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, March 28, 2024**
Meeting Time: **10:30 AM**

1. 10:30 AM – 11:00 AM: Site Review for 17-19 Summer Street Properties, LLC, Assessor's Map 12, Lot 35-1, zoned HR, located at Locust Street. (Proposal is to build a 2,400 s.f. residential building consisting of (4) four, (2) two bedroom units, improved driveway access, parking, utilities and drainage improvements.) (SITE-2024-0003)

2. 11:00 AM – 11:30 AM: Amendment for Downtown Dover Storage, LLC, Assessor's Map 4, Lot 5, zoned CBD-G, located at 14 Broadway. (Proposal is to construct a 14,770 s.f. 4-story residential building with 38 units with revised covered parking and relocating internal staircase.) (WAIV-2024-0004)

3. 11:30 AM – 12:00 PM: Site Review for Stonefield Engineering & Design (Owners: Dover Retail Management, LLC & R W Realty Inc.), Assessor's Map 38, Lots 15-A and 15-B zoned Commercial, located at 1-3 Webb Place and Webb Place. (Proposal is for demolition of current building and constructing a 3,300-sf bank with a drive through ATM, (20) twenty parking spaces. One (1) related Conditional Use Permit application would also appear before the Planning Board. (SITE-2023-0011 & COND-2023-0054) *[This item was previously heard by the Planning Technical Review Committee on March 7, 2024]*

PLAN SNAPSHOT REPORT SITE-2024-0003
FOR CITY OF DOVER, N.H.

Plan Type:	Site Plan - Major	**Project:**		**App Date:**	03/07/2024
Work Class:	New Construction	**District:**	None	**Exp Date:**	05/11/2024
Status:	In Review	**Square Feet:**	0.00	**Completed:**	NOT COMPLETED
Valuation:	$0.00	**Assigned To:**	Blonigen, Rachel	**Approval Expire Date:**	

Description: Multi-Unit Building with 4 two bedroom units, improved driveway access, parking, utilities and drainage improvements.

Parcel: 12035-001000 Main	**Address:** Locust St Main Dover, NH	**Zone:** HR(Residential - Heritage)

Plan Preparer
Civilworks New England
Steve Haight
181 Watson Road PO Box 1166
Dover, NH 03820
Business: (603) 749-0443
Mobile: (603) 817-6651

Applicant
Ben Perez
Mobile: (603) 944-0516

Plan Custom Fields

Total	0	Total2	0	Total3	1060
Total4	0	Total5	0	Total6	4
Total7	0	Total8	0	Total9	2395
Street Classification Type	Municipal	Net Change in # Parking Spaces (+/-)	9	Water Service	Municipal
Recording Number		Sewer Service	Municipal	Deed Book	
Total SQFT	0	Deed Page		Deed Date	
Proposed Property Use	Multi-Unit Residential	Area of Parcel to be Developed (SQFT)	14500	Number of Parking Spaces Existing	0
Number of Parking Spaces Proposed	9	Type of Building to be Built	Wood Frame, Clapboard Siding, Asphalt Shingle Roof	Estimated Construction Value	950000.00
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

Attachment File Name	Added On	Added By	Attachment Group	Notes
Signature_Steve_Haight_3/7/2024.jpg	03/07/2024 10:08	Haight, Steve		Uploaded via CSS

Invoice No.	Fee	Fee Amount	Amount Paid
INV-00007010	Planning General Application Fee	$200.00	$0.00
	Total for Invoice INV-00007010	**$200.00**	**$0.00**
INV-00007018	Planning Impervious Paved Area Fee	$74.20	$74.20
	Planning Residential Fee	$400.00	$400.00
	Total for Invoice INV-00007018	**$474.20**	**$474.20**

PLAN SNAPSHOT REPORT (SITE-2024-0003)

Grand Total for Plan	**$674.20**	**$474.20**

Submittal Name	Status	Received Date	Due Date	Complete Date	Resubmit	Completed
Land Use Plan Technical Review v.1	In Review	03/13/2024	04/10/2024		No	No

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Business Development	Business Development	Burdin, James	In Review	03/13/2024	04/10/2024	
City Engineer	Community Services - Engineering	Mavrogeorge, Kenneth	In Review	03/13/2024	04/10/2024	
IS Building Official	Fire / Inspection Services	Maxfield, Jim	In Review	03/13/2024	04/10/2024	
Planning	Planning	Benton, Donna	In Review	03/13/2024	04/10/2024	
Zoning Administrator	Planning	Crouser, Paul	In Review	03/13/2024	04/10/2024	
Traffic Bureau	Police	Speidel, Marn	In Review	03/13/2024	04/10/2024	

Workflow Step / Action Name	Action Type	Start Date	End Date
Review v.1		03/13/2024 12:38	
Confirm application complete v.1	Generic Action		03/13/2024 12:39
Technical Review Committee Meeting Agenda v.1	Task	03/13/2024 12:39	03/13/2024 12:39
Land Use Plan Technical Review v.1	Receive Submittal	03/13/2024 0:00	
Technical Review Committee Meeting v.1	Hold Meeting		
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		

CIVILWORKS NEW ENGLAND

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

March 7, 2024

City of Dover
288 Central Ave
Dover, NH 03820

Attn: Donna Benton, Director of Planning & Community Development

Subject: Site Review & Conditional Use Permit Applications
Locust Street Residential Development - Tax Map 12, Lot 35-1
Civilworks New England Reference No. 23029

Dear Ms. Benton:

On behalf of our client, 17-19 Summer Street Properties, LLC, we are pleased to submit the following application(s) and associated materials for review by the Technical Review Committee (TRC). Attached are four (4) copies of associated material items 1-13 listed below, and two (2) copies of the Drainage Report. All materials will be provided electronically (PDF) to the Planning Department:

0) Cover Letter
1) Site Plan Review Application
2) Site Plan Review Checklist
3) Application Fee Schedule
4) Conditional Use Permit Application
5) Owner /Applicant Letter of Authorization
6) Project Narrative
7) Conditional Use Permit Narrative
8) Stormwater Management Narrative
9) Letters to Serve (emails from City, Eversource, Until)
10) Traffic Assessment Memorandum
11) Landscape Operation & Maintenance Plan
12) Stormwater Inspection and Maintenance Plan
13) Site Plan Set, including Landscape Plan, Architect Plans, & Elevations
14) Drainage Report w/Supporting Documents & Plans

We look forward to representing these applications at the TRC meeting on March 28, 2024. Please do not hesitate to contact our office should you have any questions.

Sincerely,

Stephen J Haight, PE
CIVILWORKS NEW ENGLAND

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: 17-19 Summer Street Properties, LLC Telephone # 603-944-0516

Address of Applicant: 71 Lafayette Road Hampton Falls, NH 03844

E-Mail Address: ben@bostonnorthdevelopment.com

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

Address of Property Owner: same

PROPERTY INFORMATION

Address of Property: Locust Street

Assessor's Map # 12 Lot(s) # 35-1

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

Size of Parcel: 10,000 sq. ft. .22 ac. Property Deed: Book 4925 Page: 399

Existing Use of Property: vacant

SITE PLAN INFORMATION

Describe Proposed Use: 4 (two bedroom) Unit Building w/Parking & Driveway Easement

Area of Parcel to be Developed: 9,175± sq. ft.

