.D. BOOK 4966, PAGE 792

14. N/F THE STATION APARTMENTS, LLC
35 THIRD STREET
DOVER, NH 03820
TAX MAP 31, LOT 4ROW
S.C.R.D. BOOK 4966, PAGE 792

15. N/F COCHECO MILLS HOLDINGS, LLC
3 PENSTOCK WAY
NEWMARKET, NH 03857–4416
TAX MAP 31, LOT 4B
S.C.R.D. BOOK 3988, PAGE 333

ABUTTERS WITHIN 200' CONT.:

16. N/F CITY OF DOVER
288 CENTRAL AVE
DOVER, NH 03820–4169
TAX MAP 31, LOT 3A
S.C.R.D. BOOK 1714, PAGE 396

16' ±

N

NH#83 NH STATE PLANE

MAGNETIC

STATE OF NEW HAMPSHIRE
No. 805
KENNETH A. BERRY
SIGNATURE
LICENSED LAND SURVEYOR

DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

NEIGHBORHOOD PLAN

NON–RESIDENTIAL SITE PLAN
LAND OF
PILLAR IMAGING, LLC.
1 GROVE STREET
DOVER, N.H.
TAX MAP 31, LOT 11

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : AS SHOWN
DATE : JUNE 24, 2024
FILE NO. : DB 2024 – 031

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14076
LICENSED PROFESSIONAL ENGINEER

SHEET 1 OF 14

NOT FOR CONSTRUCTION

PLAN REFERENCES:

1.) "LOT LINE REVISION PLAN LAND OF BOSTON & MAINE CORPORATION TO ANTHONY CONSENTINO REV. TRUST, GROVE STREET, DOVER N.H. TAX MAP 31, LOT 4 & 11" BY: BERRY SURVEYING & ENGINEERING – DATED: JULY 28, 2008 S.C.R.D. PLAN #95–88

2.) "SUBDIVISION PLAN AND BOUNDARY LINE ADJUSTMENT PLAN, SUMMIT LAND DEVELOPMENT, ALAN & SHERRILYN HATCH, VALERIE L. HARVEY AND ROBERT & PHYLLIS HOWARD, THIRD STREET, FOURTH STREET AND GROVE STREET, DOVER, NEW HAMPSHIRE" BY: TRITECH ENGINEERING CORPORATION – DATED: MAY 8, 2006 S.C.R.D. PLAN #86–61

3.) "SUBDIVISION PLAN AND BOUNDARY LINE ADJUSTMENT PLAN, SUMMIT LAND DEVELOPMENT, ALAN & SHERRILYN HATCH, VALERIE L. HARVEY AND ROBERT & PHYLLIS HOWARD, THIRD STREET, FOURTH STREET AND GROVE STREET, DOVER, NEW HAMPSHIRE" BY: TRITECH ENGINEERING CORPORATION – DATED: MAY 8, 2006 S.C.R.D. PLAN #86–62

4.) "LOT LINE RELOCATION PLAN FOR BOSTON & MAINE CORPORATION TO FIRST NATIONAL BANK OF PORTSMOUTH, THIRD & GROVE STREET, COUNTY OF STRAFFORD, DOVER, N.H. BY: RICHARD P. MILLETTE AND ASSOCIATES – DATED: NOVEMBER 5, 1993 S.C.R.D. PLAN #44–12

5.) "RIGHT–OF–WAY AND TRACK MAP BOSTON AND MAINE R.R. OPERATED BY THE BOSTON AND MAINE R.R., STATION 0+0 TO STATION 52+80" VAL SECTION 2, MAP 55–1

6.) "LOT LINE REVISION FOR 6 GROVE STREET RESIDENCES, LLC FOR PROPERTY LOCATED AT 6 GROVE STREET, DOVER NH TAX MAP 31 LOT 14" BY: BERRY SURVEYING & ENGINEERING – DATED: NOVEMBER 21, 2017 BS&E FILE NUMBER DB 2016–090 / DOVER PLANNING # 16–031A

7.) "ALTA/NSPS SURVEY LAND OF ONE GROVE STREET, LLC 1 GROVE STREET, DOVER NH TAX MAP 31 LOT 11" BY: BERRY SURVEYING & ENGINEERING – DATED: AUGUST 9, 2021 BS&E FILE NUMBER DB 2021–125 NOT RECORDED, ON FILE AT THIS OFFICE

8.) "EXISTING CONDITIONS PLAN PREPARED FOR SOJOURN PROPERTY MANAGEMENT LLC, TAX MAP 31, LOT NOs 7 & 8, THIRD STREET, CITY OF DOVER, COUNTY OF STRAFFORD, STATE OF NEW HAMPSHIRE" BY: MCENEANEY SURVEY ASSOCIATES, INC DATED: MAY 10, 2019 ON FILE AT THE CITY OF DOVER

UTILITY NOTE:

THE UNDERGROUND UTILITIES SHOWN ON THIS PLAN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR NOR THE ENGINEER MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE.

WETLAND NOTES:

WETLANDS WERE DELINEATED BY DEIDRA BENJAMIN. IN APRIL 2024 UTILIZING THE FOLLOWING STANDARDS:

1. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
2. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2016).
3. NATIONAL WETLAND PLANT LIST (CURRENT VERSION).
4. NO WETLANDS WERE FOUND ON SITE.

SOILS:

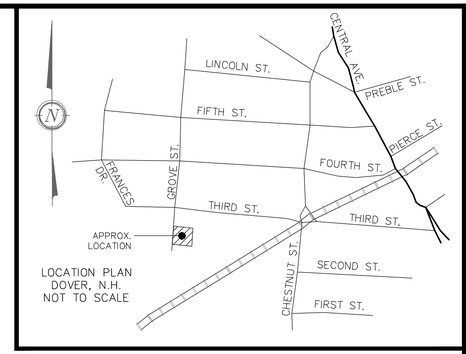
SfC – SUFFIELD SILT LOAM, 8 TO 15 PERCENT SLOPES

SEE WEBSOIL USDA–NRCS

DEIDRA BENJAMIN, CWS #295

LEGEND:

- 3/4" REBAR W/ ID CAP ~TBS~
- IRON BOUND/IRON ROD (FND)
- IRON PIPE (FND)
- DRILL HOLE (FND)
- UTILITY POLE / GUY WIRE
- SINGLE POST SIGN
- TEMPORARY BENCHMARK
- CURB STOP
- GATE VALVE
- FIRE HYDRANT
- GAS VALVE
- CATCH BASIN W/ STRUCTURE
- DRAIN MANHOLE W/ STRUCTURE
- SEWER MANHOLE W/ STRUCTURE
- APPROX. ABUTTING PROPERTY LINE
- BUILDING SETBACK LINE
- EXISTING GAS LINE
- EXISTING WATER LINE
- EXISTING SEWER LINE
- EXISTING DRAIN LINE
- OVERHEAD UTILITIES
- EXISTING CONTOUR MINOR
- EXISTING CONTOUR MAJOR
- EXISTING EDGE OF GRAVEL
- EXISTING EASEMENT
- FND FOUND
- TYP TYPICAL
- S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS



LOCATION PLAN
DOVER, N.H.
NOT TO SCALE

NOTES:

1.) OWNER: PILLAR IMAGING, LLC
1 GROVE STREET
DOVER, NH 03820

APPLICANT: HAMPSHIRE CONTROLS CORP.
P.O. BOX 516
DOVER, NH 03821

2.) TAX MAP 31, LOT 11

3.) LOT AREA: 21,383 Sq. Ft., 0.49 Ac.

4.) S.C.R.D. BOOK 4943, PAGE 308

5.) ZONING: CBD – CENTRAL BUSINESS DISTRICT
(TRANSIT ORIENTED DEVELOPMENT SUB–DISTRICT)
SETBACKS
FRONT BUILD TO (GROVE ST) ~ 0' MIN, 0' MAX
SIDE ~ 10'–25' MAX
REAR ~ 0' MIN, 25' MAX
MIN. LOT SIZE: N/A
MIN. FRONTAGE BUILD–OUT: 80%
MIN. LOT COVERAGE: 75–100%
MAX. BUILDING HEIGHT: 5 STORIES
MIN. BUILDING HEIGHT: 3 STORIES

6.) THE INTENT OF THIS PLAN IS TO SHOW THE EXISTING BOUNDARIES AND CONDITIONS OF TAX MAP 31, LOT 11 LOCATED IN DOVER, N.H., AS OF THE FIELD SURVEY IN AUGUST OF 2016, JUNE OF 2022, AND JUNE 2024.

7.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS PROPERTY DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF: FEMA COMMUNITY #330145, MAP 33017C0310E, DATED: SEPTEMBER 30, 2015.

8.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS. HORIZONTAL DATUM BASED ON NAD83 STATE PLANE. COORDINATES GATHERED USING CARLSON BRX7 SURVEY GRADE GPS RECEIVERS.

9.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN AUGUST 2016 WITH AN ERROR OF CLOSURE BETTER THAN 1 PART IN 10,000.

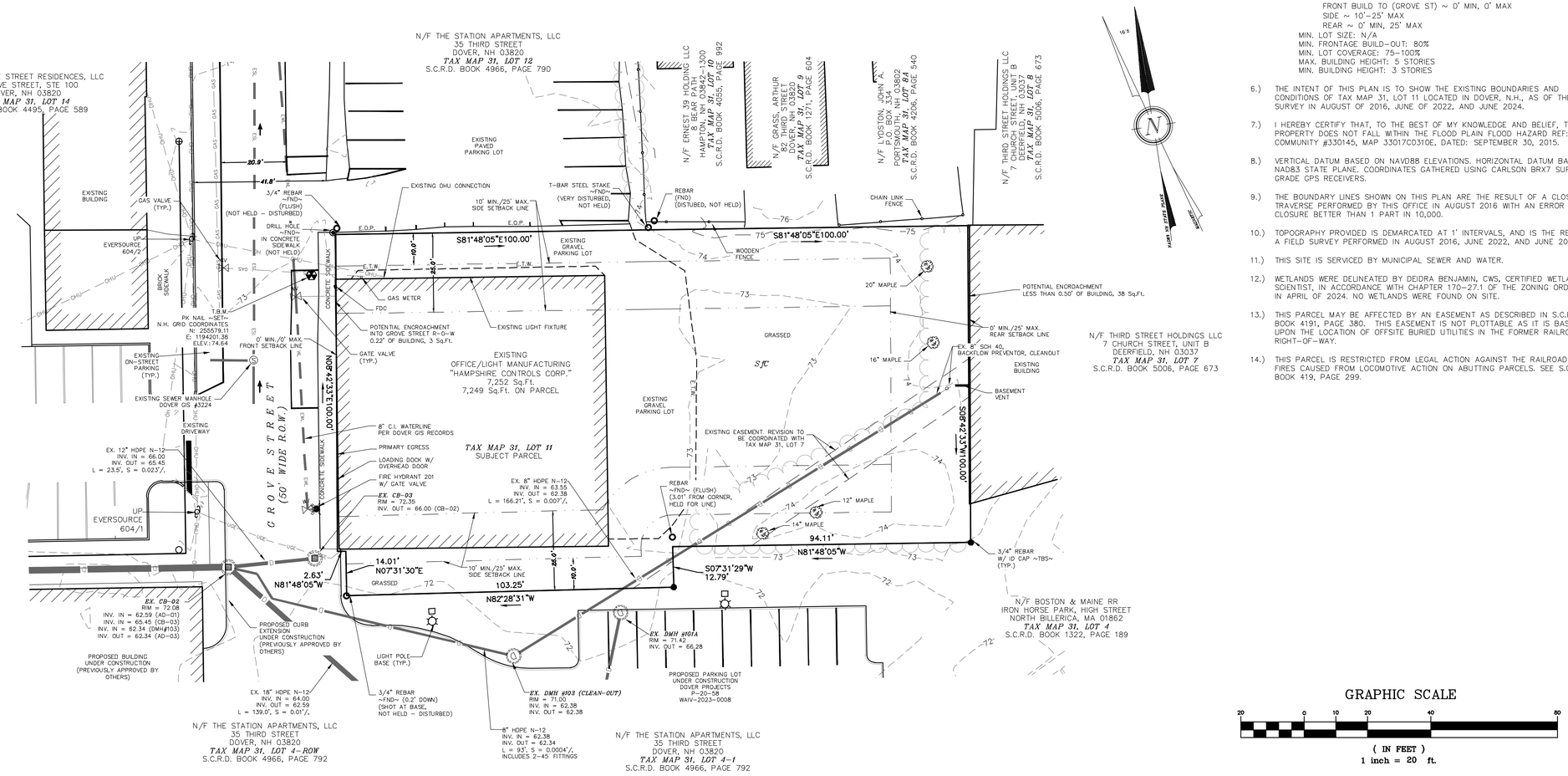
10.) TOPOGRAPHY PROVIDED IS DEMARCATED AT 1' INTERVALS, AND IS THE RESULT OF A FIELD SURVEY PERFORMED IN AUGUST 2016, JUNE 2022, AND JUNE 2024.

11.) THIS SITE IS SERVICED BY MUNICIPAL SEWER AND WATER.

12.) WETLANDS WERE DELINEATED BY DEIDRA BENJAMIN, CWS, CERTIFIED WETLANDS SCIENTIST, IN ACCORDANCE WITH CHAPTER 170–27.1 OF THE ZONING ORDINANCE, IN APRIL OF 2024. NO WETLANDS WERE FOUND ON SITE.

13.) THIS PARCEL MAY BE AFFECTED BY AN EASEMENT AS DESCRIBED IN S.C.R.D. BOOK 4191, PAGE 380. THIS EASEMENT IS NOT PLOTTABLE AS IT IS BASED UPON THE LOCATION OF OFFSITE BURIED UTILITIES IN THE FORMER RAILROAD RIGHT–OF–WAY.

14.) THIS PARCEL IS RESTRICTED FROM LEGAL ACTION AGAINST THE RAILROAD DUE TO FIRES CAUSED FROM LOCOMOTIVE ACTION ON ABUTTING PARCELS. SEE S.C.R.D. BOOK 419, PAGE 299.



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

EXISTING CONDITIONS PLAN

NON–RESIDENTIAL SITE PLAN
LAND OF
PILLAR IMAGING, LLC.
1 GROVE STREET
DOVER, N.H.
TAX MAP 31, LOT 11

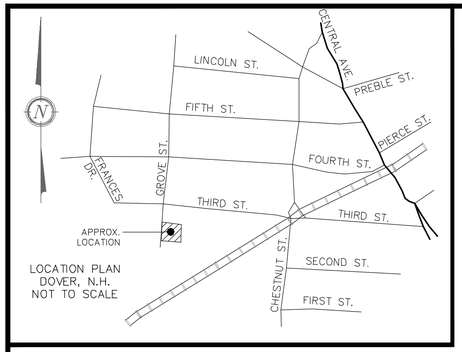
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 24, 2024
FILE NO. : DB 2024 – 031

STATE OF NEW HAMPSHIRE — NO. 805 — LICENSED LAND SURVEYOR
KENNETH A. BERRY
SIGNATURE

SHEET 2 OF 14

NOT FOR CONSTRUCTION



LOCATION PLAN
DOVER, N.H.
NOT TO SCALE

WAIVER REQUESTS:
(1) SITE SPECIFIC SOILS MAP: 153-14(A)(3)(f)(2)(C)
(2) PARKING LOT ACCESSWAY WIDTH: 153-14(D)(6)(b)
(3) INTERIOR LANDSCAPING: 153-14(G)(2)(A)
(4) PERIMETER LANDSCAPING: 153-14(G)(3)(A)
(5) PIPE COVER: 157-40-B(5)

CONDITIONAL USE PERMITS:
(1) EXISTING FRONTAGE BUILD-OUT OF 73% WHERE 80% IS REQUIRED
(2) EXISTING LOT COVERAGE OF 33.9% WHERE 75-100% IS REQUIRED
(3) EXISTING HEIGHT OF PRINCIPAL BUILDING OF 1 STORY WHERE 3-5 ARE REQUIRED
(4) EXISTING REAR BUILD-TO PROVIDED OF 114.4'-115.2' WHERE 0' MIN TO 25' MAX IS REQUIRED
(5) MODIFICATIONS OF THE STREETSCAPE STANDARDS TO LEAVE THE EXISTING FRONTAGE AS IS

PARKING REQUIREMENTS:

CHAPTER 153-14D PARKING TABLE
- LAND USE CONSIDERED OFFICE DUE TO EMPLOYEE VOLUME BUT NOT A HIGH VOLUME OF CUSTOMERS OR CLIENTS: 1 SPACE PER 300 SF
- 7,252 Sq.Ft. BUILDING: 24 SPACES MAXIMUM, 25 SPACES PROVIDED

TOTAL MAXIMUM = 24
TOTAL PROPOSED = 25 SPACES, DETERMINED BY PLANNING DIRECTOR TO NOT NEEDED CUP FOR ONE PARKING SPACE OVER THE MAXIMUM.

2% EV REQUIREMENT = 0.5 REQUIRED, 2 PROVIDED
5% BIKE PARKING = 1.25 REQUIRED, 7 PROVIDED

25 EMPLOYEES WILL BE AT THIS FACILITY

SNOW STORAGE CALCULATION:

- STORAGE CALCULATION (6:1 RATIO USED)
  - PAVED PARKING LOT AREA = 9,414 Sq.Ft. / 6 = 1,570 Sq.Ft.
  - 1,585 Sq.Ft. PROVIDED
  - SNOW SHALL BE REMOVED FROM THE PROPERTY AND DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS ONCE IDENTIFIED AREAS ARE FULL.

UTILITY NOTE:

THE UNDERGROUND UTILITIES SHOWN ON THIS PLAN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR NOR THE ENGINEER MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE.

SOILS:

SfC – SUFFIELD SILT LOAM, 8 TO 15 PERCENT SLOPES

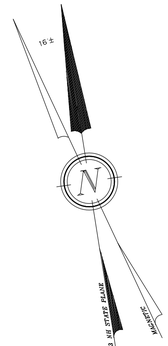
SEE WEBSOIL USDA-NRCS

NOTES CONTINUED:

38.) PROJECT DISTURBANCE: TOTAL 14,000 Sq. Ft. (0.32 Ac.) NOTE THAT THE PROJECT IS NOT SUBJECT TO THE EPA NPDES PHASE II, HOWEVER IS SUBJECT TO THE CITY OF DOVER STORMWATER RULES, WHICH REQUIRE THE FOLLOWING ITEMS. A STORMWATER POLLUTION PREVENTION PLAN (SWPPP), EROSION AND SEDIMENT CONTROL INSPECTIONS TO BE CONDUCTED ONCE PER EVERY SEVEN DAYS AND AT AN INCREASED FREQUENCY INCLUDING WITHIN 24-HOURS OF A 0.25 INCH RAIN EVENT. INSPECTIONS TO BE CONDUCTED BY A "QUALIFIED PERSON" AS DEFINED BY EPA CGP 4.1.1 AND INSPECTION REPORTS SUBMITTED TO THE CITY OF DOVER, NH, ENGINEERING DEPARTMENT WITHIN 24 HOURS IN ACCORDANCE WITH CGP 4.1.7 AND MAINTAINED BY THE OWNER FOR A PERIOD OF THREE YEARS AFTER THE PROJECT IS COMPLETED. SEE ALSO CITY OF DOVER ADDITIONAL INSPECTION REQUIREMENTS BELOW.

39.) TWO (2) EV PARKING SPACES ARE PROVIDED WITHIN THE PARKING LOT.

40.) THE PERIMETER BOUNDARY WILL BE STAKED OUT BY BERRY SURVEYING & ENGINEERING PRIOR TO THE START OF CONSTRUCTION.



IMPERVIOUS COVERAGE:

EXISTING CONDITION
EXISTING BUILDING: 7,249 Sq.Ft. (33.9%) ON PARCEL, 7,252 Sq.Ft. TOTAL
EXISTING IMPERVIOUS (GRAVEL): 3,446 Sq.Ft. (16.1%)
TOTAL EXISTING COVERAGE: 10,695 Sq.Ft. (50.0%)

PROPOSED CONDITION
EXISTING BUILDING: 7,249 Sq.Ft., (33.9%)
PROPOSED IMPERVIOUS PAVEMENT, CONCRETE, GRAVEL: 9,964 Sq.Ft. (46.6%)
TOTAL PROPOSED COVERAGE: 17,213 Sq.Ft. (80.5%)

NOTES:

1.) OWNER: PILLAR IMAGING, LLC
1 GROVE STREET
DOVER, NH 03820

APPLICANT: HAMPSHIRE CONTROLS CORP.
P.O. BOX 516
DOVER, NH 03821

2.) TAX MAP 31, LOT 11

3.) LOT AREA: 21,383 Sq. Ft., 0.49 Ac.

4.) S.C.R.D. BOOK 4943, PAGE 308

5.) ZONING: CBD – CENTRAL BUSINESS DISTRICT
(TRANSIT ORIENTED DEVELOPMENT SUB-DISTRICT)

SETBACKS	PROVIDED
FRONT BUILD TO (GROVE ST) ~ 0' MIN, 0' MAX	0'
SIDE ~ 10'-25' MAX	10'-25'
REAR ~ 0' MIN, 25' MAX	114.8'-115.2' (SEE CUP REQUEST)
MIN. LOT SIZE: N/A	21,383 Sq. Ft.
MIN. FRONTAGE BUILD-OUT: 80%	73.0% (SEE CUP REQUEST)
MIN. LOT COVERAGE: 75-100%	33.9% (SEE CUP REQUEST)
MAX. BUILDING HEIGHT: 5 STORIES	1 STORY (SEE CUP REQUEST)
MIN. BUILDING HEIGHT: 3 STORIES	

6.) THE INTENT OF THIS PLAN IS TO SHOW THE DEVELOPMENT OF A PARKING AREA & OTHER SITE IMPROVEMENTS FOR PILLAR IMAGING, LLC AND HAMPSHIRE CONTROLS CORP ON TAX MAP 31, LOT 11.

7.) I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS PROPERTY DOES NOT FALL WITHIN THE FLOOD PLAIN FLOOD HAZARD REF: FEMA COMMUNITY #330145, MAP 33017C0310E, DATED: SEPTEMBER 30, 2015.

8.) VERTICAL DATUM BASED ON NAVD88 ELEVATIONS, HORIZONTAL DATUM BASED ON NAD83 STATE PLANE. COORDINATES GATHERED USING CARLSON BRX7 SURVEY GRADE GPS RECEIVERS.

9.) THE BOUNDARY LINES SHOWN ON THIS PLAN ARE THE RESULT OF A CLOSED TRAVERSE PERFORMED BY THIS OFFICE IN AUGUST 2016 WITH AN ERROR OF CLOSURE BETTER THAN 1 PART IN 10,000.

10.) TOPOGRAPHY PROVIDED IS DEMARCATED AT 1' INTERVALS, AND IS THE RESULT OF A FIELD SURVEY PERFORMED IN AUGUST 2016, JUNE 2022, & JUNE 2024.

11.) THIS SITE IS SERVICED BY MUNICIPAL SEWER AND WATER.

12.) WETLANDS WERE DELINEATED BY DEIDRA L. BENJAMIN, CERTIFIED WETLANDS SCIENTIST, IN ACCORDANCE WITH CHAPTER 170-27.1 OF THE ZONING ORDINANCE, IN APRIL OF 2024. NO WETLANDS WERE FOUND ON SITE.

13.) LIST ANY VARIANCES OR SPECIAL EXCEPTIONS GRANTED BY THE ZONING BOARD OF ADJUSTMENT OR CONDITIONAL USE PERMITS GRANTED BY THE PLANNING BOARD FOR THE PROPOSED USE OR STRUCTURE, INCLUDING THE CASE NUMBER AND DATE OF DECISION AND ANY CONDITIONS: NONE

14.) AS-BUILT PLANS OF THE SUBDIVISION SHALL BE SUBMITTED ON PAPER AND IN DIGITAL FORMAT AUTOCAD DWG, AUTOCAD DXF OR 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.

15.) THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION AND TELEPHONE LINES SHALL BE UNDERGROUND THROUGHOUT THE SITE PROPOSED. (NOT APPLICABLE)

16.) ALL CONSTRUCTION SHALL CONFORM WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION (NHDOT) "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION 2016" AND WITH THE CITY OF DOVER COMMUNITY SERVICES REGULATIONS AND STANDARD SPECIFICATION FOR CONSTRUCTION. THE MORE STRINGENT SPECIFICATION SHALL APPLY.

17.) 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.

18.) 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 50' BUFFERS ON SITE SO NOT APPLICABLE FOR THIS PROJECT.

19.) ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS. (NOT APPLICABLE)

20.) 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. THE PROPOSED PROJECT WILL CONSIST OF ONE PHASE AND WILL DISTURB 14,000 Sq.Ft. 0.32 Ac. (SEE NOTE #39)

21.) 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.

22.) THE SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY-FRIDAY 7AM-6PM, 9AM-6PM ON SATURDAY & NO SUNDAY, OR FEDERAL HOLIDAY HOURS. HOURS OF CONSTRUCTION SHALL BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. S.

23.) BUILDING ADDRESSES SHALL BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT. (NOT APPLICABLE)

24.) THE FOLLOWING FEDERAL AND STATE PERMITS HAVE BEEN ISSUED FOR THE SUBJECT PROPERTY:
NONE

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

26.) ANY RETAINING WALL TALLER THAN FOUR FEET (4') REQUIRES ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.

27.) ANY FENCE TALLER THAN SEVEN FEET (7') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.

28.) THE OWNER OF RECORD SHALL RECORD AT THE REGISTRY OF DEEDS DOCUMENTATION SUFFICIENT TO PROVIDE NOTICE TO ALL PERSONS/ENTITIES THAT MAY ACQUIRE ANY PROPERTY SUBJECT TO THE REQUIREMENTS AND RESPONSIBILITIES DESCRIBED IN THE APPROVED STORMWATER MANAGEMENT PLAN. THE NOTICE SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS FOR RECORDING CONTAINED IN RSA 477 AND 478. THE NOTICE NEED NOT SET FORTH THE REQUIREMENTS AT LENGTH, SO LONG AS IT IS SUFFICIENT TO PROVIDE NOTICE TO PROSPECTIVE PURCHASERS TO THE REQUIREMENTS FOR MAINTENANCE AND REPORTING.

29.) FIRE DEPARTMENT ACCESS ROADS SHALL BE INSTALLED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF FIRE APPARATUS IN ALL WEATHER CONDITIONS AT ALL TIMES.

30.) EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 153-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.

31.) APPROVED BACKFLOW PREVENTERS SHALL BE PROVIDED FOR DOMESTIC WATER LINES. (NOT APPLICABLE)

32.) SITE IS TO COMPLY WITH NFPA 1 CHAPTER 18.

33.) 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

34.) 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. (NOT APPLICABLE)

35.) FIRE DEPARTMENT CONNECTION(S), IF REQUIRED BY THE SPECIFIC SYSTEM, 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. (NOT APPLICABLE)

36.) THE SITE LAYOUT IS DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS. THE PROPOSED STRUCTURE WILL ALSO BE DESIGNED IN ACCORDANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS (I.E. IBC, ANSI-117.1) AND NH RSA 155-A:5.

37.) ONSITE REFUSE IS NOT NEEDED FOR THE OPERATION.

LEGEND:

- 3/4" REBAR W/ID CAP ~TBS~
- IRON BOUND/IRON ROD (FND)
- IRON PIPE (FND)
- DRILL HOLE (FND)
- UTILITY POLE / GUY WIRE
- SINGLE POST SIGN
- TEMPORARY BENCHMARK
- APPROX. ABUTTING PROPERTY LINE
- BUILDING SETBACK LINE
- CENTER LINE
- SHOULDER
- OHU OVERHEAD UTILITIES
- UGE UNDERGROUND UTILITIES
- LIMIT OF SUBSURFACE SAND FILTER
- FND FOUND
- TYP TYPICAL
- S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS
- T.B.R. TO BE REMOVED
- F.D.C. FIRE DEPARTMENT CONNECTION
- SNOW STORAGE
- PROPOSED BITUMINOUS CONCRETE
- E101 / E6 DETAIL SHEET/DETAIL

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

APPROVED DOVER

NOT FOR CONSTRUCTION

DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

SITE PLAN

NON-RESIDENTIAL SITE PLAN
LAND OF
PILLAR IMAGING, LLC.
1 GROVE STREET
DOVER, N.H.
TAX MAP 31, LOT 11

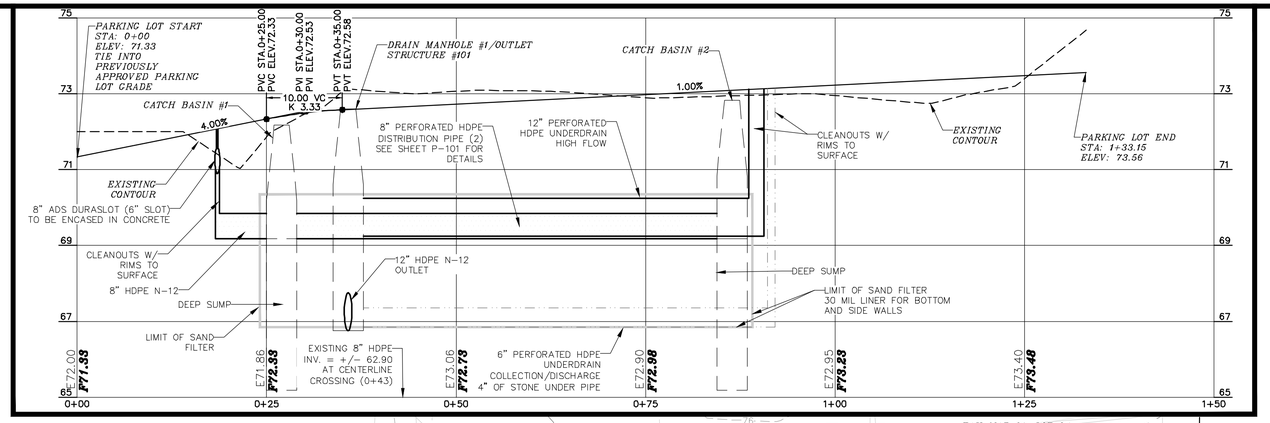
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

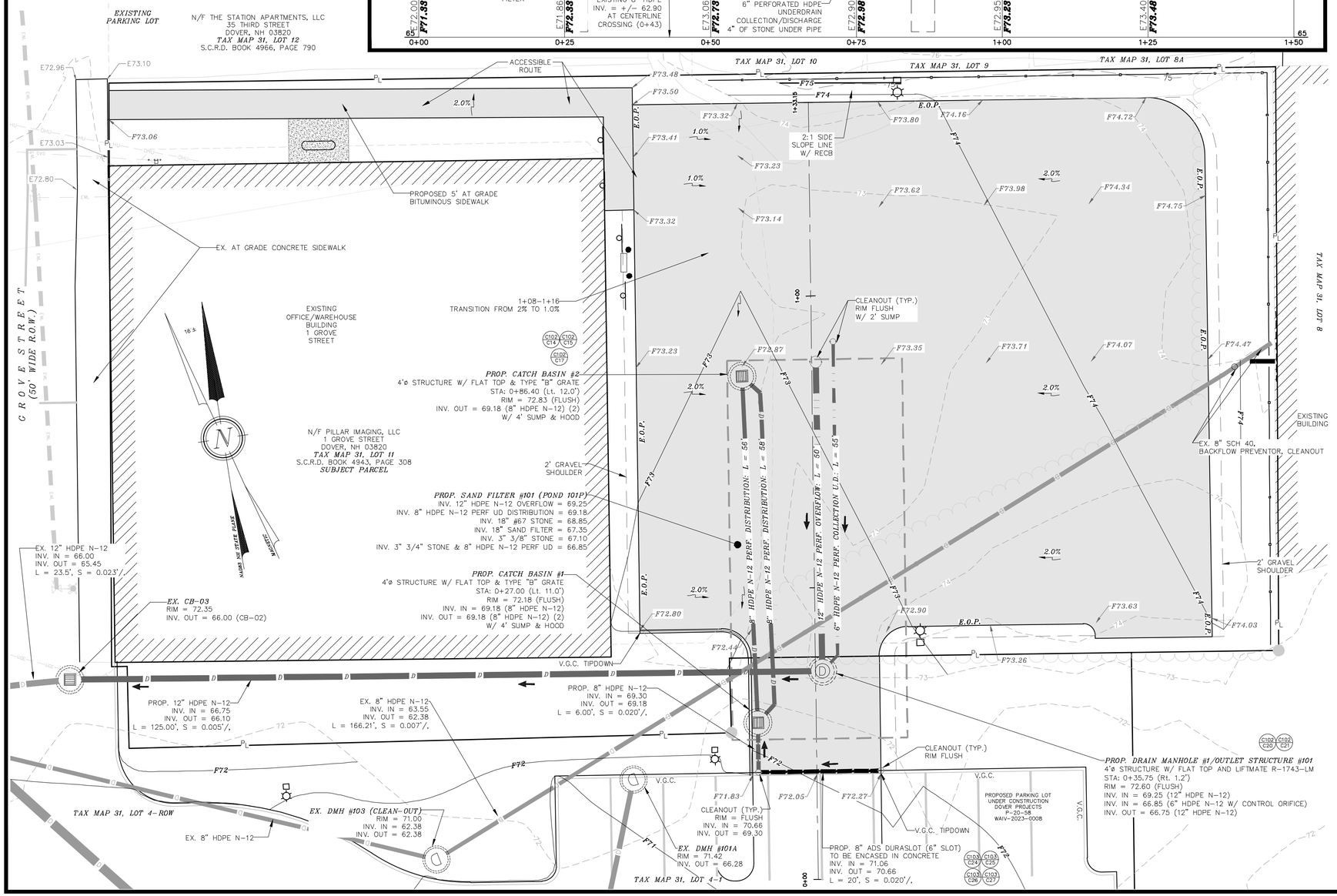
SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 24, 2024
FILE NO. : DB 2024 - 031

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14246
LICENSED PROFESSIONAL ENGINEER

PROPOSED LECEND:

- FLOW ARROW
- TEMPORARY BENCHMARK (T.B.M.)
- E101 / E6 — DETAIL SHEET / DETAIL
- 211 / 210 / D — CONTOUR MINOR, PROPOSED; CONTOUR MAJOR, PROPOSED; DRAINAGE CULVERT
- SHOULDER
- CENTER LINE
- BUILDING SETBACK LINE
- U.D — UNDER DRAIN
- E109.31 — EXISTING SPOT ELEVATION
- F109.31 — PROPOSED SPOT ELEVATION
- CATCH BASIN W/ STRUCTURE
- DRAIN MANHOLE W/ STRUCTURE
- PROPOSED BITUMINOUS CONCRETE





NOTES:

1.) OWNER: PILLAR IMAGING, LLC
1 GROVE STREET
DOVER, NH 03820

APPLICANT: HAMPSHIRE CONTROLS CORP.
P.O. BOX 516
DOVER, NH 03821

2.) TAX MAP 31, LOT 11

3.) LOT AREA: 21,383 Sq. Ft., 0.49 Ac.

4.) S.C.R.D. BOOK 4943, PAGE 308

5.) THE INTENT OF THIS PLAN IS TO PROVIDE GRADING & ENGINEERING DETAILS OF THE PROPOSED SITE PLAN. EXISTING AND PROPOSED CONTOURS ARE PROVIDED AT 1' INTERVALS WITH DRAINAGE FEATURES AT MORE PRECISE INTERVALS.

GRADING NOTES:

1.) THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH NHDOT STANDARD SPECIFICATIONS DATED 2016. CURRENT STANDARD PLANS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS INCLUDED IN THE PROPOSAL.

2.) CONTRACTOR SHALL TAKE SPECIAL CARE IN NOT DISTURBING EXISTING MONUMENTS BOUNDS, AND OR BENCHMARKS WITHOUT FIRST MAKING PROVISIONS FOR RELOCATION

3.) THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE EXACTLY AND TO PRESERVE ANY AND ALL UNDERGROUND UTILITIES CALL "DIG-SAFE" 1-888-DIGSAFE (344-7233) AT LEAST 72 HOURS BEFORE COMMENCING CONSTRUCTION

4.) WHERE AN EXISTING UNDERGROUND UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.

5.) THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.

6.) AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE. LIMIT OF GRADING SHOULD NOT BE EXPANDED WITHOUT CONSULTING THE DESIGN ENGINEER. SEE ALSO E&SC PLAN.

7.) THE TERM "PROPOSED" (PROP.) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS, OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE & RESET" (R & R).

8.) ALL SYMBOLS, WORDS, TRANSVERSE MARKINGS (STOP BARS, CROSSWALK LINES, AND RAILROAD SYMBOLS), LANE LINES, AND ALL OTHER MARKINGS NOTED WITH [T] SHALL BE THERMOPLASTIC.

9.) ALL DISTURBED AREAS NOT DESIGNATED TO BE PAVED SHALL HAVE LOAM PLACED AND SEEDED. THE LOAM SHALL HAVE A MINIMUM DEPTH OF 4 INCHES AND SHALL BE PLACED FLUSH WITH THE TOP OF THE ADJACENT CURB, EDGING, BERM OR PAVEMENT SURFACE.

10.) ALL ELEVATIONS TO BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. THE DESIGN ENGINEER IS TO BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY. TEMPORARY BENCHMARKS (T.B.M.) ARE TO BE PROVIDED BY THE DESIGN ENGINEER.

11.) NOTE THAT THE PROJECT IS NOT SUBJECT TO THE EPA NPDES PHASE II.*

12.) UPON FINAL COMPLETION AND 85% STABILIZATION THE DRAINAGE SYSTEM IS TO BE CLEANED OF ALL DEBRIS TO INCLUDE THE PUMPING OF THE BASINS. SEE SHEET E101, DETAIL E11 FOR DEFINITION OF STABLE.

13.) ALL DRAINAGE PIPE IS TO BE HDPE N-12. INDIVIDUAL PIPE SIZES ARE SPECIFIED, RECYCLED PIPE IS APPROVED FOR PROJECT SITE. RECYCLED HDPE PIPE "GREEN PIPE" IS ACCEPTABLE FOR THIS PROJECT SITE.

14.) ALL BASINS AND DRAINS ARE TO HAVE BOOTS INSTALLED ON ALL INLETS AND OUTLETS.

15.) ALL TREATMENT SWALE TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS UNLESS OTHERWISE INSTRUCTED BY THE DESIGN ENGINEER DURING CONSTRUCTION. (NOT APPLICABLE)

16.) A LETTER OF CREDIT FOR THE COST OF RE-VEGETATING ALL DISTURBED AREAS ON THE SITE SHALL BE SUBMITTED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS, AS MAY BE APPLICABLE.

17.) A PRE-CONSTRUCTION CONFERENCE WITH THE DEVELOPER, THE DESIGN ENGINEER, THE EARTHWORK CONTRACTOR AND DOVER CITY STAFF SHALL OCCUR PRIOR TO ANY EARTH DISTURBING ACTIVITY.

18.) BUILDING ADDRESSES SHALL BE DETERMINED BY THE BUILDING OFFICIAL. NOT APPLICABLE

19.) THE PROPOSED PROJECT WILL CONSIST OF ONE PHASE AND WILL DISTURB 14,000 Sq.Ft. 0.32 Ac.

20.) WRITTEN DIMENSION ON THIS PLAN TAKE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN THE EVENT OF A CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWINGS AND/OR SPECIFICATIONS, THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR IS TO CONFIRM ALL ELEVATIONS. CONFLICTS WILL BE REPORTED TO THE DESIGN ENGINEER PRIOR TO CONSTRUCTION.

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

22.) SEE DETAILS CONCERNING SITE LAYOUT, DRAINAGE, UTILITY, AND SEDIMENT AND EROSION CONTROLS.

23.) SIDEWALK TO REMAIN USABLE AT ALL TIMES DURING RECONSTRUCTION PROCESS.

24.) SEE EROSION & SEDIMENT CONTROL PLANS FOR DETAILS ON PERIMETER CONTROL (MULCH BERM / FENCE / SILT SOXX). BS&E IS TO PROVIDE ADDITIONAL BENCHMARKS PRIOR TO CONSTRUCTION.

25.) ALL BASINS GRATES ARE TO BE INSTALLED BINDER FLUSH PRIOR TO BASE PAVE. UPON PROJECT COMPLETION FRAMES AND GRATES ARE TO BE CUT AND RIM RAISED TO FINAL PAVEMENT SURFACE.

*SEE EROSION & SEDIMENT CONTROL PLAN FOR DISCUSSION ON STORMWATER MANAGEMENT PLAN REQUIREMENTS/INSPECTIONS.

GRAPHIC SCALE

20 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

GRADING & DRAINAGE PLAN

NON-RESIDENTIAL SITE PLAN
LAND OF
PILLAR IMAGING, LLC.
1 GROVE STREET
DOVER, N.H.
TAX MAP 31, LOT 11

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

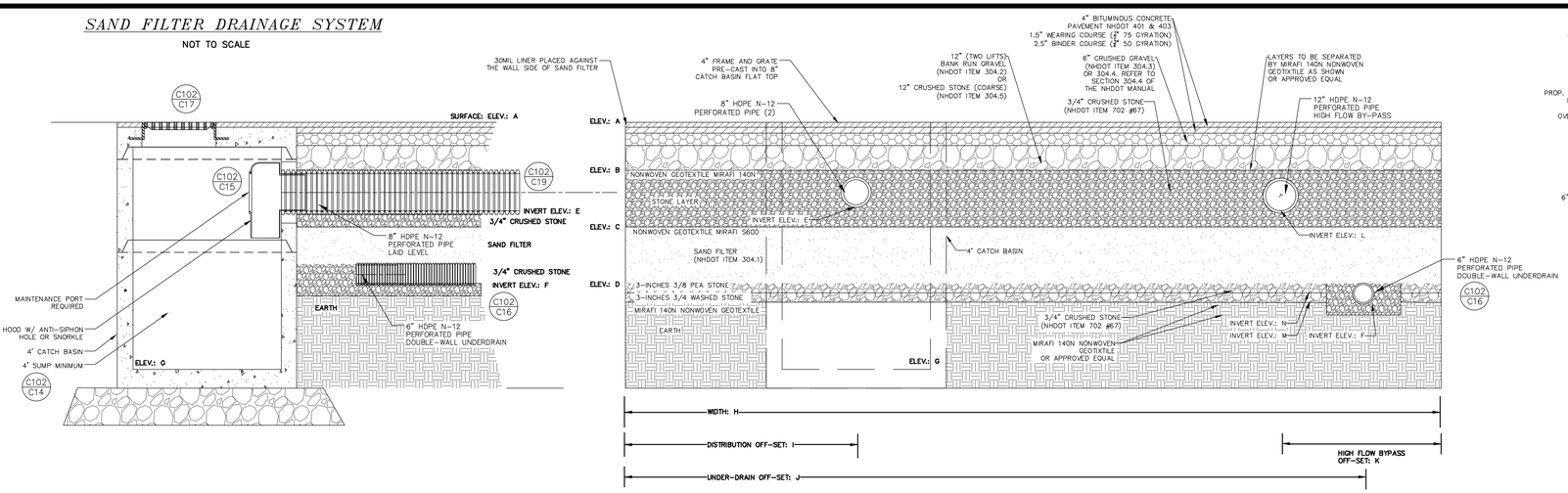
SCALE : 1 IN. EQUALS 10 FT.
DATE : JUNE 24, 2024
FILE NO. : DB 2024 - 031

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14246
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

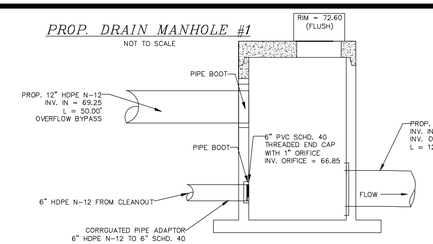
SAND FILTER DRAINAGE SYSTEM

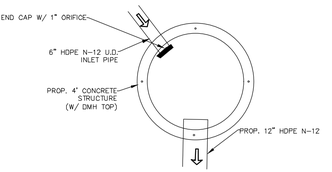
NOT TO SCALE



PROP. DRAIN MANHOLE #1

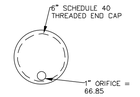
NOT TO SCALE





TOP VIEW PROP. DRAIN MANHOLE #1

NOT TO SCALE



CAP WITH CONTROL ORIFICE (PROP. DMH #1)

NOT TO SCALE

PROFILE OF SAND FILTER & CATCH BASIN

NOT TO SCALE

SECTION OF SAND FILTER

A / 1 — A / 1

ELEVATION A	ELEVATION B	ELEVATION C	ELEVATION D	ELEVATION E	ELEVATION F	ELEVATION G	DISTANCE H	DISTANCE I	DISTANCE J	DISTANCE K	ELEVATION L	ELEVATION M	ELEVATION N
VARIES	70.35 FEET	68.85 FEET	67.35 FEET	69.18 FEET	66.85 FEET	65.18 FEET	30.0 FEET	2.5-4.5 FEET	18.25 FEET	14.75 FEET	69.25 FEET	67.10 FEET	66.85 FEET
SURFACE	TOP OF SYSTEM	TOP OF SAND FILTER	BOTTOM OF SYSTEM	DISTRIBUTION CULVERT	UNDER DRAIN	SUMP ELEVATION	SYSTEM WIDTH	DISTRIBUTION OFF-SET	UNDER-DRAIN OFF-SET	DOWNSPOUT UNDER-DRAIN OFF-SET	HIGH FLOW BYPASS INVERT	INVERT PEA STONE	INVERT WASHED STONE

CRUSHED STONE BEDDING *

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

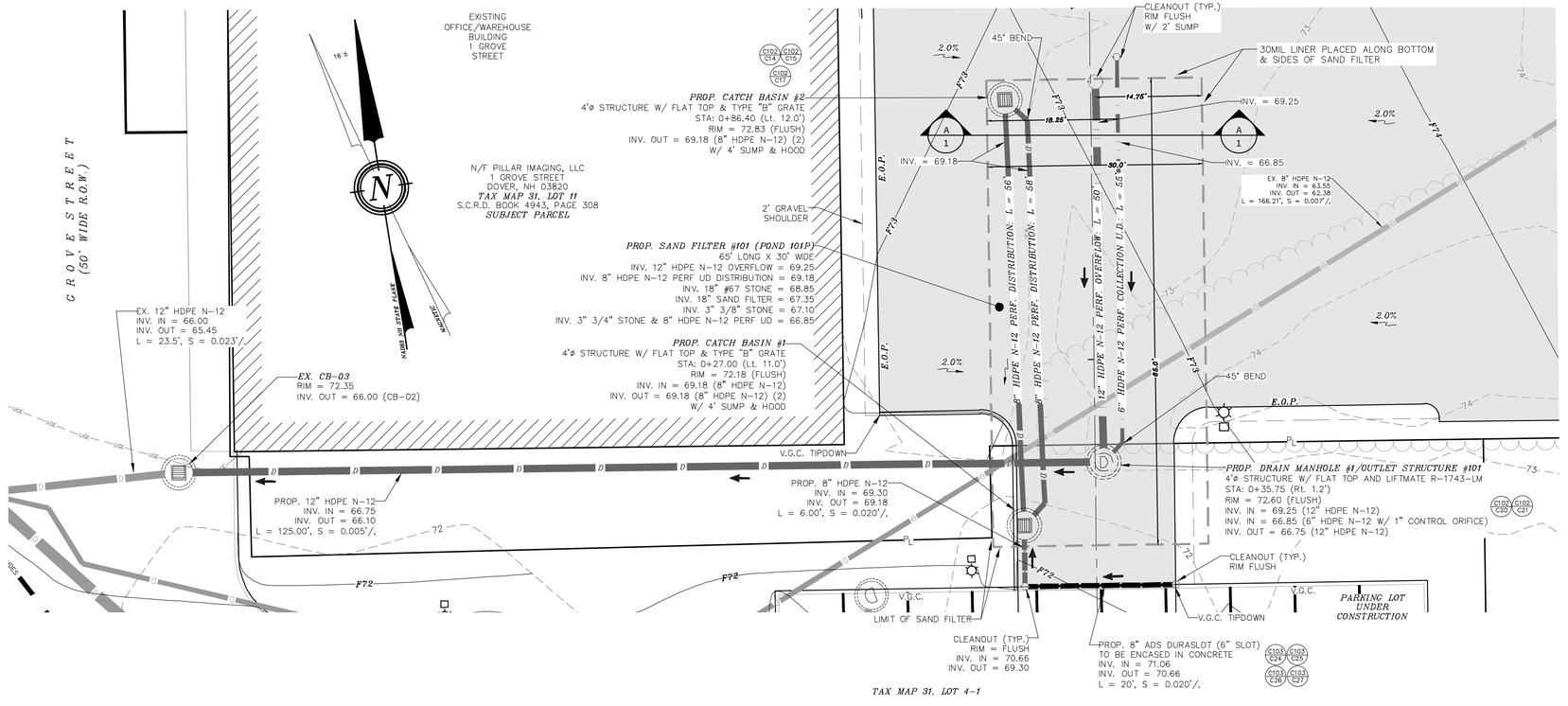
* EQUIVALENT TO STANDARD STONE SIZE #67 - SECTION 702 OF NHDOT NHDOT STANDARD SPECIFICATIONS
* WASHED STONE

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

SAND FILTER DRAINAGE SYSTEM PLAN VIEW



DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

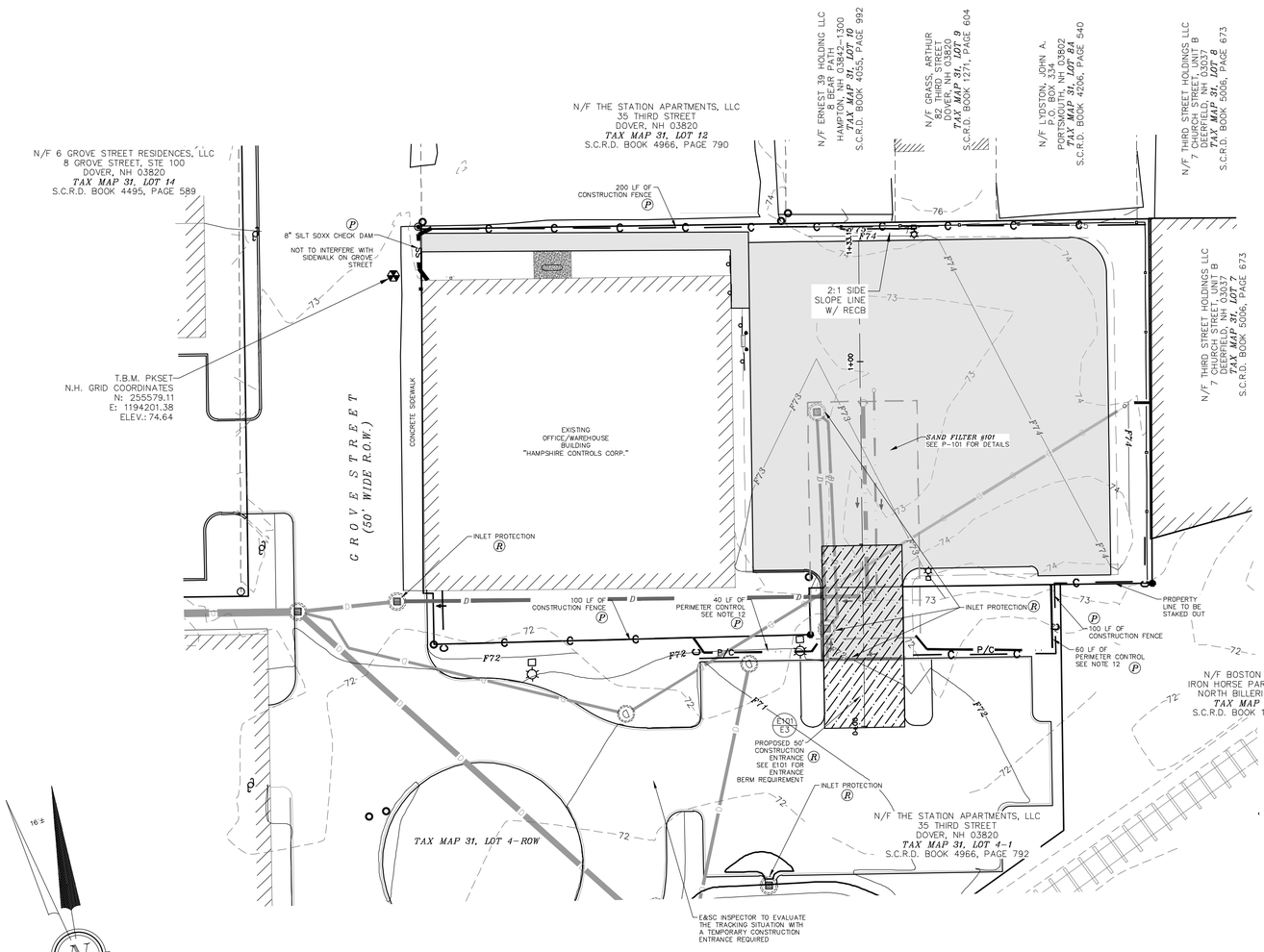
SAND FILTER #101
NON-RESIDENTIAL SITE PLAN
LAND OF
PILLAR IMAGING, LLC.
1 GROVE STREET
DOVER, N.H.
TAX MAP 31, LOT 11

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 10 FT.
DATE : JUNE 24, 2024
FILE NO. : DB 2024 - 031

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14236
LICENSED
PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION



NOTES:

1A.) OWNER: PILLAR IMAGING, LLC
1 GROVE STREET
DOVER, NH 03820

1B.) APPLICANT: HAMPSHIRE CONTROLS CORP.
P.O. BOX 516
DOVER, NH 03821

2.) TAX MAP 31, LOT 11

3.) S.C.R.D. BOOK 4943, PAGE 308

4.) LOT AREA: 21,383 Sq. Ft., 0.49 Ac.

5.) THE INTENT OF THIS PLAN IS SHOW THE PROPOSED EROSION AND SEDIMENT CONTROL MEASURES.

6.) CONTRACTOR IS TO INSTALL A CONSTRUCTION ENTRANCE PRIOR TO EARTH DISTURBING ACTIVITIES.

7.) CONTRACTOR IS RESPONSIBLE FOR SWEEPING THE PARKING LOT, SIDEWALKS AND ANYTHING DISTURBED, TO ENSURE THAT NO SEDIMENT IS BEING TRACKED ONTO GROVE STREET OR THE SURROUNDING ROADWAYS.

8.) CONTRACTOR IS RESPONSIBLE FOR CLEANING AND MAINTAINING THE INLET PROTECTION ONCE INSTALLED.

9.) FUGITIVE DUST IS TO BE CONTROLLED THROUGHOUT THE CONSTRUCTION PROCESS IN ACCORDANCE WITH ENV-A 1000.

10.) CONTRACTOR IS TO MEET THE REQUIREMENTS SPECIFIED IN RSA 430:51-57 AND AGR 3800, RELATING TO INVASIVE SPECIES.

11.) CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE WATER QUALITY FROM ANY RUN OFF DURING THE CONSTRUCTION PROCESS, IN ACCORDANCE WITH ENV-WQ 1507, IN ORDER TO PREVENT VIOLATIONS OF THE STORM WATER QUALITY STANDARDS.

12.) CONTRACTOR AY USE SILT FENCE, SILT SOXX OR MULCH BERM FOR PERIMETER CONTROL. SPECIFIC PRACTICES MAY BE SPECIFIED, SEE PLAN.

13.) ALL STORAGE FACILITIES FOR FUEL, CHEMICALS, CHEMICAL OR INDUSTRIAL WASTES, AND BIODEGRADABLE RAW MATERIALS SHALL MEET THE REGULATIONS OF THE NHDES, INCLUDING BUT NOT LIMITED TO THOSE INVOLVING UNDERGROUND STORAGE TANKS, ABOVE GROUND STORAGE TANKS, HAZARDOUS WASTE AND BEST MANAGEMENT PRACTICES FOR GROUND WATER PROTECTION (PART ENV-WQ 401).

14.) ALL DEVELOPMENT MUST COMPLY WITH THE EPA PHASE II STORMWATER RULES AND THE CITY'S MS4 PERMIT, AS AMENDED.

15.) CITY OF DOVER: IN ACCORDANCE WITH SITE PLAN REVIEW REGULATIONS (153-14) THE FOLLOWING STORMWATER MEASURES ARE REQUIRED.

A.) ALL PROPOSED BMPs WILL CONFORM TO THE NH STORMWATER MANUAL VOLUME 3.
B.) EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SOIL LAND DISTURBANCE AND MUST BE REVIEWED AND APPROVED BY COMMUNITY SERVICE.
C.) TEMPORARY STABILIZATION MEASURES SHOULD BE IN PLACE WITHIN SEVEN CALENDAR DAYS FOR EXPOSED SOILS AREAS THAT ARE WITHIN ONE HUNDRED FEET OF A SURFACE WATER BODY OR A WETLAND AND NO MORE THAN 14 CALENDAR DAYS FOR ALL OTHER AREAS. PERMANENT STABILIZATION SHOULD BE IN PLACE WITHIN THREE CALENDAR DAYS FOLLOWING COMPLETION OF FINAL GRADING OF EXPOSED SOIL AREAS.
D.) ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN FUNCTIONING CONDITION UNTIL FINAL STABILIZATION IS ACCOMPLISHED.
E.) COMMUNITY SERVICES DEPARTMENT OR THEIR DESIGNATED AGENT SHALL HAVE ACCESS TO THE SITE TO COMPLETE ROUTINE INSPECTIONS AND SHALL BE NOTIFIED 24-HOURS PRIOR TO INSTALLATION OF A STORMWATER BMP IN ORDER TO SCHEDULE AN INSPECTION, DURING NORMAL WORKING HOURS.
F.) THE PLANNING BOARD OR COMMUNITY SERVICES MAY REQUIRE THE DESIGN ENGINEER AND/OR AN INDEPENDENT, THIRD-PARTY INSPECTION AND OVERSIGHT OF THE CONSTRUCTION OF STORMWATER MANAGEMENT FACILITIES AND EROSION AND SEDIMENT CONTROL AT THEIR DISCRETION. THE OWNER / APPLICANT IS RESPONSIBLE FOR ALL FEES ASSOCIATED WITH INSPECTIONS.
G.) ALL SWPPP/SWMP INSPECTIONS MUST BE CONDUCTED BY A QUALIFIED PROFESSIONAL SUCH AS A PROFESSIONAL ENGINEER (PE), A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC), A CERTIFIED EROSION SEDIMENT AND STORMWATER INSPECTOR (CESSWI), OR A CERTIFIED PROFESSIONAL IN STORMWATER QUALITY (CPSWQ). INSPECTION REPORTS WILL BE SUBMITTED TO THE COMMUNITY SERVICES DEPARTMENT.
H.) THE OWNER IS ULTIMATELY RESPONSIBLE FOR THE INSTALLATION, CONSTRUCTION, INSPECTION, AND DISPOSITION OF ALL STORMWATER MANAGEMENT AND EROSION CONTROL MEASURES REQUIRED BY THE PROVISIONS OF THESE REGULATIONS.
I.) STORMWATER MANAGEMENT PLAN (SWMP) SUBMITTAL REQUIREMENTS. AT THE DISCRETION OF THE PLANNING BOARD OR COMMUNITY SERVICES DEPARTMENT, A TECHNICAL REVIEW BY AN INDEPENDENT THIRD PARTY MAY BE REQUIRED OF ANY SWMP PREPARED UNDER THESE REGULATIONS. SUCH A REVIEW SHALL BE PERFORMED BY A QUALIFIED PROFESSIONAL CONSULTANT AND THE EXPENSE OF WHICH SHALL BE THE FULL RESPONSIBILITY OF THE OWNER/APPLICANT.

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

EROSION AND SEDIMENT CONTROL PLAN

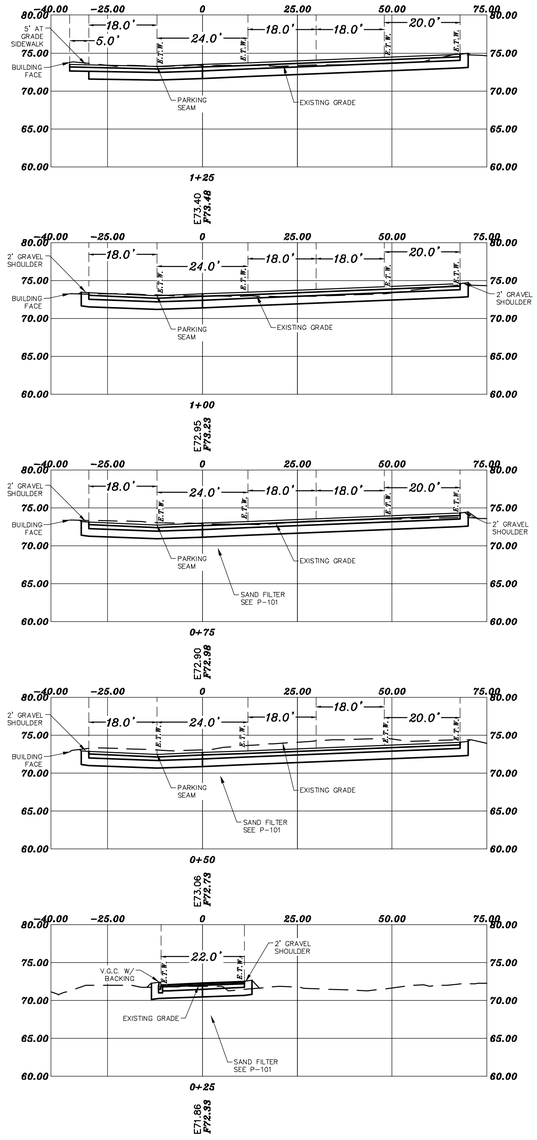
NON-RESIDENTIAL SITE PLAN
LAND OF
PILLAR IMAGING, LLC.
1 GROVE STREET
DOVER, N.H.
TAX MAP 31, LOT 11

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 24, 2024
FILE NO. : DB 2024 - 031

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14246
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.
Vertical Scale 1 Inch = 10 ft

DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

PARKING LOT CROSS SECTIONS

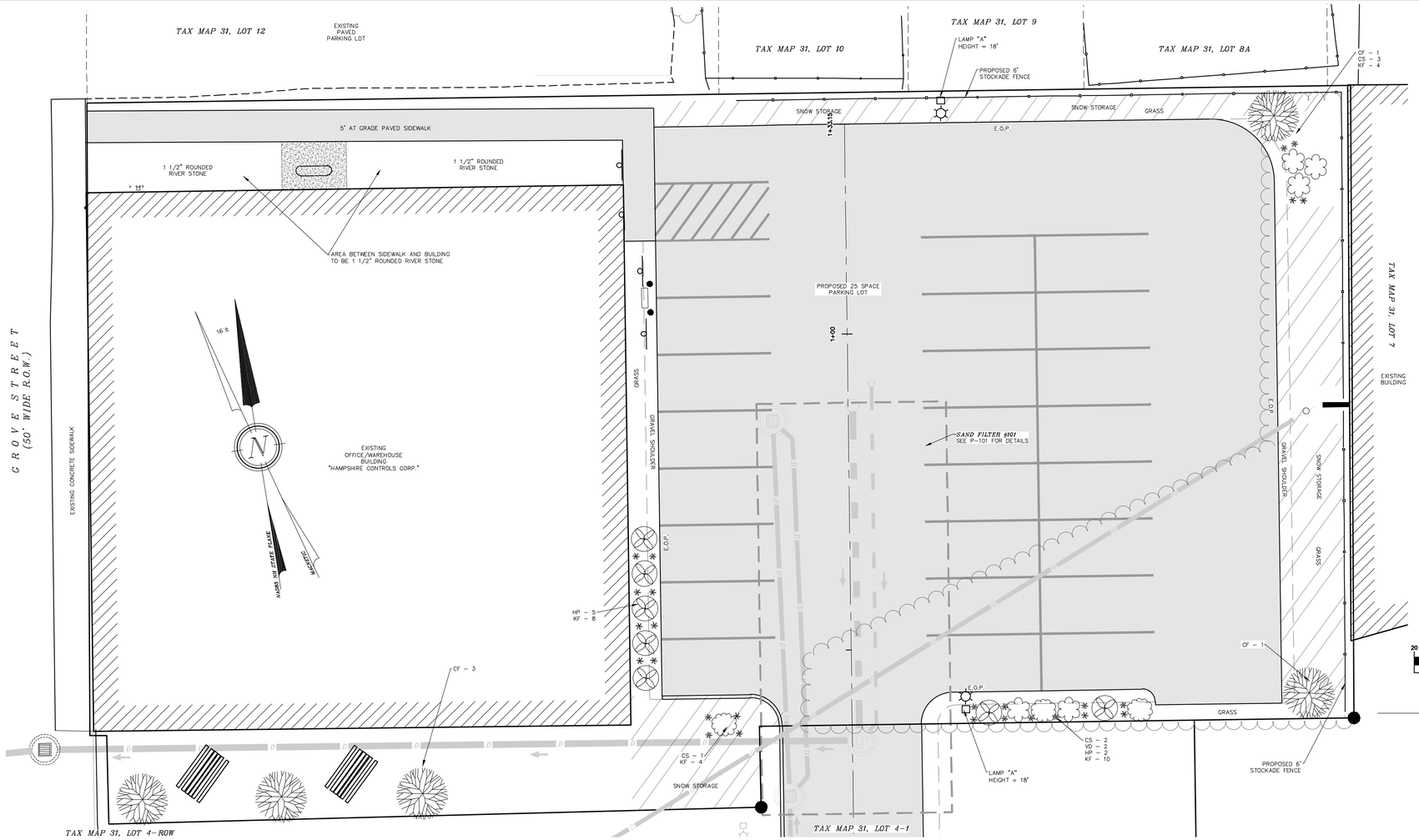
NON-RESIDENTIAL SITE PLAN
LAND OF
PILLAR IMAGING, LLC.
1 GROVE STREET
DOVER, N.H.
TAX MAP 31, LOT 11

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 24, 2024
FILE NO. : DB 2024 - 031

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14240
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION



PLANTING NOTES

1. CONTRACTOR SHALL OBTAIN APPROVAL FROM L.A. PRIOR TO PURCHASING &/OR INSTALLING SUBSTITUTE PLANT MATERIAL PRIOR TO PURCHASE OF ANY SUBSTITUTE MATERIALS.

2. CONSTRUCTION ACCESS WILL BE AS DIRECTED BY L.A. CONTRACTOR IS RESPONSIBLE FOR RESTORATION OF ACCESS ROUTE AND ALL AREAS DISTURBED BY PLANTING OPERATIONS UPON COMPLETION OF CONSTRUCTION OPERATIONS, AT NO ADDITIONAL COST TO THE OWNER.

3. LAYOUT OF ALL PLANTING BEDS AND LOCATION OF PLANTS TO BE APPROVED BY L.A. ON SITE PRIOR TO CONSTRUCTION AND INSTALLATION.

4. CONTRACTOR TO REMOVE ALL DEBRIS GENERATED BY PLANT INSTALLATION. DEBRIS TO BE DISPOSED OF IN A LEGAL MANNER.

5. ALL PLANT MATERIAL SHALL BE GUARANTEED TO BE IN GOOD, HEALTHY & FLOURISHING CONDITION FOR ONE YEAR FROM THE DATE OF FINAL INSTALLATION APPROVAL BY L.A. CONTRACTOR SHALL REPLACE, WITHOUT COST TO OWNER, AND AS SOON AS WEATHER CONDITIONS PERMIT, ALL DEAD AND NON-FLOURISHING PLANTS AS DETERMINED BY THE L.A. REPLACEMENT PLANTS SHALL BE BE GUARANTEED IDENTICALLY TO ORIGINAL PLANTS, TIME PERIOD COMMENCING FROM DATE OF REPLACEMENT PLANTING APPROVAL BY L.A.

6. ALL BEDS TO BE MULCHED WITH 3" DEPTH SHREDDED BARK MULCH UNLESS NOTED OTHERWISE.

7. CONTRACTOR TO PROVIDE NECESSARY TEMPORARY IRRIGATION IF NEEDED BASED ON TIME OF YEAR THE PROJECT IS IMPLEMENTED.

8. ALL PLANT MATERIAL TO COMPLY WITH THE CITY OF DOVER'S SITE REVIEW REGULATIONS, 149-14(G), SUCH THAT THERE SHALL BE DECIDUOUS SHADE TREES PLANTED 40 FEET O.C. ALONG THE PERIMTERE OF THE PARKING LOTS AND SHRUBS PLANTED 5 FEET O.C. WITHIN THE PERIMETER BUFFER. SEE PLANT LIST FOR SPECIES AND SIZE OF PLANTS.

TEMPORARY WATERING NOTES

1. CONTRACTOR IS RESPONSIBLE FOR MAKING SURE ALL PLANT MATERIAL HAS ADEQUATE WATER DURING THE ESTABLISHMENT PERIOD.

2. THE USE OF GATOR BAGS, SOAKER HOSE, HAND WATERING AND OTHER TECHNIQUES SHOULD BE USED TO ASSURE PROPER HYDRATION OF THE PLANTINGS IS MAINTAINED.

3. TEMPORARY IRRIGATION SYSTEMS CAN BE SET UP TO ASSIST IN WATERING ACTIVITIES.

LEGEND:

TREES:

CF – FLOWERING DOGWOOD/Cornus Florida (5)

SHRUBS:

CS – RED OSIER DOGWOOD/Cornus sericea (6)

VD – ARROWWOOD/Viburnum dentatum (2)

HP – PEEGEE HYDRANGEA/Hydrangea paniculata "Grandiflora" (7)

GRASSES:

KF – FEATHER REED GRASS/Calamagrostis acutiflora (26)

GRAPHIC SCALE

20 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

NOTES:

1. CALL DIG SAFE PRIOR TO BEGINNING WORK. (1-888-344-7233). THE LANDSCAPE CONTRACTOR IS ADVISED OF THE PRESENCE OF UNDERGROUND UTILITIES AND SHALL VERIFY THE EXISTENCE AND LOCATION OF THE SAME BEFORE COMMENCING AND DIGGING OPERATIONS. THE LANDSCAPE CONTRACTOR SHALL REPLACE OR REPAIR UTILITIES, PAVING, WALKS, CURBING, ETC DAMAGED IN PERFORMANCE OF THIS JOB AT NO ADDITIONAL COST TO THE OWNER OR GENERAL CONTRACTOR.
2. CONTRACTOR SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL SITE CONDITIONS PRIOR TO CONSTRUCTION BIDDING.
3. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS. VARIATIONS IN QUANTITIES ARE TO BE APPROVED BY THE DESIGN ENGINEER.
4. PROVIDED SMOOTH TRANSITION WHERE NEW WORK MEETS EXISTING CONDITIONS.
5. ALL PLANT MATERIAL INSTALLED SHALL MEET THE SPECIFICATIONS OF "AMERICAN STANDARD FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN
6. ALL PLANT MATERIALS SHALL BE FREE FROM INSECTS AND DISEASE.
7. ALL PLANTINGS SHALL BE DONE IN ACCORDANCE WITH ACCEPTABLE HORTICULTURAL PRACTICES. THIS IS TO INCLUDE PROPER PLANTING MIX, PLANT BED AND TREE PIT PREPARATION, PRUNING STAKING OR GUYING, WRAPPING, SPRAYING, FERTILIZATION, PLANTING AND ADEQUATE MAINTENANCE UNTIL ACCEPTANCE FROM OWNER.
8. ALL GRASS, OTHER VEGETATION AND DEBRIS SHALL BE REMOVED FROM ALL PLANTING AREAS PRIOR TO PLANTING.
9. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING AND NEWLY PLANTED TREES AND SHRUBS DURING THE CONSTRUCTION PROCESS. WHERE REQUIRED, THE CONTRACTOR SHALL INSTALL TEMPORARY FENCING (SNOW OR EQUAL) AROUND EXISTING TREES AND SHRUBS THAT COULD BE IMPACTED BY THE CONSTRUCTION PROCESS. STORAGE OF CONSTRUCTION EQUIPMENT, CONSTRUCTION MATERIALS, SNOW STORAGE AND OR VEHICLE PARKING SHALL NOT BE PERMITTED WITHIN THE DRIP LINE OF TREES OR TWENTY FEET WHICH EVER IS GREATER.
10. NEW PLANTINGS SHALL BE INSTALLED PER PROJECT DRAWINGS AND SPECIFICATION THAT INCLUDE FERTILIZATION AND MULCHING AS REQUIRED.
11. ALL SHRUB BEDS AND TREE PITS SHALL BE MULCHED WITH 3" CLEAN SHREDDED BLACK MULCH
12. WHERE INDICATED ON PLAN, PLANTING SOIL MIXTURE FOR GROUND COVER AND PERENNIAL BED AREAS SHALL CONSIST OF FOUR PARTS TOPSOIL, TWO PARTS SPHAGNUM PEAT MOSS, AND ONE PART HORTICULTURAL PERLITE BY VOLUME. PEAT MOSS MAY BE SUBSTITUTED WITH WELL-ROTTED OR DEHYDRATED MANURE OR COMPOST. ROTOTILL BEDS TO A DEPTH OF 8 INCHES.
13. MAINTENANCE OF NEW PLANTINGS AND LAWNS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND OR LANDSCAPE SUBCONTRACTOR UNTIL ACCEPTANCE BY THE OWNER. RESPONSIBILITIES SHALL INCLUDE WATERING WEEDING AND MOWING AS NECESSARY. ALL PLANT MATERIAL SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE, REPLACEMENT MATERIAL SHALL BE GUARANTEED FOR AND ADDITIONAL YEAR FROM TIME OF INSTALLATION.
14. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY EROSION CONTROL MEASURES DURING THE CONSTRUCTION PHASE AND UNTIL ALL AREAS HAVE BEEN STABILIZED AND ACCEPTED BY THE OWNER. THE GENERAL CONTRACTOR SHALL PROVIDE WEEKLY INSPECTIONS OF EROSION MEASURE AND IMMEDIATELY AFTER STORM EVENTS AND REPAIR AS NECESSARY.
15. THE GENERAL CONTRACTOR AND OR THE LANDSCAPE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL THREE GUYING MATERIAL ONCE PLANT MATERIAL HAS BEEN ESTABLISHED. (MINIMUM OF ONE GROWING SEASON). ALL TEMPORARY EROSION CONTROL MEASURE SHALL BE REMOVED ONCE STABILIZATION OF DISTURBANCE HAS BEEN ACCEPTED BY OWNER.
16. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR A MINIMUM OF TWO MOWINGS FOR ALL TURF AREAS OR UNTIL ACCEPTANCE BY THE OWNER. A MINIMUM UNIFORM 75% CATCH OF TURF IS REQUIRED FOR ACCEPTANCE.
17. ALL PLANTINGS SHALL BE WATERED REGULARLY DURING THEIR FIRST YEAR AND MAINTAINED PERMANENTLY IN GOOD GROWING CONDITION AS AN EFFECTIVE VISUAL SCREEN.
18. SHRUBS OR TREES WHICH DIE SHALL BE REPLACED WITHIN ONE GROWING SEASON WITH NEW SHRUBS OR TREES TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE LANDSCAPING REQUIREMENTS.
19. ALL REQUIRED LANDSCAPING SHALL BE INSTALLED BEFORE OCCUPANCY, OR WITHIN SIX MONTHS IF OCCUPANCY OCCURS DURING WINTER CONDITIONS.
20. TREES ARE TO BE 6' TALL AT PLANTING.
21. ALL PLANT STOCK SHALL CONFORM TO ANSI Z260.1 – NURSERY STOCK, LATEST EDITIONS (AMERICAN ASSOCIATION OF NURSERYMEN, INC.)
22. 4" AGED PINEBARK MULCH AND A WEED BARRIER (TY-PAR FABRIC OR APPROVED EQUAL) SHALL BE APPLIED TO ALL SHRUB AND GROUND COVER BEDS. INSTALL WEED BARRIER AS PER MANUFACTURERS RECOMMENDATIONS.
23. PLANT-PIT BACK-FILL SHALL BE MIXED AT A RATE OF 7 PARTS OF TOPSOIL TO 2 PARTS OF DEHYDRATED COW MANURE. SLOW RELEASE FERTILIZER SHALL BE APPLIED AS PER MANUFACTURERS RECOMMENDATIONS. USE EXISTING ON-SITE TOPSOIL AS PART OF BACK FILL WHEN AVAILABLE.
24. ALL LANDSCAPED AREAS NOT PLANTED WITH TREES, SHRUBS OR GROUNDCOVER SHALL BE RESTORED WITH SEED OR SOD AS INDICATED ON PLANS.
25. TOPSOIL WILL BE TESTED FOR FERTILIZATION REQUIREMENTS, AND SLOW RELEASE ENVIRONMENTALLY FRIENDLY FERTILIZER WILL BE APPLIED AT THE RECOMMENDED RATES.
26. ALL DISTURBED WETLAND BUFFER AREAS, EXCEPT FOR AREAS THAT ARE PART OF THE DRAINAGE SYSTEM, ARE TO BE RESEEDED WITH A CONSERVATION SEED MIX AND ONLY MOWED TWICE PER YEAR.
27. ALL PLANT SUBSTITUTIONS MUST BE APPROVED BY THE ENGINEER.
28. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH, UPON DELIVERY OR AT THE JOB SITE WHILE WORK IS ONGOING TO CONFORMITY TO SPECIFIED QUALITY, SIZE AND VARIETY.
29. PLANTS FURNISHED IN CONTAINERS SHALL HAVE THE ROOTS WELL ESTABLISHED IN THE SOIL MASS AND SHALL HAVE AT LEAST ONE (1) GROWING SEASON. ROOT-BOUND PLANTS OR INADEQUATELY SIZED CONTAINERS TO SUPPORT THE PLANT MAY BE DEEMED UNACCEPTABLE.
30. ALL PLANTS SHALL BE GUARANTEED BY THE CONTRACTOR FOR NO LESS THAN ONE FULL YEAR FROM THE TIME OF INSTALLATION. DURING THIS TIME, THE OWNER SHALL MAINTAIN ALL PLANT MATERIALS IN THE ABOVE MANNER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE PLANTS TO ENSURE PROPER CARE. IF THE CONTRACTOR IS DISSATISFIED WITH THE CARE GIVEN, HE SHALL IMMEDIATELY, AND IN SUFFICIENT TIME TO PERMIT THE CONDITION TO BE RECTIFIED, NOTIFY THE OWNER IN WRITING OR OTHERWISE FORFEIT HIS CLAIM.
31. BY THE END OF THE GUARANTEE PERIOD, THE CONTRACTOR SHALL HAVE REPLACED ANY PLANT MATERIAL THAT IS MISSING, NOT TRUE TO SIZE AS SPECIFIED, THAT HAS DIED, THAT HAS LOST NATURAL SHAPE DUE TO DEAD BRANCHES, EXCESS PRUNING OR INADEQUATE OR IMPROPER CARE, OR IS, IN THE OPINION OF THE OWNER, IN UNHEALTHY OR UNSIGHTLY CONDITION.
32. THE CONTRACTOR IS TO USE TEMPORARY MEASURES FOR WATERING PLANTS DURING THE ESTABLISHMENT PERIOD. INCLUDING CONNECTING TEMPORARY HOSES TO THE STRUCTURE WATER SUPPLY LINE AND UTILIZING SPRINKLERS UNTIL 85% GROWTH OCCURS.