If Multi-family Residential: Number of Units 4 & Buildings Proposed 1

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

Number of Parking Spaces: Existing 0 Proposed 7 on site, 2 off site

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

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

Disposition of Parcel:

Building Footprint 2,395± sq. ft.

Total Building Area 4,766± sq. ft.

Paved Area 1,060± sq. ft.

Building Setbacks:

Front Yard 8.7' - 5'± ft.

Rear Yard 30 ft.

Side Yard: Right 15 ft. Left 15 ft.

City Water? ✓Yes ___ No How far is city water from the property? stubbed on site

City Sewer? ✓Yes ___ No How far is city sewer from the property? stubbed on site

TRANSFER OF DEVELOPMENT RIGHTS INFORMATION N/A

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

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

Relief sought (Check All That Apply):

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

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

_____

_____

_____

BUILDING INFORMATION

Type of Building to be Built: Wood frame, clapboard siding, asphalt shingle roof

Height of Building: 34±' Finished Floor Elevation: 102.2'

Number of Seats (where applicable) N/A

Estimated value of construction: $950,000 Refuse removal: Public/Private (circle one)

WAIVER REQUESTS

Site Review Regulations section(s) to be waived: None Requested

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

_____

_____

_____

_____

_____

_____

_____

SURVEYOR INFORMATION

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

Address P.O. Box 1166 Dover, NH 03821 Telephone #: 603-742-0911

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

ENGINEER INFORMATION

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

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

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

ARCHITECT INFORMATION

Name of Architect and Company (Licensed in N.H.) Samia Touma - Distinction by Design

Address 49 Oak Street Dover, NH 03820 Telephone #: 603-401-7294

Professional License #: _____ E-mail address: samia.distinction@gmail.com

LANDSCAPE ARCHITECT INFORMATION

Name of Landscape Architect and Company (Licensed in N.H.) Jeffrey R. Hyland Ironwood Design Group, LLC

Address P.O. Box 873 Exeter, NH 03833 Telephone #: 603-772-0590

Professional License #: NH #0026 E-mail address: jhyland@fewood.com

SOIL SCIENTIST INFORMATION

Name of Soil Scientist and Company (Licensed in N.H.) Strafford County NH Web Soil Survey Data

Address N/A Telephone #: N/A

Professional License #: N/A E-mail address: N/A

CONSERVATION EASEMENT HOLDER N/A

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: 3/5/2024

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

Signature of Agent: _____ Date: 3/5/24

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: 3/5/2024

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: 3/5/2024

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: 3/5/2024

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	35-1	17-19 Summer Street Properties, LLC	71 Lafayette Road Hampton Falls, NH 03844

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS
Same		

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS
Stephen J. Haight, PE	Civilworks New England	P.O. Box 1166 Dover, NH 03821
Kevin McEneaney, LLS	McEneaney Survey Associates	P.O. Box 1166 Dover, NH 03821

Conservation Easement Holder: N/A

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

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: 17-19 Summer Street Properties, LLC Telephone # 603-944-0516

Address of Applicant: 71 Lafayette Road Hampton Falls, NH 03844

E-Mail Address: ben@bostonnorthdevelopment.com

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

Address of Property Owner: Same

PROPERTY INFORMATION

Assessor's Map # 12 Lot(s) # 35-1

Address of Property: Locust Street

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

Existing Use of Property: Vacant

CONDITIONAL USE PERMIT INFORMATION

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

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

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

To allow a 4-unit building in the Heritage Residential District as permitted by Conditional Use Permit per Dover Zoning Regulations.

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: Stephen Haight - Civilworks New England

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

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

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: 3/5/2024

Signature of Applicant (if different from owner): _____ Date: 3/5/2024

Signature of Agent: _____ Date: 3/5/2024

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: 3/5/2024

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
12	35-1	17-19 Summer Street Properties, LLC	71 Lafayette Road Hampton Falls, NH 03844

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS
Stephen J. Haight, PE	Civilworks New England	P.O. Box 1166 Dover, NH 03821
Kevin McEneaney, LLS	McEneaney Survey Associates	P.O. Box 1166 Dover, NH 03821

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

PLANNING BOARD FEE SCHEDULE/INVOICE

See Site Review Application

(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.

17-19 Summer Street Properties, LLC
71 Lafayette Road
Hampton, NH 03844

March 6, 2024

City of Dover
Planning Board
288 Central Avenue
Dover, NH 03820

Re: 17-19 Summer Street Properties, LLC
Tax Map 12, Lot 35-1
Locust Street - Dover, NH

LETTER OF AUTHORIZATION

As the Owner of the above referenced parcel, I, Ben Perez, Member of 17-19 Summer Street Properties, LLC, hereby authorize Civilworks New England to represent all applications before the City of Dover Planning Board and any other Dover Boards or Committees, and the State of NH, if necessary, to obtain the required permits and/or approvals relative to this development project.

Respectfully,

Ben Perez, Member
17-19 Summer Street Properties, LLC

PROJECT NARRATIVE

for

17-19 Summer Street Properties, LLC

Site Plan Review & Conditional Use Permit

Locust Street Residential Development

Tax Map 12, Lot 35-1

PROJECT OVERVIEW & SITE CHARACTERISTICS

The proposed project is for a multi-unit residential development on a 0.22-acre undeveloped parcel of land located on the easterly side of Locust Street located in the Heritage Residential (HR) District. The proposed site design includes the construction of a four-unit building, each unit consisting of 2 bedrooms, a shared driveway and parking area and the associated utility and drainage improvements in support of the project. Four-unit dwellings are permitted in the HR District with an approved Condition Use Permit. A Conditional Use Permit application has been submitted with the application materials. The project also proposes shared access and parking with the abutting parcel, Tax Map 12, Lot 35, which includes an existing three-unit dwelling.

The architectural design of the proposed building, the replacement of concrete sidewalk with a brick sidewalk, and improved landscaping ensure the development fits the character of the existing neighborhood.

The proposed site will include public water and sewer connections, electric and communication service, natural gas service (is accessible), and associated drainage improvements.

The project site consists of the following general improvements:

- Clear the site, as necessary, for construction.
- Construction of 1 building containing 4 units, associated parking, and landscaping.
- Construction of on-site stormwater detention and treatment system, grading, and other drainage requirements.
- Site utility construction & installation.
- Stabilize remaining areas with loam and seed.

DRIVEWAY AND PARKING LOT

The project proposes access to the site through a shared 24’ wide driveway located on Locust Street. The driveway location is on the abutting parcel, Tax Map 12, Lot 35, and will utilize the existing driveway cut for the abutting property. The shared access drive will provide the necessary parking for both multi-family dwellings and will prevent vehicles from having to back out into Locust Street. The project provides 16 combined parking spaces for the proposed 4-unit and existing 3-unit multi-family dwellings. The project will be granted easements to allow for access and parking on the abutting parcel. The parking area lighting will consist of a pole mounted LED fixture that is dark sky compliant.