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General Plant Maintenance Guide

General Plant Bed Maintenance:

- All plant maintenance should be performed by a qualified horticulturalist or licensed arborist. Cleaning the dead material out of the planting bed in the fall helps keep litter from building up around the plants and in some cases killing the plants. Watering the first year during dry periods will help get the plants established. Mulching every year is not necessary. Raking the old mulch and turning it over is all that is needed. When necessary only install one inch of mulch and do not place the mulch closer than 3" to the trunks or stems of woody plants.

Trees

- The first year watering during dry periods will be necessary.
- 3" inches of mulch maybe used. The mulch should be kept 3 inches from the trunk.
- Fertilizing is not necessary for the first year. Fertilizing in subsequent years only when and if the foliage is looking weak.
- Fertilization should occur prior to Mat 31st or after trees have dropped their leaves for the year.
- Prune dead wood once a year.
- Depending on the amount of compaction the bed area receives, deep root aeration may be needed over time

Woody Shrubs

- The first year watering during dry periods will be necessary.
- 3" inches of mulch maybe used. The mulch should be kept 3 inches from the stems.
- Fertilizing is not necessary for the first year. Fertilizing in subsequent years only when and if the foliage is looking weak.
- Fertilization should occur prior to Mat 31st or after shrubs have dropped their leaves or gone dormant for the year.
- Prune dead wood once a year.

Grasses

- Grasses only need to be clipped back at the end of the growing season and all the clippings removed from the area.
- Do not over mulch. Too much mulch will prohibit the grass from developing into a strong clump.

Perennials

- All perennials need to be pruned back after the first or second hard frost. A two-step method; first dead head all the flower heads and let drop to the ground for re-seeding. Second cut the stems back to 3" above the ground and remove the stem and leaf litter and place in compost. Do not over mulch. Too much mulch will prohibit the growth and development
- Fertilizing perennials once in the spring with a low phosphate fertilizer will help the plants to get started in the spring.

terrain
planning & design llc
311 kast hill road
hopkinton, nh 03229
603. 491. 2322
terrainplanning.com

1 GROVE STREET

Site Location:
1 GROVE STREET
Dover, NH
Tax Map 31 Lot 11

Prepared For:
Berry Surveying & Engineering
335 Second Crown Point Rd
Barrington, NH 03825

LANDSCAPING PLAN

DATE:

SCALE: 1" = 10'

PROJECT #: 2247

Drawn By: ID

Checked By: ERB

REVISIONS: DATE:
Issued for Client Review

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NOT FOR CONSTRUCTION

NOTES:

1A.) OWNER: PILLAR IMAGING, LLC
1 GROVE STREET
DOVER, NH 03820

1B.) APPLICANT: HAMPSHIRE CONTROLS CORP.
P.O. BOX 516
DOVER, NH 03821

2.) TAX MAP 31, LOT 11

3.) S.C.R.D. BOOK 4943, PAGE 308

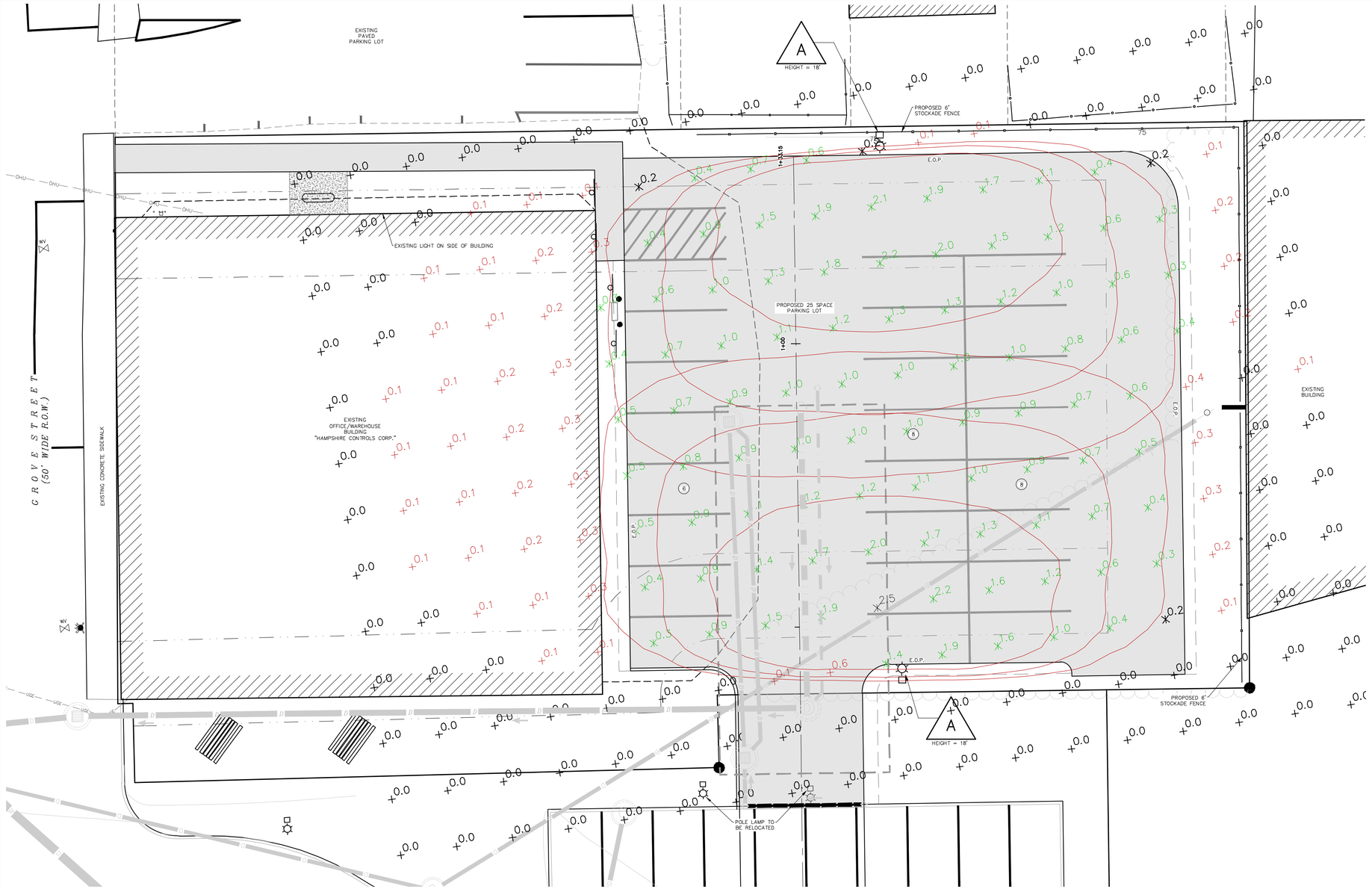
4.) LOT AREA: 21,383 Sq. Ft., 0.49 Ac.

5.) THE INTENT OF THIS PLAN IS TO SHOW THE PROPOSED LIGHTING DESIGN FOR THE NON-RESIDENTIAL SITE PLAN.

6.) SEE CONSTRUCTION DETAILS FOR LIGHT PRODUCT CUT SHEETS.

7.) LAMP "A" IS A TYPICAL POLE MOUNTED RESIDENTIAL LAMP THAT IS MOUNTED 18' OFF THE GROUND.

8.) EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 153-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.



Schedule

Symbol	Label	Image	Quantity	Manufacturer	Catalog Number	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor	Wattage
☼	A		2	Lithonia Lighting	DSX1 LED P1 30K 70CRI BLC4 SQLAR	D-Series Size 1 Area Luminaire P1 Performance Package 3000K CCT 70 CRI Type 4 Extreme Backlight Control	1	13,142	1	138

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
STAT ZONE #1	+	1.0 fc	2.5 fc	0.2 fc	12.5:1	5:1

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

LIGHTING PLAN

NON-RESIDENTIAL SITE PLAN
LAND OF
PILLAR IMAGING, LLC.
1 GROVE STREET
DOVER, N.H.
TAX MAP 31, LOT 11

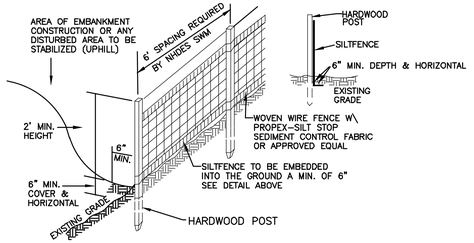
BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 10 FT.
DATE : JUNE 24, 2024
FILE NO. : DB 2024 - 031

STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14246
LICENSED
PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

E1



SILT FENCE CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES AND FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP MID AND BOTTOM SECTIONS AND BE EMBEDDED INTO GROUND A MINIMUM OF 8" THE FENCE POSTS SHALL BE A MINIMUM 48" LONG, SPACED A MAXIMUM 6' APART, AND DRIVEN A MINIMUM OF 16" INTO THE GROUND.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THE ENDS OF THE FABRIC SHALL BE OVERLAPPED BY SIX INCHES, FOLDED AND STAPLED TO PREVENT SEDIMENT FROM BY-PASSING.
3. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE AND PROPERLY DISPOSED OF. SEE MAINTENANCE NOTE BELOW.
4. REMOVAL OF SEDIMENT REQUIRED AT A DEPTH OF 6-INCHES.
5. PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE FOR SEDIMENT STORAGE.
6. SILT FENCES SHALL BE REMOVED WHEN NO LONGER NEEDED AND THE SEDIMENT COLLECTED SHALL BE DISPOSED AS DIRECTED BY THE ENGINEER.
7. THE AREA DISTURBED BY THE REMOVAL SHALL BE SMOOTHED AND RE-VEGETATED.
8. TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, SILT FENCE, PAGE 90.

SILT FENCE MAINTENANCE

1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE MADE IMMEDIATELY.
2. IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THEY REACH SIX-INCHES IN DEPTH.
4. SEDIMENT DEPOSITS THAT ARE REMOVED OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

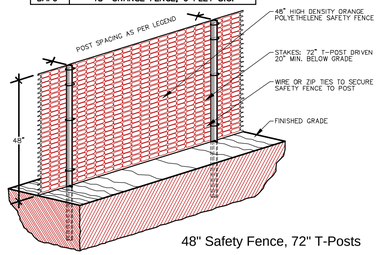
SILT FENCE DETAIL
NOT TO SCALE

E2 *CONSTRUCTION SAFETY FENCE*

NOT TO SCALE

LEGEND

SAF12	48" ORANGE FENCE, 12 FEET O.C.
SAF11	48" ORANGE FENCE, 11 FEET O.C.
SAF10	48" ORANGE FENCE, 10 FEET O.C.
SAF9	48" ORANGE FENCE, 9 FEET O.C.
SAF8	48" ORANGE FENCE, 8 FEET O.C.
SAF7	48" ORANGE FENCE, 7 FEET O.C.
SAF6	48" ORANGE FENCE, 6 FEET O.C.

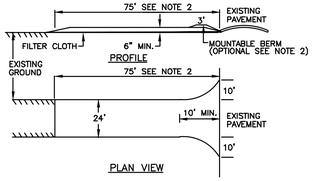


48" Safety Fence, 72" T-Posts

1. ALL SENSITIVE AREAS SHALL BE PROTECTED AS PER PLAN.
2. ALL TREES IN THE CONSTRUCTION AREA NOT SPECIFICALLY DESIGNATED FOR REMOVAL SHALL BE PRESERVED AND PROTECTED WITH HIGH VISIBILITY FENCE, AS PER PLAN.
3. WHEN PRACTICABLE, INSTALL HIGH VISIBILITY 3 FEET OUTSIDE OF THE DRIP LINE OF THE TREE.
4. SAFETY FENCE SHOULD BE FASTENED SECURELY TO THE T-POSTS.
5. THE FENCING MUST REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION; ANY CHANGE OF THE PROTECTIVE FENCING MUST BE APPROVED.

E3 *STABILIZED CONSTRUCTION ENTRANCE*

NOT TO SCALE

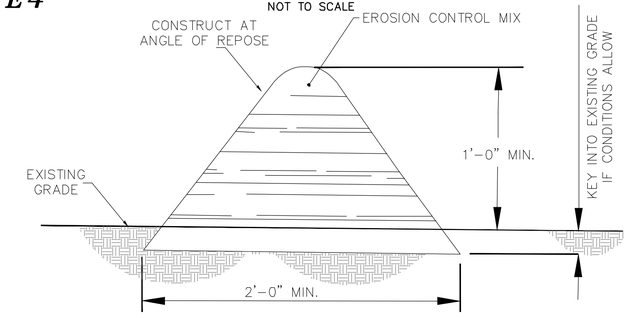


PLAN VIEW

1. STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 3 INCH ANGULAR STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 75 FEET, EXCEPT THAT THE MINIMUM LENGTH MAY BE REDUCED TO 50 FEET IF A 3-INCH TO 6-INCH BERM IS INSTALLED AT THE ENTRANCE OF THE PROJECT SITE.
3. THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICH EVER IS GREATER.
5. GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.
8. TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, TEMPORARY CONSTRUCTION EXIT, PAGE 124.

E4 *EROSION CONTROL MIX BERM*

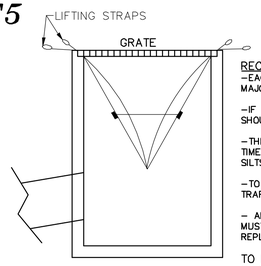
NOT TO SCALE



EROSION CONTROL MIX BERMS SHALL BE USED ONLY AS FOLLOWS:

1. BERMS SHALL BE USED IN AREAS WHERE EROSION WILL OCCUR ONLY IN THE FORM OF SHEET EROSION AND THERE IS NO CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY ABOVE THE BERM.
2. THE BERMS SHALL BE INSTALLED FOLLOWING THE CONTOUR OF THE LAND AS CLOSLY AS POSSIBLE.
3. THE BERMS SHALL BE INSTALLED ON SLOPES LESS THAN 5%.
4. SUBJECT TO (E), BELOW, THE MIX SHALL HAVE AN ORGANIC PORTION BETWEEN 80 AND 100%, DRY WEIGHT BASIS, AND BE FIBROUS AND ELONGATED SUCH AS FROM SHREDDED BARK, STUMP GRINDINGS, COMPOSED BARK, OR EQUIVALENT MANUFACTURED PRODUCTS.
5. WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS, OR REPROCESSED WOOD PRODUCTS SHALL NOT BE USED AS ORGANIC MATERIAL.
6. THE MIX SHALL NOT CONTAIN SILTS, CLAY, OR FINE SANDS.
7. THE MIX SHALL HAVE A PARTICLE SIZE BY WEIGHT OF 70 TO 85% PASSING A 6-INCH SCREEN AND A MAXIMUM OF 85% PASSING THE 0.75-INCH SCREEN.
8. THE MIX PH SHALL BE BETWEEN 5.0 AND 8.0.
9. THE BERM SHALL BE AT LEAST 12 INCHES HIGH AND AT LEAST 2 FEET WIDE.
10. TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, EROSION CONTROL MIX BERMS, PAGE 106.

E5



RECOMMENDED MAINTENANCE SCHEDULE

-EACH SILTSACK SHOULD BE INSPECTED AFTER EVERY MAJOR RAIN EVENT, AND MUST BE MAINTAINED.

-IF THERE HAVE BEEN NO MAJOR EVENTS, SILTSACK SHOULD BE INSPECTED EVERY 2-3 WEEKS.

-THE RESTRAINT CORD SHOULD BE VISIBLE AT ALL TIMES. IF CORD IS COVERED WITH SEDIMENT, THE SILTSACK SHOULD BE EMPTIED.

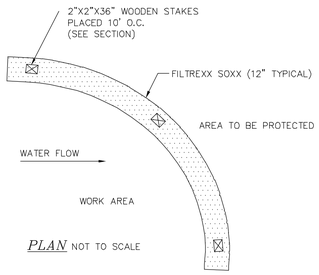
-TO BE USED IN ALL AREAS WHERE THERE WILL BE TRAFFIC.

- ARE SUBJECT TO DAMAGE BY SNOW PLOWS, AND MUST BE INSPECTED AFTER ANY SNOW EVENT AND REPLACED AS REQUIRED.

TO BE CONSTRUCTED IAW NH SWM #3 4-2 SEDIMENT CONTROL PRACTICES, TEMPORARY STORM DRAIN INLET PROTECTION, PAGE 118.

SILTSACK DETAIL
NOT TO SCALE

E6



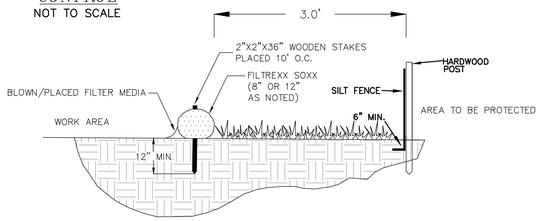
PLAN NOT TO SCALE

NOTES

1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
2. FILTER MEDIA FILL TO MEET APPLICATION REQUIRMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.
4. SILTSOXX MAY BE USED IN PLACE OF SILT FENCE OR OTHER SEDIMENT BARRIERS.
5. SILTSOXX COMPOST/SOIL/ROCK/SEED FILL MATERIAL SHALL BE ADJUSTED AS NECESSARY TO MEET THE REQUIRMENTS OF THE SPECIFIC APPLICATION.
6 FILTREXX SOXX IS A REGISTERED TRADEMARK OF FILTREXXIN TERNATIONAL, LLC.
7. SILT FENCE IS NOT A SUBSTITUTION FOR SILT SOXX AND ANY EQUAL SUBSTITUTION TO BE APPROVED.
8. TO BE CONSTRUCTED IAW FILTREXX, SECTION 1:EROSION & SEDIMENT CONTROL (PAGE 323) - CONSTRUCTION ACTIVITIES, SWPPP CUT SHEET: FILTREXX SEDIMENT CONTROL

FILTREXX SEDIMENT CONTROL

NOT TO SCALE



Filtrexx International, LLC
35481 Grafton Eastern Rd | Grafton, Oh 44044
440-926-2607 | fax 440-926-4021
WWW.FILTREXX.COM
OR APPROVED EQUAL

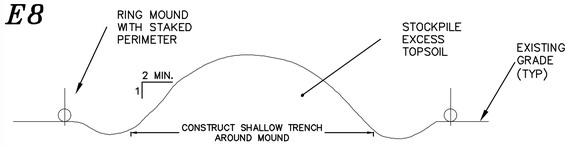
NOTE: FOR AREAS REQUIRING DOUBLE PERIMETER CONTROL WITHIN 50' OF JURISDICTIONAL WETLANDS AND NOT FOR ALL SILT SOXX APPLICATIONS. THIS DUPLICATION MAY BE SPECIFIED AS 12" SILT SOXX OR ORANGE CONSTRUCTION FENCE AS NOTED.

SECTION NOT TO SCALE

E7 *TEMPORARY EROSION CONTROL MEASURES*

1. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME.
2. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED, DIRECTED BY THE ENGINEER.
3. ALL DISTURBED AREAS SHALL BE RETURNED TO ORIGINAL GRADES AND ELEVATIONS. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 4" OF LOAM AND SEEDED WITH NOT LESS THAN ONE POUND OF SEED PER 50 SQUARE YARDS OF AREA. (SEE SEED SPECIFICATIONS THIS SHEET)
4. ALL DISTURBED AREAS WILL BE RESTABILIZED WITHIN 45 DAYS. AT ANY ONE TIME, NO MORE THAN 5 ACRES, (217,800 Sq. Ft.) WILL BE DISTURBED.
5. SILT FENCES AND PERIMETER BARRIERS SHALL BE INSPECTED PERIODICALLY AND AFTER EVERY RAIN DURING THE LIFE OF THE PROJECT. ALL DAMAGED AREAS SHALL BE REPAIRED, SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
6. AFTER ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AFTER FINAL SITE STABILIZATION. TRAPPED SEDIMENT AND OTHER DISTURBED SOIL AREAS RESULTING FROM THE REMOVAL OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED WITHIN 30 CALENDAR DAYS UNLESS CONDITIONS DICTATE OTHERWISE.
7. PER THE EPA CGP REQUIREMENTS THERE WILL BE REPORTS OF THE EROSION CONTROL INSPECTIONS IAW SWPPP PREPARED BY BS&E. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER 0.25" OR GREATER RAIN EVENT.
8. DITCHES, SWALES, AND BASINS SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
9. DO NOT TRAFFIC EXPOSED SOIL SURFACES WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION SYSTEM.
10. ROADWAYS, DRIVEWAYS AND CUT AND FILL SLOPES MUST BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINAL GRADE.
11. STABILIZATION MEANS:
    - 11.1. A MINIMUM OF 85% OF VEGETATIVE COVER HAS BEEN ESTABLISHED.
    - 11.2. A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED, OR
    - 11.3. EROSION CONTROL BLANKETS HAVE BEEN INSTALLED.
12. THIS PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.
13. THE NHDES STORMWATER MANUAL, IN THREE VOLUMES, DATED DECEMBER 2008, IS A PART OF THIS PLAN SET AND THE MORE RESTRICTIVE WILL GOVERN. (NH SWM)

E8



TO BE CONSTRUCTED IAW NH SWM #3 4-1 EROSION CONTROL PRACTICES, SOIL STOCKPILE PRACTICES, PAGE 46.

TOPSOIL STOCKPILE MOUND
NOT TO SCALE

E9

CONSTRUCTION SEQUENCE:

1.) CUT AND REMOVE TREES IN CONSTRUCTION AREA ONLY AS REQUIRED, RELOCATE ANY PROJECT T.B.M.

2.) CONSTRUCT AND/OR INSTALL TEMPORARY AND PERMANENT SEDIMENT EROSION AND DETENTION CONTROL FACILITIES AS SPECIFIED. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SOIL LAND DISTURBANCE AND MUST BE REVIEWED AND APPROVED BY THE COMMUNITY SERVICES DEPARTMENT.

3.) EROSION, SEDIMENT AND DETENTION CONTROL FACILITY SHALL BE INSTALLED & STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.TEMPORARY DIVERSIONS MAY BE REQUIRED. POST CONSTRUCTION STORM WATER MANAGEMENT PRACTICES MUST BE INITIATED AND STABILIZED EARLY IN THE PROCESS. RUNOFF MUST BE DIRECTED TO TEMPORARY PRACTICES UNTIL STORMWATER BMPs ARE STABILIZED.

4.) CLEAR, CUT AND DISPOSE OF DEBRIS IN APPROVED FACILITY

5.) CONSTRUCT TEMPORARY CULVERTS AS/IF REQUIRED, OR DIRECTED

6.) CONSTRUCT ROADWAYS FOR ACCESS TO DESIRED CONSTRUCTION AREAS. ALL ROADS SHALL BE STABILIZED IMMEDIATELY.

7.) INSTALL PIPE AND CONSTRUCTION ASSOCIATED APPURTENANCES AS REQUIRED OR DIRECTED. INSTALL GRAVEL COURSES. ALL DISTURBED AREAS SHALL STABILIZED IMMEDIATELY AFTER GRADING.

8.) BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES AND DISTURBED AREAS SHALL BE SEEDED OR MULCHED AS REQUIRED, OR DIRECTED. NO AREA IS ALLOWED TO BE DISTURBED FOR A LENGTH OF TIME THAT EXCEEDS 45 DAYS BEFORE BEING STABILIZED. DAILY, OR AS REQUIRED. ALL PARKING AREAS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADES. ALL CUT AND FILL SLOPES SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADES. LIMIT THE LENGTH OF EXPOSURE OF UNSTABILIZED SOIL TO 45 DAYS OR LESS.

9.) CONSTRUCT TEMPORARY BERMS, DRAINS DITCHES, SILT FENCES, SEDIMENT TRAPS, ETC. MULCH AND SEED AS REQUIRED.

10.) INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION. ALL SWPPP INSPECTIONS MUST BE CONDUCTED BY A QUALIFIED PROFESSIONAL SUCH AS A PROFESSIONAL ENGINEER (PE), A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC), A CERTIFIED EROSION SEDIMENT AND STORM WATER INSPECTOR (CESSWI), OR A CERTIFIED PROFESSIONAL IN STORM WATER QUALITY (CPSWQ). INSPECTION REPORTS SHALL BE SUBMITTED TO THE COMMUNITY SERVICES DEPARTMENT. EROSION AND SEDITMENT CONTROL PRACTICES ARE TO BE INSPECTED WEEKLY AND AFTER 0.5" OF RAINFALL.

11.) COMPLETE PERMANENT SEEDING AND LANDSCAPING.

12.) REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE ESTABLISHED THEMSELVES AND SITE IMPROVEMENTS ARE COMPLETE.

13.) SMOOTH AND REVEGETATE ALL DISTURBED AREAS.

14.) FINISH PAVING PARKING LOT.

E10

WINTER STABILIZATION NOTES

1. ALL DISTURBED AREAS THAT DO NOT HAVE AT LEAST 85% VEGETATIVE COVERAGE PRIOR TO OCTOBER 15TH SHALL BE STABILIZED BY APPLYING MULCH AT A RATE OF 3-4 TONS PER ACRE. ALL SIDE SLOPES, STEEPER THAN 4:1, THAT ARE NOT DIRECTED TO SWALES OR DETENTION BASINS, SHALL BE LINED WITH BIODEGRADABLE/PHOTODEGRADABLE "JUTE MATTING" (EXCELSIOR'S CURLEX II OR EQUAL). ALL OTHER SLOPES SHALL BE MULCHED AND TACKED AT A RATE OF 3-4 TONS PER ACRE. THE APPLICATION OF MULCH AND/OR JUTE MATTING SHALL NOT OCCUR OVER EXISTING SNOW COVER. IF THE SITE IS ACTIVE AFTER OCTOBER 15TH, ANY SNOW THAT ACCUMULATES ON DISTURBED AREAS SHALL BE REMOVED. PRIOR TO SPRING THAW ALL AREAS WILL BE STABILIZED, AS DIRECTED ABOVE.
2. ALL SWALES THAT DO NOT HAVE FULLY ESTABLISHED VEGETATION SHALL BE EITHER LINED WITH TEMPORARY JUTE MATTING OR TEMPORARY STONE CHECK DAMS (APPROPRIATELY SPACED). STONE CHECK DAMS WILL BE MAINTAINED THROUGHOUT THE WINTER MONTHS. IF THE SWALES ARE TO BE MATTED WITH PERMANENT LINERS OR RIPRAP WITH ENGINEERING FABRIC, THIS SHALL BE COMPLETED PRIOR TO WINTER SHUTDOWN OR AS SOON AS THEY ARE PROPERLY GRADED AND SHAPED.
3. PRIOR TO OCT. 15TH ALL ROADWAY AND PARKING AREAS SHALL BE BROUGHT UP TO AND THROUGH THE BANK RUN GRAVEL APPLICATION. IF THESE AREAS' ELEVATIONS ARE PROPOSED TO REMAIN BELOW THE PROPOSED SUBGRADE ELEVATION, THE SUBGRADE MATERIAL SHALL BE ROUGHLY CROWNED AND A 3" LAYER OF CRUSHED GRAVEL SHALL BE PLACED AND COMPACTED. THIS WILL ALLOW THE SUBGRADE TO SHED RUNOFF AND WILL REDUCE ROADWAY EROSION. THIS CRUSHED GRAVEL DOES NOT HAVE TO CONFORM TO NH DOT 304.3, BUT SHALL HAVE BETWEEN 15-25% PASSING THE #200 SIEVE AND THE LARGEST STONE SIZE SHALL BE 2". IF THE SITE IS ACTIVE AFTER OCTOBER 15TH, ANY ACCUMULATED SNOW SHALL BE REMOVED FROM ALL ROADWAY AND PARKING AREAS.
4. AFTER OCTOBER 15TH, THE END OF NEW HAMPSHIRE'S AVERAGE GROWING SEASON, NO ADDITIONAL LOAM SHALL BE SPREAD ON SIDE SLOPES AND SWALES. THE STOCKPILES THAT WILL BE LEFT UNDISTURBED UNTIL SPRING SHALL BE SEEDED BY THIS DATE. AFTER OCTOBER 15TH, ANY NEW OR DISTURBED PILES SHALL BE MULCHED AT A RATE OF 3-4 TONS PER ACRE. ALL STOCKPILES THAT WILL REMAIN THROUGHOUT THE WINTER SHALL BE SURROUNDED WITH SILT FENCING.
5. ENV-WQ 1505.06 COLD WEATHER SITE STABILIZATION (B)(1) LIMITS AREA OF EXPOSURE TO ONE ACRE OF UNSTABILIZED SOIL WITHOUT OBTAINING A WAIVER AND WINTER CONSTRUCTION PLAN.

E11 *DEFINITION OF STABLE:*

PER ENV-WQ 1500 ALTERATION OF TERRAIN

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

ADDITION STABILIZATION NOTES:

5. HAY MULCH OR OTHER APPROVED METHODS SHALL BE USED TO CONTROL EROSION OF NEWLY GRADED AREAS. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS AFTER THEIR CONSTRUCTION.
6. DISTURBED SOIL AREAS SHALL BE EITHER TEMPORARILY OR PERMANENTLY STABILIZED. IN AREAS WHERE FINAL GRADING HAS NOT OCCURRED, TEMPORARY STABILIZATION MEASURES SHOULD BE IN PLACE WITHIN SEVEN (7) CALENDAR DAYS FOR EXPOSED SOIL AREAS THAT ARE WITHIN ONE HUNDRED (100) FEET OF A SURFACE WATER BODY OR A WETLAND AND NO MORE THAN 14 CALENDAR DAYS FOR ALL OTHER AREAS. PERMANENT STABILIZATION SHOULD BE IN PLACE WITHIN THREE (3) CALENDAR DAYS FOLLOWING COMPLETION OF FINAL GRADING OF EXPOSED SOIL AREAS.

DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

EROSION & SEDIMENT CONTROL DETAILS

NON-RESIDENTIAL SITE PLAN
LAND OF
PILLAR IMAGING, LLC.
1 GROVE STREET
DOVER, N.H.
TAX MAP 3, LOT 11

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE: AS NOTED
DATE : JUNE 24, 2024
FILE NO. : DB 2024 - 031

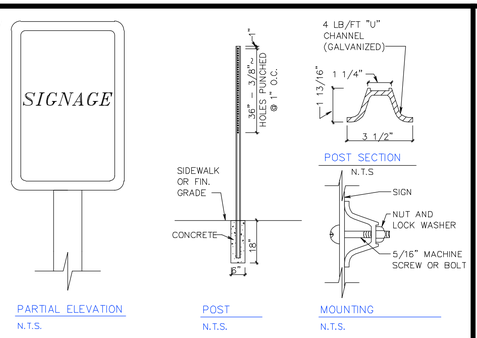
STATE OF NEW HAMPSHIRE
KENNETH A. BERRY
No. 14047
LICENSED PROFESSIONAL ENGINEER

E-101

SHEET 10 OF 14

NOT FOR CONSTRUCTION

C1

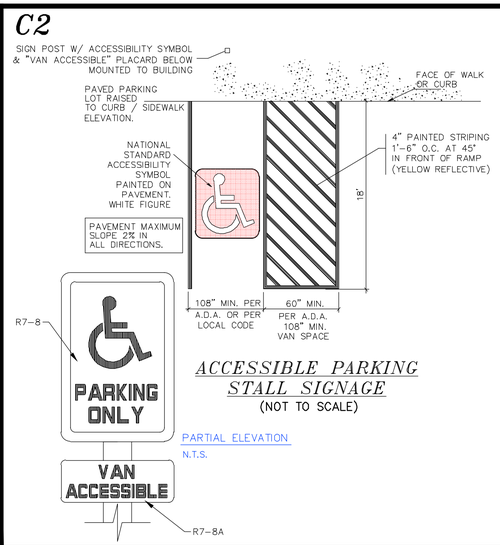


NOTES:

1. ALL SIGNAGE SHALL BE TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS AND NHDOT STANDARDS.
2. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS/CATALOG CUTS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ERECTING SIGNS.
3. THE LOCATION OF THE SIGNS SHALL BE AS INDICATED ON THE DRAWINGS AND/OR AS DIRECTED BY THE CITY OF DOVER COMMUNITY SERVICES DEPARTMENT.

TYPICAL SIGN POST
(NOT TO SCALE)

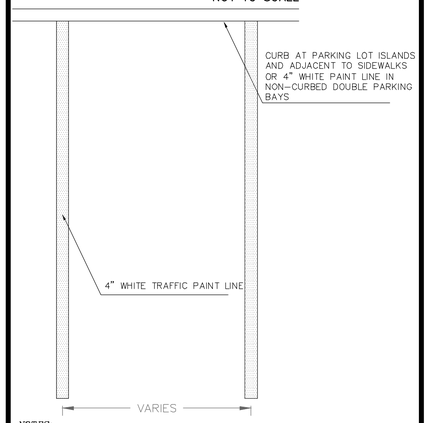
C2



ACCESSIBLE PARKING STALL SIGNAGE
(NOT TO SCALE)

C3

PARKING SPACE DETAIL
NOT TO SCALE

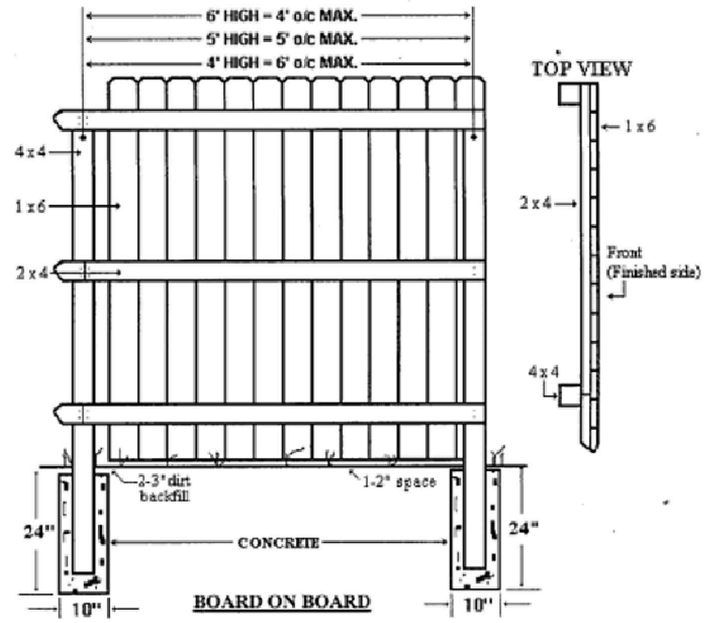


NOTES:

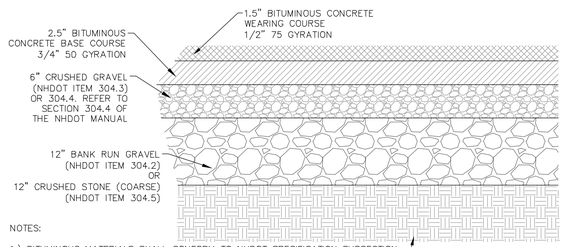
1.) PROVIDE TWO COATS OF PAINT ON ALL PARKING LINES.
2.) SEE PROPOSED SITE PLANS FOR LOCATION OF PARKING SPACES.
3.) PAINTED SPACES ONLY WHERE MARKED ON SITE PLAN

C4

STOCKADE FENCE DETAIL
NOT TO SCALE



C5



NOTES:

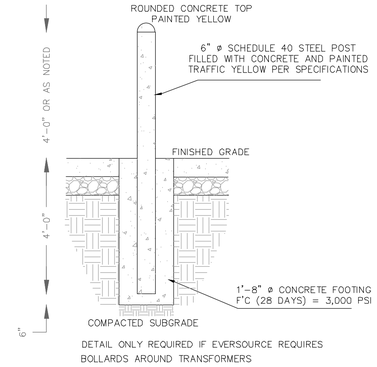
1.) BITUMINOUS MATERIALS SHALL CONFORM TO NHDOT SPECIFICATION SUBSECTION 401.3.6.

2.) PAVEMENT BASE COURSE AGGEGATE SHALL CONFORM TO NHDOT SPECIFICATION SECTION 304, ITEM 304.3 AND COMPACTED TO A MINIMUM OF 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY.

3.) PAVEMENT SUBBASE COURSE AGGREGATE AND AGGREGATE FOR SUBGRADE REPAIR AREAS SHALL BE SUITABLE FOR USE AS STRUCTURAL FILL AND BE PROOFROLLED AND COMPABED TO 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY. FOR NEW CONSTRUCTION AREAS ONLY. IN EXISTING PAVEMENT AREAS THE CONTRACTOR IS TO ENSURE THE BASE MATERIAL IS SUITABLE TO THE OWNER FOR RE-PAVING

BITUMINOUS CONCRETE PAVEMENT SECTION
NOT TO SCALE

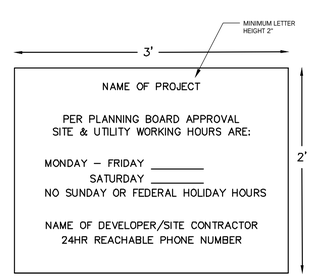
C6



DETAIL ONLY REQUIRED IF EVERSOURCE REQUIRES BOLLARDS AROUND TRANSFORMERS

BOLLARD DETAIL
NOT TO SCALE

C7



NOTES:

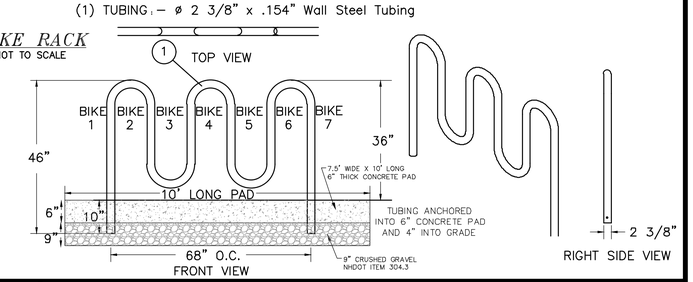
1. SIGN SHALL HAVE BLACK LETTERS ON A WHITE BACKGROUND
2. SIGN SHALL BE WEATHER RESISTANT AND SECURED TO THE GROUND
3. TO BE PLACED AT THE INTERSECTION OF PARKING LOT & GROVE STREET

REQUIRED PROJECT INFORMATION SIGN
NOT TO SCALE

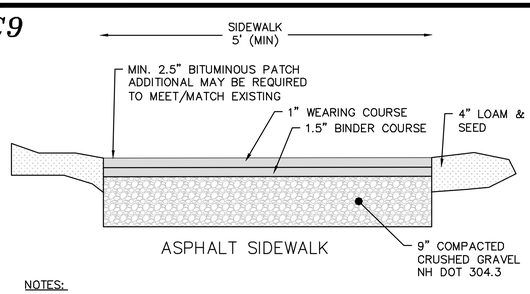
C8

MATERIALS LIST
(1) TUBING – ø 2 3/8" x .154" Wall Steel Tubing

BIKE RACK
NOT TO SCALE



C9

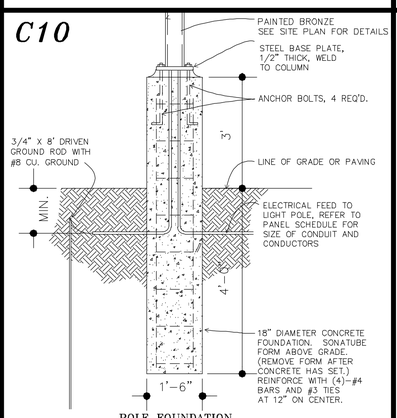


NOTES:

1. MATERIALS SHALL BE IN ACCORDANCE WITH THE CITY OF DOVER STANDARDS SPECIFICATIONS.
2. SIDEWALK AND DRIVEWAY WIDTHS SHALL BE EQUAL TO EXISTING WIDTHS OR AS APPROVED AND SHALL SLOPE TO MATCH EXISTING ELEVATIONS.
3. BASE FOR THE SIDEWALKS AND DRIVEWAYS SHALL BE 9-INCHES OF CRUSHED GRAVEL.

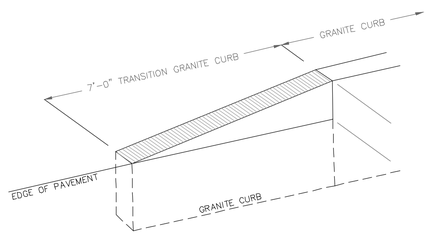
ASPHALT SIDEWALK
NOT TO SCALE

C10



LIGHT BASE DETAIL
NOT TO SCALE

C11



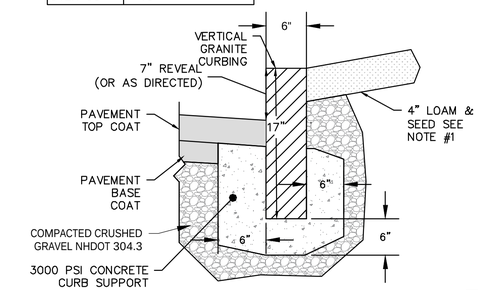
CURB TRANSITION DETAIL
NOT TO SCALE
TO BE USED FOR TRANSITION FROM GRANITE CURB TO EDGE OF PAVEMENT

C12

RADIUS	MAX LENGTH
< 21'	USE CURVED CURB
12'	3'
22' – 28'	4'
29' – 35'	5'
36' – 42'	6'
43' – 49'	7'
50' – 56'	8'
57' – 60'	9'
OVER 60'	10'

NOTES:

1. LOAM AND SEED SHOULD BE IN COMPLIANCE WITH NH DOT 641, 642, 643, 644 AND 645.



VERTICAL GRANITE CURB DETAIL
NOT TO SCALE

C-101

DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

CONSTRUCTION DETAILS

NON-RESIDENTIAL SITE PLAN
LAND OF
PILLAR IMAGING, LLC.
1 GROVE STREET
DOVER, N.H.
TAX MAP 31, LOT 11

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE: AS NOTED
DATE : JUNE 24, 2024
FILE NO. : DB 2024 – 031

STATE OF NEW HAMPSHIRE – KENNETH A. BERRY No. 14243 LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

C13

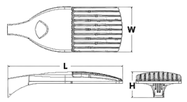
D-Series Size 1 Solar
LED Area Luminaire

d*series

Catalog Number
Notes
Type

Specifications

EPA:	1.01 ft² (0.09 m²)
Length:	33" (83.8 cm)
Width:	13" (33.0 cm)
Height:	7-1/2" (19.0 cm)
Weight (max):	27 lbs (12.2 kg)



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.

Ordering Information **EXAMPLE:** DSX1 LED P1 40K T3M SOLAR SPA DDBXD

DSX1 LED

Series	LEDs	Color temperature	Distribution	Voltage	Mounting	Other options	Finish (required)
DSX1 LED	Forward optics P1 11,000 lumens	30K 3000K 40K 4000K 50K 5000K	T1S Type I short 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 T5S Type V short T5M Type V medium T5W Type V wide BLC Backlight control [1] LCCO Left corner cutoff [1] RCCO Right corner cutoff [1]	24VDC 24 Volt DC drivers [2] SOLAR Compatible with Sunlight Solar [3]	Shipped included SPA Square pole mounting RPA Round pole mounting WBA Wall bracket SPUMBA Square pole universal mounting adaptor [4] RPUMBA Round pole universal mounting adaptor [4]	Shipped installed HS House-side shield [4] BAA Buy American(a) Act Compliant	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

REVIEW LIGHTING PLAN FOR ENTIRE SPECIFICATION

TYPICAL POLE LAMP MOUNTED AT 18' +/- AS SHOWN

NOT TO SCALE

NOTES
1. Not available with HS.
2. Suitable for use with 24Volt DC systems only. Owner is responsible for confirming that luminaire will work with your system.
3. No driver included, compatible with SoLiTy Sunna solar panel.
4. Available as a separate combination accessory: PUMBA finish U. For retrofit onto metal poles not drilled with Template #8.
5. Also available as a separate accessory; see Accessories information.
6. Not available with BLC, LCCO or RCCO.

LITHONIA LIGHTING COMMERCIAL OUTDOOR One Lithonia Way • Conyers, Georgia 30012 • Phone: 800-705-SERV (7378) • www.lithonia.com
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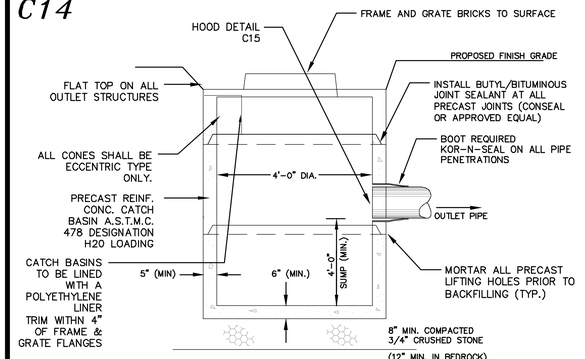
DSX1-LED Special Solar Rev. 05/11/21 Page 1 of 3

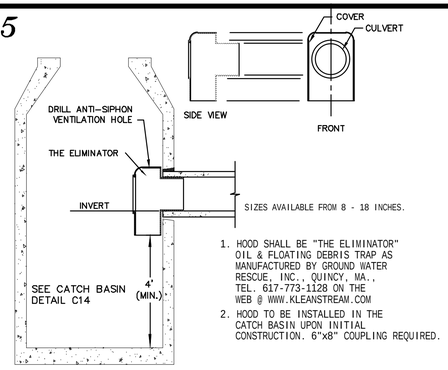
C14



CATCH BASIN DETAIL

NOT TO SCALE

C15

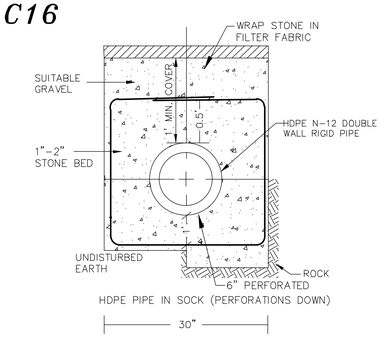


1. HOOD SHALL BE "THE ELIMINATOR" OIL & FLOATING DEBRIS TRAP AS MANUFACTURED BY GROUND WATER RESCUE, INC., QUINCY, MA., TEL. 617-773-1128 ON THE WEB @ WWW.KLEANSTREAM.COM
2. HOOD TO BE INSTALLED IN THE CATCH BASIN UPON INITIAL CONSTRUCTION. 6"x8" COUPLING REQUIRED.

CATCH BASIN HOOD DETAIL

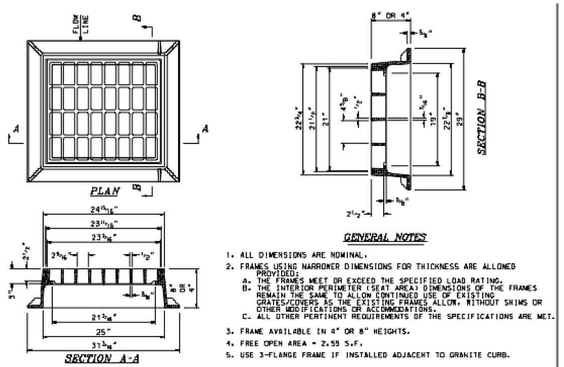
NOT TO SCALE

C16



UNDERDRAIN TRENCH DETAIL

NOT TO SCALE



GENERAL NOTES

1. ALL DIMENSIONS ARE NOMINAL.
2. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
   A. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
   B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAMES ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
   C. ALL OTHER PERTINENT REQUIREMENTS OF THE SPECIFICATIONS ARE MET.
3. FRAME AVAILABLE IN 4" OR 8" HEIGHTS.
4. FREE OPEN AREA = 2.55 S.F.
5. USE 3-FLANGE FRAME IF INSTALLED ADJACENT TO GRANITE CURB.

NHDOT STANDARD PLANS

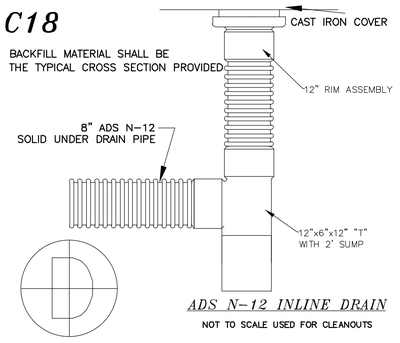
TYPE "B" GRATE & FRAME

REV. DATE	PLATE
06-16-2010	2
08-14-2015	STANDARD
	DR-1

C17 *CATCH BASIN GRATE (TYPE "B")*

NOT TO SCALE

C18



ADS N-12 INLINE DRAIN

NOT TO SCALE USED FOR CLEANOUTS

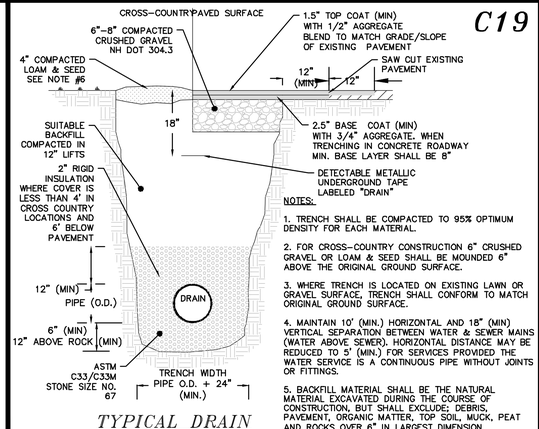
12" CAST IRON COVER

NOT TO SCALE

CASTINGS ARE RATED FOR H20 WHEEL LOAD TRAFFIC

PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT

C19



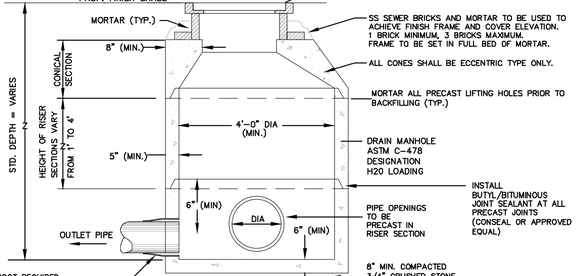
NOTES:

1. TRENCH SHALL BE COMPACTED TO 95% OPTIMUM DENSITY FOR EACH MATERIAL.
2. FOR CROSS-COUNTRY CONSTRUCTION 6" CRUSHED GRAVEL OR LOAM & SEED SHALL BE MOUNDED 6" ABOVE THE ORIGINAL GROUND SURFACE.
3. WHERE TRENCH IS LOCATED ON EXISTING LAWN OR GRAVEL SURFACE, TRENCH SHALL CONFORM TO MATCH ORIGINAL GROUND SURFACE.
4. MAINTAIN 10' (MIN.) HORIZONTAL AND 18" (MIN) VERTICAL SEPARATION BETWEEN WATER & SEWER MAINS (WATER ABOVE SEWER). HORIZONTAL DISTANCE MAY BE REDUCED TO 5' (MIN.) FOR SERVICES PROVIDED THE WATER SERVICE IS A CONTINUOUS PIPE WITHOUT JOINTS OR FITTINGS.
5. BACKFILL MATERIAL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE; DEBRIS, PAVEMENT, ORGANIC MATTER, TOP SOIL, MUCK, PEAT AND ROCKS OVER 6" IN LARGEST DIMENSION
6. LOAM AND SEED SHOULD BE IN COMPLIANCE WITH NH DOT 641, 642, 643, 644 AND 645.

TYPICAL DRAIN PIPE TRENCH

NOT TO SCALE

C20



PRECAST DRAIN MANHOLE DETAIL

NOT TO SCALE

C21

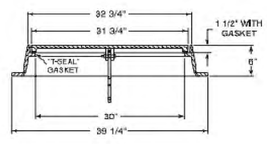
R-1743-LM
LiftMate Frame, Solid Gasketed Lid

Heavy Duty

Furnished with four 1" anchor holes on 36-7/8" diameter bolt circle.

Hinge plug available for self-seal application.

See p. 13 for LiftMate information.

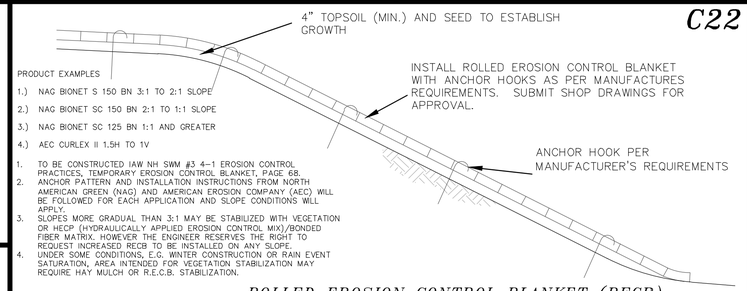


DRAIN MANHOLE FRAME AND GRATE WILL BE LIFTMATE R-1743-LM, OR APPROVED EQUAL, 32 INCH OPENING, CAST IRON, H20 LOADING.

DRAIN MANHOLE COVER DETAIL

NOT TO SCALE

C22



PRODUCT EXAMPLES

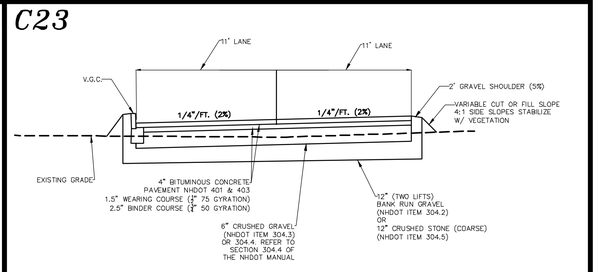
1.) NAG BIONET S 150 BN 3:1 TO 2:1 SLOPE
2.) NAG BIONET SC 150 BN 2:1 TO 1:1 SLOPE
3.) NAG BIONET SC 125 BN 1:1 AND GREATER
4.) AEC CURLEX II 1.5H TO 1V

1. TO BE CONSTRUCTED IAW NH SWM #3 4-1 EROSION CONTROL PRACTICES, TEMPORARY EROSION CONTROL BLANKET, PAGE 68.
2. ANCHOR PATTERN AND INSTALLATION INSTRUCTIONS FROM NORTH AMERICAN GREEN (NAG) AND AMERICAN EROSION COMPANY (AEC) WILL BE FOLLOWED FOR EACH APPLICATION AND SLOPE CONDITIONS WILL APPLY.
3. SLOPES MORE GRADUAL THAN 3:1 MAY BE STABILIZED WITH VEGETATION OR HECP (HYDRAULICALLY APPLIED EROSION CONTROL MIX)/BONDED FIBER MATRIX. HOWEVER THE ENGINEER RESERVES THE RIGHT TO REQUEST INCREASED RECB TO BE INSTALLED ON ANY SLOPE.
4. UNDER SOME CONDITIONS, E.G. WINTER CONSTRUCTION OR RAIN EVENT SATURATION, AREA INTENDED FOR VEGETATION STABILIZATION MAY REQUIRE HAY MULCH OR R.E.C.B. STABILIZATION.

ROLLED EROSION CONTROL BLANKET (RECB) SLOPE STABILIZATION DETAIL

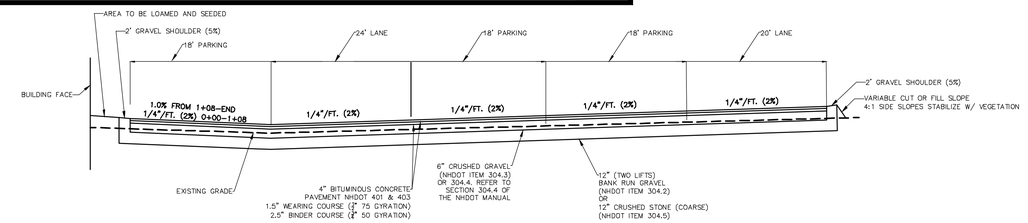
NOT TO SCALE

C23



TYPICAL PARKING LOT ENTRANCE SECTION

NOT TO SCALE



TYPICAL PARKING LOT SECTION

NOT TO SCALE

REFERENCE IS MADE TO A LONG TERM MAINTENANCE MANUAL PREPARED BY BERRY SURVEYING & ENGINEERING, WHICH IS ON FILE AT THE CITY OF DOVER COMMUNITY SERVICES, AND CAN BE FOUND AT THE OFFICE OF BERRY SURVEYING & ENGINEERING. (603) 332-2863

C-102

DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

CONSTRUCTION DETAILS

NON-RESIDENTIAL SITE PLAN
LAND OF
PILLAR IMAGING, LLC.
1 GROVE STREET
DOVER, N.H.
TAX MAP 3, LOT 11

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE: AS NOTED
DATE : JUNE 24, 2024
FILE NO. : DB 2024 – 031

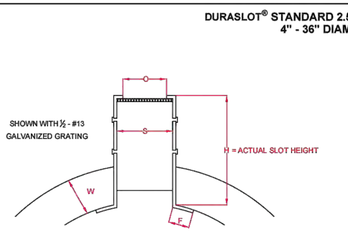
STATE OF NEW HAMPSHIRE – KENNETH A. BERRY No. 14243 LICENSED PROFESSIONAL ENGINEER

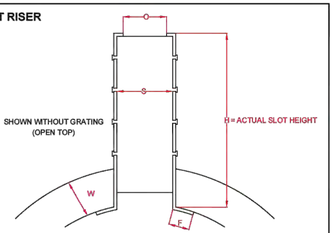
SHEET 12 OF 14

NOT FOR CONSTRUCTION

C24

DURASLOT® STANDARD 2.5" & 6" SLOT RISER
4" - 36" DIAMETER





4" - 12" PIPE WITH 2.5" SLOT RISER

PIPE DIAM.	H	W	F	O	S	PRODUCT # (GRATED)	PRODUCT # (OPEN TOP)
4" (100mm)	2.75" (70mm)	0.34" (9mm)	0.5" (13mm)	1.25" (32mm)	1.75" (44mm)	0420DS	0420DSOT
6" (150mm)	3.0" (76mm)	0.5" (13mm)	0.75" (19mm)	1.75" (44mm)	2.25" (57mm)	0620DS	0620DSOT
8" (200mm)	3.0" (76mm)	0.625" (16mm)	0.75" (19mm)	1.75" (44mm)	2.25" (57mm)	0820DS	0820DSOT
10" (250mm)	3.0" (76mm)	0.75" (19mm)	0.75" (19mm)	1.75" (44mm)	2.25" (57mm)	1020DS	1020DSOT
12" (300mm)	3.5" (89mm)	1.125" (29mm)	0.75" (19mm)	1.75" (44mm)	2.25" (57mm)	1220DS	1220DSOT

4" - 36" PIPE WITH 6" SLOT RISER

PIPE DIAM.	H	W	F	O	S	PRODUCT # (GRATED)	PRODUCT # (OPEN TOP)
4" (100mm)	6.25"	0.34"	0.5"	1.25"	1.75"	0460DS	0460DSOT
6" (150mm)	6.5" (165mm)	0.5" (13mm)	0.75" (19mm)	1.75" (44mm)	2.25" (57mm)	0660DS	0660DSOT
8" (200mm)	6.5" (165mm)	0.625" (16mm)	0.75" (19mm)	1.75" (44mm)	2.25" (57mm)	0860DS	0860DSOT
10" (250mm)	6.5" (165mm)	0.75" (19mm)	0.75" (19mm)	1.75" (44mm)	2.25" (57mm)	1060DS	1060DSOT
12" (300mm)	7.0" (178mm)	1.125" (29mm)	0.75" (19mm)	1.75" (44mm)	2.25" (57mm)	1260DS	1260DSOT
15" (375mm)	7.0" (178mm)	1.25" (32mm)	0.75" (19mm)	1.75" (44mm)	2.25" (57mm)	1560DS	1560DSOT
18" (450mm)	7.0" (178mm)	1.5" 38mm)	0.75" (19mm)	1.75" (44mm)	2.25" (57mm)	1860DS	1860DSOT
24" (600mm)	7.25" (184mm)	1.875" (48mm)	1.0" (25mm)	1.75" (44mm)	2.25" (57mm)	2460DS	2460DSOT
30" (750mm)	8.25" (210mm)	2.55" (65mm)	1" (25mm)	1.75" (45mm)	2.25" (57mm)	3060DS	3060DSOT
36" (900mm)	8.25" (210mm)	2.85" (72mm)	1" (25mm)	1.75" (45mm)	2.25" (57mm)	3660DS	3660DSOT

NOTE: DIMENSION FROM GRADE TO PIPE INVERT:
H (ACTUAL SLOT HEIGHT) + PIPE DIAMETER + RECESS (½"-¾")

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ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS DETAIL BASED ON INFORMATION PROVIDED TO ADS. THIS DRAWING IS INTENDED TO DEPICT THE COMPONENTS AS REQUESTED. 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. THE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEETS OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D

DRAWING NUMBER:

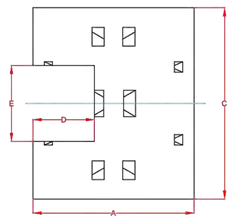
ADS ADVANCED DRAINAGE SYSTEMS, INC. 4640 TRUEMAN BLVD HILLIARD, OHIO 43026

DRAWN: DATE: CHK'D: APP'D: SCALE: NTS SHEET: 1 OF 1

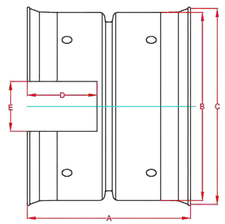
C25

DURASLOT® ADAPTERS
4" - 36" DIAMETER

(ST CLEATED INTERNAL ADAPTER FOR 4" PIPE DIAMETER)



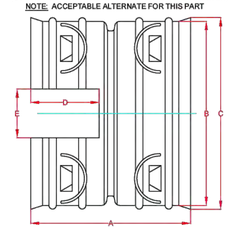
(BELL-BELL ADAPTER FOR 6-10" PIPE DIAMETER)



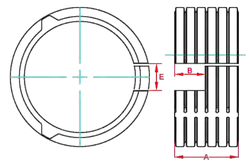
2.5", 6" & VARIABLE SLOT RISER ADAPTER DIMENSIONS

PIPE DIAM.	A	B	C	D	E	PRODUCT #
4" (100mm)	4" (100mm)	NA	4.75" (120mm)	1.25" (32mm)	2" (50mm)	0462DS
6" (150mm)	7.25" (184mm)	6.95" (177mm)	7.63" (194mm)	3" (76mm)	2.5" (64mm)	0662DS
8" (200mm)	8.25" (210mm)	9.17" (233mm)	10.13" (257mm)	3.5" (89mm)	2.5" (64mm)	0862DS
10" (250mm)	9.25 (235mm)	11.56" (294mm)	12.13" (308mm)	4" (100mm)	2.5" (64mm)	1062DS
12" (300mm)	14" (356mm)	14.6" (371mm)	15.4" (391mm)	5.5" (140mm)	2.5" (64mm)	1262DS
15" (375mm)	16" (406mm)	17.75 (449mm)	18.6" (472mm)	6.5" (165mm)	2.5" (64mm)	1562DS
18" (450mm)	18" (457mm)	21.4" (544mm)	22.4" (569mm)	7.5" (191mm)	2.5" (64mm)	1862DS
24" (600mm)	14.8" (374mm)	28.2" (716mm)	29.25" (743mm)	6" (152mm)	2.5" (64mm)	2462DS
30" (750mm)	16.5" (419mm)	8" (203mm)	NA	NA	2.5" (64mm)	3062DS
36" (900mm)	20.8" (528mm)	10" (254mm)	NA	NA	2.5" (64mm)	3662DS

(ST CLEATED EXTERNAL ADAPTER FOR 12" PIPE DIAMETER)
NOTE: ACCEPTABLE ALTERNATE FOR THIS PART



(SPLIT COUPLER ADAPTER FOR 30 & 36" PIPE DIAMETER)

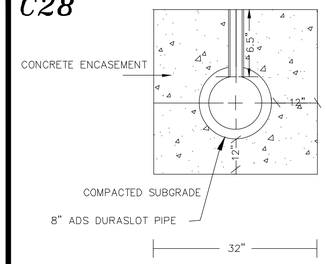


NOTE: ALL DIMENSIONS ARE FOR REFERENCE ONLY

ADS ADVANCED DRAINAGE SYSTEMS, INC.

DRAWING #:		
DRAWN BY:		
APPROVED BY:		
REVISIONS:		
SCALE:	NTS	

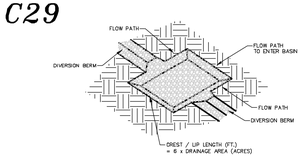
C28



ADS DURASLOT ENCASEMENT DETAIL
NOT TO SCALE

NOTE:
1. CONCRETE ENCASEMENT TO BE 1" AROUND SIDE & BOTTOM

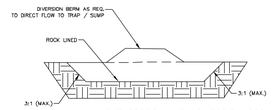
C29



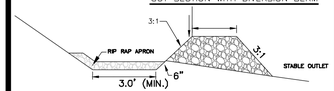
ISOMETRIC VIEW

STONE LINED SEDIMENT TRAP
NOT TO SCALE

1. TRAP TO BE INSTALLED AS CLOSE TO THE DISTURBED AREA OR SOURCE OF SEDIMENT AS POSSIBLE.
2. THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE TRAP SHALL BE LESS THAN 5 ACRES.
3. THE MINIMUM VOLUME OF THE TRAP SHALL BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA.
4. THE SIDE SLOPES OF THE TRAP SHALL BE 3:1 OR FLATTER AND SHALL BE STABILIZED IMMEDIATELY AFTER THEIR CONSTRUCTION.
5. THE OUTLET OF THE TRAP SHALL BE A MINIMUM OF ONE FOOT BELOW THE CREST OF THE TRAP AND SHALL DISCHARGE TO A STABILIZED AREA.
6. THE TRAP SHALL BE CLEANED WHEN 50 PERCENT OF THE ORIGINAL VOLUME IS FILLED.
7. THE MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AND STABILIZED.



CUT SECTION WITH DIVERSION BERM



CROSS SECTION — WIDTH AND LENGTH DEPENDANT ON CONTRIBUTING AREA EXCAVATION SECTION IS PERFFERED OVER A BERMED SECTION

SIEVE DESIGNATION	SIZE OF STONE (INCHES)
100%	12
84–100%	6
68–83%	3
42–55%	1
8–12%	NO. 4

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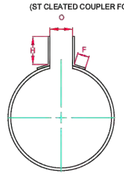
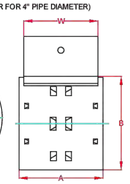
C-103

C26

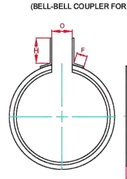
DURASLOT® STANDARD COUPLERS
4" - 36" DIAMETER

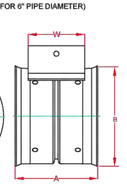
(ST CLEATED COUPLER FOR 4" PIPE DIAMETER)



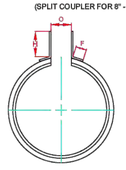


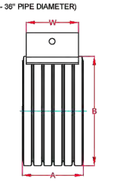
(BELL-BELL COUPLER FOR 6" PIPE DIAMETER)





(SPLIT COUPLER FOR 8" - 36" PIPE DIAMETER)





NOTE: ALL FITTINGS DIMENSIONS ARE FOR REFERENCE ONLY

2.5" SLOT RISER COUPLER BAND DIMENSIONS

PIPE DIAM.	H	O	F	W	A	B	PRODUCT #
4" (100mm)	2" (50mm)	1.875" (48mm)	0.75" (19mm)	3.75" (95mm)	4" (100mm)	4.75" (120mm)	0421DS
6" (150mm)	2" (50mm)	2.375" (60mm)	1" (25mm)	5" (127mm)	7.25" (184mm)	7.625" (194mm)	0621DS
8" (200mm)	2" (50mm)	2.375" (60mm)	1" (25mm)	5" (127mm)	5" (152mm)	10" (254mm)	0821DS
10" (250mm)	2" (50mm)	2.375" (60mm)	1" (25mm)	5" (127mm)	5.5" (140mm)	12.5" (318mm)	1021DS
12" (300mm)	2" (50mm)	2.375" (60mm)	1" (25mm)	8" (203mm)	7.75" (197mm)	******	1221DS

6" SLOT RISER COUPLER BAND DIMENSIONS

PIPE DIAM.	H	O	F	W	A	B	PRODUCT #
4" (100mm)	5.5" (50mm)	1.875" (48mm)	0.75" (19mm)	3.75" (95mm)	4" (100mm)	4.75" (120mm)	0426DS
6" (150mm)	5.5" (50mm)	2.375" (60mm)	1" (25mm)	5" (127 mm)	7.25" (184mm)	7.625" (194mm)	0626DS
8" (200mm)	5.5" (50mm)	2.375" (60mm)	1" (25mm)	5" (127mm)	5" (152mm)	10" (254mm)	0826DS
10" (250mm)	5.5" (50mm)	2.375" (60mm)	1" (25mm)	5" (127mm)	5.5" (140mm)	12.5" (318mm)	1026DS
12" (300mm)	5.5" (50mm)	2.375" (60mm)	1" (25mm)	8" (203mm)	7.75" (197mm)	******	1226DS
15" (375mm)	5.5" (50mm)	2.375" (60mm)	1" (25mm)	9" (229mm)	10.5 (267mm)	******	1526DS
18" (450mm)	5" (127mm)	2.375" (60mm)	1" (25mm)	9" (229mm)	10.5 (267mm)	******	1826DS
24" (600mm)	5" (127mm)	2.375" (60mm)	1" (25mm)	10" (254mm)	12.63" (321mm)	******	2426DS
30" (750mm)	5" (127mm)	2.375" (60mm)	1" (25mm)	10" (254mm)	16.5" (419mm)	******	3026DS
36" (900mm)	5" (127mm)	2.375" (60mm)	1" (25mm)	10" (254mm)	20.8" (528mm)	******	3626DS

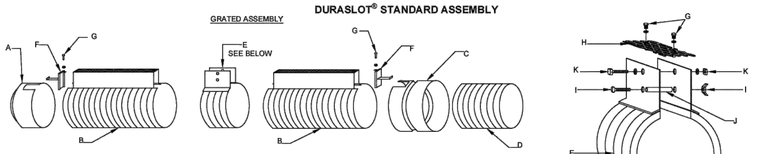
ADS ADVANCED DRAINAGE SYSTEMS, INC.

DRAWING #:		
DRAWN BY:		
APPROVED BY:		
REVISIONS:		
SCALE:	NTS	

C27

DURASLOT® STANDARD ASSEMBLY

GRATED ASSEMBLY

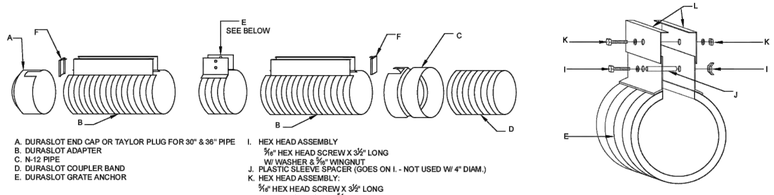


A. DURASLOT END CAP OR TAYLOR PLUG FOR 30" & 36" PIPE
B. DURASLOT PIPE
C. DURASLOT ADAPTER
D. N-12 PIPE
E. DURASLOT COUPLER BAND
F. DURASLOT GRATE ANCHOR
G. ¼" SPHS X 1" LONG W/ WASHER
H. DURASLOT GRATE CONNECTOR
I. ¾" HEX HEAD SCREW X 3½" LONG W/ WASHER & ⅜" WINGNUT
J. PLASTIC SLEEVE SPACER (GOES ON I. - NOT USED W/ 4" DIAM.)
K. HEX HEAD ASSEMBLY:
¾" HEX HEAD SCREW X 3½" LONG
W/ (2) WASHERS AND ⅜" HEX NUT

NOTE: - EACH CAP (A) & ADAPTER (C) COMES WITH AN ANCHOR (F)
- EACH COUPLER BAND (E) COMES WITH HARDWARE - I,J,K, & L
- (K) NOT USED W/ 4" DIAM. W/ 2.5" SLOT RISER

TAYLOR PLUG USED FOR 30" & 36" DIAMETER PIPE

OPEN TOP ASSEMBLY



A. DURASLOT END CAP OR TAYLOR PLUG FOR 30" & 36" PIPE
B. DURASLOT ADAPTER
C. N-12 PIPE
D. DURASLOT COUPLER BAND
E. DURASLOT GRATE ANCHOR
I. HEX HEAD ASSEMBLY
¾" HEX HEAD SCREW X 3½" LONG
W/ WASHER & ⅜" WINGNUT
J. PLASTIC SLEEVE SPACER (GOES ON I. - NOT USED W/ 4" DIAM.)
K. HEX HEAD ASSEMBLY:
¾" HEX HEAD SCREW X 3½" LONG
W/ (2) WASHERS AND ⅜" HEX NUT
L. DURASLOT BAND FLANGES

NOTE: EACH CAP (A) & ADAPTER (C) COMES WITH A CAP (F)
EACH COUPLER BAND (E) COMES WITH HARDWARE
(I,J,K, & L)

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ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS DETAIL BASED ON INFORMATION PROVIDED TO ADS. THIS DRAWING IS INTENDED TO DEPICT THE COMPONENTS AS REQUESTED. 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. THE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEETS OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D

DRAWING NUMBER:

ADS ADVANCED DRAINAGE SYSTEMS, INC. 4640 TRUEMAN BLVD HILLIARD, OHIO 43026

DRAWN: DATE: CHK'D: APP'D: SCALE: NTS SHEET: 1 OF 1

DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

CONSTRUCTION DETAILS

NON-RESIDENTIAL SITE PLAN
LAND OF
PILLAR IMAGING, LLC.
1 GROVE STREET
DOVER, N.H.
TAX MAP 31, LOT 11

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

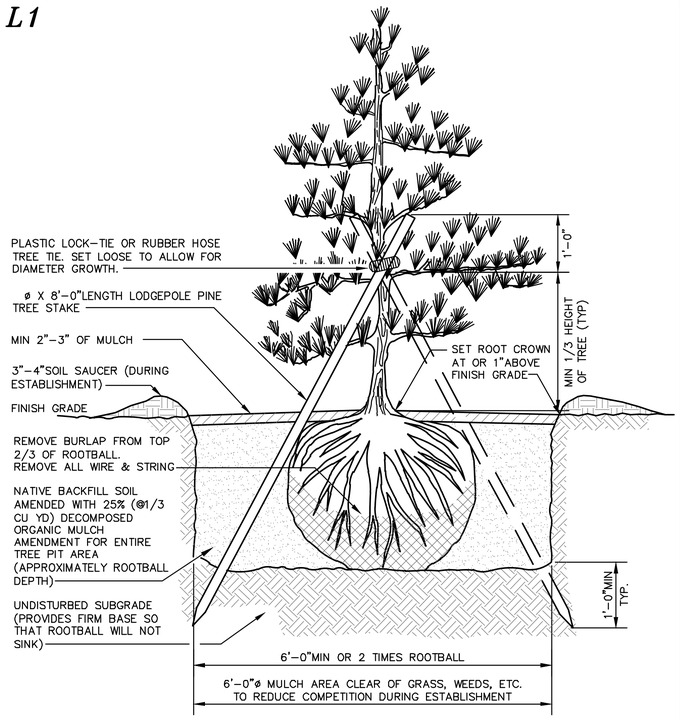
SCALE: AS NOTED
DATE : JUNE 24, 2024
FILE NO. : DB 2024 – 031

STATE OF NEW HAMPSHIRE – KENNETH A. BERRY No. 14243 LICENSED PROFESSIONAL ENGINEER

SHEET 13 OF 14

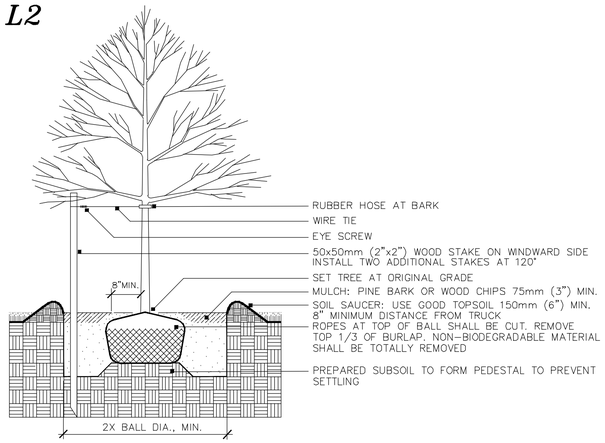
NOT FOR CONSTRUCTION

L1



CONIFEROUS TREE PLANTING

L2



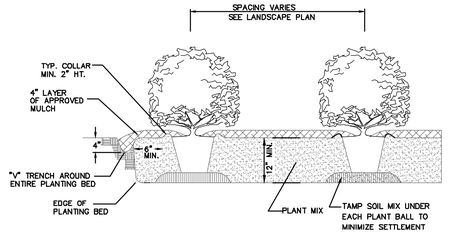
DECIDUOUS TREE PLANTING

NOTE: STAKING TO BE USED IN PARKING ISLANDS AND OTHER CONFINED AREAS AS NECESSARY TO AVOID CONFLICTS WITH PEDESTRIANS

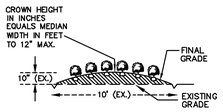
L3

NOTES:

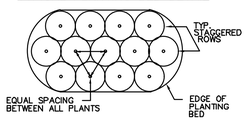
1. SCARIFY ROOT MASS OF CONTAINERIZED PLANT MATERIAL.
2. INSTALL CONTAINERIZED PLANTS AT FINSHED GRADE
3. TAMP PLANTING MIX FIRMLY AS PIT IS FILLED AROUND EACH PLANT BALL.
4. OMIT COLLAR AROUND EACH SHRUB WHEN IRRIGATION SYSTEM IS PRESENT.
5. SOAK EACH PLANT BALL AND PIT IMMEDIATELY AFTER INSTALLATION.