WETLAND SETBACK IMPACT TYPE

There are no wetlands present on this site.

DRAINAGE

The parcel is located on the east side of Locust Street, approximately mid-way between the intersections of Locust Street with Silver Street and with Summer Street. The parcel is bound by a residential property to the north, a multi-family dwelling to the south, the Woodman Institute to the east and Locust Street to the west. The parcel has an existing 12" HDPE drain line stubbed to the property; it is connected to the City's existing closed drainage system located in Locust Street. The site is undeveloped and primarily consists of lawn, landscaped areas, and a few mature trees. The parcel is fairly level and slightly slopes away from Locust St. towards the abutting parcel. There are no wetlands onsite and soils are identified as Windsor loamy fine sand, clay subvariant. Field data from the site includes 3 test pits and 3 borehole infiltration tests. Review of this data concluded that the onsite soil is not conducive to infiltration based best management practices nor is it capable of meeting the groundwater recharge requirements of the City of Dover.

The 0.45± acre hydrologic analysis includes the subject parcel as well as 0.23± acres from the abutting property to the south. The analysis of the existing conditions incorporated the onsite grassed areas as well as offsite areas of grass, gravel, and roof. In the existing condition, stormwater from the site, from the edge of Locust Street, and a portion of the abutting parcel, drain easterly to an abutting parcel. Once exiting the site, the discharge continues through the property of the Woodman Institute and then discharges into the City's closed drainage system located in Central Avenue.

The project proposes the construction of a four-unit multi family dwelling, an improved entrance and parking area (that will be shared with the abutting three-family multi family dwelling), and the associated utility and drainage improvements. The project does not meet the requirements associated with a re-development project and as such, the City's new development standards apply. The stormwater design captures 100% of the proposed onsite and 100% of the offsite impervious area (that flows onto the site) and directs it to best management practices that provide pollutant removal that exceeds the City's requirements. This project effectively treats 3,500± SF of previously untreated predevelopment impervious area. The site's poor soil characteristics are not conducive to infiltration and as such the project proposes increase to volume and flow of stormwater from the proposed site. The stormwater design maximizes the amount of onsite storage to minimize the increase in flow and captures the stormwater so as to redirect it into the City's closed drainage system as opposed to overland to the abutter. The proposed development of the site will have minimal impact on the watershed.

TRAFFIC

A traffic assessment was completed for the project and is attached as a report to this submittal. Overall, and as expected, there is a minimal increase in traffic as a result of the proposed development.

UTILITIES

The proposed project will connect to existing City of Dover water and sewer lines that have been stubbed to the property line. The property also has an existing 12" HDPE drainage pipe stubbed to the site that connects to the existing closed drainage system located in Locust Street. Existing electric and communication services as well as a natural gas line are currently located on Locust Street. Building and utility connections will be made per the City's Community Services Utility Division and Fire Department requirements and standards.

CONDITIONAL USE NARRATIVE
§170-20.B(2) & B(3)
HERITAGE RESIDENTIAL DISTRICT
for
LOCUST STREET RESIDENTIAL DEVELOPMENT
LOCUST STREET
Tax Map 12, Lot 35-1

Per the Heritage Residential (HR) District Regulations creation of a 4-family dwelling in the HR District is allowed with a Conditional Use Permit that meets the requirements of §170-20.B(2) and B(3).

(2) Conditional use approval for relief from the use standards herein may be granted by the PLANNING BOARD (RSA 674:21 II) after proper public notice and public hearing provided that the proposed project complies with the following standards:

(a) The requested use shall be compatible with abutting uses and the surrounding NEIGHBORHOOD.

The surrounding neighborhood has several multi-family dwellings. The buildings architecture is designed to maintain the traditional look of the neighborhood. The project also proposes the replacement of the existing concrete sidewalk with a traditional brick sidewalk in front of the lot to better fit the character of the neighborhood.

(b) The requested use will not create undue traffic congestion, or unduly impair pedestrian safety.

The proposed project will not create undue traffic congestion or impair pedestrian safety in the vicinity. The project proposes improvements to the area by providing off-street parking for the proposed 4 – unit building and will also include improved off-street parking for the existing 3 – unit building located on the abutting parcel. The two parcels will share the combined off-street parking which will prevent vehicles from having to back out onto Locust Street.

(c) The requested use will not result in objectionable noise or odor which would constitute a NUISANCE.

The proposed project is residential, is consistent with the uses of surrounding properties, and will not result in objectional noises or odors.

(3) Conditional use approval shall be subject to a formal agreement between the PLANNING BOARD and the APPLICANT. Said agreement shall be recorded at the Strafford County Registry of Deeds.

A development agreement between the City and the Owner shall be recorded with the SCRD.

SITE DEVELOPMENT DESIGN CRITERIA NARRATIVE
§153-14
STORMWATER MANAGEMENT
for
Locust Street Residential Development
Locust Street
Tax Map 12, Lot 35-1

A. Stormwater management, erosion control and flood hazards.

(1) Purpose and objective. These regulations establish standards to manage the discharge of runoff to the City of Dover's municipal storm sewer system and water bodies, in a manner compliant with the requirements of state and federal law, including provisions of the federal stormwater management legislation for municipal separate storm sewer systems (MS4), as amended. These provisions and standards are implemented for the purpose of:

(a) Managing stormwater runoff to protect water quality and quantity. **The proposed development has been designed in accordance with NH DES AoT permitting requirements to include the treatment and mitigation of stormwater runoff from the site. Site limitations prevent the infiltration of stormwater and as such the project proposes minimal increases in volume and flow.**

(b) Minimizing the contribution of a pollutant for which a water body is impaired to the maximum extent practicable (MEP). **The proposed development has been designed in accordance with NH DES AoT permitting requirements to include the treatment of stormwater runoff from all impervious areas of the site as well as the effective treatment of 3,500+/- sf of offsite predevelopment area to minimize pollutant runoff.**

(c) Causing no discharge of runoff to an adjacent property in excess of runoff discharge in the existing developed or undeveloped condition. **The proposed development proposes a minimal increase in volume and the 2- and 10-year flow. The proposed development redirects all stormwater runoff from an abutting parcel to the City's closed stormwater system.**

(d) Encouraging the use of low-impact development (LID) strategies. **The project proposes the use of bioretention practices for stormwater treatment.**

(2) Applicability of the stormwater standards.