TYPICAL PLANTING BED DETAIL



TYPICAL BED CROWNING



TYPICAL PLANTING BED PLAN

SHRUB & HEDGE PLANTING

L4

SEEDING SPECIFICATIONS

1. GRADING AND SHAPING
   A. SLOPES SHALL NOT BE STEEPER THAN 2:1; 3:1 SLOPES OR FLATTER ARE PREFERRED. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
2. SEEDBED PREPARATION
   A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
   B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEED BED AND MIX FERTILIZER AND LIME INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
3. ESTABLISHING A STAND
   A. LIME AND FERTILIZER SHOULD BE APPLIED 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, 2 TONS PER ACRE OR 100LBS. PER 1,000 SQ.FT.
   NITROGEN(N), 50LBS. PER ACRE OR 1.1LBS. PER 1,000 SQ.FT.
   PHOSPHATE(P2O5), 100LBS. PER ACRE OR 2.2LBS. PER 1,000 SQ.FT.
   POTASH(K2O), 100LBS. PER ACRE OR 2.2LBS. PER 1,000 SQ.FT.
   (NOTE: THIS IS THE EQUIVALENT OF 500LBS. PER ACRE OF 10–20–20 FERTILIZER OR 1,000LBS. PER ACRE OF 5–10–10.)
   B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
   C. REFER TO TABLE(G–E1 THIS SHEET) FOR APPROPRIATE SEED MIXTURES AND TABLE(H–E1 THIS SHEET) FOR RATES OF SEEDING. ALL LEGUMES (CROWNVETCH, BIRDSFOOT TREFOIL, AND FLATPEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT.
   D. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 10 TO SEPTEMBER 1.
4. MULCH
   A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
   B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90LBS PER 1000 S.F.
5. MAINTENANCE TO ESTABLISH A STAND
   A. PLANTED AREA SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
   B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIAL STAKE 2 TO 3 YEARS TO BECOME ESTABLISHED.
   C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, OCCASIONAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.
6. TO BE CONSTRUCTED IAW NH SWM #3 4–1 EROSION CONTROL PRACTICES, PERMANENT VEGETATION, PAGE 60.
7. SEE RAIN GARDEN AND INFILTRATION DETAIL SHEETS FOR SPECIFIC PLANTING INSTRUCTIONS AND SEEDING.

SEEDING SPECIFICATIONS

NOT TO SCALE

NOTE: THIS PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

NOTE: Temporary seed mix for stabilization of turf shall be winter rye or oats at a rate of 2.5 lbs. per 1000 s.f. and shall be placed prior to OCT. 15, if permanent seeding not yet complete.

SEEDING GUIDE

USE	SEEDING MIXTURE 1/	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	FAIR	GOOD	EXCELLENT
	E	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A	GOOD	GOOD	GOOD	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
	D	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, 000 AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	GOOD	POOR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
	D	FAIR	GOOD	GOOD	EXCELLENT
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	F	FAIR	EXCELLENT	EXCELLENT	2/
	G	FAIR	EXCELLENT	EXCELLENT	2/

RECOMMENDED

GRAVEL PIT, SEE NH–PM–24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.

1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE 7–36.
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.

SEEDING RATES

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 Sq. Ft.
A. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
RED TOP	2	0.05
TOTAL	42	0.95
B. TALL FESCUE	15	0.35
CREEPING RED FESCUE	10	0.25
CROWN VETCH	15	0.35
OR		
FLAT PEA	30	0.75
TOTAL	40 OR 55	0.95 OR 1.35
* C. TALL FESCUE	24	0.55
CREEPING RED FESCUE	24	0.55
BIRDS FOOT TREFOIL	REMOVED	REMOVED
TOTAL	48	1.10
D. TALL FESCUE	20	0.45
FLAT PEA	30	0.75
TOTAL	50	1.20
E. CREEPING RED FESCUE 1/	50	1.15
KENTUCKY BLUEGRASS 1/	50	1.15
TOTAL	100	2.30
F. TALL FESCUE 1	150	3.60

CONSERVATION MIX	POUNDS PER ACRE	POUNDS PER 1,000 S.F.
TALL FESCUE (35%)	15	0.35
CREEPING RED FESCUE (25%)	15	0.35
ANNUAL RYEGRASS (12%)	5	0.12
PERENNIAL RYEGRASS (10%)	5	0.12
KENTUCKY BLUEGRASS (10%)	15	0.35
WHITE CLOVER (3%)	7	0.16

L5

NOTES:

1.) CALL DIG SAFE PRIOR TO BEGINNING WORK. (1–888–344–7233). THE LANDSCAPE CONTRACTOR IS ADVISED OF THE PRESENCE OF UNDERGROUND UTILITIES AND SHALL VERIFY THE EXISTENCE AND LOCATION OF THE SAME BEFORE COMMENCING AND DIGGING OPERATIONS. THE LANDSCAPE CONTRACTOR SHALL REPLACE OR REPAIR UTILITIES, PAVING, WALKS, CURBING, ETC DAMAGED IN PERFORMANCE OF THIS JOB AT NO ADDITIONAL COST TO THE OWNER OR GENERAL CONTRACTOR.

2.) CONTRACTOR SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL SITE CONDITIONS PRIOR TO CONSTRUCTION BIDDING.

3.) PROVIDED SMOOTH TRANSITION WHERE NEW WORK MEETS EXISTING CONDITIONS.

4.) ALL PLANT MATERIAL INSTALLED SHALL MEET THE SPECIFICATIONS OF "AMERICAN STANDARD FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN.

5.) ALL PLANT MATERIALS SHALL BE FREE FROM INSECTS AND DISEASE.

6.) ALL PLANTINGS SHALL BE DONE IN ACCORDANCE WITH ACCEPTABLE HORTICULTURAL PRACTICES. THIS IS TO INCLUDE PROPER PLANTING MIX, PLANT BED AND TREE PIT PREPARATION, PRUNING STAKING OR GUYING, WRAPPING, SPRAYING, FERTILIZATION, PLANTING AND ADEQUATE MAINTENANCE UNTIL ACCEPTANCE FROM OWNER.

7.) ALL GRASS, OTHER VEGETATION AND DEBRIS SHALL BE REMOVED FROM ALL PLANTING AREAS PRIOR TO PLANTING.

8.) THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF EXISTING AND NEWLY PLANTED TREES AND SHRUBS DURING THE CONSTRUCTION PROCESS. WHERE REQUIRED, THE CONTRACTOR SHALL INSTALL TEMPORARY FENCING (SNOW OR EQUAL) AROUND EXISTING TREES AND SHRUBS THAT COULD BE IMPACTED BY THE CONSTRUCTION PROCESS. STORAGE OF CONSTRUCTION EQUIPMENT, CONSTRUCTION MATERIALS, SNOW STORAGE AND OR VEHICLE PARKING SHALL NOT BE PERMITTED WITHIN THE DRIP LINE OF TREES OR TWENTY FEET WHICH EVER IS GREATER.

9.) NEW PLANTINGS SHALL BE INSTALLED PER PROJECT DRAWINGS AND SPECIFICATION THAT INCLUDE FERTILIZATION AND MULCHING AS REQUIRED.

10.) ALL SHRUB BEDS AND TREE PITS SHALL BE MULCHED WITH 3" CLEAN SHREDDED BLACK MULCH.

11.) WHERE INDICATED ON PLAN, PLANTING SOIL MIXTURE FOR GROUND COVER AND PERENNIAL BED AREAS SHALL CONSIST OF FOUR PARTS TOPSOIL, TWO PARTS SPHAGNUM PEAT MOSS, AND ONE PART HORTICULTURAL PERLITE BY VOLUME. PEAT MOSS MAY BE SUBSTITUTED WITH WELL–ROTTED OR DEHYDRATED MANURE OR COMPOST. ROTOTILL BEDS TO A DEPTH OF 8 INCHES.

12.) MAINTENANCE OF NEW PLANTINGS AND LAWNS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND OR LANDSCAPE SUBCONTRACTOR UNTIL ACCEPTANCE BY THE OWNER. RESPONSIBILITIES SHALL INCLUDE WATERING WEEDING AND MOWING AS NECESSARY. ALL PLANT MATERIAL SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE, REPLACEMENT MATERIAL SHALL BE GUARANTEED FOR AND ADDITIONAL YEAR FROM TIME OF INSTALLATION.

13.) THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY EROSION CONTROL MEASURES DURING THE CONSTRUCTION PHASE AND UNTIL ALL AREAS HAVE BEEN STABILIZED AND ACCEPTED BY THE OWNER. THE GENERAL CONTRACTOR SHALL PROVIDE WEEKLY INSPECTIONS OF EROSION MEASURE AND IMMEDIATELY AFTER STORM EVENTS AND REPAIR AS NECESSARY.

14.) THE GENERAL CONTRACTOR AND OR THE LANDSCAPE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL THREE GUYING MATERIAL ONCE PLANT MATERIAL HAS BEEN ESTABLISHED. (MINIMUM OF ONE GROWING SEASON). ALL TEMPORARY EROSION CONTROL MEASURE SHALL BE REMOVED ONCE STABILIZATION OF DISTURBANCE HAS BEEN ACCEPTED BY OWNER.

15.) THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR A MINIMUM OF TWO MOWINGS FOR ALL TURF AREAS OR UNTIL ACCEPTANCE BY THE OWNER. A MINIMUM UNIFORM 75% CATCH OF TURF IS REQUIRED FOR ACCEPTANCE.

16.) ALL PLANTINGS SHALL BE WATERED REGULARLY DURING THEIR FIRST YEAR AND MAINTAINED PERMANENTLY IN GOOD GROWING CONDITION AS AN EFFECTIVE VISUAL SCREEN.

17.) SHRUBS OR TREES WHICH DIE SHALL BE REPLACED WITHIN ONE GROWING SEASON WITH NEW SHRUBS OR TREES TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE LANDSCAPING REQUIREMENTS.

18.) ALL REQUIRED LANDSCAPING SHALL BE INSTALLED BEFORE OCCUPANCY, OR WITHIN SIX MONTHS IF OCCUPANCY OCCURS DURING WINTER CONDITIONS.

19.) TREES ARE TO BE 2–2.5" CALIPER 6" OFF THE ROOT BALL.

20.) ALL PLANT STOCK SHALL CONFORM TO ANSI Z260.1 – NURSERY STOCK, LATEST EDITIONS (AMERICAN ASSOCIATION OF NURSERYMEN, INC.)

21.) 4" AGED PINEBARK MULCH AND A WEED BARRIER (TY–PAR FABRIC OR APPROVED EQUAL) SHALL BE APPLIED TO ALL SHRUB AND GROUND COVER BEDS. INSTALL WEED BARRIER AS PER MANUFACTURERS RECOMMENDATIONS.

22.) PLANT–PIT BACK–FILL SHALL BE MIXED AT A RATE OF 7 PARTS OF TOPSOIL TO 2 PARTS OF DEHYDRATED COW MANURE. SLOW RELEASE FERTILIZER SHALL BE APPLIED AS PER MANUFACTURERS RECOMMENDATIONS. USE EXISTING ON–SITE TOPSOIL AS PART OF BACK FILL WHEN AVAILABLE.

23.) ALL LANDSCAPED AREAS NOT PLANTED WITH TREES, SHRUBS OR GROUNDCOVER SHALL BE RESTORED WITH SEED OR SOD AS INDICATED ON PLANS.

DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

LANDSCAPING DETAILS

NON–RESIDENTIAL SITE PLAN
LAND OF
PILLAR IMAGING, LLC.
1 GROVE STREET
DOVER, N.H.
TAX MAP 3, LOT 11

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332–2863

SCALE: AS NOTED
DATE : JUNE 24, 2024
FILE NO. : DB 2024 – 031

STATE OF NEW HAMPSHIRE – KENNETH A. BERRY No. 14043 LICENSED PROFESSIONAL ENGINEER

L–101

SHEET 14 OF 14

NOT FOR CONSTRUCTION

NOTES:

1.) OWNER: PILLAR IMAGING, LLC
1 GROVE STREET
DOVER, NH 03820

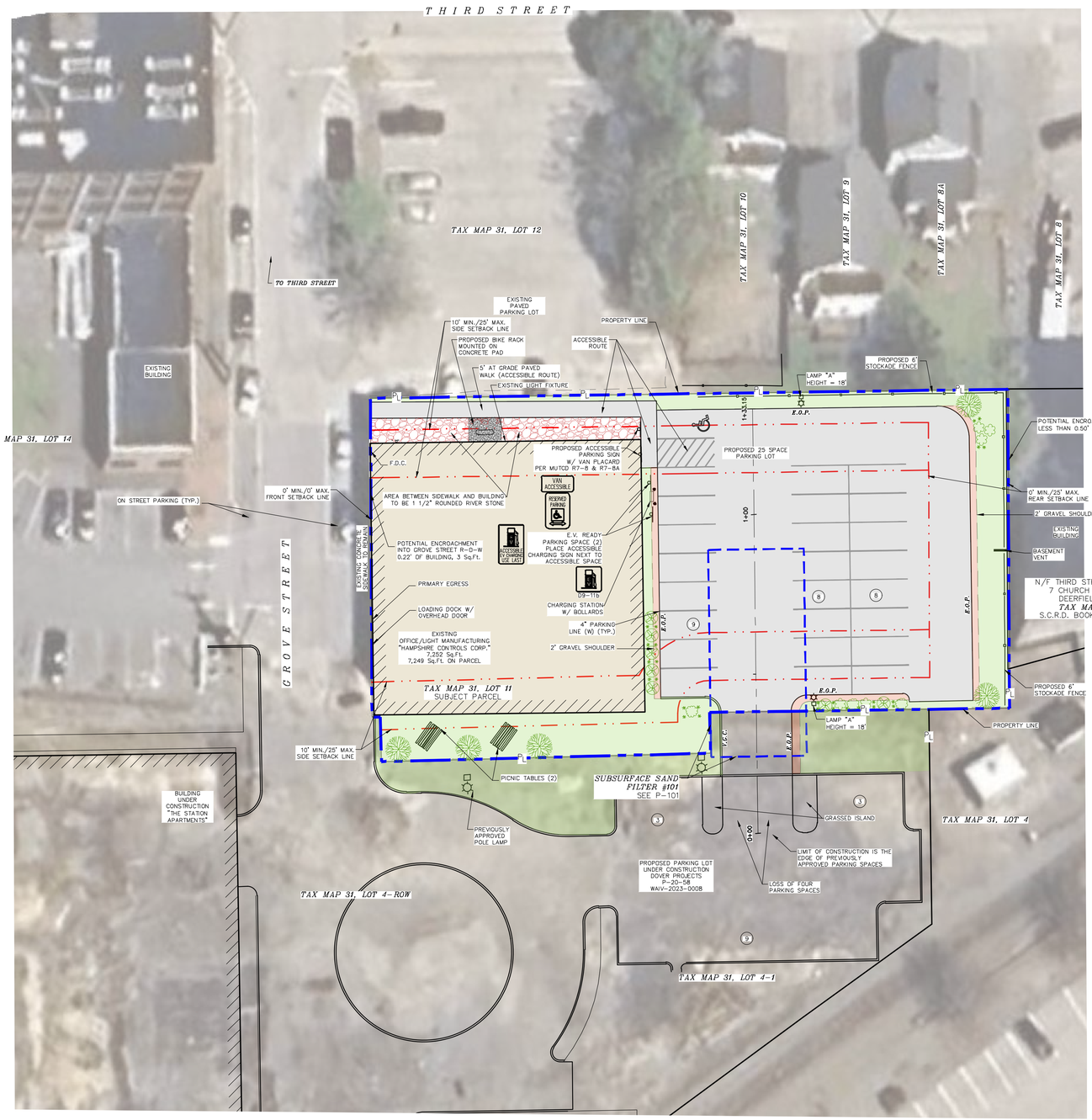
APPLICANT: HAMPSHIRE CONTROLS CORP.
P.O. BOX 516
DOVER, NH 03821

2.) TAX MAP 31, LOT 11

3.) LOT AREA: 21,383 Sq. Ft., 0.49 Ac.

4.) S.C.R.D. BOOK 4943, PAGE 308

5.) THE INTENT OF THIS PLAN IS TO SHOW THE COLOR RENDERING DETAIL OF TAX MAP 31 LOT 11.



LEGEND:

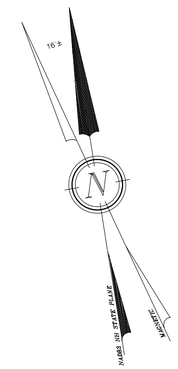
- 3/4" REBAR W/ID CAP ~TBS~
- IRON BOUND/IRON ROD (FND)
- IRON PIPE (FND)
- DRILL HOLE (FND)
- UTILITY POLE / GUY WIRE
- SINGLE POST SIGN

PROPERTY LINE
BUILDING SETBACK LINE
CENTER LINE
SHOULDER

FND FOUND
TYP TYPICAL
S.C.R.D. STRAFFORD COUNTY REGISTRY OF DEEDS
T.B.R. TO BE REMOVED
F.D.C. FIRE DEPARTMENT CONNECTION

COLOR LEGEND:

- GRAVEL AREA
- GRASS AREA
- PAVED AREA
- INDUSTRIAL BUILDING
- RIVER STONE
- LIMIT OF STORMWATER BMP



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

DOVER PLANNING FILE #

REVISION	DATE	DESCRIPTION

PROJECT COLOR RENDERING

NON-RESIDENTIAL SITE PLAN
LAND OF
PILLAR IMAGING, LLC.
1 GROVE STREET
DOVER, N.H.
TAX MAP 31, LOT 11

BERRY SURVEYING & ENGINEERING
335 SECOND CROWN POINT ROAD
BARRINGTON, NH 03825 (603)332-2863

SCALE : 1 IN. EQUALS 20 FT.
DATE : JUNE 24, 2024
FILE NO. : DB 2024 – 031

NOT FOR CONSTRUCTION

HAMPSHIRE CONTROLS CORP.

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: Hampshire Controls Corp. Telephone # 603-749-9424

Address of Applicant: P.O. Box 516, Dover, NH, 03821

E-Mail Address: michael.pilon@hampshirecontrols.com

Name of Property Owner (if different from applicant): Pillar Imaging LLC Telephone # Same

Address of Property Owner: 1 Grove Street, Dover, NH 03820

PROPERTY INFORMATION

Assessor's Map # 31 Lot(s) # 11

Address of Property: 1 Grove Street

Zoning District(s) CBD TOD Overlay District(s) N/A

Existing Use of Property: Existing Office/Light Manufacturing

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:

Existing frontage build-out of 73% where 80% is required (CUP #1)

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

Name of Professional That Prepared Plans: Berry Surveying & Engineering, Christopher R. Berry PM
Kenneth A. Berry PE, LLS

Address 335 Second Crown Point Road
Barrington, NH 03825 Telephone #: 603-332-2863

Professional License #: PE 14243, LLS 805 E-mail address: crberry@metrocast.net
k.berry@berrysurveying.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: 05/09/2024

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: 05/09/2024

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 24, 2023)

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 # _____ 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 = $_____
- ☐ **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 = $_____

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 $10.00= $_____
- ☐ Certified letters fee: # of abutters _____ X $10.00= $_____
- ☐ 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 $120.00 x # _____ applications = $_____

SUBTOTAL = $_____

TOTAL INVOICE AMOUNT = $_____

PLAN REVIEW FEE COLLECTED/PAID = $ _____

BALANCE DUE = $ _____

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

BERRY SURVEYING & ENGINEERING
335 Second Crown Point Road
Barrington, NH 03825
Phone: (603) 332-2863
Fax: (603) 335-4623
www.BerrySurveying.Com

June 24, 2024

City of Dover Planning Board
Attention: Donna Benton, AICP, Director of Planning and Community Development
288 Central Ave
Dover, NH 03820

Re: Non-Residential Site Plan
Conditional Use Permit Request (Non- Environmental - one of five total)
Frontage Buildout Request
Hampshire Controls Corp.
1 Grove Street, Tax Map 31, Lot 11

Chairperson & Members of the Dover Planning Board:

Pursuant to Zoning Regulations (Chapter 170) and Site Plan Regulations (Chapter 153) Berry Surveying & Engineering (BS&E), on behalf of Hampshire Controls Corp., respectfully requests the City of Dover Planning Board approve the following Conditional Use Permit:

- Existing frontage build-out of 73% where 80% is required

Background:

Hampshire Controls Corp. is looking to develop a twenty-five (25) space parking lot to support business operations at their existing 1 Grove Street facility. Hampshire Controls Corp. designs and manufactures monitoring, alert notification and data logging technologies for medical, food processing, and research applications. Hampshire Controls Corp. currently utilizes a handful of partially marked parking spaces in a gravel area along the north side of the building, small gravel area on the eastern side of the building and any available street parking to support operations. The available parking is not adequate for current and future operations at Hampshire Controls. The applicant is proposing a parking lot based of the maximum parking spaces for an office land use 153-14(D)(1)(c), due to the intensity of the land use.

As part of the proposal, the existing Hampshire Controls Corp. building built in 1923 will remain in its current configuration. The current gravel parking area to the north of the building requires partial parking and access from the lot to the north (Tax Map 31, Lot 12). This gravel area will be replaced with river stone and an at grade paved sidewalk to provide an accessible route to the existing building from the new parking. The proposed parking lot will be accessed from the south of the existing

building (Tax Map 31, Lot 4-1 The Station Apartments) with a blanket access easement provided. The gravel area to the east of the building will become part of the proposed parking lot.

1. **Identification of Conditional Use Permit (Chapter 170-20-B)**
   1.) Existing frontage buildout of 73% when 80% is required.

Dimensional regulations in the Central Business District – Transit Oriented Development Sub-District (CBD-TOD) require frontage buildout must be 80%. We ask that a Conditional Use Permit be granted for the existing structure frontage build-out of 73%. As the intent of this Site Plan applicant is to provide parking to support business operations, there are no modifications to the existing structure frontage-buildout.

2. **Compliance with the following standards**
   a) That both public and private buildings and landscaping shall contribute to the physical definition of rights of way as civic spaces.
      - **The existing structure meets the 0' front build-to line, providing physical definition of the right-of-way. An existing concrete sidewalk in front of the structure provides additional definition.**

   b) That development shall adequately accommodate automobiles, while respecting the pedestrian and the spatial form of public areas.
      - **The proposed development assists in providing accommodation for automobiles by providing an organized parking location behind the building. This development also provides a separate accessible route to the building separate from the parking lot access.**

   c) That the design of streets and buildings shall reinforce safe environments, but not at the expense of accessibility.
      - **The proposed development assists in providing accommodation for automobiles by providing an organized parking location behind the building. This development also provides a separate accessible route to the building separate from the parking lot access. An accessible parking space/van loading and accessible EV charging space are provided at the beginning of the accessible route.**

d) That architecture and landscape design shall grow from local climate, topography, history, and building practice.

- **The architecture of the existing building is proposed to remain, as no building modifications are proposed. The architecture of the building matches other brick façades within the general CBD area.**

e) That buildings shall provide their inhabitants with a clear sense of geography and climate through energy efficient methods via a mixture of elements including windows, floorplan, public, and private space.

- **This standard is not applicable as a new building is not proposed.**

f) That civic buildings and public gathering places shall be provided as locations that reinforce community identity and activity.

- **While the existing building is not civic in nature, the applicant is proposing two picnic tables with shade trees on the southern side of the building adjacent to the parking lot that would attract potential outside activity.**

g) That civic buildings shall be distinctive and appropriate to a role more important than the other buildings that constitute the fabric of the city.

- **While this building is not civic in nature, the brick façade is a distinctive feature that is commonly found with older structures located within the general CBD area.**

h) That the preservation and renewal of historic buildings shall be facilitated.

- **The project does not propose any modifications of the existing structure built in 1923 according to the Dover GIS.**

i) That the harmonious and orderly evolution of urban areas shall be secured through the adoption of these regulations.

- **The harmonious and orderly evolution of the urban area is secured in the development of the project site in the manner in which it is presented. The proposed parking lot matches the City of Dover desire to have vehicles and parking areas at the back of the existing structure. This assists to provide an improved level of screening directly from Grove Street and even the intersection of Third Street and Grove Street. Picnic tables with shade trees are**

proposed to the south of the existing building in an attempt to bring a modern urban feel to the existing site.

j) That if the relief is granted, the surrounding neighborhood is not negatively impacted.

- **If this relief is granted, this will not negatively impact the surrounding neighborhood. This parking lot construction will help to provide vehicle parking away from the edge of Grove Street in a more organized manner. The placement of the parking lot behind the existing structure will help to screen the parking from Grove Street and even the Third Street side.**

a) That requested use shall be compatible with abutting uses and the surrounding neighborhood.

- **The requested use is compatible with the surrounding neighborhood as this structure has been in this location for many years. The parking lot proposed is to support the existing use on site.**

b) The requested use will not create undue traffic congestion or unduly impair pedestrian safety.

- **The requested use will not create undue traffic congestion, as this parking lot is proposed to support the existing use. Please find trip generation provided with application.**

c) The requested use will not result in objectionable noise or odor which would constitute a nuisance.

- **Hampshire Controls Corp. activities occur within the confines of the facility, not subjecting abutting parcels to objectionable noise or odor which would constitute a nuisance.**

3. Justification for approval of Conditional Use Permit

The applicant is looking to provide parking for present and future operations with the remaining usable area of the subject parcel. The number of parking spaces proposed matches the maximum allowable put forth from Dover Site Review Regulations. The existing building is not able to meet the full 80% frontage buildout (73% provided). According to information from the City of Dover website, the concept

of Zoning has been in Dover since 1948. As the existing structure was built in 1923, this predates the Dover Zoning Ordinance, specifically the requirements of the CBD-TOC zone.

Thank you for your time and attention to this matter, and we hope you look favorably upon the request.
Respectfully Submitted,

BERRY SURVEYING & ENGINEERING

Kevin R. Poulin, PE
Project Engineer

Christopher R. Berry, SIT
Principal, President

BERRY SURVEYING & ENGINEERING
335 Second Crown Pt. Rd., Barrington, NH 03825
(603) 332-2863 / (603) 335-4623 FAX
www.BerrySurveying.Com

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: Hampshire Controls Corp. Telephone # 603-749-9424

Address of Applicant: P.O. Box 516, Dover, NH, 03821

E-Mail Address: michael.pilon@hampshirecontrols.com

Name of Property Owner (if different from applicant): Pillar Imaging LLC Telephone # Same

Address of Property Owner: 1 Grove Street, Dover, NH 03820

PROPERTY INFORMATION

Assessor's Map # 31 Lot(s) # 11

Address of Property: 1 Grove Street

Zoning District(s) CBD TOD Overlay District(s) N/A

Existing Use of Property: Existing Office/Light Manufacturing

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:

Existing lot coverage of 33.9% where 75-100% is required (CUP #2)

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

Name of Professional That Prepared Plans: Berry Surveying & Engineering, Christopher R. Berry PM
Kenneth A. Berry PE, LLS

Address 335 Second Crown Point Road
Barrington, NH 03825 Telephone #: 603-332-2863

Professional License #: PE 14243, LLS 805 E-mail address: crberry@metrocast.net
k.berry@berrysurveying.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: 05/09/2024

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.

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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 24, 2023)

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 = $_____
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- ☐ SITE REVIEW – NON-RESIDENTIAL Application fee $200.00 + (not to exceed $10,000)
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SUBTOTAL PLAN REVIEW FEE = $_____

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
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C. Foster's newspaper public notice fee $120.00 x # _____ applications = $_____

SUBTOTAL = $_____

TOTAL INVOICE AMOUNT = $_____

PLAN REVIEW FEE COLLECTED/PAID = $ _____

BALANCE DUE = $ _____

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

BERRY SURVEYING & ENGINEERING
335 Second Crown Point Road
Barrington, NH 03825
Phone: (603) 332-2863
Fax: (603) 335-4623
www.BerrySurveying.Com

June 24, 2024

City of Dover Planning Board
Attention: Donna Benton, AICP, Director of Planning and Community Development
288 Central Ave
Dover, NH 03820

Re: Non-Residential Site Plan
Conditional Use Permit Request (Non- Environmental - Two of five total)
Lot Coverage Request
Hampshire Controls Corp.
1 Grove Street, Tax Map 31, Lot 11

Chairperson & Members of the Dover Planning Board:

Pursuant to Zoning Regulations (Chapter 170) and Site Plan Regulations (Chapter 153) Berry Surveying & Engineering (BS&E), on behalf of Hampshire Controls Corp., respectfully requests the City of Dover Planning Board approve the following Conditional Use Permit:

- Existing lot coverage of 33.9% where 75-100% is required.

Background:

Hampshire Controls Corp. is looking to develop a twenty-five (25) space parking lot to support business operations at their existing 1 Grove Street facility. Hampshire Controls Corp. designs and manufactures monitoring, alert notification and data logging technologies for medical, food processing, and research applications. Hampshire Controls Corp. currently utilizes a handful of partially marked parking spaces in a gravel area along the north side of the building, small gravel area on the eastern side of the building and any available street parking to support operations. The available parking is not adequate for current and future operations at Hampshire Controls. The applicant is proposing a parking lot based of the maximum parking spaces for an office land use 153-14(D)(1)(c), due to the intensity of the land use.

As part of the proposal, the existing Hampshire Controls Corp. building built in 1923 will remain in its current configuration. The current gravel parking area to the north of the building requires partial parking and access from the lot to the north (Tax Map 31, Lot 12). This gravel area will be replaced with river stones and an at grade paved sidewalk to provide an accessible route to the existing building from the new parking. The proposed parking lot will be accessed from the south of the existing

building (Tax Map 31, Lot 4-1 The Station Apartments) with a blanket access easement provided. The gravel area to the east of the building will become part of the proposed parking lot.

1. **Identification of Conditional Use Permit (Chapter 170-20-B)**
   1.) Existing lot coverage of 33.9% where 75-100% is required.

Dimensional regulations in the Central Business District – Transit Oriented Development Sub-District (CBD-TOD) requires lot coverage to be 75-100%. We ask that a Conditional Use Permit be granted for the existing structure lot coverage of 33.9%. As the intent of this Site Plan applicant is to provide parking to support business operations, there are no modifications to the existing structure lot coverage.

2. **Compliance with the following standards**
   a) That both public and private buildings and landscaping shall contribute to the physical definition of rights of way as civic spaces.
      - **The existing structure meets the 0' front build-to line, providing physical definition of the right-of-way. An existing concrete sidewalk in front of the structure provides additional definition.**

   b) That development shall adequately accommodate automobiles, while respecting the pedestrian and the spatial form of public areas.
      - **The proposed development assists in providing accommodation for automobiles by providing an organized parking location behind the building. This development also provides a separate accessible route to the building separate from the parking lot access.**

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      - **The proposed development assists in providing accommodation for automobiles by providing an organized parking location behind the building. This development also provides a separate accessible route to the building separate from the parking lot access. An accessible parking space/van loading and accessible EV charging space are provided at the beginning of the accessible route.**

d) That architecture and landscape design shall grow from local climate, topography, history, and building practice.

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e) That buildings shall provide their inhabitants with a clear sense of geography and climate through energy efficient methods via a mixture of elements including windows, floorplan, public, and private space.

- **This standard is not applicable as a new building is not proposed.**

f) That civic buildings and public gathering places shall be provided as locations that reinforce community identity and activity.

- **While the existing building is not civic in nature, the applicant is proposing two picnic tables with shade trees on the southern side of the building adjacent to the parking lot that would attract potential outside activity.**

g) That civic buildings shall be distinctive and appropriate to a role more important than the other buildings that constitute the fabric of the city.

- **While this building is not civic in nature, the brick façade is a distinctive feature that is commonly found with older structures located within the general CBD area.**

h) That the preservation and renewal of historic buildings shall be facilitated.

- **The project does not propose any modifications of the existing structure built in 1923 according to the Dover GIS.**

i) That the harmonious and orderly evolution of urban areas shall be secured through the adoption of these regulations.

- **The harmonious and orderly evolution of the urban area is secured in the development of the project site in the manner in which it is presented. The proposed parking lot matches the City of Dover desire to have vehicles and parking areas at the back of the existing structure. This assists to provide an improved level of screening directly from Grove Street and even the intersection of Third Street and Grove Street. Picnic tables with shade trees are**

proposed to the south of the existing building in an attempt to bring a modern urban feel to the existing site.

j) That if the relief is granted, the surrounding neighborhood is not negatively impacted.

- **If this relief is granted, this will not negatively impact the surrounding neighborhood. This parking lot construction will help to provide vehicle parking away from the edge of Grove Street in a more organized manner. The placement of the parking lot behind the existing structure will help to screen the parking from Grove Street and even the Third Street side.**

a) That requested use shall be compatible with abutting uses and the surrounding neighborhood.

- **The requested use is compatible with the surrounding neighborhood as this structure has been in this location for many years. The parking lot proposed is to support the existing use on site.**

b) The requested use will not create undue traffic congestion or unduly impair pedestrian safety.

- **The requested use will not create undue traffic congestion, as this parking lot is proposed to support the existing use. Please find trip generation provided with application.**

c) The requested use will not result in objectionable noise or odor which would constitute a nuisance.

- **Hampshire Controls Corp. activities occur within the confines of the facility, not subjecting abutting parcels to objectionable noise or odor which would constitute a nuisance.**

3. Justification for approval of Conditional Use Permit

The applicant is looking to provide parking for present and future operations with the remaining usable area of the subject parcel. The number of parking spaces proposed matches the maximum allowable put forth from Dover Site Review Regulations. The existing building is not able to meet the full 75-100% lot coverage (33.9% provided). According to information from the City of Dover website, the concept

of Zoning has been in Dover since 1948. As the existing structure was built in 1923, this predates the Dover Zoning Ordinance, specifically the requirements of the CBD-TOC zone.

If the applicant was to comply with the 75-100% lot coverage requirement, it would nullify the purpose of this parking lot addition by requiring additional structure with podium style parking. The applicant also does not need additional building square footage for the operation. This would not help to satisfy the needs of the applicant to operate this site.

Thank you for your time and attention to this matter, and we hope you look favorably upon the request.

Respectfully Submitted,

BERRY SURVEYING & ENGINEERING

Kevin R. Poulin, PE
Project Engineer

Christopher R. Berry, SIT
Principal, President

BERRY SURVEYING & ENGINEERING
335 Second Crown Pt. Rd., Barrington, NH 03825
(603) 332-2863 / (603) 335-4623 FAX
www.BerrySurveying.Com

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: Hampshire Controls Corp. Telephone # 603-749-9424

Address of Applicant: P.O. Box 516, Dover, NH, 03821

E-Mail Address: michael.pilon@hampshirecontrols.com

Name of Property Owner (if different from applicant): Pillar Imaging LLC Telephone # Same

Address of Property Owner: 1 Grove Street, Dover, NH 03820

PROPERTY INFORMATION

Assessor's Map # 31 Lot(s) # 11

Address of Property: 1 Grove Street

Zoning District(s) CBD TOD Overlay District(s) N/A

Existing Use of Property: Existing Office/Light Manufacturing

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:

Existing 1 story principal building where 3-5 stories is required (CUP #3)

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

Name of Professional That Prepared Plans: Berry Surveying & Engineering, Christopher R. Berry PM
Kenneth A. Berry PE, LLS

Address 335 Second Crown Point Road
Barrington, NH 03825 Telephone #: 603-332-2863

Professional License #: PE 14243, LLS 805 E-mail address: crberry@metrocast.net
k.berry@berrysurveying.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: 05/09/2024

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: 05/09/2024

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 24, 2023)

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 # _____ 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 = $_____
- ☐ **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 = $_____

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 $10.00= $_____
- ☐ Certified letters fee: # of abutters _____ X $10.00= $_____
- ☐ 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 $120.00 x # _____ applications = $_____

SUBTOTAL = $_____

TOTAL INVOICE AMOUNT = $_____

PLAN REVIEW FEE COLLECTED/PAID = $ _____

BALANCE DUE = $ _____

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

BERRY SURVEYING & ENGINEERING
335 Second Crown Point Road
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Phone: (603) 332-2863
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www.BerrySurveying.Com

June 24, 2024

City of Dover Planning Board
Attention: Donna Benton, AICP, Director of Planning and Community Development
288 Central Ave
Dover, NH 03820

Re: Non-Residential Site Plan
Conditional Use Permit Request (Non- Environmental - Three of five total)
Principal Building Height Request
Hampshire Controls Corp.
1 Grove Street, Tax Map 31, Lot 11

Chairperson & Members of the Dover Planning Board:

Pursuant to Zoning Regulations (Chapter 170) and Site Plan Regulations (Chapter 153) Berry Surveying & Engineering (BS&E), on behalf of Hampshire Controls Corp., respectfully requests the City of Dover Planning Board approve the following Conditional Use Permit:

- Existing height of principal building of 1 story where 3-5 stories are required.

Background:

Hampshire Controls Corp. is looking to develop a twenty-five (25) space parking lot to support business operations at their existing 1 Grove Street facility. Hampshire Controls Corp. designs and manufactures monitoring, alert notification and data logging technologies for medical, food processing, and research applications. Hampshire Controls Corp. currently utilizes a handful of partially marked parking spaces in a gravel area along the north side of the building, small gravel area on the eastern side of the building and any available street parking to support operations. The available parking is not adequate for current and future operations at Hampshire Controls. The applicant is proposing a parking lot based of the maximum parking spaces for an office land use 153-14(D)(1)(c), due to the intensity of the land use.

As part of the proposal, the existing Hampshire Controls Corp. building built in 1923 will remain in its current configuration. The current gravel parking area to the north of the building requires partial parking and access from the lot to the north (Tax Map 31, Lot 12). This gravel area will be replaced with river stones and an at grade paved sidewalk to provide an accessible route to the existing building from the new parking. The proposed parking lot will be accessed from the south of the existing

building (Tax Map 31, Lot 4-1 The Station Apartments) with a blanket access easement provided. The gravel area to the east of the building will become part of the proposed parking lot.

1. **Identification of Conditional Use Permit (Chapter 170-20-B)**
   1.) Existing height of principal building of 1 story where 3-5 stories are required.

Dimensional regulations in the Central Business District – Transit Oriented Development Sub-District (CBD-TOD) requires a principal building height of 3-5 stories. We ask that a Conditional Use Permit be granted for the existing structure principal height of 1 story. As the intent of this Site Plan applicant is to provide parking to support business operations, there are no modifications to the existing structure height.

2. **Compliance with the following standards**
   a) That both public and private buildings and landscaping shall contribute to the physical definition of rights of way as civic spaces.
      - **The existing structure meets the 0' front build-to line, providing physical definition of the right-of-way. An existing concrete sidewalk in front of the structure provides additional definition.**

   b) That development shall adequately accommodate automobiles, while respecting the pedestrian and the spatial form of public areas.
      - **The proposed development assists in providing accommodation for automobiles by providing an organized parking location behind the building. This development also provides a separate accessible route to the building separate from the parking lot access.**

   c) That the design of streets and buildings shall reinforce safe environments, but not at the expense of accessibility.
      - **The proposed development assists in providing accommodation for automobiles by providing an organized parking location behind the building. This development also provides a separate accessible route to the building separate from the parking lot access. An accessible parking space/van loading and accessible EV charging space are provided at the beginning of the accessible route.**

d) That architecture and landscape design shall grow from local climate, topography, history, and building practice.

- **The architecture of the existing building is proposed to remain, as no building modifications are proposed. The architecture of the building matches other brick façades within the general CBD area.**

e) That buildings shall provide their inhabitants with a clear sense of geography and climate through energy efficient methods via a mixture of elements including windows, floorplan, public, and private space.

- **This standard is not applicable as a new building is not proposed.**

f) That civic buildings and public gathering places shall be provided as locations that reinforce community identity and activity.

- **While the existing building is not civic in nature, the applicant is proposing two picnic tables with shade trees on the southern side of the building adjacent to the parking lot that would attract potential outside activity.**

g) That civic buildings shall be distinctive and appropriate to a role more important than the other buildings that constitute the fabric of the city.

- **While this building is not civic in nature, the brick façade is a distinctive feature that is commonly found with older structures located within the general CBD area.**

h) That the preservation and renewal of historic buildings shall be facilitated.

- **The project does not propose any modifications of the existing structure built in 1923 according to the Dover GIS.**

i) That the harmonious and orderly evolution of urban areas shall be secured through the adoption of these regulations.

- **The harmonious and orderly evolution of the urban area is secured in the development of the project site in the manner in which it is presented. The proposed parking lot matches the City of Dover desire to have vehicles and parking areas at the back of the existing structure. This assists to provide an improved level of screening directly from Grove Street and even the intersection of Third Street**

and Grove Street. Picnic tables with shade trees are proposed to the south of the existing building in an attempt to bring a modern urban feel to the existing site.

j) That if the relief is granted, the surrounding neighborhood is not negatively impacted.

- **If this relief is granted, this will not negatively impact the surrounding neighborhood. This parking lot construction will help to provide vehicle parking away from the edge of Grove Street in a more organized manner. The placement of the parking lot behind the existing structure will help to screen the parking from Grove Street and even the Third Street side.**

a) That requested use shall be compatible with abutting uses and the surrounding neighborhood.

- **The requested use is compatible with the surrounding neighborhood as this structure has been in this location for many years. The parking lot proposed is to support the existing use on site.**

b) The requested use will not create undue traffic congestion or unduly impair pedestrian safety.

- **The requested use will not create undue traffic congestion, as this parking lot is proposed to support the existing use. Please find trip generation provided with application.**

c) The requested use will not result in objectionable noise or odor which would constitute a nuisance.

- **Hampshire Controls Corp. activities occur within the confines of the facility, not subjecting abutting parcels to objectionable noise or odor which would constitute a nuisance.**

3. Justification for approval of Conditional Use Permit

The applicant is looking to provide parking for present and future operations with the remaining usable area of the subject parcel. The number of parking spaces proposed matches the maximum allowable put forth from Dover Site Review Regulations. The existing building is not able to meet the 3-5 story requirement (1

provided). According to information from the City of Dover website, the concept of Zoning has been in Dover since 1948. As the existing structure was built in 1923, this predates the Dover Zoning Ordinance, specifically the requirements of the CBD-TOC zone.

If the applicant was to comply with the 3-5 stories principal building height, it would nullify the purpose of this parking lot addition by requiring additional parking to meet the requirements of the new building stories. The applicant also does not need additional building square footage for the operation. This would not help to satisfy the needs of the applicant to operate this site.

Thank you for your time and attention to this matter, and we hope you look favorably upon the request.

Respectfully Submitted,

BERRY SURVEYING & ENGINEERING

Kevin R. Poulin, PE
Project Engineer

Christopher R. Berry, SIT
Principal, President

BERRY SURVEYING & ENGINEERING
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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: Hampshire Controls Corp. Telephone # 603-749-9424

Address of Applicant: P.O. Box 516, Dover, NH, 03821

E-Mail Address: michael.pilon@hampshirecontrols.com

Name of Property Owner (if different from applicant): Pillar Imaging LLC Telephone # Same

Address of Property Owner: 1 Grove Street, Dover, NH 03820

PROPERTY INFORMATION

Assessor's Map # 31 Lot(s) # 11

Address of Property: 1 Grove Street

Zoning District(s) CBD TOD Overlay District(s) N/A

Existing Use of Property: Existing Office/Light Manufacturing

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:

Existing rear build-to line provided of 114.4'-115.2' where 0'-25' is required. (CUP #4)

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

Name of Professional That Prepared Plans: Berry Surveying & Engineering, Christopher R. Berry PM
Kenneth A. Berry PE, LLS

Address 335 Second Crown Point Road
Barrington, NH 03825 Telephone #: 603-332-2863

Professional License #: PE 14243, LLS 805 E-mail address: crberry@metrocast.net
k.berry@berrysurveying.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: 05/09/2024

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: 05/09/2024

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 24, 2023)

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 # _____ 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 = $_____
- ☐ **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 = $_____

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 $10.00= $_____
- ☐ Certified letters fee: # of abutters _____ X $10.00= $_____
- ☐ 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 $120.00 x # _____ applications = $_____

SUBTOTAL = $_____

TOTAL INVOICE AMOUNT = $_____

PLAN REVIEW FEE COLLECTED/PAID = $ _____

BALANCE DUE = $ _____

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

BERRY SURVEYING & ENGINEERING
335 Second Crown Point Road
Barrington, NH 03825
Phone: (603) 332-2863
Fax: (603) 335-4623
www.BerrySurveying.Com

June 24, 2024

City of Dover Planning Board
Attention: Donna Benton, AICP, Director of Planning and Community Development
288 Central Ave
Dover, NH 03820

Re: Non-Residential Site Plan
Conditional Use Permit Request (Non- Environmental - Four of five total)
Rear Build-To Line Request
Hampshire Controls Corp.
1 Grove Street, Tax Map 31, Lot 11

Chairperson & Members of the Dover Planning Board:

Pursuant to Zoning Regulations (Chapter 170) and Site Plan Regulations (Chapter 153) Berry Surveying & Engineering (BS&E), on behalf of Hampshire Controls Corp., respectfully requests the City of Dover Planning Board approve the following Conditional Use Permit:

- Existing rear build-to line of 114.4'-115.2' where a 0' minimum, 25' maximum is required.

Background:

Hampshire Controls Corp. is looking to develop a twenty-five (25) space parking lot to support business operations at their existing 1 Grove Street facility. Hampshire Controls Corp. designs and manufactures monitoring, alert notification and data logging technologies for medical, food processing, and research applications. Hampshire Controls Corp. currently utilizes a handful of partially marked parking spaces in a gravel area along the north side of the building, small gravel area on the eastern side of the building and any available street parking to support operations. The available parking is not adequate for current and future operations at Hampshire Controls. The applicant is proposing a parking lot based of the maximum parking spaces for an office land use 153-14(D)(1)(c), due to the intensity of the land use.

As part of the proposal, the existing Hampshire Controls Corp. building built in 1923 will remain in its current configuration. The current gravel parking area to the north of the building requires partial parking and access from the lot to the north (Tax Map 31, Lot 12). This gravel area will be replaced with river stones and an at grade paved sidewalk to provide an accessible route to the existing building from the new

parking. The proposed parking lot will be accessed from the south of the existing building (Tax Map 31, Lot 4-1 The Station Apartments) with a blanket access easement provided. The gravel area to the east of the building will become part of the proposed parking lot.

1. **Identification of Conditional Use Permit (Chapter 170-20-B)**
   1.) Existing rear build-to line of 114.4'-115.2' where a 0' minimum, 25' maximum is required.

Dimensional regulations in the Central Business District – Transit Oriented Development Sub-District (CBD-TOD) requires a rear build-to line of 0'-25'. We ask that a Conditional Use Permit be granted for the existing structure rear build to of 114.4'-115.2'. As the intent of this Site Plan applicant is to provide parking to support business operations, there are no modifications to the existing structure footprint.

2. **Compliance with the following standards**
   a) That both public and private buildings and landscaping shall contribute to the physical definition of rights of way as civic spaces.
      - **The existing structure meets the 0' front build-to line, providing physical definition of the right-of-way. An existing concrete sidewalk in front of the structure provides additional definition.**

   b) That development shall adequately accommodate automobiles, while respecting the pedestrian and the spatial form of public areas.
      - **The proposed development assists in providing accommodation for automobiles by providing an organized parking location behind the building. This development also provides a separate accessible route to the building separate from the parking lot access.**

   c) That the design of streets and buildings shall reinforce safe environments, but not at the expense of accessibility.
      - **The proposed development assists in providing accommodation for automobiles by providing an organized parking location behind the building. This development also provides a separate accessible route to the building separate from the parking lot access. An accessible parking**

space/van loading and accessible EV charging space are provided at the beginning of the accessible route.

d) That architecture and landscape design shall grow from local climate, topography, history, and building practice.
- **The architecture of the existing building is proposed to remain, as no building modifications are proposed. The architecture of the building matches other brick façades within the general CBD area.**

e) That buildings shall provide their inhabitants with a clear sense of geography and climate through energy efficient methods via a mixture of elements including windows, floorplan, public, and private space.
- **This standard is not applicable as a new building is not proposed.**

f) That civic buildings and public gathering places shall be provided as locations that reinforce community identity and activity.
- **While the existing building is not civic in nature, the applicant is proposing two picnic tables with shade trees on the southern side of the building adjacent to the parking lot that would attract potential outside activity.**

g) That civic buildings shall be distinctive and appropriate to a role more important than the other buildings that constitute the fabric of the city.
- **While this building is not civic in nature, the brick façade is a distinctive feature that is commonly found with older structures located within the general CBD area.**

h) That the preservation and renewal of historic buildings shall be facilitated.
- **The project does not propose any modifications of the existing structure built in 1923 according to the Dover GIS.**

i) That the harmonious and orderly evolution of urban areas shall be secured through the adoption of these regulations.
- **The harmonious and orderly evolution of the urban area is secured in the development of the project site in the manner in which it is presented. The proposed parking lot matches the City of Dover desire to have vehicles and parking areas at the back of the existing structure. This assists to provide an improved level of screening directly**

from Grove Street and even the intersection of Third Street and Grove Street. Picnic tables with shade trees are proposed to the south of the existing building in an attempt to bring a modern urban feel to the existing site.

j) That if the relief is granted, the surrounding neighborhood is not negatively impacted.

- **If this relief is granted, this will not negatively impact the surrounding neighborhood. This parking lot construction will help to provide vehicle parking away from the edge of Grove Street in a more organized manner. The placement of the parking lot behind the existing structure will help to screen the parking from Grove Street and even the Third Street side.**

a) That requested use shall be compatible with abutting uses and the surrounding neighborhood.

- **The requested use is compatible with the surrounding neighborhood as this structure has been in this location for many years. The parking lot proposed is to support the existing use on site.**

b) The requested use will not create undue traffic congestion or unduly impair pedestrian safety.

- **The requested use will not create undue traffic congestion, as this parking lot is proposed to support the existing use. Please find trip generation provided with application.**

c) The requested use will not result in objectionable noise or odor which would constitute a nuisance.

- **Hampshire Controls Corp. activities occur within the confines of the facility, not subjecting abutting parcels to objectionable noise or odor which would constitute a nuisance.**

3. Justification for approval of Conditional Use Permit

The applicant is looking to provide parking for present and future operations with the remaining usable area of the subject parcel. The number of parking spaces proposed matches the maximum allowable put forth from Dover Site Review

Regulations. The existing building does not meet the rear build-to requirement of 0-25' (114.4-115.2' provided). According to information from the City of Dover website, the concept of Zoning has been in Dover since 1948. As the existing structure was built in 1923, this predates the Dover Zoning Ordinance, specifically the requirements of the CBD-TOC zone.

If the applicant was to comply with the 0'-25' rear build-to line, it would nullify the purpose of this parking lot addition by requiring additional parking to meet the requirements of the new building footprint. The applicant also does not need additional building square footage for the operation. This would not help to satisfy the needs of the applicant to operate this site.

Thank you for your time and attention to this matter, and we hope you look favorably upon the request.

Respectfully Submitted,

BERRY SURVEYING & ENGINEERING

Kevin R. Poulin, PE
Project Engineer

Christopher R. Berry, SIT
Principal, President

BERRY SURVEYING & ENGINEERING
335 Second Crown Pt. Rd., Barrington, NH 03825
(603) 332-2863 / (603) 335-4623 FAX
www.BerrySurveying.Com

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: Hampshire Controls Corp. Telephone # 603-749-9424

Address of Applicant: P.O. Box 516, Dover, NH, 03821

E-Mail Address: michael.pilon@hampshirecontrols.com

Name of Property Owner (if different from applicant): Pillar Imaging LLC Telephone # Same

Address of Property Owner: 1 Grove Street, Dover, NH 03820

PROPERTY INFORMATION

Assessor's Map # 31 Lot(s) # 11

Address of Property: 1 Grove Street

Zoning District(s) CBD TOD Overlay District(s) N/A

Existing Use of Property: Existing Office/Light Manufacturing

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:

Modifications of the streetscape standards to leave the existing frontage as is (CUP #5)

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

Name of Professional That Prepared Plans: Berry Surveying & Engineering, Christopher R. Berry PM
Kenneth A. Berry PE, LLS

Address 335 Second Crown Point Road
Barrington, NH 03825 Telephone #: 603-332-2863

Professional License #: PE 14243, LLS 805 E-mail address: crberry@metrocast.net
k.berry@berrysurveying.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: 05/09/2024

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: 05/09/2024

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 24, 2023)

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 # _____ 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 = $_____
- ☐ **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 = $_____

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 $10.00= $_____
- ☐ Certified letters fee: # of abutters _____ X $10.00= $_____
- ☐ 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 $120.00 x # _____ applications = $_____

SUBTOTAL = $_____

TOTAL INVOICE AMOUNT = $_____

PLAN REVIEW FEE COLLECTED/PAID = $ _____

BALANCE DUE = $ _____

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

BERRY SURVEYING & ENGINEERING
335 Second Crown Point Road
Barrington, NH 03825
Phone: (603) 332-2863
Fax: (603) 335-4623
www.BerrySurveying.Com

June 24, 2024

City of Dover Planning Board
Attention: Donna Benton, AICP, Director of Planning and Community Development
288 Central Ave
Dover, NH 03820

Re: Non-Residential Site Plan
Conditional Use Permit Request (Non- Environmental - Five of five total)
Streetscape Requirements Modification Request
Hampshire Controls Corp.
1 Grove Street, Tax Map 31, Lot 11

Chairperson & Members of the Dover Planning Board:

Pursuant to Zoning Regulations (Chapter 170) and Site Plan Regulations (Chapter 153) Berry Surveying & Engineering (BS&E), on behalf of Hampshire Controls Corp., respectfully requests the City of Dover Planning Board approve the following Conditional Use Permit:

- Modifications of the streetscape standards to leave the existing frontage as is.

Background:

Hampshire Controls Corp. is looking to develop a twenty-five (25) space parking lot to support business operations at their existing 1 Grove Street facility. Hampshire Controls Corp. designs and manufactures monitoring, alert notification and data logging technologies for medical, food processing, and research applications. Hampshire Controls Corp. currently utilizes a handful of partially marked parking spaces in a gravel area along the north side of the building, small gravel area on the eastern side of the building and any available street parking to support operations. The available parking is not adequate for current and future operations at Hampshire Controls. The applicant is proposing a parking lot based of the maximum parking spaces for an office land use 153-14(D)(1)(c), due to the intensity of the land use.

As part of the proposal, the existing Hampshire Controls Corp. building built in 1923 will remain in its current configuration. The current gravel parking area to the north of the building requires partial parking and access from the lot to the north (Tax Map 31, Lot 12). This gravel area will be replaced with river stones and an at grade paved sidewalk to provide an accessible route to the existing building from the new parking. The proposed parking lot will be accessed from the south of the existing

building (Tax Map 31, Lot 4-1 The Station Apartments) with a blanket access easement provided. The gravel area to the east of the building will become part of the proposed parking lot.

1. Identification of Conditional Use Permit (Chapter 170-20-B)

1.) Modifications of the streetscape standards to leave the existing frontage as is.

Dimensional regulations in the Central Business District – Transit Oriented Development Sub-District (CBD-TOD) requires various streetscape items. We ask that a Conditional Use Permit be granted for the existing structure to allow for the streetscape along the parcel frontage to remain as is. As the intent of this Site Plan applicant is to provide parking at the rear of the site to support business operations, there are no modifications to the existing structure footprint.

2. Compliance with the following standards

a) That both public and private buildings and landscaping shall contribute to the physical definition of rights of way as civic spaces.

- **The existing structure meets the 0' front build-to line, providing physical definition of the right-of-way. An existing concrete sidewalk in front of the structure provides additional definition.**

b) That development shall adequately accommodate automobiles, while respecting the pedestrian and the spatial form of public areas.

- **The proposed development assists in providing accommodation for automobiles by providing an organized parking location behind the building. This development also provides a separate accessible route to the building separate from the parking lot access.**

c) That the design of streets and buildings shall reinforce safe environments, but not at the expense of accessibility.

- **The proposed development assists in providing accommodation for automobiles by providing an organized parking location behind the building. This development also provides a separate accessible route to the building separate from the parking lot access. An accessible parking**

space/van loading and accessible EV charging space are provided at the beginning of the accessible route.

d) That architecture and landscape design shall grow from local climate, topography, history, and building practice.
- **The architecture of the existing building is proposed to remain, as no building modifications are proposed. The architecture of the building matches other brick façades within the general CBD area.**

e) That buildings shall provide their inhabitants with a clear sense of geography and climate through energy efficient methods via a mixture of elements including windows, floorplan, public, and private space.
- **This standard is not applicable as a new building is not proposed.**

f) That civic buildings and public gathering places shall be provided as locations that reinforce community identity and activity.
- **While the existing building is not civic in nature, the applicant is proposing two picnic tables with shade trees on the southern side of the building adjacent to the parking lot that would attract potential outside activity.**

g) That civic buildings shall be distinctive and appropriate to a role more important than the other buildings that constitute the fabric of the city.
- **While this building is not civic in nature, the brick façade is a distinctive feature that is commonly found with older structures located within the general CBD area.**

h) That the preservation and renewal of historic buildings shall be facilitated.
- **The project does not propose any modifications of the existing structure built in 1923 according to the Dover GIS.**

i) That the harmonious and orderly evolution of urban areas shall be secured through the adoption of these regulations.
- **The harmonious and orderly evolution of the urban area is secured in the development of the project site in the manner in which it is presented. The proposed parking lot matches the City of Dover desire to have vehicles and parking areas at the back of the existing structure. This assists to provide an improved level of screening directly**

from Grove Street and even the intersection of Third Street and Grove Street. Picnic tables with shade trees are proposed to the south of the existing building in an attempt to bring a modern urban feel to the existing site.

j) That if the relief is granted, the surrounding neighborhood is not negatively impacted.

- **If this relief is granted, this will not negatively impact the surrounding neighborhood. This parking lot construction will help to provide vehicle parking away from the edge of Grove Street in a more organized manner. The placement of the parking lot behind the existing structure will help to screen the parking from Grove Street and even the Third Street side.**

a) That requested use shall be compatible with abutting uses and the surrounding neighborhood.

- **The requested use is compatible with the surrounding neighborhood as this structure has been in this location for many years. The parking lot proposed is to support the existing use on site.**

b) The requested use will not create undue traffic congestion or unduly impair pedestrian safety.

- **The requested use will not create undue traffic congestion, as this parking lot is proposed to support the existing use. Please find trip generation provided with application.**

c) The requested use will not result in objectionable noise or odor which would constitute a nuisance.

- **Hampshire Controls Corp. activities occur within the confines of the facility, not subjecting abutting parcels to objectionable noise or odor which would constitute a nuisance.**

3. Justification for approval of Conditional Use Permit

The applicant is looking to provide parking for present and future operations with the remaining usable area of the subject parcel. The number of parking spaces proposed matches the maximum allowable put forth from Dover Site Review

Regulations. The site is proposed to leave the existing concrete sidewalk and building frontage as is. According to information from the City of Dover website, the concept of Zoning has been in Dover since 1948. As the existing structure was built in 1923, this predates the Dover Zoning Ordinance, specifically the requirements of the CBD-TOC zone.

Without losing on street parking on Grove Street, it is not possible to provide benches and street trees on the existing 5-6' concrete sidewalk. As the existing building façade meets the 0' build-to requirement which defines the right of way. Two picnic tables with shade trees are proposed to the south of the existing structure near the right of way.

Thank you for your time and attention to this matter, and we hope you look favorably upon the request.

Respectfully Submitted,

BERRY SURVEYING & ENGINEERING

Kevin R. Poulin, PE
Project Engineer

Christopher R. Berry, SIT
Principal, President

BERRY SURVEYING & ENGINEERING
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PLAN SNAPSHOT REPORT WAIV-2024-0010
FOR CITY OF DOVER, N.H.

Plan Type:	Waiver / Extension / Amendment	**Project:**		**App Date:**	06/07/2024
Work Class:	Plan	**District:**	None	**Exp Date:**	08/11/2024
Status:	In Review	**Square Feet:**	0.00	**Completed:**	NOT COMPLETED
Valuation:	$0.00	**Assigned To:**	Glidden, Jean	**Approval Expire Date:**	
Description:	Amendment				

Parcel: K0019-000000 Main	**Address:** Dover Point Rd Dover, NH Northfield Drive Building #1 Main Dover, NH 03820	**Zone:**

Applicant	Owner
Chad Kageleiry	Chad Kageleiry
340 Central Avenue Suite 202	340 Central Avenue Suite 202
Suite 202 Suite 202	Suite 202 Suite 202
Dover, NH 03820	Dover, NH 03820
Business: (603) 749-2800	Business: (603) 749-2800

Plan Custom Fields

Project Location	Pointe Place - Phase 5 - Lot C	Waiver Request Type	Amendment	Project Name	Project P20-232
Owner Phone	6037492800	Owner Name	Pointe Northwest, LLC	Original Plan Approval Date	Jun 1 2020 12:00AM
Owner Address	340 Central Ave Ste 202 Dover, NH 03820	Owner EMail	chad@summitlanddev.com	Plan ID Number	
Plan Type	Site Plan	Extension Request Detail		Condition / Portion of Plan to be Amended	Building
Amendment Request Detail	The approved building for the site is a 250 ft X 80 ft (20,000 sf footprint) building with a maximum height of 55 feet. Summit is proposing to replace this building with four walkup buildings (3,350 s.f./ea footprint) and only two stories, approximately 24 feet in height.	Site / Subdivision Portion of Plan to be Waived		Waiver Request Detail	

Attachment File Name	Added On	Added By	Attachment Group	Notes
Signature_Chad_Kageleiry_6/7/2024.jpg	06/07/2024 10:23	Kageleiry, Chad		Uploaded via CSS

Invoice No.	Fee	Fee Amount	Amount Paid
INV-00008225	Planning Waiver / Extension /Amend Application Fee	$200.00	$200.00
	Total for Invoice INV-00008225	$200.00	$200.00
INV-00008284	Planning Public Notice in Newspaper	$120.00	$0.00
	Planning Certified Mailing to Abutters	$120.00	$0.00
	Planning Certified Mailing to Application Contacts	$20.00	$0.00
	Planning Creation / Printing of Abutter Labels	$30.00	$0.00
	Planning First Class Mailing	$25.00	$0.00
	Total for Invoice INV-00008284	$315.00	$0.00
	Grand Total for Plan	**$515.00**	**$200.00**

PLAN SNAPSHOT REPORT (WAIV-2024-0010)

Workflow Step / Action Name	Action Type	Start Date	End Date
Review v.1		06/13/2024 14:01	06/13/2024 14:02
Confirm application complete v.1	Generic Action		06/13/2024 14:02
Technical Review Committee Meeting Agenda v.1	Task		06/13/2024 14:01
Land Use Plan Technical Review v.1	Receive Submittal		06/13/2024 14:02
Technical Review Committee Meeting v.1	Hold Meeting		06/13/2024 14:02
Planning Board v.1		06/13/2024 14:02	
Planning Board Agenda v.1	Task	06/13/2024 14:02	06/13/2024 14:02
Invoice for Notices v.1	Task	06/13/2024 14:02	06/13/2024 14:02
Send Notices v.1	Task		
Planner Creates Staff Recommendations v.1	Plan Activity		
Distribute Planning Board Materials v.1	Task		
Planning Board Hearing v.1	Hold Hearing		
Planning Board Decision v.1	Plan Activity		
NOD Sent to Applicant v.1	Create Report		
Final Plan v.1			
Land Use Plan Stamped and Signed v.1	Generic Action		
Recording v.1	Task		
Document Archival v.1	Generic Action		
Internal Notification of Plan Completion v.1	Generic Action		
Building Official Notifies Address v.1	Generic Action		
Pre-Con Meeting v.1	Hold Meeting		
Create/Link to Records v.1			
Create / Link to Permit - Building Major v.1	Create Sub Permit		
Create / Link to Permit - Site Work, Construction v.1	Create Sub Permit		

ALTUS ENGINEERING

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

June 5, 2024

Ken Mavrogeorge, City Engineer
City of Dover Planning and Community Development
271 Mast Road
Dover, New Hampshire 03820

Re: **DESIGN MEMORANDUM**
Pointe Place - Phase 5 - Lot C Site Revisions
City of Dover Project P20-32
Assessor's Map K, Lot 19
Altus Project #P5057

Mr. Mavrogeorge,

On behalf of Summit Land Development (Summit), Altus Engineering LLC (Altus) submits the following information and Revised Plans for the Pointe Place – Phase 5 development site, City of Dover Project P20-232. This site was approved in 2020 and included three development areas that were subdivide into separate lot developments.

Lot A) Five story building (6,500 s.f. footprint) with 24 residential units and first floor commercial at the northeast quadrant of the roundabout
Lot B) Seven Townhouses with 30 residential units in the northeast portion of the site
Lot C) Five story building (20,000 s.f. footprint) with 60 residential units and a maximum height of 55 in the northeast portion of the site and west of the townhouses

Lot developments A and B have been constructed, while Lot C for the subject site has been rough graded for the original building and parking layout. The majority of the utilities have been installed and stubbed to the site; including drainage structures, water, sewer, electrical, and light pole bases. The intent of the new development is to stay within the originally proposed design footprint, while providing a smaller scale development that will fit better into the neighborhood ad overall master plan for Pointe Place.

Summit is proposing to revise Lot C to construct a less intrusive plan for the site. The approved building for the site is a 250 ft X 80 ft (20,000 sf footprint) building with a maximum height of 55 feet. Summit is proposing to replace this building with four townhouse buildings (3,350 s.f./ea footprint) and only two stories in height. This new development plan will provide more sunlight, airflow, and green space for the site and will fit into the character of the development much better than the originally approved building. By providing more open space between the buildings, the impervious area will be reduced by approximately 6,500 square feet. Widening of the gravel access drive along the west side of the stormwater pond to provide access to the public field at Applevale Park will increase the gravel area by approximately 1,500 square feet. The reduced stormwater impacts will be beneficial to the site and the stormwater management system. This reduced plan will provide a less expensive housing option at Pointe Place, compared to the approved plan, while also significantly reducing traffic and the burden on other municipal services.

As requested, the attached Comparison Plan (CP-1) shows the approved impervious areas (blue hatching) compared to the proposed site plan revision. The new buildings will be located predominantly in the footprint of the approved 250' x 80' building, while the parking and driveway access will have minimal changes to accommodate the new buildings. The plan illustrates the additional green spaces that will be provided between the buildings, ranging from 25 to 33 feet in width. Not represented in the Comparison Plan is the height of the new buildings compared to the approved buildings which will be significantly lower and allow for air flow, sunlight, and views to other areas of the Pointe Place development. The parking calculations are proved below along with a review of the drainage calculations for the proposed revisions.

Parking Calculations:		REQUIRED	PROVIDED
RESIDENTIAL:	2 SPACES / UNIT (32 UNITS) =	64 Spaces	68 Spaces

Drainage Review:
The proposed site revisions provide a reduction in the site impervious surfaces of approximately 6,500 square feet and in increase in gravel driveway of approximately 1,500 square feet. Altus has reviewed the drainage model and calculations and the proposed revisions will provide a reduction in peak flows to the designed stormwater treatment system, compared to the approved design. The resulting stormwater treatment system design provides for additional capacity and will not have a negative impact on the approved stormwater management system.

Summit has discussed the new development plan with some of the residents of the townhouses along Northfield Drive and the residents are very supportive of the new plan which will eliminate the proposed building "wall" and provide more green space, light, and airflow for the neighborhood.

Attachments:

1. Revised Plans (dated June 5, 2024)
   (Comparison Plan, Revised Site Plan, Revised Grading and Drainage Plan)

Please feel free to contact me if you have any questions.

Sincerely,
ALTUS ENGINEERING, LLC

Cory D. Belden, PE

Copy: Chad Kageleiry, Summit Land Development
Encl

NOTES:

1. THE INTENT OF THIS PLAN IS TO SHOW THE CHANGES TO THE PROPOSED LOT C DEVELOPMENT AREA COMPARED TO THE APPROVED SITE LAYOUT.
2. FOR COMPLETE PROJECT PLAN SET, REFERENCE "POINTE PLACE – PHASE 5" (34 PAGES) BY ALTUS ENGINEERING, PLANS DATED SEPTEMBER 30, 2020, CITY FILE NO. P20–32.

LEGEND

- IMPERVIOUS SURFACES FROM APPROVED LAYOUT
- PROPOSED PAVED DRIVES AND PARKING
- PROPOSED SIDEWALKS AND WALKWAYS
- PROPOSED BUILDINGS

REFERENCES PER PLAN

APPROVED BUILDING FOOTPRINT (250' X 80', MAX HEIGHT = 55 FT)

TOWNHOUSES (LOT B)

TAX MAP K, LOT 19-12

TAX MAP K, LOT 19-11

SAWCUT 1 FT INSIDE EDGE OF PAVEMENT AND CONFORM (VERIFY LIMITS IN FIELD)

EXTERIOR PATIO (TYP)

25' MIN

8 UNIT BLDG (32 TOTAL UNITS)

NORTHFIELD DRIVE

LIGHT POLE

SNOW STORAGE

SIGN (NO PARKING– FIRE LANE)

TAX MAP K, LOT 19
PROPOSED RESIDENTIAL SITE
150,305 S.F. (3.45 ACRES)

LOT C PROPERTY LINE

6 FT SW

LAWN

VGC

STORMWATER MANAGEMENT AREA

HATCHED AREAS ARE IMPERVIOUS SURFACES FROM ORIGINAL 2020 SITE PLAN APPROVAL.

R=50'
R=74'

3 ADA STALLS

9' X 18' PARKING STALL (TYP)

VERTICAL GRANITE CURB (VGC) W/ 6" REVEAL (TYP)

COMPACT PARKING (8.5'W)

CONSTRUCT 6 FT STOCKADE FENCE (APPROX 170 LF)

50 FT WETLAND BUFFER

14 FT GRAVEL ACCESS ROAD

PROPERTY LINE

WETLANDS

100 FT WIDE EVERSOURCE EASEMENT

TAX MAP K, LOT 18A-10
PUBLIC BALL FIELD
(CITY OF DOVER PROPERTY)

WIDEN GRAVEL LOT FOR PUBLIC BALL FIELD APPROXIMATELY 40 PARKING SPACES (NOT STRIPED) TO BE USED FOR CITY OF DOVER BALLFIELD AND OVERFLOW PARKING FOR TAX MAP K, LOT 19.

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

P5057

ENGINEER:
ALTUS ENGINEERING
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: APPROVAL

ISSUE DATE: JUNE 5, 2024

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	CDB	06/05/24

DRAWN BY: CDB
APPROVED BY: CDB
DRAWING FILE: 5057–BLDG7–SITE.DWG

SCALE:
22"x34" 1" = 20'
11"x17" 1" = 40'

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

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

PROJECT:
POINTE PLACE – PHASE 5
RESIDENTIAL AND COMMERCIAL
MIXED USE DEVELOPMENT

CITY FILE NO. P20–32

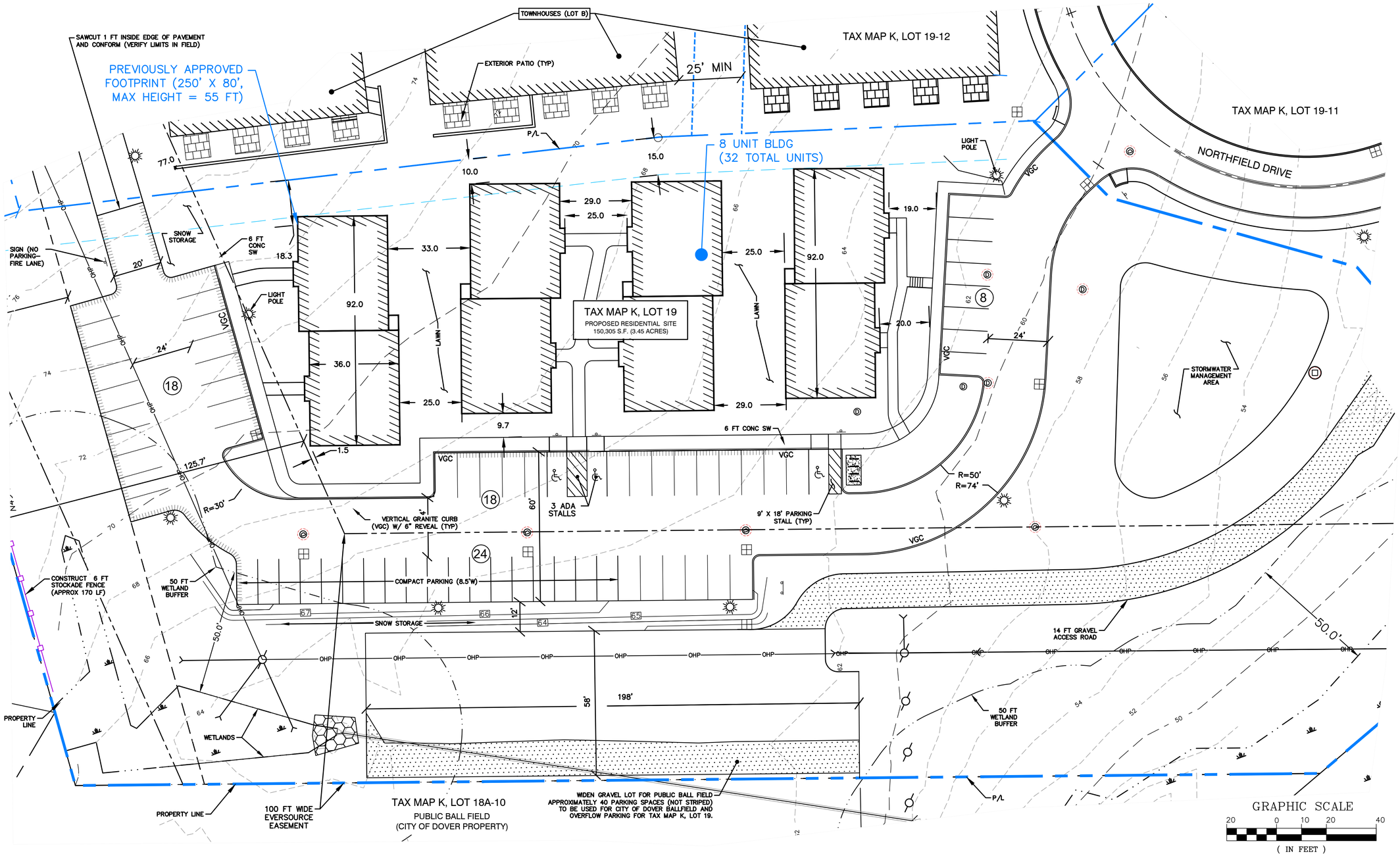
TAX MAP K, LOT 19
DOVER, NH

TITLE:
COMPARISION PLAN (LOT C)

SHEET NUMBER:
CP-1

NOTES:

1. FOR COMPLETE PROJECT PLAN SET, REFERENCE "POINTE PLACE – PHASE 5" (34 PAGES) BY ALTUS ENGINEERING, PLANS DATED SEPTEMBER 30, 2020, CITY FILE NO. P20–32.
2. PROJECT SHALL COMPLY WITH THE CITY OF DOVER PLANNING BOARD CONDITIONS OF APPROVAL. SEE GENERAL NOTES, SHEET GN–1.
3. FOR POINTE PLACE ROADWAY AND UTILITIES INFORMATION, REFERENCE "POINTE PLACE AND SIERRA DRIVE ROADWAY AND UTILITY INFRASTRUCTURE PLANS", PREPARED BY ALTUS ENGINEERING, APPROVED DECEMBER 16, 2015, CITY OF DOVER FILE NO. P14–56.
4. PROJECT WILL IMPACT APPROXIMATELY 3,850 SF OF THE 50 FOOT WETLANDS BUFFER. A CONDITIONAL USE PERMIT WAS GRANTED BY THE DOVER PLANNING BOARD ON JULY 28, 2020 FOR THE IMPACTS SHOWN. CONTRACTOR SHALL COMPLY WITH ALL TERMS OF THE PERMIT AND SHALL NOT IMPACT ANY ADDITIONAL AREAS WITHIN THE BUFFER.