(a) All projects requiring site plan or major subdivision approval shall be subject to the following set of stormwater standards according to the amount and type of disturbance. Applicability is as follows: **The project does not qualify for the redevelopment standards and will create greater than 4,000 square feet of impervious, as such, the stormwater standards apply.**

[1] The minimum protections and management standards shall apply to all projects. **The design incorporates these standards.**

[2] The stormwater management for new development standards shall apply to any project that results in a contiguous land disturbance of more than 20,000 square feet or creates more than 4,000 square feet of new impervious area. **The design incorporates these standards.**

[3] The stormwater management for redevelopment standards shall apply to any project that results in a contiguous land disturbance of more than 20,000 square feet or creates more than 4,000 square feet of new impervious area where the existing land use has been previously developed as commercial, industrial, institutional, governmental, recreational, or multifamily. **The redevelopment standards are not applicable to this project.**

(b) All projects of such magnitude as to require a permit from the National Pollutant Discharge Elimination System (NPDES) Program or the New Hampshire Department of Environmental Services (NHDES) Alteration of Terrain (AoT) Program shall also comply with the standards of the Environmental Protection Agency (EPA) and/or NHDES permits and this section, whereas the stricter standards shall apply. **The project does not require NH DES AoT permitting or a NPDES CGP through the EPA. Although the permits are not required, the design of the project has incorporated the associated standards of these agencies.**

(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. **The project complies with the City's design and stormwater requirements.**

[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. **The project does not propose any work in a wetland or wetland buffer zone.**

[3] Low-impact development (LID) site planning and design strategies shall be used to the 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. **LID strategies were implemented to the maximum extent practicable. The site was evaluated for infiltration practices but the site characteristics and depth to the SHWT prevent the use of infiltration practices.**

[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. **The project incorporates stormwater BMPs designed in accordance with NH DES requirements. A stormwater I&M is also provided.**

[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). **The project is residential and does not propose the storage of the referenced materials onsite.**

[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. **The project does not propose the storage of deicing materials onsite.**

[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. **The project I&M manual directs the owner/operator to produce a salt minimization plan as part of the winter maintenance of the site.**

[8] Impervious surfaces for parking areas and roads shall be minimized to the extent possible. **The project design incorporated the minimization of impervious areas to the maximum extent possible. All aspects of the design including the required number of parking spaces, drive aisle width, and turning areas were evaluated.**

[9] Stormwater runoff from new impervious surfaces shall be directed to a best management practice for flow mitigation, treatment and/or infiltration. **The proposed development has been designed in accordance with NH DES AoT permitting requirements to include the treatment of stormwater runoff from all impervious areas of the site as well as the effective treatment of 3,500+/- sf of offsite predevelopment area to minimize pollutant runoff.**

(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. **The project utilizes bioretention basins for treatment of all impervious areas on site and the areas of offsite impervious that flow through the watershed. This system provides 90% removal of TSS and 65% removal of both total nitrogen and phosphorous per the NH Stormwater Manual.**

[2] Rainfall amount shall be based on current extreme precipitation estimates obtained from the Northeast Regional Climate Center. **The design incorporates NRCC precipitation amounts and the associated storm distribution data.**

[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. **The proposed design mitigates post-development peak rate runoff of the 25- and 50-year storm events. The site limitations, including poor soil characteristics and inadequate space for stormwater retention, prevent the project from being able to mitigate an increase in flow for the 2- and 10-year storm events. The project proposes minimal increases of 0.2 and 0.1 cfs during the 2- and 10-year storm events respectively. The proposed increases will not negatively affect the system.**

[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. **The site was evaluated for the inclusion of infiltration practices but the poor soil characteristics and depth to seasonal high water tables, prevent incorporating infiltration practices. The project proposes an increase in the volume of runoff from the site of less than 0.03 acre-feet. The small increase in volume of runoff will be discharged directly to the closed drainage system to prevent additional volume being discharged to the abutting lot. The increase in volume will not cause flooding to adjacent or downstream properties and will not cause functional impairments to the closed drainage system in Locust Street.**

[5] Infiltration rates for designing groundwater recharge practices shall be determined in accordance with Section Env-Wq 1504.14. **The site was not feasible for infiltration practices and as such infiltration rates were not calculated.**

[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. **Stormwater conveyance practices are designed to ensure they pass the 50-yr, 24-hour storm events without overtopping.**

[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. **The project is located outside of the 0.2 percent annual chance floodplain. The project does not propose permanent or temporary disturbance or alteration of terrain within the flood plain.**

[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. **The project has incorporated offsite and upgradient stormwater runoff in support of the design for the bioretention pond and closed drainage system.**

[9] Seasonal high-water table elevations must be accounted for in all BMP design criteria. **Test pit information and design intent (underdrained system) were utilized in determining the SHWT associated with the bioretention basin design.**

[10] Access for maintenance of stormwater facilities must be included as part of the design, where necessary. Access easements may be required. **Stormwater facilities are included on site and the site will be solely owned by the applicant. Stormwater access easements are not required for this project.**

[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. **A licensed Landscape Architect has produced a site-specific planting plan and O&M document in support of site revegetation including the stormwater BMP(s).**

(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. **The project does not meet redevelopment requirements and this section is Not Applicable (N/A).**

[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. **N/A**

[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: **N/A**

[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. **N/A**

[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 pervious 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: **The plan set includes temporary and permanent sediment and erosion control practice notes and details in support of meeting the erosion control standards.**

[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. **The sediment and erosion control details provided in the plan set are all designed in accordance with the NH Stormwater Manual.**

[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. **A SWPPP will not be required as the project will not meet the area of disturbance criteria.**

[3] Stripping of vegetation shall be done in a manner that minimizes soil erosion. Whenever practical, natural vegetation shall be retained, protected, or supplemented. **The Erosion Control Notes in the provided plan set indicate that the smallest practical area shall be disturbed during construction.**

[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 Erosion Control Notes in the provided plan set indicate that the smallest practical area shall be disturbed during construction.**

[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. The integrity of downstream drainage systems shall be maintained. **Direction to ensure that stormwater conveyance practices shall be stabilized prior to receiving stormwater runoff is included on the Erosion Control Notes sheet provided as part of this submittal.**

[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. **Construction scheduling and inspections will be discussed with Community Services at the required pre-construction meeting.**

[7] Perimeter site controls shall not be placed within wetland areas, stream channels or wetland buffers. **This project does not propose any work in a wetland or a wetland buffer.**

[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. **The definitions of, and direction for, stabilization of the site is provided on the Erosion Control Notes sheet provided as part of this submittal.**

[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. **The erosion control inspection scheduling requirements are identified on the Erosion Control Notes sheet provided as part of this submittal.**

[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. **The NH DES AoT winter construction notes are identified on the Erosion Control Notes sheet provided as part of this submittal.**

[11] Special stabilization details shall be provided with the submission for any land disturbance on slopes equal to or steeper than 3:1. **Slopes greater than 3:1 require erosion control matting and/or armoring and those details are provided in the plan set.**

[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. **Temporary practice details identify the need to remove sediment and/or stabilize the area once the practices have been removed.**

[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 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. **The project does not propose the disturbance of greater than 10 acres of area. A temporary sediment trap detail, designed with a maximum contributing area of 5 acres, has been provided in accordance with NH DES AoT design requirements.**

[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. **Temporary sediment basin locations, if constructed, will be discussed with Community Services prior to the construction of the practices.**

(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. **Community Services access and inspection requirements will be discussed at the pre-construction meeting.**

[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 project notes provide direction for the contractor to notify the design engineer and the Community Services Department as required.**

[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. **A letter can be provided if requested. This letter, if required, will be discussed at the pre-construction meeting.**