P5057

ENGINEER:

ALTUS ENGINEERING
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: APPROVAL

ISSUE DATE: JUNE 5, 2024

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	CDB	03/07/24
1	REVISION 1	CDB	06/05/24

DRAWN BY: CDB

APPROVED BY: CDB

DRAWING FILE: 5057–BLDG7–SITE.DWG

SCALE:

22"x34" 1" = 20'
11"x17" 1" = 40'

OWNER:

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

APPLICANT:

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

PROJECT:

POINTE PLACE – PHASE 5
RESIDENTIAL AND COMMERCIAL MIXED USE DEVELOPMENT

CITY FILE NO. P20–32

TAX MAP K, LOT 19
DOVER, NH

TITLE:

REVISED SITE PLAN (LOT C)

SHEET NUMBER:

S-2 (Rev)

PROPOSED DRAINAGE STRUCTURES

PDMH 6
RIM=58.40
15"INV. IN=51.40 (PDMH7)
15"INV. IN= 51.40 (ROOF)
18"INV. OUT= 51.30

PDMH 7
RIM=64.80
12"INV. IN=57.20 (PCB17)
15"INV. IN=56.95 (PDMH8)
15"INV. OUT= 56.85

PDMH 8
RIM=66.10
12" INV IN = 60.30 (ROOF)
15"INV. IN=60.00 (PDMH9)
15"INV. OUT= 59.75

PDMH 9
RIM=67.70
12"INV. IN=61.70 (PCB19)
12"INV. IN=61.70 (PCB20)
15"INV. OUT= 61.60

PDMH 16A
RIM=59.40
6" INV IN = 52.25 (PD)
12" INV. IN = 51.75 (16B)
15" INV. IN = 51.75 (ROOF)
18" INV. OUT= 51.50

PDMH 16
RIM=55.50
12" INV. IN =50.80
12" INV IN = 50.80
18" INV. OUT=50.70

PDMH 16B
RIM=60.40
6" INV IN = 52.20 (YD)
12" INV IN = 52.20
12" INV. OUT = 52.10

PCB 17
RIM=62.10
12" INV. IN =57.50 (PCB21)
12" INV. OUT=57.40

PCB 18
RIM=64.50
12" INV. OUT=60.20

PCB 19
RIM=65.90
12" INV. OUT=61.90

PCB 20
RIM=70.00
12" INV. IN = 62.50
12" INV. OUT= 62.40

PYD 20A
RIM = 66.25
12" INV. OUT=62.75

PCB 21
RIM=62.25
12" INV. OUT=57.75

PYD 22A
RIM=63.00
8" INV. OUT= 59.00

PYD 22B
RIM=66.00
8" INV. OUT= 62.00

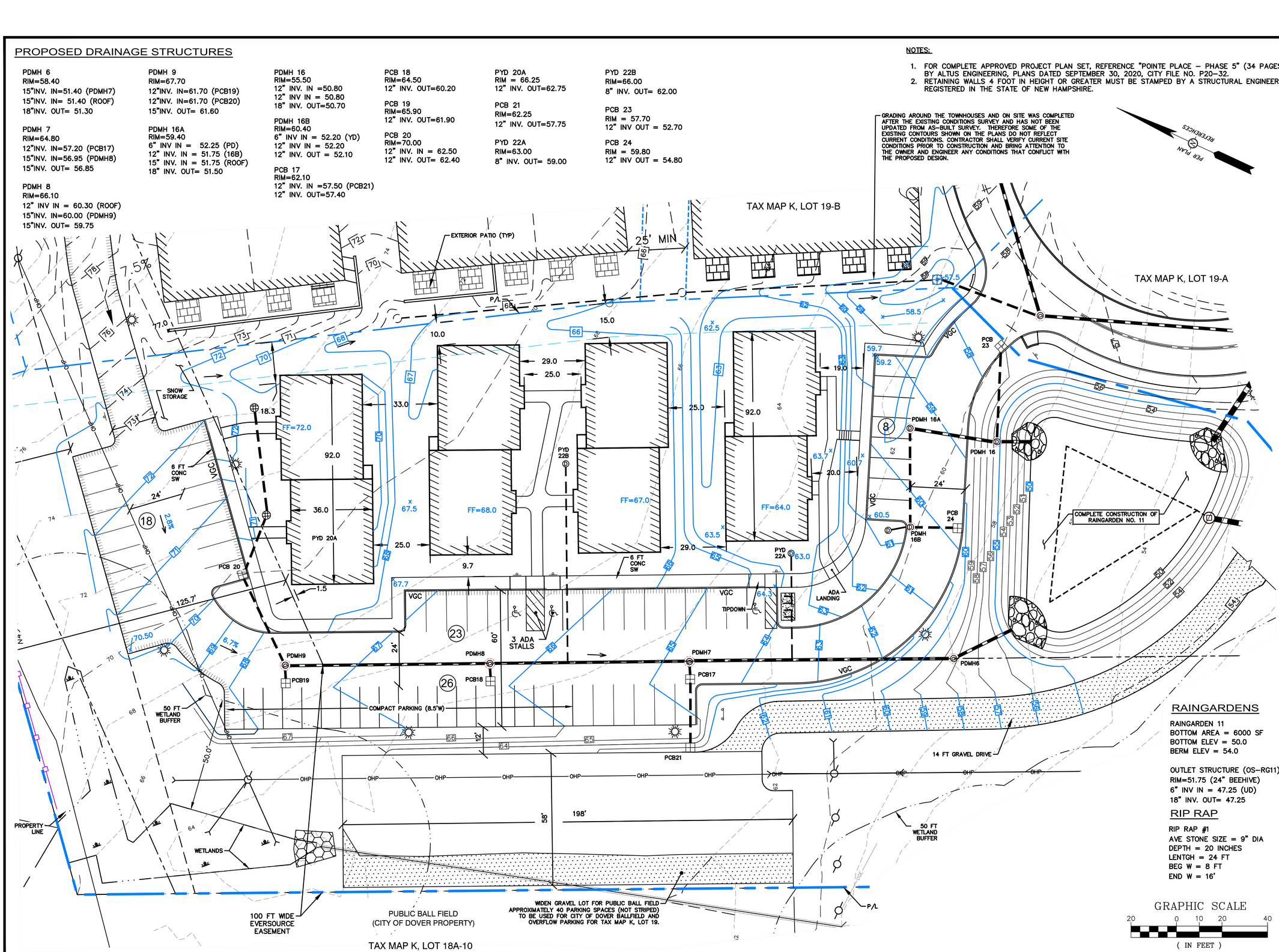
PCB 23
RIM = 57.70
12" INV OUT = 52.70

PCB 24
RIM = 59.80
12" INV OUT = 54.80

NOTES:

1. FOR COMPLETE APPROVED PROJECT PLAN SET, REFERENCE "POINTE PLACE – PHASE 5" (34 PAGES) BY ALTUS ENGINEERING, PLANS DATED SEPTEMBER 30, 2020, CITY FILE NO. P20-32.
2. RETAINING WALLS 4 FOOT IN HEIGHT OR GREATER MUST BE STAMPED BY A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF NEW HAMPSHIRE.

GRADING AROUND THE TOWNHOUSES AND ON SITE WAS COMPLETED AFTER THE EXISTING CONDITIONS SURVEY AND HAS NOT BEEN UPDATED FROM AS-BUILT SURVEY. THEREFORE SOME OF THE EXISTING CONTOURS SHOWN ON THE PLANS DO NOT REFLECT CURRENT CONDITIONS. CONTRACTOR SHALL VERIFY CURRENT SITE CONDITIONS PRIOR TO CONSTRUCTION AND BRING ATTENTION TO THE OWNER AND ENGINEER ANY CONDITIONS THAT CONFLICT WITH THE PROPOSED DESIGN.



RAINGARDENS

RAINGARDEN 11
BOTTOM AREA = 6000 SF
BOTTOM ELEV = 50.0
BERM ELEV = 54.0

OUTLET STRUCTURE (OS-RG11)
RIM=51.75 (24" BEEHIVE)
6" INV IN = 47.25 (UD)
18" INV. OUT= 47.25

RIP RAP

RIP RAP #1
AVE STONE SIZE = 9" DIA
DEPTH = 20 INCHES
LENTGH = 24 FT
BEG W = 8 FT
END W = 16'

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)

P5057

ENGINEER:
ALTUS ENGINEERING
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: APPROVAL

ISSUE DATE: JUNE 5, 2024

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	CDB	03/07/24
1	REVISION 1	CDB	06/05/24

DRAWN BY: CDB
APPROVED BY: EDW
DRAWING FILE: 5057-BLDG7 SITE.DWG

SCALE:
22"x34" 1" = 20'
11"x17" 1" = 40'

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

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

PROJECT:
POINTE PLACE – PHASE 5
RESIDENTIAL AND COMMERCIAL
MIXED USE DEVELOPMENT
CITY FILE NO. P20-32
TAX MAP K, LOT 19
DOVER, NH

TITLE:
REVISED GRADING AND DRAINAGE PLAN

SHEET NUMBER:
C-3 (Rev)

ZONING SUMMARY

TAX MAP K, LOT 19

A. ZONING DISTRICT: RESIDENTIAL COMMERCIAL MIXED USE (RCM) OVERLAY BY APPROVED CONDITIONAL USE PERMIT INNOVATIVE TECHNOLOGY (IT) DISTRICT

OVERLAY DISTRICTS: RESIDENTIAL COMMERCIAL MIXED USE OVERLAY DISTRICT
WETLANDS OVERLAY DISTRICT

LOT SUMMARY

TAX MAP K, LOT 19 (8.5 ACRES)

LOT	AREA (SF)	AREA (ACRES)
A	120,260 SF	2.76 AC
B	99,790 SF	2.29 AC
C	150,300 SF	3.45 AC

TAX MAP K, LOT 19-3
PRIVATE ROADWAY AND SINGLE FAMILY RESIDENTIAL HOUSES

100 FT WIDE EVERSOURCE EASEMENT

30 FT WIDE WATER LINE EASEMENT

EXTERIOR DECK OR PATIO (120 SF/UNIT)

TOWNHOUSE 2 – (F–G) 5 UNITS (100' X 36')

SEWER EASEMENT TO LOT C (20 FT WIDE')

30 FT WATER EASEMENT

TOWNHOUSE 1 – (A–E) 4 UNITS (80' X 36')

PROPERTY LINE

SEWER EASEMENT TO LOTS B AND C (20 FT WIDE')

RETAINING WALL

TRASH STORAGE AND ENCLOSURE

WATER EASEMENT TO LOTS B AND C (20 FT WIDE')

SAWCUT PAVEMENT

PROPOSED ACCESS EASEMENT

SNOW STORAGE

VISITOR PARKING (TYP)

LOT B (2.29 ACRES)

LIGHT POLE (TYP. SEE LIGHTING PLAN)

SIGN (NO PARKING– FIRE LANE)

50 FT SETBACK (TYP)

9' X 18' PARKING STALL (TYP)

END 5-FT BIT SW

DYL AND STOP BAR

LOT A (2.76 ACRES)

BIKE RACK (6 STALLS)

5 FT CONC SW

5 FT BIT SW MEET AND MATCH EXIST WALK

TAX MAP K, LOT 19-4

STORMWATER MANAGEMENT AREA

LOT C (3.45 ACRES)

RETAINING WALL

STOP SIGN

WATER EASEMENT TO LOT C (20 FT WIDE')

PROPERTY LINE

TAX MAP K, LOT 19-2

EXISTING BIT SW

TRASH STORAGE AND ENCLOSURE

BIKE RACK (6 STALLS)

PARKING GARAGE ENTRANCE

NORTH POINTE DRIVE

BUILDING NO. 6 – MIXED USE 5,000 SF COMMERCIAL / 24 RESIDENTIAL UNITS (100' X 65')

50 FT WETLAND BUFFER

5 FT CONC SW

STOP SIGN

SAWCUT PAVEMENT

MEET AND MATCH EXIST WALK

5 FT BIT SW

STORMWATER MANAGEMENT AREA

5 FT BIT SW

SEE ROUNDABOUT PLANS R–2 AND R–4 FOR REQUIRED SIGNAGE

BUILDING NO. 7 – RESIDENTIAL–COMMERCIAL MIXED–USE BUILDING 60 UNITS (250' X 80')

WETLANDS

PROPERTY LINE

PROPOSED GUARDRAIL

EXISTING RAINGARDEN #1 (POINTE PLACE PHASE 1)

WIDEN GRAVEL LOT FOR PUBLIC BALL FIELD APPROXIMATELY 42 PARKING SPACES (NOT STRIPED) TO BE USED FOR CITY OF DOVER BALLFIELD PER EASEMENT DEED _____ AND OVERFLOW PARKING FOR TAX MAP K, LOT 19)

50 FT WETLAND BUFFER

8 FT GRAVEL PATH

WETLANDS

POINTE PLACE

EXISTING BOX CULVERTS AND HEADWALL

PUBLIC BALL FIELD
(CITY OF DOVER PROPERTY)

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

NOTES:

1. THE PRELIMINARY LOT LAYOUT IS INTENDED TO SHOW THE THAT THE PARCEL CAN BE SUBDIVIDED IN THE FUTURE AND COMPLY WITH ZONING REGULATIONS FOR THREE LOTS OF TWO ACRES MINIMUM IN SIZE. A SEPARATE SUBDIVISION APPLICATION SHALL BE SUBMITTED FOR APPROVAL BY THE PLANNING.

P5057

ENGINEER:
ALTUS ENGINEERING, INC.
133 COURT STREET PORTSMOUTH, NH 03801
(603) 433–2335 www.ALTUS–ENG.com

CORY D. BELDEN No. 14239 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE

THIS DRAWING HAS NOT BEEN RELEASED FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD APPROVAL

ISSUE DATE: JULY 21, 2020

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	CDB	06/30/20
1	TRC COMMENTS	CDB	07/21/20

DRAWN BY: _____
APPROVED BY: _____
DRAWING FILE: _____

SCALE:
22"x34" 1" = 40'
11"x17" 1" = 80'

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

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

PROJECT:
POINTE PLACE – PHASE 5
RESIDENTIAL AND COMMERCIAL
MIXED USE DEVELOPMENT

CITY FILE NO. P20–32

TAX MAP K, LOT 19
DOVER, NH

TITLE:
PRELIMINARY LOT LAYOUT PLAN

SHEET NUMBER:
C-8

POINT NORTHWEST 8

Point Place Dover, NH

PERMIT SET
NFC - 032624

LOCUS MAP: (N.T.S.)

MASTER ABBREVIATION KEY:

AB	ANCHOR BOLT
AC	AIR CONDITIONER
ACI	AMERICAN CONCRETE INSTITUTE
ACOUST	ACOUSTIC
AFF	ABOVE FINISH FLOOR
ALT	ALTERNATE
ALUM	ALUMINUM
ANCH	ANCHOR
ANOD	ANODIZED
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
BD	BOARD
BIT	BITUMINOUS
BL	BUILDING LINE
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BOC	BOTTOM OF CURB
BOF	BOTTOM OF FOOTING ELEVATION
BOT	BOTTOM
BRG	BEARING
BRK	BRICK
BSMT	BASEMENT
BTW	BETWEEN
BUR	BUILT-UP ROOF
CAB	CABINET
CB	CATCH BASIN
CER	CERAMIC
CF	CUBIC FOOT
CI	CAST IRON
CJ	CONTROL JOINT
CL	CLOSET
CLCB	CURBLESS CATCH BASIN
CLG	CEILING
CM	CONTRACT MANAGER
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
COMP	COMPACTED (COMPOSITION)
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
CORR	CORRUGATED
CP	CONTROL PANEL
CSG	CASING
CSMT	CASEMENT
CT	CERAMIC TILE
CTR	CENTER
CY	CUBIC YARD
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DL	DEAD LOAD
DN	DOWN
DR	DOOR
DS	DOWNSPOUT
DSIC	DRIVE SIDE OF CURB
DTL	DETAIL
DWG	DRAWING
E	EAST
EJ	EXPANSION JOINT
EJC	EXPANSION JOINT COVER
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EQ	EQUAL
EQUIP	EQUIPMENT
ER	EMERGENCY ROOM
EST	ESTIMATE
EWC	ELECTRICAL WATER COOLER
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXPD	EXPANDED
EXT	EXTERIOR
F/F	FACE OF FOUNDATION WALL
FA	FRESH AIR
FAP	FIRE ALARM PANEL
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FIN	FINISH
FL	FLOW LINE
FLR	FLOOR
FND	FOUNDATION
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FR	FIRE RATED
FS	FULL SIZE
FT	FOOT
FTG	FOOTING
FUR	FURRED (FURRING)
FVC	FIRE VALVE CABINET
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GEN	GENERAL
GL	GLASS
GLZ	GLAZING
GRD	GRADE
GYP	GYPSUM
H/V	HEATING & VENTILATING
HC	HANDICAP
HDWD	HARDWOOD
HGT	HEIGHT
HM	HOLLOW METAL
HP	HIGH POINT
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HWH	HOT WATER HEATER
ID	INSIDE DIAMETER
IN	INCH
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
JC	JANITOR'S CLOSET
JST	JOIST
JT	JOINT
LAM	LAMINATE
LAV	LAVATORY
MAS	MASONRY
MAT	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MEM	MEMBRANE
MEP	MECHANICAL, ELECTRICAL, PLUMBING
METTP	METAL TOILET PARTITION
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MTL	METAL
MULL	MULLION
N	NORTH
NAT	NATURAL
NEC	NECESSARY
NIC	NOT IN CONTRACT
NOM	NOMINAL
NRC	NOISE REDUCTION COEFFICIENT
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF/C	OUTSIDE FACE OF CONCRETE
OH	OVERHEAD
OPG	OPENING
OPP	OPPOSITE
OR	OPERATING ROOM
PBD	PARTICLE BOARD
PCF	POUNDS PER CUBIC FOOT
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLYWD	PLYWOOD
PNL	PANEL
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PAINT
PTD	PAINTED
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
QT	QUARRY TILE
R	RADIUS
R/A	RETURN AIR
RC	REINFORCED CONCRETE
RD	ROOF DRAIN
REF	REFERENCE
REFR	REFRIGERATOR
REINF	REINFORCE
REQD	REQUIRED
RGH	ROUGH
RL	RAIN LEADER
RM	ROOM
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RQMT	REQUIREMENT
S	SOUTH
S-TRAP	SEDIMENT TRAP
SC	SOLID CORE
SCED	SCHEDULE
SD	STORM DRAIN
SF	SQUARE FOOT
SH	SHOWER
SHT	SHEET
SIM	SIMILAR
SL	SLIDING
SMR	SINGLE PLY MEMBRANE ROOF
SP/PT/FIN	SPECIAL PAINT FINISH
SPEC	SPECIFICATION
SPKR	SPEAKER
SQ	SQUARE
SS	STAINLESS STEEL
STA	STATION
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRG	STRINGER
STRUCT	STRUCTURAL
SU	SITE UTILITY
SUSP	SUSPEND (SUSPENDED)
SYMM	SYMMETRICAL
SYS	SYSTEM
T	TREAD
TAG	TONGUE & GROOVED
T/FRM	TOP OF FRAME
T/SLB	TOP OF SLAB
TB	TACKBOARD
TEL	TELEPHONE
TEMP	TEMPORARY
TERR	TERRAZZO
THK	THICK
THLD	THRESHOLD
TOC	TOP OF CURB
TOF	TOP OF FOUNDATION
TOS	TOP OF SLAB
TOW	TOP OF WALL ELEVATION
TR	TO REMAIN
TYP	TYPICAL
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES, INC.
UOD	UNDERSIDE OF DECK
UON	UNLESS OTHERWISE NOTED
UR	URINAL
UV	UNIT VENTILATOR
VAR	VARIES OR VARIABLE
VB	VINYL BASE
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VNR	VENEER
VOL	VOLUME
W	WEST
W/	WITH
WC	WATER CLOSET
WD	WOOD
WDW	WINDOW
WGL	WIRE GLASS
WP	WEATHERPROOF (WATERPROOFING)
WWF	WELDED WIRE FABRIC

GRAPHIC SYMBOLS LEGEND

- BUILDING SECTION CALLOUT — A — A4.1 — SHEET WHERE SECTION IS SHOWN
- WALL SECTION CALLOUT — 1 — A4.1 — SHEET WHERE SECTION IS SHOWN
- DETAIL CALLOUT — 1 — A4.1 — SHEET WHERE DETAIL IS SHOWN
- CALLOUT NUMBER — 1 — A4.1 — SHEET WHERE CALLOUT IS SHOWN
- EXTERIOR ELEVATION — 2 — A1.1 — SHEET WHERE ELEVATION IS SHOWN
- COLUMN BUBBLES — 0
- DOOR TAG NUMBER — 101
- WINDOW TAG NUMBER — A
- ACCESSIBILITY CLEARANCES: TURNING RADIUS
- ACCESSIBILITY CLEARANCES: CLEAR FLOOR SPACE
- INTERIOR ELEVATION — 1, 2, 3, 4 — A101 — A101 — SHEET WHERE ELEV. IS SHOWN

MATERIAL LEGEND

- EXISTING ITEMS TO REMAIN
- STEEL
- ALUMINUM
- CONCRETE MASONRY UNIT (SECTION)
- CONCRETE MASONRY UNIT (ELEVATION)
- BRICK (SECTION)
- BRICK (ELEVATION)
- CONCRETE
- SAND / GYPSUM
- COUNTER TOPS / SOLID SURFACE
- EARTH
- CRUSHED STONE
- GRAVEL / COMPACTED FILL
- BLOWN-IN INSULATION
- BATT INSULATION
- RIGID INSULATION
- CLOSED CELL SPRAY FOAM INSULATION
- FINISH WOOD (ELEVATION)
- FINISH WOOD (SECTION)
- PLYWOOD
- WOOD FRAMING OR WOOD BLOCKING (CONTINUOUS)
- WOOD BLOCKING (NON-CONTINUOUS)

DRAWING SHEET INDEX:

Sheet	Sheet Name	Issued	Revision	Revision Date
PCS	PROJECT COVER SHEET	NFC - 03/26/24		
S1.3	TRUSS PROFILE	NFC - 03/26/24		
A1.1	FLOOR PLAN	NFC - 03/26/24		
A1.2	SECOND FLOOR PLAN	NFC - 03/26/24		
A2.1	REFLETED CEILING PLAN	NFC - 03/26/24		
A3.1	EXTERIOR ELEVATIONS	NFC - 03/26/24		
A3.2	EXTERIOR ELEVATIONS	NFC - 03/26/24		
A4.1	BUILDING SECTIONS	NFC - 03/26/24		
A6.1	DOOR, WINDOW & ROOM FINISH SCHEDULES	NFC - 03/26/24		

GENERAL NOTES:

1. DO NOT SCALE DRAWING OR DIMENSIONS. FOR MISSING DIMENSIONS OR DIMENSIONS IN CONFLICT, CONTACT THE CONTRACTOR IMMEDIATELY BEFORE CONTINUING WITH WORK.
2. ANY DISCREPANCIES IN THESE PLANS WILL BE BROUGHT TO THE CONTRACTOR'S ATTENTION IN WRITING IMMEDIATELY
3. REFER TO MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION DESIGN-BUILD PLANS AND SPECIFICATION FOR LOCATIONS OF ALL BLOCK OUTS, INSERTS, OPENINGS, CURBS, BASES, & PADS THAT ARE NOT DIMENSIONED OR SHOWN ON CONTRACTOR'S DWG'S. OR STRUCTURAL DWG'S.
4. STRUCTURAL STEEL, MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION PLANS AND SPECIFICATION SHALL BE PROVIDED AND ARE THE RESPONSIBILITY OF THERE RESPECTIVE SUBCONTRACTORS IF NOT CARRIED IN ARCHITECTURAL SERVICES
5. ALL CONSTRUCTION SHALL CONFORM TO AND BE IN ACCORDANCE WITH THE REGULATOR REQUIREMENTS MANDATED BY ALL FEDERAL, STATE AND LOCAL AUTHORITIES HAVING JURISDICTION IN ACCORDANCE TO THE STATE IN WHICH THE WORK IS PERFORMED (STATE BUILDING CODE, STATE LIFE SAFETY & FIRE CODE ETC.)
6. THE CONTRACTOR SHALL REVIEW ALL DOCUMENTS AND VERIFY ALL DIMENSIONS AND FIELD CONDITIONS, AND SHALL CONFIRM WORK IS BUILDABLE AS SHOWN. ANY CONFLICTS OR OMISSIONS, ETC. SHALL BE IMMEDIATELY REPORTED IN WRITING TO THE ARCHITECT FOR CLARIFICATION
7. DIMENSIONS ARE FROM EXTERIOR FACE OF FOUNDATION, VENEER, OR WALL STUD AND TO CENTER OF ALL INTERIOR STUD WALLS OR FACE OF INTERIOR MASONRY. UNLESS NOTED OTHERWISE.
8. CLEAR DIMENSIONS ARE FROM FACE TO FACE OF WALL FINISH. UNLESS NOTED OTHERWISE
9. REFER TO MECHANICAL DRAWINGS / SPEC. FOR ALL SIZES AND LOCATIONS OF MECHANICAL DUCT WORK.
10. UNLESS OBVIOUSLY SHOWN OTHERWISE, DOOR LOCATIONS NOT DESIGNATED BY WRITTEN DIMENSION SHALL BE CENTERED IN THE WALL OR SHALL BE LOCATED FOUR (4) INCHES FROM FINISH WALL TO EDGE OF DOOR JAMB. PER PLAN.
11. PROVIDE METAL CORNER BEAD AT ALL OUTSIDE CORNERS OF PLASTERED OR DRYWALL SURFACES, UNLESS NOTED OTHERWISE.
12. PENETRATIONS OF ALL FIRE RATED ASSEMBLIES SHALL BE PROTECTED BY LIKE RATED CONSTRUCTION DAMPPERS, SEALANTS, COLLARS, ETC., TYPICAL.
13. CONTRACTOR SHALL FURNISH, LOCATE AND INSTALL ALL ACCESS PANELS AS REQUIRED AFTER INSTALLATION OF MECHANICAL DUCTS, PLUMBING AND ELECTRICAL WORK, FIRE RATED AS REQUIRED.
14. FURNISH AND INSTALL SOLID BLOCKING BEHIND ALL WALL HUNG MILLWORK ITEMS, RAILS, FIXTURES,GRAB BARS, ETC. , WHERE INDICATED OR REQUIRED.
15. CONTRACTOR SHALL LAYOUT OR MARK, ALL EQUIPMENT, SYSTEMS AND MILLWORK ON THE FLOOR FOR ARCHITECT OR OWNER'S APPROVAL PRIOR TO BEGINNING CEILING / OVER HEAD WORK.
16. ALL SPRINKLER HEAD LOCATIONS, MAINS, BRANCHES AND RISER PIPE LOCATIONS MUST BE COORDINATED WITH THE DESIGN / BUILD CONTRACTOR PRIOR TO WORK.
17. FURNISH AND INSTALL FIRE EXTINGUISHERS IN TYPE, QUANTITY, AND LOCATION PER LOCAL FIRE DEPARTMENT. TYPICAL
18. CONTRACTOR SHALL VERIFY, COORDINATE LOCATION WITH THE ARCHITECT ANY SMOKE, CARBON MONOXIDE DETECTOR OR FIRE ALARM DEVICE AS REQUIRED BY THE LOCAL FIRE DEPARTMENT.
19. FURNISH & INSTALL FIRE DAMPERS WITH FUSIBLE LOUVER WHEREVER DUCT WORK PENETRATES ONE OR TWO HOUR CEILINGS OR WALLS. TYPICAL UNLESS NOTED OTHERWISE.
20. PROVIDE PLASTER AND GYPSUM WALL BOARD CONTROL JOINTS AT 30'-0" ON CENTER FROM FLOOR TO CEILING, OR AS NOTED ON THE CONSTRUCTION DOCUMENTS. VERIFY IN FEILD WITH ARCHITECT PRIOR TO WORK.

T | W DESIGNS
254 Drake Hill Rd. Strafford, NH
TW-Designs.com | 603.664.2181

Project Info:

POINT NORTHWEST 8
Point Place Dover, NH
PERMIT SET

Architect of Record:

T | W Designs, LLC
254 Drake Hill Rd.
Strafford, NH 03884
603-664-2181

Civil Engineer:

N/A

Structural Engineer:

XXX

Electrical Engineer:

XXX

Mechanical Engineer:

XXX

Plumbing Engineer:

XXX

Fire Protection Eng.:

XXX

Contractor of Record:

XXX

Revision Schedule

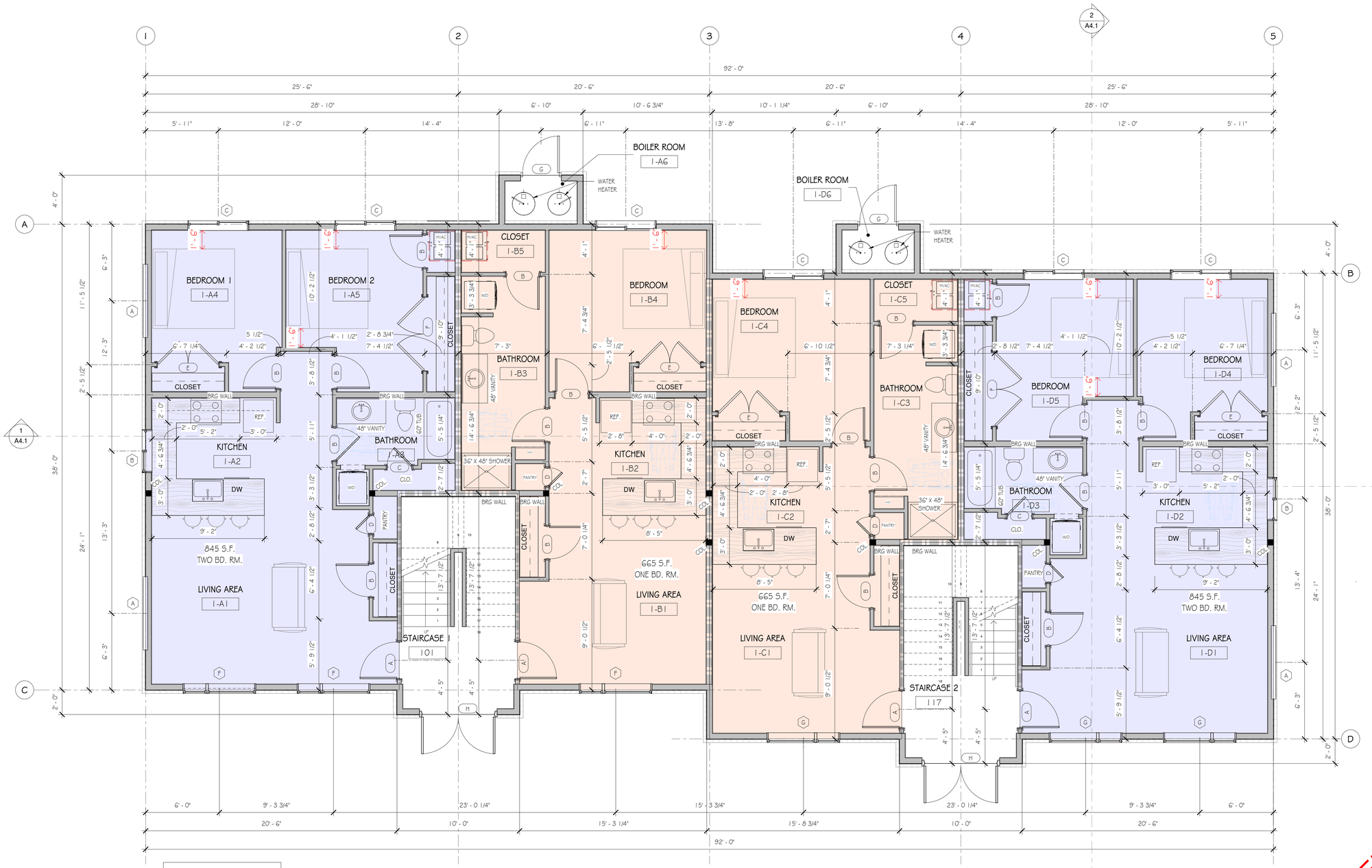
No.	Description	Date

PROJECT COVER SHEET

SHEET NUMBER

PCS

TW DESIGNS LLC
254 DRAKE HILL RD. STRAFFORD, NH
P: 603.664.2181 | F: 603.664.9508



1 FIRST FLOOR PLAN
1/4" = 1'-0"

FLOOR PLAN NOTES:
1) REFER TO SHEETS A2. 1 FOR REFLECTED CEILING PLANS & LIGHT FIXTURE LAYOUTS
2) REFER TO SHEET A6. 1 FOR DOOR & WINDOW INFORMATION.
3) REFER TO STRUCTURAL DRAWINGS FOR ALL CONCRETE SLAB THICKNESSES & REINFORCEMENT PLACEMENT LOCATIONS.
4) REFER TO STRUCTURAL DRAWINGS FOR ALL STRUCTURAL COLUMN SIZES & LOCATIONS.
5) REFER TO COVER SHEET FOR TYPICAL ABBREVIATIONS.
6) REFER TO SHEETS A3. 1 & A3. 2 FOR STOREFRONT ELEVATIONS
7) PROVIDE UNDER SLAB RADIENT HEAT @ LOBBY.
8) REFER TO EXTERIOR ELEVATIONS FOR EFIS, FINISHES & CONTROL JOINT LOCATIONS.

No.	Description	Date

Revision Schedule

Project Info:
POINT NORTHWEST 8

Point Place
Dover, NH

Sheet Status:
Latest Release:
Issued For: PERMIT SET
Org. Issue Date: NFC - 032624

JOB NO:
DRAFTED: JMT
CHECKED: Checker

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

Sheet Title:
FLOOR PLAN

Sheet Number:
A1.1

PERMIT SET
3/26/2024
9:40:18 PM

PROJECT NORTH

Printed on: 3/26/2024 9:40:18 PM

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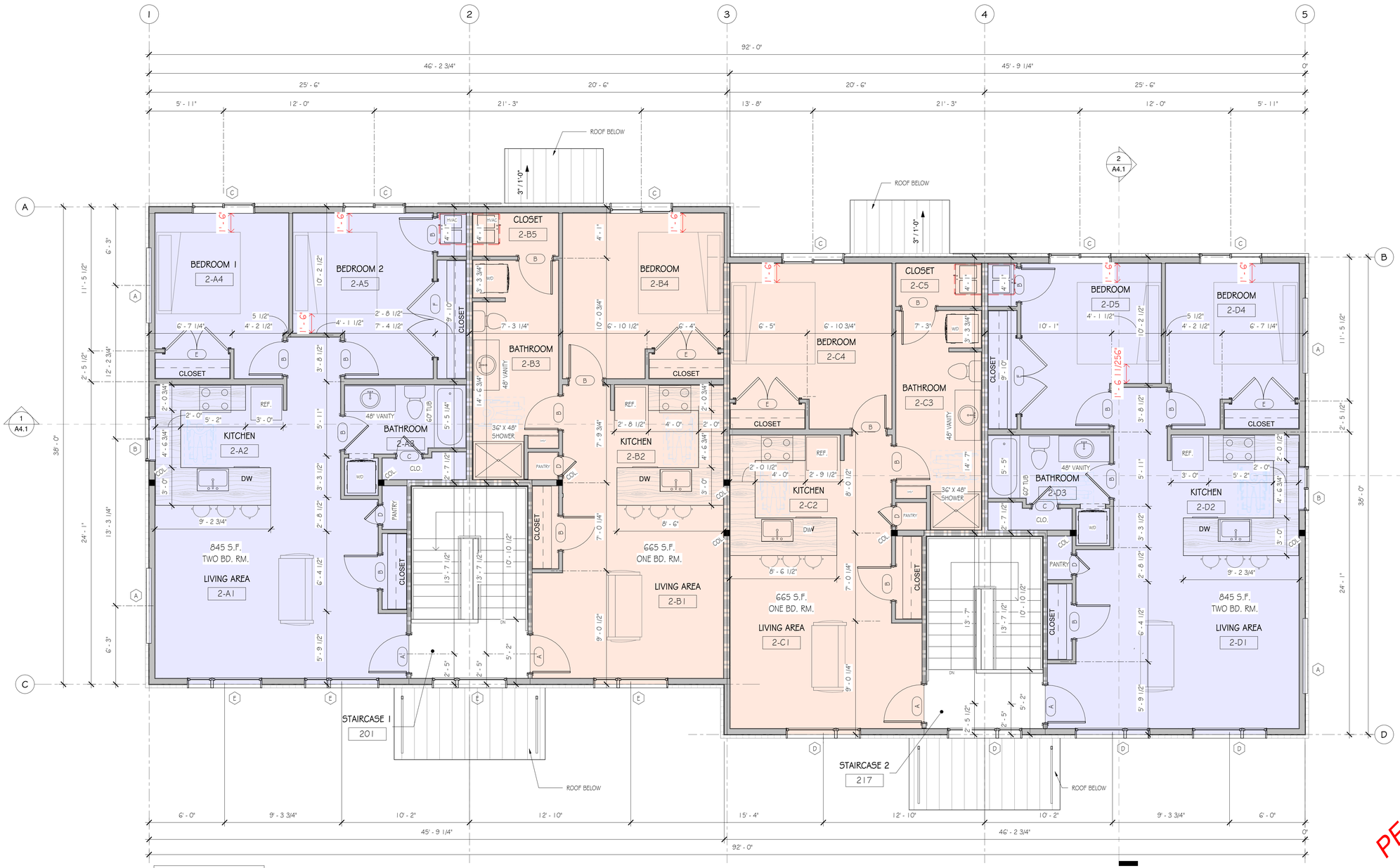

1 SECOND FLOOR PLAN
1/4" = 1'-0"

FLOOR PLAN NOTES:
1) REFER TO SHEETS A2.1 FOR REFLECTED CEILING PLANS & LIGHT FIXTURE LAYOUTS
2) REFER TO SHEET A6.1 FOR DOOR & WINDOW INFORMATION.
3) REFER TO STRUCTURAL DRAWINGS FOR ALL CONCRETE SLAB THICKNESSES & REINFORCEMENT PLACEMENT LOCATIONS.
4) REFER TO STRUCTURAL DRAWINGS FOR ALL STRUCTURAL COLUMN SIZES & LOCATIONS.
5) REFER TO COVER SHEET FOR TYPICAL ABBREVIATIONS.
6) REFER TO SHEETS A3.1 & A3.2 FOR STOREFRONT ELEVATIONS
7) PROVIDE UNDER SLAB RADIENT HEAT @ LOBBY.
8) REFER TO EXTERIOR ELEVATIONS FOR EFIS,FINISHES & CONTROL JOINT LOCATIONS.

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SECOND FLOOR PLAN

Sheet Number:

A1.2

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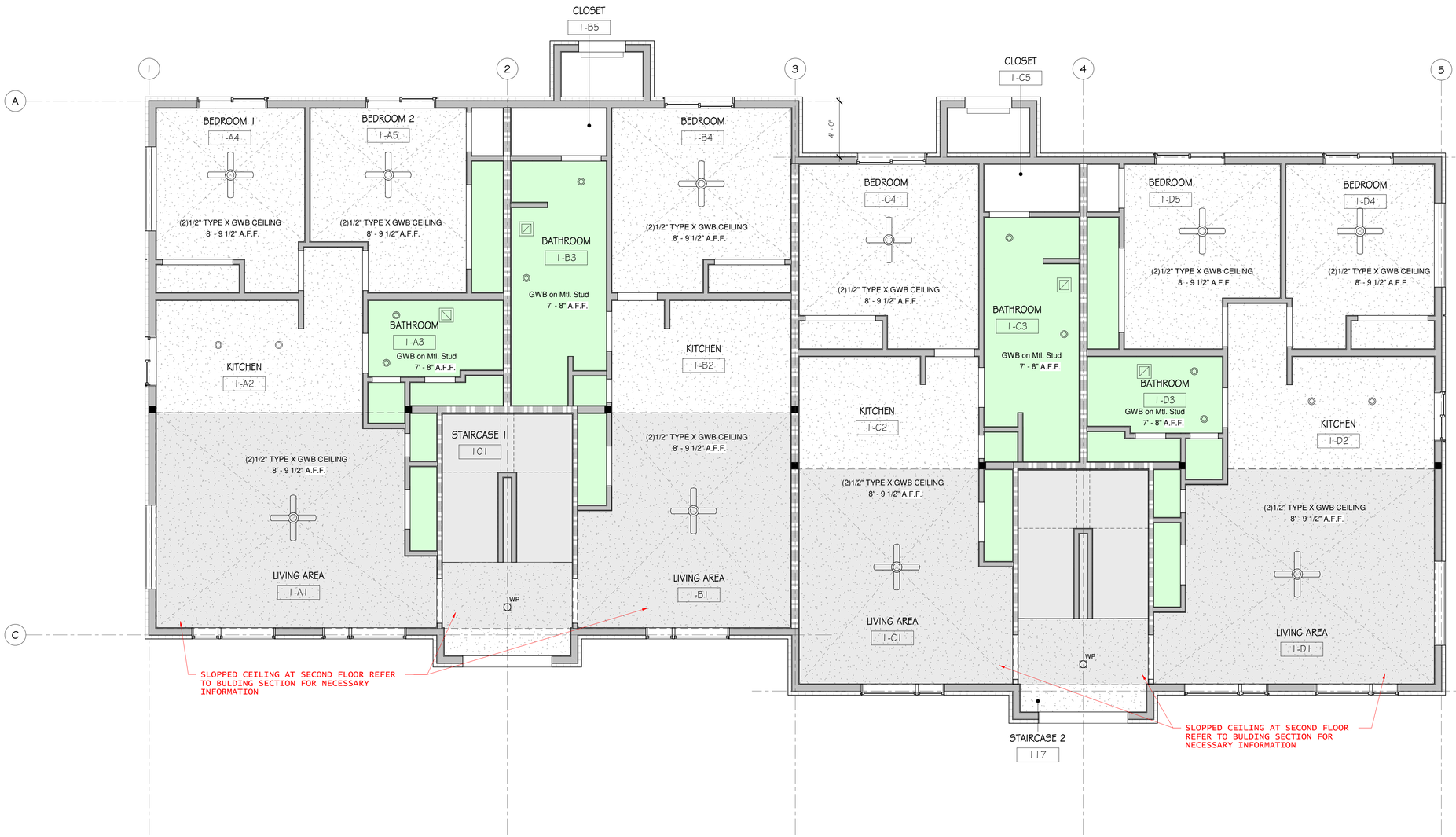

1 FIRST FLOOR REFLECTED CEILING PLAN
1/4" = 1'-0"

RCP SYMBOL LEGEND

	= TOILET ROOM EXHAUST VENT (COMBINE & GATHER AS APPLICABLE BY CODE, EXIT THRU ROOF)
WP	= 6X6 RECESSED CAN LIGHT
	= CEILING FAN WITH LIGHT
	= 4X4 RECESSED CAN LIGHT
	= WALL MOUNTED LIGHT

RCP NOTES:
1) LIGHTING LAYOUT IS FOR DESIGN INTENT ONLY. ALL LIGHTING FIXTURES & PLACEMENT TO BE COORDINATED BY LIGHTING CONTRACTOR.
2) ALL HVAC SYSTEMS SHALL HAVE HARDWIRED THERMOSTATS.
3) HEATING & COOLING REGISTER LOCATIONS ON HALLWAY CEILING ARE SHOWN FOR DESIGN INTENT ONLY. MECH. REGISTER LOCATIONS & QUANTITIES SHALL BE COORDINATED BY MECHANICAL CONTRACTOR.
4) BEDROOMS TO RECEIVE LIGHT & FAN COMBINATION UNIT W/ CONTINUOUSLY RUNNING FAN TO CREATE NEGATIVE PRESSURE
5) DUCTED HVAC SYSTEMS @ RES. UNITS SHALL HAVE (3) DUCTS, FOR BED ROOM, LIVING ROOM & BATH ROOM. REFER TO MECH. DWGS

COLOR LEGEND	
	GWB CEILING HGT. 7'-8" A.F.F. FOR FIRST FLOOR LEVEL
	GWB SLOPPED CEILING FOR SECOND FLOOR LEVEL

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Sheet Title:
REFLETED CEILING PLAN

Sheet Number:
A2.1

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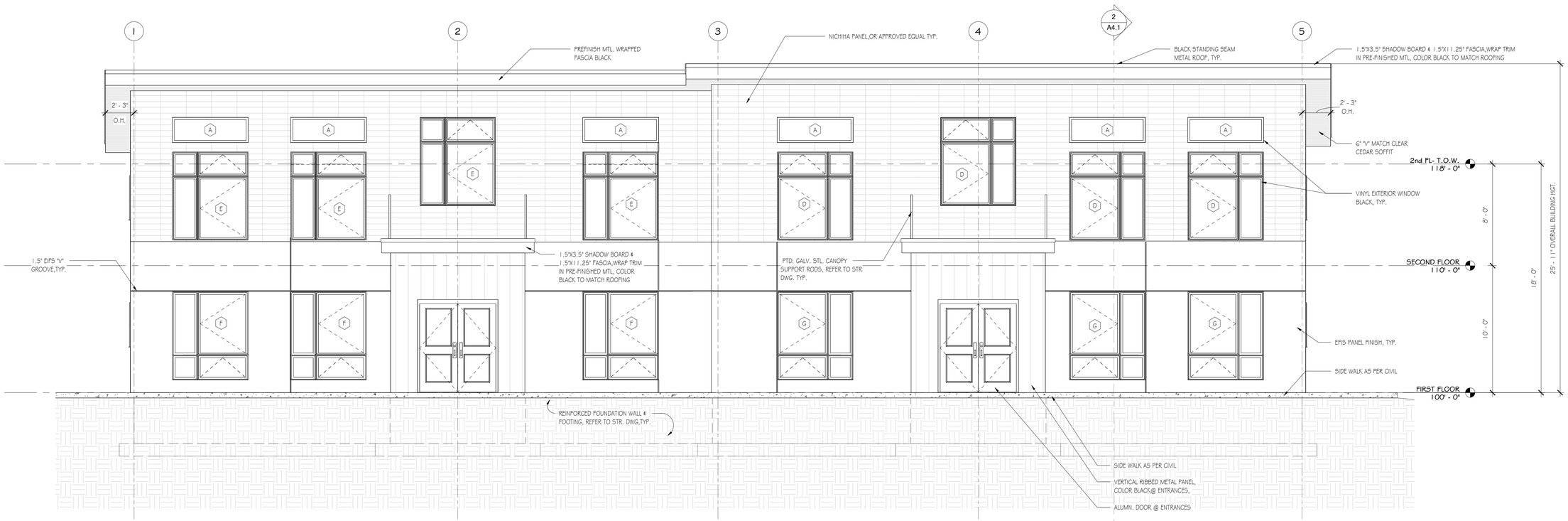
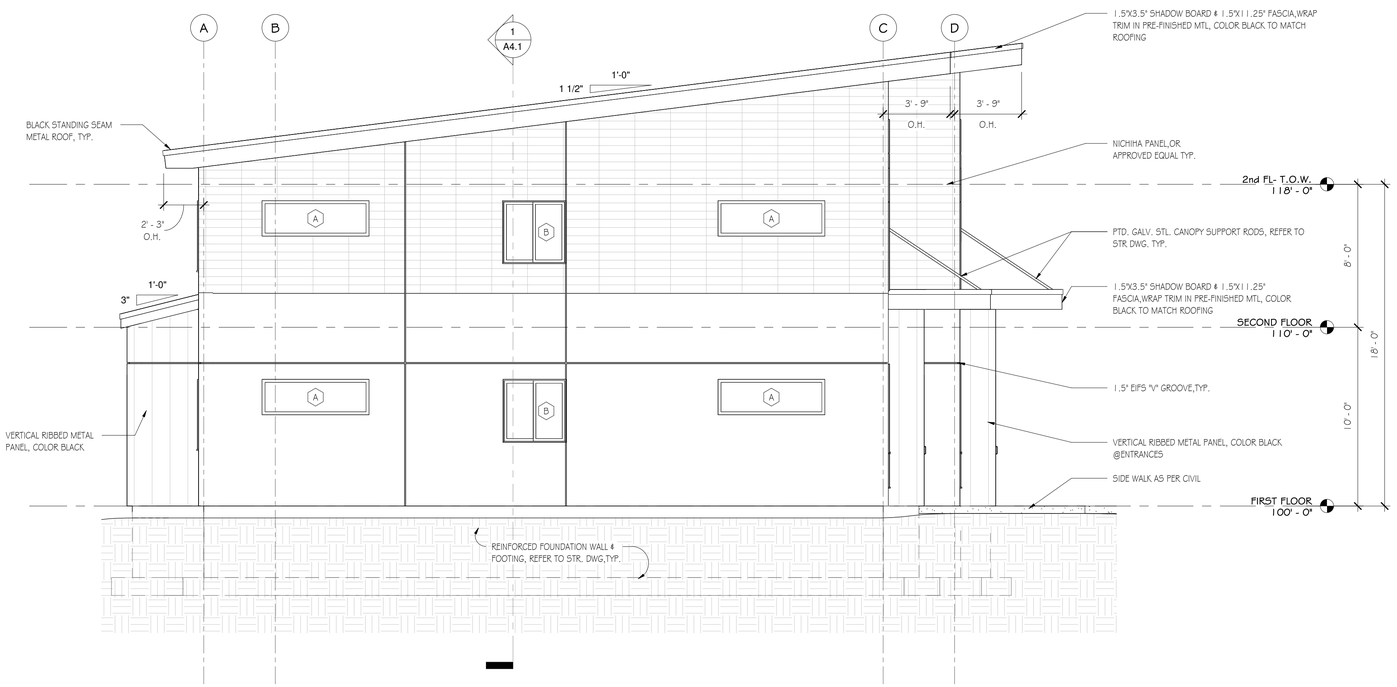


1 FRONT EXTERIOR ELEVATION
1/4" = 1'-0"



2 LEFT SIDE EXTERIOR ELEVATION
1/4" = 1'-0"

ELEVATION NOTES:

1. REFER TO SHEET A3.3 FOR ALL LOCATIONS OF E.I.F.S., 3/4" GROOVES
2. REFER TO SHEET A1.1 & A1.2 FOR ALL CURTAIN WALL & STOREFRONT MULLION GRID DIMENSIONS
3. REFER TO SHEET A6.1 FOR DOOR & WINDOW SCHEDULES & LEGENDS
4. REFER TO FLOOR PLANS FOR ALL EXTERIOR WALL TYPE ASSEMBLIES
5. LIGHTING LAYOUT FOR DESIGN INTENT ONLY. ALL FIXTURE PLACEMENTS TO BE BY ELECTRICAL CONTRACTOR'S DESIGN / BUILD ENGINEER.
6. REFER TO MECH. DWGS. FOR ALL WALL PENETRATION LOCATIONS & DETAIL
7. REFER TO PLUMBING DWGS. FOR ALL WATER & GAS METER LOCATIONS
8. REFER TO ELECTRICAL DWGS. FOR ALL METER LOCATIONS

EXTERIOR FINISH SCHEDULE	
	MANUFACTURE- NICHIHA OR APPROV. EQ. MODEL: COLOR:
	MANUFACTURE- STO - EIFS OR APPROV. EQ. MODEL- SUPER SMOOTH COLOR: LIGHT GREY
	MANUFACTURE- ATAS INTERNATIONAL OR APPROV. EQ. MODEL- MULTI PURPOSE MPN 8" COLOR: BLACK

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EXTERIOR ELEVATIONS

Sheet Number:

A3.1

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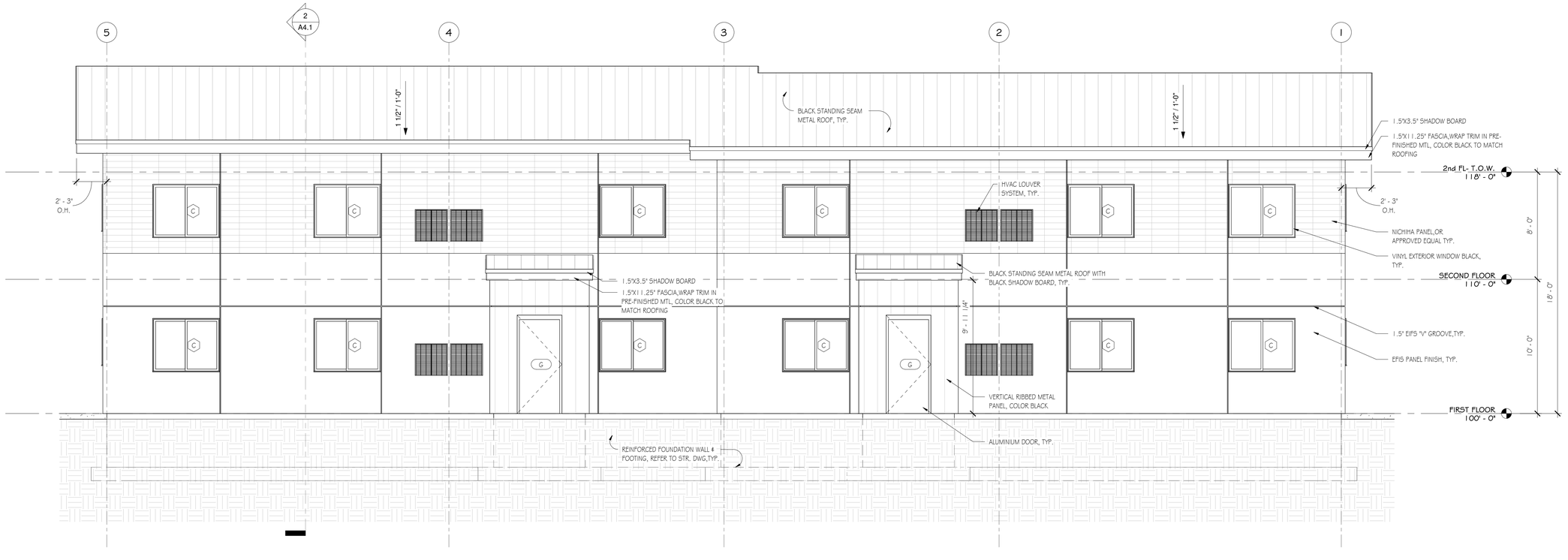
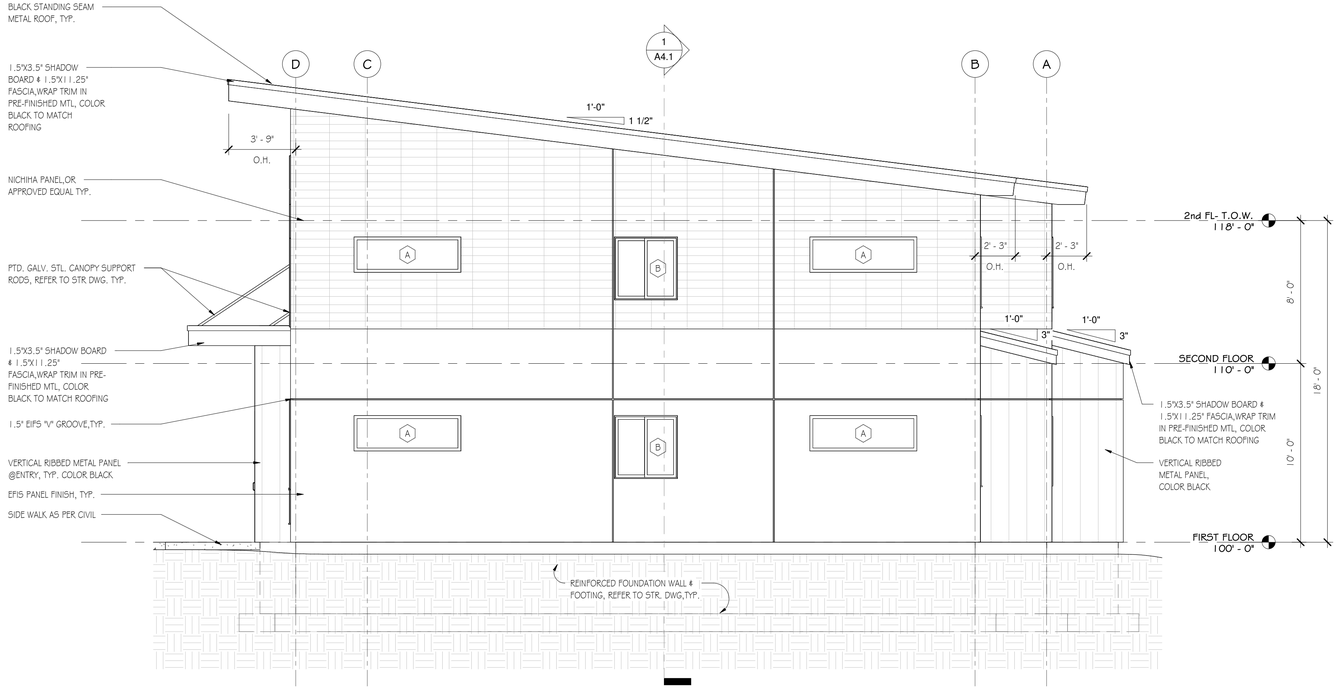


1 REAR EXTERIOR ELEVATION
1/4" = 1'-0"



2 RIGHT SIDE EXTERIOR ELEVATION
1/4" = 1'-0"

ELEVATION NOTES:

1. REFER TO SHEET A3.3 FOR ALL LOCATIONS OF E.I.F.S. 3/4" GROOVES
2. REFER TO SHEET A1.1 & A1.2 FOR ALL CURTAIN WALL & STOREFRONT MULLION GRID DIMENSIONS
3. REFER TO SHEET A6.1 FOR DOOR & WINDOW SCHEDULES & LEGENDS
4. REFER TO FLOOR PLANS FOR ALL EXTERIOR WALL TYPE ASSEMBLIES
5. LIGHTING LAYOUT FOR DESIGN INTENT ONLY. ALL FIXTURE PLACEMENTS TO BE BY ELECTRICAL CONTRACTOR'S DESIGN / BUILD ENGINEER.
6. REFER TO MECH. DWGS. FOR ALL WALL PENETRATION LOCATIONS & DETAIL
7. REFER TO PLUMBING DWGS. FOR ALL WATER & GAS METER LOCATIONS
8. REFER TO ELECTRICAL DWGS. FOR ALL METER LOCATIONS

EXTERIOR FINISH SCHEDULE	
	MANUFACTURE: NICHIHA OR APPROV. EQ. MODEL: COLOR:
	MANUFACTURE: STO - EIFS OR APPROV. EQ. MODEL: SUPER SMOOTH COLOR: LIGHT GREY
	MANUFACTURE: ATAS INTERNATIONAL OR APPROV. EQ. MODEL: MULTI PURPOSE MPN 8" COLOR: BLACK

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EXTERIOR ELEVATIONS

Sheet Number:

A3.2

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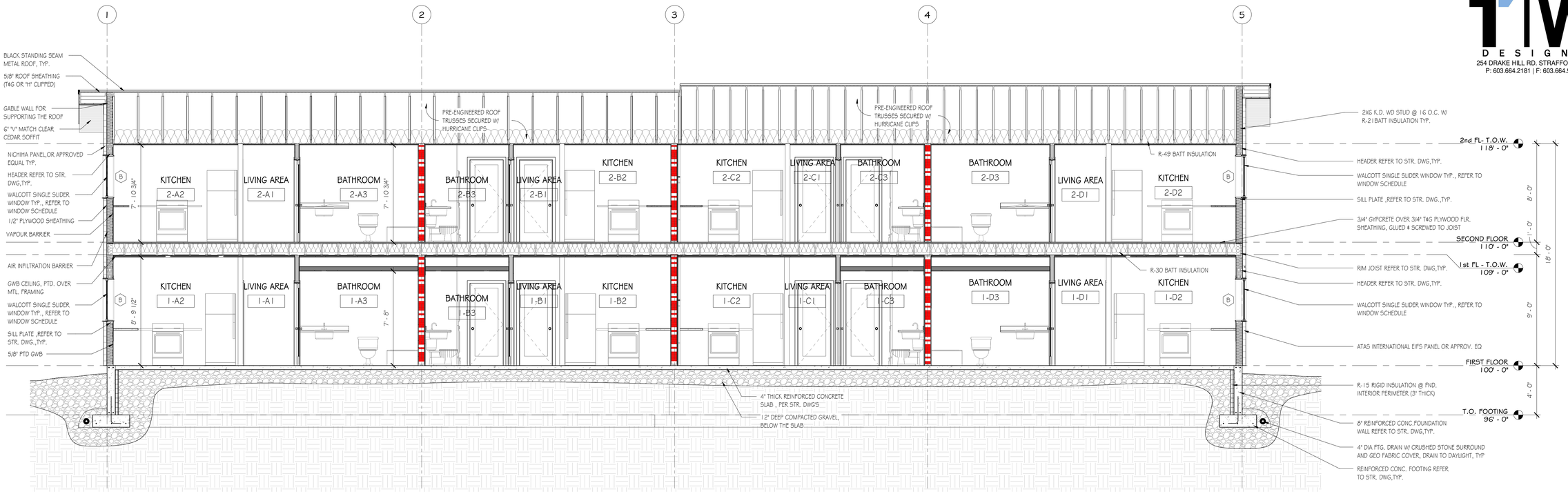
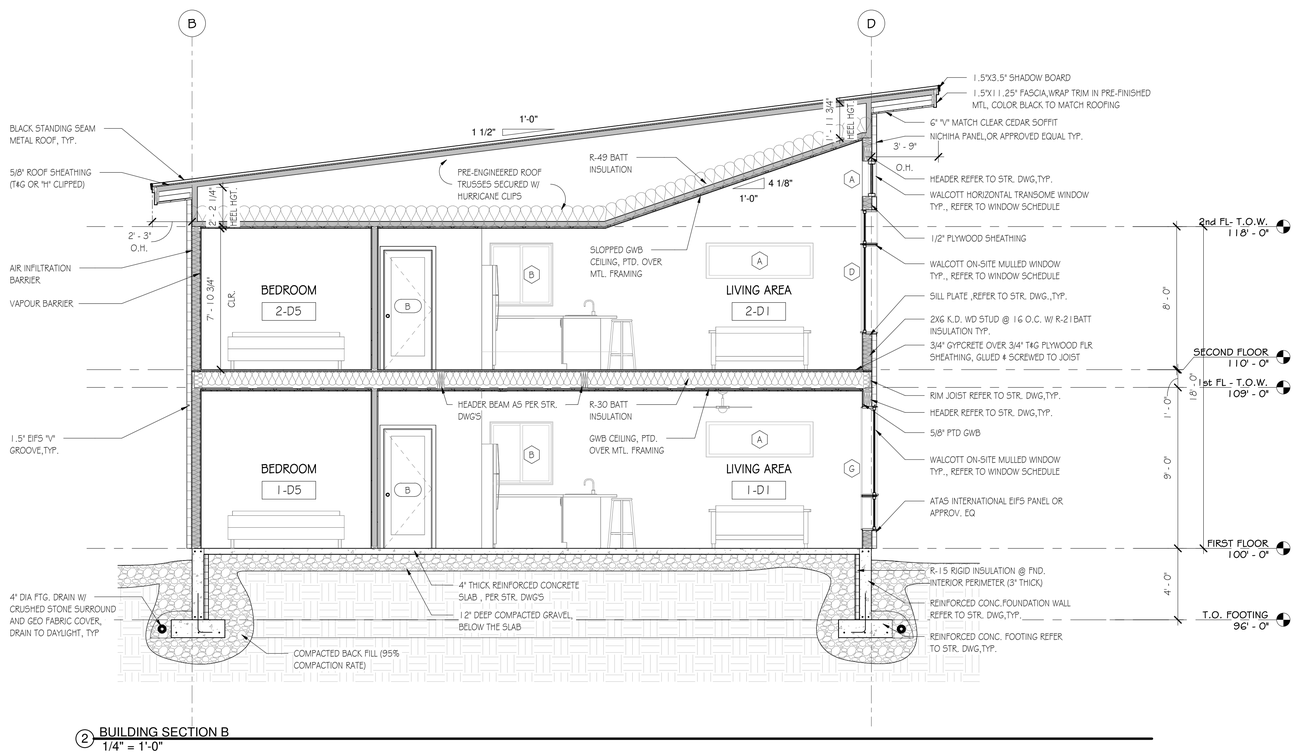


1 BUILDING SECTION A
1/4" = 1'-0"



2 BUILDING SECTION B
1/4" = 1'-0"

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BUILDING SECTIONS

Sheet Number:

A4.1

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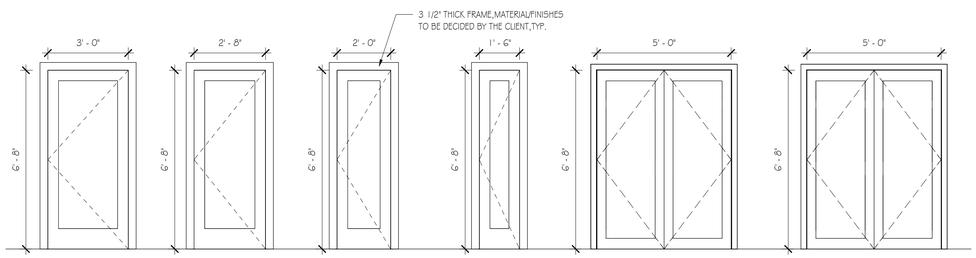
Door Schedule

Type Mark	Operation	Rough Width	Rough Height	Thickness	Fire Rating	Door Matenal	Door Finish	Frame Type	Frame Finish	Lock Set	Comments
A	SWING	3' - 0"	6' - 8"	1 3/8"							INTERIOR
B	SWING	2' - 8"	6' - 8"	1 3/8"							INTERIOR
C	SWING	2' - 0"	6' - 8"	1 3/8"							INTERIOR
D	SWING	1' - 6"	6' - 8"	1 3/8"							INTERIOR
E	SWING	5' - 0"	6' - 8"	1 3/4"							INTERIOR
F	SWING	6' - 0"	6' - 8"	1 3/4"	90 MIN						INTERIOR
G	SWING	3' - 0"	7' - 0"	1 3/4"							EXTERIOR
H	SWING	6' - 0"	7' - 0"	1 3/4"							EXTERIOR

ROOM FINISH SCHEDULE

Name	Number	Floor Finish	Base Finish	Wall Finish	Ceiling Finish
LIVING AREA	1-A1	VINYL PLANK FLOORING	5 1/4" MDF SPEED BASE (PTD.)	GYPSUM WALL BOARD (PTD.)	GYPSUM WALL BOARD (PTD.)
KITCHEN	1-A2	VINYL PLANK FLOORING	5 1/4" MDF SPEED BASE (PTD.)	GYPSUM WALL BOARD (PTD.)	GYPSUM WALL BOARD (PTD.)
BATHROOM	1-A3	CERAMIC TILE	CERAMIC TILE BASE	GYPSUM WALL BOARD (PTD.)	GYPSUM WALL BOARD (PTD.)
BEDROOM 1	1-A4	CARPET	5 1/4" MDF SPEED BASE (PTD.)	GYPSUM WALL BOARD (PTD.)	GYPSUM WALL BOARD (PTD.)
BEDROOM 2	1-A5	CARPET	5 1/4" MDF SPEED BASE (PTD.)	GYPSUM WALL BOARD (PTD.)	GYPSUM WALL BOARD (PTD.)



"A" — INT. 1 PANEL SMOOTH FACE DOOR, MOULDED WOOD, SOLID CORE, PAINTED

"B" — INT. 1 PANEL SMOOTH FACE DOOR, MOULDED WOOD, SOLID CORE, PAINTED

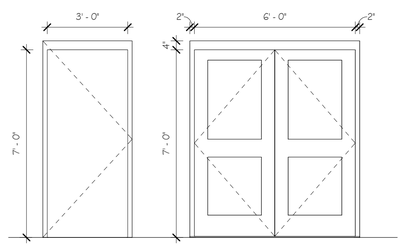
"C" — INT. 1 PANEL SMOOTH FACE DOOR, MOULDED WOOD, SOLID CORE, PAINTED

"D" — INT. 1 PANEL SMOOTH FACE DOOR, MOULDED WOOD, SOLID CORE, PAINTED

"E" — INT. 1 PANEL SWING, MOULDED WOOD, SOLID CORE, SPLIT JAMB WOOD FRAME, PAINTED

"F" — INT. 1 PANEL SWING, MOULDED WOOD, SOLID CORE, SPLIT JAMB WOOD FRAME, PAINTED

RESIDENTIAL UNIT INTERIOR DOOR LEGEND
3/8" = 1'-0"



"G" — EXT. FLUSH METAL DOOR, SOLID CORE, PTD. HOLLOW MTL. FRAME, 90 MIN. FIRE RATED, PAINTED, AUTO CLOSER

"H" — EXT. ALUMINIUM ENTRANCE DOOR, DOUBLE LITES, ALUMINIUM FRAME, BLACK ANODISED DOOR FRAME, AUTO OPENER AND CLOSER

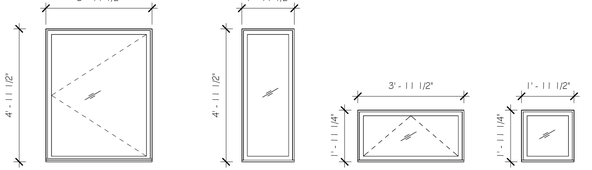
EXTERIOR DOOR LEGEND
3/8" = 1'-0"

Window Schedule Assembly

Type Mark	Manufacturer	Model	Description	Width	Height	Head Height	Comments
A	MATHEWS BROTHERS	WALCOTT	GLAZE TRANSOM	5' - 11 3/4"	1' - 11 3/4"	<varies>	
B	MATHEWS BROTHERS	WALCOTT	HOR. SINGLE SLIDER	3' - 6 1/4"	3' - 6 1/4"	7' - 1"	
C	MATHEWS BROTHERS	WALCOTT	HOR. SINGLE SLIDER	4' - 11 3/4"	3' - 11 3/4"	7' - 1"	
D	MATHEWS BROTHERS	WALCOTT	ON SITE MULL	5' - 11 5/16"	6' - 11 5/16"	<varies>	
E	MATHEWS BROTHERS	WALCOTT	ON SITE MULL	5' - 11 5/16"	6' - 11 5/16"	<varies>	
F	MATHEWS BROTHERS	WALCOTT	ON SITE MULL	5' - 11 5/16"	6' - 11 5/16"	7' - 11 5/16"	
G	MATHEWS BROTHERS	WALCOTT	ON SITE MULL	5' - 11 5/16"	6' - 11 5/16"	7' - 11 5/16"	

Mulled Schedule

Type Mark	Manufacturer	Model	Description	Width	Height	Comments
1	MATHEWS BROTHERS	CP4860	CASEMENT WINDOW	3' - 11 1/2"	4' - 11 1/2"	
2	MATHEWS BROTHERS	CP2460	PICTURE WINDOW	1' - 11 1/2"	4' - 11 1/2"	
3	MATHEWS BROTHERS	CP4824	AWNING WINDOW	3' - 11 1/2"	1' - 11 1/8"	
4	MATHEWS BROTHERS	CP2424	PICTURE WINDOW	1' - 11 1/2"	1' - 11 1/8"	



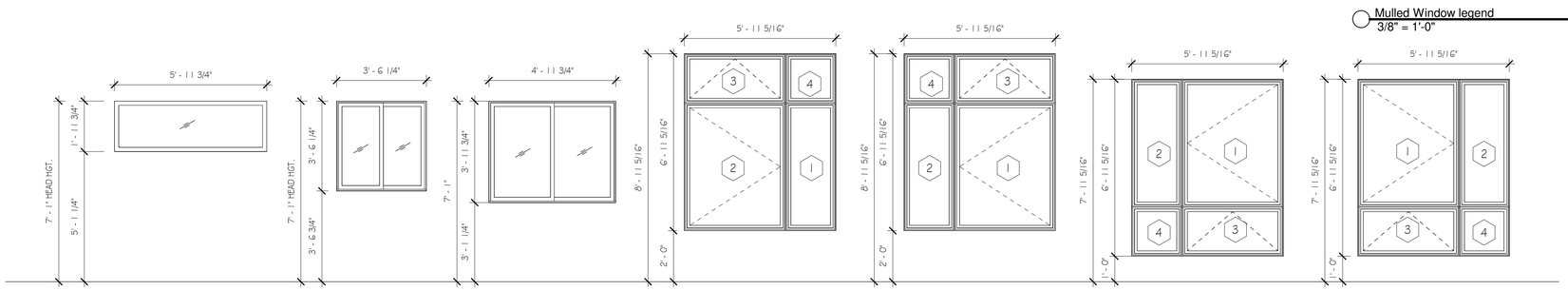
1 — MATHEWS BROTHERS, CASEMENT WINDOW, BLACK EXTERIOR, INSULATED LOW E 4 ARGON

2 — MATHEWS BROTHERS, PICTURE WINDOW, BLACK EXTERIOR, INSULATED LOW E 4 ARGON

3 — MATHEWS BROTHERS, AWNING WINDOW, BLACK EXTERIOR, INSULATED LOW E 4 ARGON

4 — MATHEWS BROTHERS, PICTURE WINDOW, BLACK EXTERIOR, INSULATED LOW E 4 ARGON

Mulled Window legend
3/8" = 1'-0"



A — MATHEWS BROTHERS, TRANSOM WINDOW, BLACK EXTERIOR, INSULATED LOW E 4 ARGON

B — MATHEWS BROTHERS, SINGLE SLIDER WINDOW, BLACK EXTERIOR, INSULATED LOW E 4 ARGON

C — MATHEWS BROTHERS, SINGLE SLIDER WINDOW, BLACK EXTERIOR, INSULATED LOW E 4 ARGON

D — MATHEWS BROTHERS, WALCOTT CONSTRUCTION MULL, BLACK EXTERIOR, INSULATED LOW E 4 ARGON

E — MATHEWS BROTHERS, WALCOTT CONSTRUCTION MULL, BLACK EXTERIOR, INSULATED LOW E 4 ARGON

F — MATHEWS BROTHERS, WALCOTT CONSTRUCTION MULL, BLACK EXTERIOR, INSULATED LOW E 4 ARGON

G — MATHEWS BROTHERS, WALCOTT CONSTRUCTION MULL, BLACK EXTERIOR, INSULATED LOW E 4 ARGON

WINDOW LEGEND
3/8" = 1'-0"

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DOOR, WINDOW & ROOM FINISH SCHEDULES

Sheet Number:

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TW DESIGNS

Front Rendering
POINT NORTHWEST 8

SUMMIT
Land Development · Property Investment

R1

03/06/24