[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 project notes provide direction for the inspector to be qualified and for all reports to be submitted to the Community Services Department.**

[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 project notes identify the owner as having the responsibility for ensuring the stormwater management and erosion control measures are installed as approved.**

(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 SWMP is a comprehensive set of documents that include, at a minimum, a drainage report, plan set, and Stormwater I&M Manual. These documents each serve a role in presenting the necessary information to the appropriate audience. The information required in this section is provided within the SWMP documents.**

[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. **This information is provided within the Erosion Control Notes within the plan set.**

[b] Proposed changes in impervious cover areas and any changes in pre- and post-development drainage patterns. **This information is provided within the drainage report and the Pre/Post Development Watershed Plans.**

[c] Description of LID proposed measures. **This information is provided in the drainage report and throughout the plan set and details.**

[2] For projects requiring new development or redevelopment standards, a drainage report that contains the following items shall be submitted: **The SWMP documents include the proposed information when applicable.**

[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. **The SWMP documents include the proposed information when applicable.**

[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. **The SWMP documents include the proposed information when applicable.**

[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. **The SWMP documents include the proposed information when applicable.**

[d] Description of existing drainage patterns, receiving water bodies or drainage infrastructure and soil types for recharge potential. **The SWMP documents include the proposed information when applicable.**

[e] Watershed area limits, including any off-site and upstream areas contributing flow to shared drainage channels and/or infrastructure. **The SWMP documents include the proposed information when applicable.**

[f] Description of proposed changes in impervious cover areas and any changes in pre- and post-development drainage patterns. **The SWMP documents include the proposed information when applicable.**

[g] Methods and assumptions used to calculate pre- and post-development runoff volume, peak discharge, and discharge velocity for the specified design storm events. **The SWMP documents include the proposed information when applicable.**

[h] Methods and assumptions used to calculate the pollutant load removal. **The SWMP documents include the proposed information when applicable.**

[i] Description of LID measures that are proposed to limit the development footprint, preserve existing vegetation and mimic existing hydrology to the extent feasible. **The SWMP documents include the proposed information when applicable.**

[j] If not used, provide rationale why LID measures are not practical for the site. **The SWMP documents include the proposed information when applicable.**

[k] Describe measures and calculations for proposed practices used to achieve no net increase in runoff volumes leaving the site. **The SWMP documents include the proposed information when applicable.**

[l] Provide calculations for the infiltration or exfiltration system. **The SWMP documents include the proposed information when applicable.**

[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. **The SWMP documents include the proposed information when applicable.**

[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. **The SWMP documents include the proposed information when applicable.**

[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. **The SWMP documents include the proposed information when applicable.**

[p] Proposed schedule for the inspection and maintenance of all erosion control measures on site prior to achieving final site stabilization. **The SWMP documents include the proposed information when applicable.**

[q] Describe procedures for removing temporary erosion control measures and removal of accumulated sediment captured by such measures. **The SWMP documents include the proposed information when applicable.**

[r] Any other specific study, calculation, or investigation as requested by the City. **Additional information is provided as requested and may include traffic studies, structural designs, septic/sewer designs, geotechnical reports, etc. These documents are provided on a case-by-case basis and as requested by the City.**

[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. **The Stormwater I&M Manual includes the implementation of a salt minimization plan.**

[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. **A Stormwater I&M Manual is provided as part of the submission.**

[u] Provide copies of pertinent state and federal permits. **Copies of permits will be provided to the City, as applicable.**

(g) Long-term operation and maintenance. The owner shall be responsible for continued inspection and maintenance requirements. **An I&M Manual that identifies the owner's responsibilities has been provided as a part of the submission.**

[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. **The Owner, Responsible Party, and the Management Company are identified in the I&M 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. **Inspection requirements and maintenance thresholds are identified in the I&M 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. **The I&M Manual requires the use of a Green SnowPro contractor.**

[d] Deicing log to track amount and type of deicing material applied. **The I&M Manual requires the implementation of a salt minimization plan that also requires the owner or operator to track salt usage onsite through a quantity usage log.**

[e] A site plan clearly identifying the locations of all stormwater practices to be inspected and maintained. **The approved Grading and Drainage Plan accompanies the I&M Manual.**

[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. **The I&M Manual identifies this requirement.**

[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. **Not Applicable.**

From: Mark Beaudry
Sent: February 29, 2024
To: Mavrogeorge, Kenneth <K.Mavrogeorge@dover.nh.gov>
Cc: Steve Haight <shaight@civilworksne.com>; Joseph Griffin <jgriffin@civilworksne.com>
Subject: CNE 23029 – 135 Locust Street, Dover, NH 03820
Attachments: 23029 – 135 Locust St, Dover – Locus and Utility Plans Draft (2-23-24).pdf

Hello Ken: The developer for 135 Locust Street is proposing to build four two-bedroom residential apartments in a single building. Attached is a 2-sheet PDF containing our locus and utility plans that depicts the location, site layout of the buildings and anticipated utility services.

The project total design flow is estimated to be as follows:

- 4 Apartment Units x 2 Bedrooms/ unit = 8 bedrooms total
- 8 Bedrooms x 150 GPD/bedroom = 1,200 GPD Total

This design flow rate is based on NHDES Env-Wq 1008.03 Table 1008-1 *Unit Design Flow Figures*.

Please provide us with correspondence that states as required, that the City can provide water and wastewater service to this building.

If you have any questions or require more information, please do not hesitate to get back to us.

Thank you for your assistance on these projects.

Mark

_____

Mark Beaudry, PE
Senior Associate/Sr. Project Manager
Civilworks New England
C: (413) 325-3384
O: (603) 749-0443 x113

From: Mark Beaudry
Sent: February 29, 2024
To: michael.busby@eversource.com**;** trevor.emmons@eversource.com
Cc: Joseph Griffin
Subject: CNE 23029 – 135 Locust Street, Dover, NH 03820
Attachments: 23029 – 135 Locust St, Dover – Locus and Utility Plans Draft (2-23-24).pdf

Hello Michael and Trevor:

Per the City of Dover, as part of the site review permit process we are required to provide a "will serve" letter stating that electric utilities are available for our proposed project. The project is located at 135 Locust Street in Dover NH is proposed to contain four two-bedroom residential apartments in a single building.

Attached is a 2-sheet PDF containing our locus and utility plans that depicts the location, site layout of the buildings and anticipated utility services.

The electrical power needed for the project should be consistent with typical apartment uses.

The project proponent will be in contact with you at a later date to set up a work order and provide any additional information.

If you have any questions or require more information do not hesitate to get back to us.

Thank you again for your assistance on these projects.

Mark Beaudry

Unitil
Northern Utilities, Inc.

March, 4th, 2024

Mark Beaudry, PE
Senior Associate/Sr. Project Manager
Civilworks New England

Natural Gas to 135 Locust Street in Dover NH

Hi Mark,

Unitil/Northern Utilities Natural Gas Division has reviewed the requested site for natural gas Service:

Unitil hereby confirms that natural gas is available for the proposed building at 135 Locust Street in Dover NH

If you have any questions, please contact me at 603-534-2379.

Sincerely,

Dave MacLean
Senior Business Development Rep
Unitil

T 603.294.5261
M 603.534.2379
F 603.294.5264
Email macleand@unitil.com

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DOVER, NH 03821-1166
PHONE: 603.749.0443

TRAFFIC ASSESSMENT MEMORANDUM

March 4, 2024

INTRODUCTION

Civilworks New England has prepared this traffic-assessment memorandum (TAM) in regard to the residential development project proposed at 135 Locust Street, on Map 12, Lot 35-1, in Dover.

This TAM includes:

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

This TAM concludes that:

- relevant sight distances at the Locust Street/proposed driveway intersection will be adequate.
- The proposed project is not anticipated to add significant new traffic to the area.

EXISTING SITE DESCRIPTION

The project site:

- is along the easterly side of Locust Street at the middle of the block between Silver Street and Summer Street
- has an existing driveway “curb cut” serving the site via a “common driveway easement”
- has an area of 10,000 square feet (0.22 acres).
- is presently a vacant area of grass and large trees that abuts an existing multifamily residential home (17 - 19 Summer Street) and parking area

PROPOSED PROJECT DESCRIPTION

The project will provide four two-bedroom rental apartment units within a single two-story building (plus an attic level) that will have the appearance of a single-family dwelling.
One unsignalized driveway intersecting the east side of Locust Street that will provide access to a proposed parking area that will be enlarged to service all four proposed apartments along with the existing multifamily residential building (which also is served by a couple parking spaces off Summer Street). The existing driveway “curb cut” will be utilized for the new shared driveway.

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ROAD DESCRIPTION

Locust Street:

- is under the jurisdiction of the City
- is oriented north-south with a straight horizontal alignment
- intersects with Silver Street to the north and Summer Street to the south
- has very limited vertical grade change
- has bituminous concrete pavement in overall good condition.
- has one travel lane per direction, with a pavement width of approximately 32 feet
- has marked pavement (centerline striping and lane "fog" side lines)
- has a posted speed limit of 30 MPH
- has sidewalks on both sides
- includes existing utility services.

PUBLIC TRANSIT

Collaborative Alliance for Seacoast Transportation (COAST) Route 34 provides bus service in the area. Service is on Mondays through Saturdays, except holidays. A bus stop is on Silver Street near Elm Street is only a 3 to 4 minute walk from the site. Route 34 connects with:

- downtown Dover and Knox Marsh Road
- the Amtrak "Downeaster" train station
- the COAST Transit Center

SIGHT DISTANCES

The driveway access to the site is approximately 235 feet from Silver Street, which is signalized, and approximately 125 feet north from Summer Street; with Summer Street being stop sign controlled. Several residential driveways exist along Locust Street on this block.

The American Association of State Highway and Transportation Officials (AASHTO) has established authoritative policy for appropriate sight distances in terms of stopping sight distance (SSD) for vehicles on the main road reacting to existing traffic, and intersection sight distance (ISD) for left turn movements from a stop. For a 30 mile per hour roadway, AASHTO has established the SSD to be 200 feet and ISD to be 335 feet.

The 235 $\pm$ foot distance to Silver Street would appear to provide suitable SSD for a speed of approximately 34 MPH. With the Silver Street intersection being signalized, and Summer Street being stop controlled, ISD would not appear to be an issue in that with the overall distance between the intersections being 360 feet, it is not likely a speed of 34 MPH will be achieved in this residential area. With the straight alignment of Locust Street and presence of the sidewalk,

suitable ISD can be obtained looking south; especially if the existing shrubs along the property line are regularly pruned to ensure an unobstructed sight line. Therefore, sight distance is adequate as evidenced by the multiple residential driveways already existing along Locust Street on this block; several of which are closer to the intersections.

CALCULATED TRIP GENERATION

The Institute of Transportation Engineers (ITE) compiles and publishes trip-generation information for a variety of land uses in *Trip Generation Manual*.[1] This authoritative guide for calculating site traffic includes vehicle trip information for a "low rise" multifamily housing within a dense multi-use urban and city center area; which is known in the ITE *Trip Generation Manual* as Land Use Code 220 (LUC). The trip data in LUC 220 is based on the number of dwelling units. The project will provide four two-bedroom rental apartment units within a single two-story building (plus an attic level) that will have the appearance of a single-family dwelling. This qualifies as a "mansion apartment" under the various "low rise" multifamily housing configurations in LUC 220. Even though the Dover Amtrak station is on the COAST bus route, to be conservative the LUC 220 trip generation utilized is that for a project that is not close to rail transit. If the data for a project close to rail transit was used, the vehicle trip generation would clearly be less.

Table 1 shows calculated vehicle trip ends associated with the proposed development project. The total vehicle trips generated by the project are:

- Daily (weekday) = No trip data provided by ITE for LUC 220
- AM peak hour (weekday) = 10.5 total trips (1.0 in and 9.5 out)
- PM peak hour (weekday) = 4 total trips (3.8 in and 0.4 out)

Table 1: Trip Generation - Multifamiliy Housing

			Vehicle Trips*		
Weekday Period	Avg. Trips / Dwell. Unit	Proposed Units	Total	In	Out
Daily	No Data				
AM - Peak Hour of Adjacent Street Traffic	See Equation	4	10.5	1.0	9.5
PM - Peak Hour of Adjacent Street Traffic	See Equation	4	4.2	3.8	0.4

* ITE, *Trip Generation Manual,* Multifamily Housing - Land Use Code 220 (Not Close to Rail Transit)

AM Trips = 0.24(Units) + 9.56 (10% entering, 90% exiting) PM Trips = 0.24(Units) + 3.25 (90% entering, 10% exiting)

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

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TRIP DISTRIBUTION/ASSIGNMENT

All project-related trips will access the site from Locust Street via Silver Street and/or Locust from the north and Summer Street and/or Locust Street from the south. The calculated vehicle trip generation for the development project is so low that area traffic operations are not sensitive to trip distribution/assignment of project vehicle trips. This is primarily due to the presence of Central Avenue to the east and Silver Street to the north which carry the bulk of traffic in the area of the site.

POTENTIAL TRAFFIC IMPACTS

The calculations show 10.5 or less peak-hour primary vehicle trips, due to the proposed project. More specifically, tabulated *peak-hour* trip generation is:

- 4.2 to 10.5 total vehicle trips.
- These totals are comprised of vehicles entering and vehicles exiting the site.

Therefore, the proposed project is not anticipated to add significant new traffic to the surrounding area.

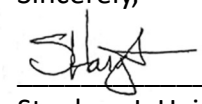
CONCLUSION

In conclusion:

- Sight distances at the Locust Street/proposed driveway intersection will be adequate.
- The proposed project is not anticipated to add significant new traffic to the area.

CIVILWORKS NEW ENGLAND

Sincerely,



Stephen J. Haight, PE

Cc: 17 – 19 Summer Street Properties LLC

Landscape Best Management Practices
Operations and Maintenance Plan

Locust Street Residential Development

Dover, New Hampshire 03820

January 4, 2024

Prepared for

Civilworks New England/Haight Engineering, PLLC
181 Watson Road
PO Box 1166
Dover, New Hampshire 03821

Prepared by

Ironwood Design Group, LLC
PO Box 873
Exeter, New Hampshire 03833

Landscape Maintenance

Introduction

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

Weekly Tasks

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

Annual Tasks

Early Spring

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

Monthly Tasks

June

No additional items

July

No additional items

August

No additional items

September

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

October

No additional items

November

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

December

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

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

Rain Gardens

The rain gardens will attenuate flow and treat stormwater. The rain gardens consist of a basin and swales seeded with native, adaptable, and rugged perennial grasses, and sometimes other flowering plants. There are maintenance tasks associated with rain garden care.

Erosion

The soil in the facility and in areas draining to the rain garden shall be inspected for erosion. Eroded areas shall be filled with soil or mulch and seeded with the mix specified in the plans.

Sediment Accumulation and Clogging

The accumulation of sediment within the rain garden may reduce its infiltration capacity. The rain garden shall be inspected for accumulation of sediment, and if found, excessive sediment shall be removed from the area, re-mulched, and replanted as appropriate and necessary.

Debris and Litter

Debris and litter should be removed from the rain garden monthly to maintain aesthetic appearance and public acceptance.

Plant Maintenance

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

Snow Storage

Snow shall not be dumped directly onto the rain gardens.

Chlorides

The rain gardens are not suitable for treating chlorides. Chloride use on source surface areas tributary to the facility should be avoided if possible. In these locations, it would be prudent to eliminate or reduce application of chloride-containing deicing compounds, use alternative deicers, or apply clean sand as needed.

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

Stormwater Management System Inspection & Maintenance Plan

Prepared for:

LOCUST STREET RESIDENTIAL DEVELOPMENT
Map 12, Lot 35-1

Locust Street
Dover, New Hampshire
Strafford County

February 2024

Owner of Record:

17 – 19 SUMMER STREET PROPERTIES, LLC
71 Lafayette Road
Hampton Falls, New Hampshire 03844

Prepared By:

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

Introduction

Civilworks New England, has prepared the following Stormwater Management System Inspection & Maintenance Plan for **17 – 19 Summer Street Properties, LLC.** The intent of this plan is to provide a list of procedures that document the inspection and maintenance requirements of the Stormwater Management System for this site.

The inspection and maintenance requirements outlined in this document are required to be performed in perpetuity. In the event the property is sold, future owners will be responsible for implementing the responsibilities outlined in this document.

The following inspection and maintenance program is necessary in order to keep the Stormwater Management System functioning properly. These measures will also help to minimize potential environmental impacts to the areas surrounding the developed site. By following the enclosed procedures, the property owners, and maintenance personnel will be able to maintain the functional design of the Stormwater Management System and maximize its ability to remove sediment and other contaminants from site generated stormwater runoff.

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

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

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

Owner:

17 – 19 Summer Street Properties, LLC
71 Lafayette Road
Hampton Falls, NH 03844

In the event of a change in ownership, this Inspection and Maintenance Plan shall be transferred to the new party.

Contact / Responsible Party:

17 – 19 Summer Street Properties, LLC
71 Lafayette Road
Hampton Falls, NH 03844

Ben Perez
Phone: (603) 944-0516
Email: Ben@bostonnorthdevelopment.com

The contact information for the Contact / Responsible Party shall be kept current.

Management Company:

17 – 19 Summer Street Properties, LLC
71 Lafayette Road
Hampton Falls, NH 03844

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

Inspection Schedule / Record Retention

Inspection frequency should, at a minimum, be in accordance with New Hampshire Stormwater Manual, Volume 2, latest edition, as updated by NHDES. See the Inspection and Maintenance Plan for frequency requirements. A copy of the completed Stormwater Management System's Inspection & Maintenance Log and Deicing Salt Quantity Use Log shall be maintained, kept on-site, and be made available to local, state, or federal regulators as applicable by law. All Inspection and Maintenance records must be provided to the City of Dover Community Services Department annually before Dec 15th.

Stormwater Management System Components

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

- Pipes/Culverts
- Outlet Structures
- Sediment Forebay
- Yard Drains
- Bioretention Basins
- Grassed Lined Conveyance Swale
- Pavement
- Litter / Trash Removal

Design elements are identified in the design plans, a copy of which shall be maintained with this Inspection and Maintenance Plan.

Control of Invasive Species

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

Inspection and Maintenance Plan

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

PIPES/CULVERTS:

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

OUTLET STRUCTURES:

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

SEDIMENT FOREBAY:

- Vegetated areas shall be mowed to maintain a 4" start of vegetative growth.
- Inspect at least once per year.
- Inspect for sediment accumulation.
- Remove all debris immediately.

YARD DRAINS:

- Inspect once per year.
- Inspect for floatables, sediment accumulation, and hydrocarbons (oils and grease).
- Remove all floatables immediately and sediment accumulations ≥ 1 foot.
- Hydrocarbons shall be removed immediately by skimming, absorbent materials, or other methods and should be disposed of in accordance with applicable State and Federal regulations.

BIORETENTION BASINS:

- Inspection, by a **qualified professional**, of the Bioretention Basin at least twice annually, and following any rainfall event exceeding 2.5 inches in a 24-hour period, with maintenance or rehabilitation conducted as warranted by such inspection. If the Bioretention Basin systems do not drain within 72-hours following a rainfall event, a qualified professional should assess the condition and determine measures required to restore filtration practice (as applicable).
- Embankments and spillways should be inspected by a **qualified professional** for settlement, erosion, seepage, animal burrows, woody vegetation, and other conditions that could degrade the embankment and reduce its stability for impounding water. Immediate corrective action should be implemented if any such conditions are found.
- Inlet and outlet pipes, inlet and outlet structures, energy dissipation structures or practices, and other structural appurtenances should be inspected by a **qualified professional**, and corrective action implemented (e.g., maintenance, repairs, or replacement) as indicated by such inspection.
- The bottoms, interior and exterior side slopes, and crest of earthen detention basins should be mowed, and the vegetation maintained in healthy condition, as appropriate to the function of the facility and type of vegetation.

- Vegetated embankments that serve as “berms” or “dams” that impound water should be mowed at least once annually to prevent the establishment of woody vegetation.
- Trash and debris should be removed from the pond and any inlet or outlet structures whenever observed.
- Accumulated sediment should be removed when it significantly affects pond capacity.

GRASS LINED CONVEYANCE SWALE:

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

PAVEMENT:

- Minimize sanding.
- Minimize application of salt for ice control.
- Clean periodically (1-2 times per year) using a sweeper or vacuum sweeper. Vacuum sweeping is the preferred method.

LITTER / TRASH REMOVAL:

- Routinely patrol site for litter pick-up.

DE-ICING AGENTS:

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

ANTI-ICING AND SALT MINIMIZATION:

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

Inspection & Maintenance Table

System Component / BMP	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
Pipes/Culverts	Annually	• Check for clogging • Check for sediment accumulation	Remove when noticed Clean when necessary
Outlet Structures	Annually	• Inspect once per year. • Inspect for clogging and sediment accumulation. • Remove all debris immediately and sediment accumulations ≥ 2 inches.	≥ 2 in. sediment Remove immediately
Sediment Forebay	Annually	• Check for sediment accumulation • Check for woody vegetation growth • Check for debris • Vegetated areas shall be mowed to maintain a 4" start of vegetative growth.	Remove/Dispose of accordingly Mow twice per year Remove/Dispose of accordingly
Yard Drains	Annually	• Check for sediment accumulation • Check for floatable contaminants • Check for hydrocarbons (oils and grease)	≥ 1 ft. sediment depth Remove all floatables Remove immediately
Bioretention Basins • Outlet Structure • Inlet/Outlet Piping • Embankments • Pond Sediment • Trash/Debris • Vegetation (Veg.)	Bi-Annually " " " " Periodically " " " "	• See Outlet Structure (OS) Req. • Check for erosion, settlement, seepage, etc. • Check for sediment accumulation in pond • Check for trash (in pond and structures) • Maintain 95% veg. (pond & slopes) • Maintain healthy stand of veg.	See OS Req. Repair immediately ≥ 2 in. sediment Remove all trash/debris Restore veg. in-kind Mow when ≥ 6 in
Grass Lined Conveyance Swale	Annually	• Check for sediment accumulation • Check for erosion • Ensure swale is stabilized • Maintain healthy stand of veg., 4" minimum • Inspect for invasive species	≥ 1 in. sediment Repair immediately Restore vegetation in-kind Mow twice per year Remove/Dispose of accordingly
Pavement: • Sanding • Salt Applications • Sweep/Vacuum • Trash/Debris	Limit use As required 1 - 2 x's Year Periodically	• Minimize use to prevent tracking issues • RECORD APPLICATION RATES • Sweep or vacuum to prevent tracking issues • Check for trash/debris	Sweep to prevent issues Minimize (as required) Sweep/Vac as needed Remove when noticed
Litter / Trash Removal	Periodically	• Check for litter and trash	Remove when noticed

Inspection & Maintenance Checklist/Log

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

Stormwater Management System's Inspection & Maintenance Log

Date of Inspection/Maintenance_____ Inspector:_____

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

Deicing Salt Quantity Use Log

Date	Amount of Material Applied	Comments

DRAINAGE ANALYSIS

LOCUST STREET RESIDENTIAL DEVELOPMENT
TAX MAP 12, LOT 35-1

Locust Street
Dover, New Hampshire
Strafford County

February 2024

Prepared For:

17 – 19 Summer Street Properties, LLC
71 Lafayette Road
Hampton Falls, NH 03844

Prepared By:

Civilworks NE
PO Box 1166
181 Watson Road
Dover, NH 03820

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1.0 INTRODUCTION

This is a hydrologic analysis of the subject parcel located on Locust Street in Dover, NH. The 0.229± acre lot is identified as Tax Map 12, Lot 35-1. This 0.445± acre hydrologic analysis includes the subject parcel and approximately 0.215± acres of offsite runoff from lawn, an existing gravel parking area, and roof runoff that flows through the parcel. The site is undeveloped and primarily consists of lawn with minimal landscaping and trees. The parcel is fairly level and slightly slopes away from Locust St to an abutting parcel. The parcel is bound by Locust Street to the west, a private residence to the north, multi-family housing to the south and the Woodman Institute to the east. The parcel is serviced by an existing 12" HDPE drain which ties into the closed drainage system located in Locust St. and has been stubbed to the site.

The project proposes the construction of a 4-unit multi-family house and an improved parking area that will be shared with the abutting 3-unit multi-family home. The project does not qualify as a redevelopment project, and as such, the stormwater design captures and treats the stormwater runoff from all impervious surfaces within the watershed. The proposed drainage system incorporates three (3) bio-retention basins, two of which are small and primarily treat roof runoff and one that is larger and treats both roof and impervious area runoff. The larger basin is also sized to maximize the amount of onsite storage available to help buffer the increase in runoff from the proposed site. Test pits and infiltration testing indicate poor soil characteristics and ground water recharge is not feasible, as such, the bioretention ponds are underdrained. Closed and open drainage systems consisting of pipes, yard drains, and swales, are utilized for the conveyance of post construction stormwater. The proposed stormwater system captures, treats, and stores the stormwater runoff from the site and redirects it to the existing onsite closed drainage system. The proposed stormwater drainage structures (yard drains, pipes, basins, outlet structures, etc.) will be maintained by the project proponent as outlined within the Stormwater Management System Inspection & Maintenance Manual (Stormwater I&M Manual) in Appendix C.

The predevelopment watershed is identified as discharge point A. Discharge point A drains easterly from the edge of Locust Street overland through the parcel to an abutting parcel. Once exiting the site, the discharge continues through the property owned by the Woodman Institute then discharges into the City's closed drainage system located in Central Ave.

Post development analysis includes a single watershed that is further divided into three (3) sub-catchments to accurately model the proposed drainage system. This analysis indicates that the proposed stormwater measures and stormwater management plan will treat runoff in accordance with ENV-Wq 1500 of the New Hampshire Code of Administrative Rules and the City of Dover's Subdivision Regulations. The proposed site characteristics are not conducive to infiltration and as such the project proposes minor increase to the volume and flow of stormwater from the proposed site. The stormwater design maximizes the amount of onsite storage to minimize an increase in flow and also captures the stormwater on site and discharges it to the City's closed drainage system as opposed to allowing the water to flow to an abutting parcel. The proposed development of the site in conjunction with the implementation of the Stormwater I&M Manual will have minimal impact on the watersheds.

2.0 DRAINAGE ANALYSIS

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

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

"New Hampshire Stormwater Manual Volume 2 - Post-Construction Best Management Practices Selection & Design"

"Civil Engineering Reference Manual, Fifth Edition"

"Open-Channel Hydraulics" Chow.

"Stormwater Modeling System" HydroCAD Ver. 10.10

2.1 DRAINAGE DESIGN PARAMETERS

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

2.1.1 Watersheds

The watershed was delineated using on site topographic and as built survey data field located by McEneaney Survey Associates of New England.

2.1.2 Soils

Soil types were determined utilizing the NRCS Web Soil Survey (WSS) mapping tool at http://websoilsurvey.nrcs.usda.gov. The soil survey area is Strafford County, NH, the soil survey data is Version 23, dated Sep 9th, 2022 and the aerial images are dated June 19th to September 20th, 2020.

Hydrologic Drainage Class A:

Map Unit Symbol	Slopes	Map Unit Name
WfB	0 to 8 %	Windsor Loamy Fine Sand, Clay Subvariant

2.1.3 Rainfall Data

Extreme precipitation estimate values from the Northeast Regional Climate Center were utilized in this analysis. The analysis has been performed for the 2-year, 10-year, 25-year, and 50-year storm events with 3.15", 4.75", 6.01", and 7.18" rainfall depths respectively.

2.1.4 Runoff Curve Numbers

The SCS runoff curve numbers were used and are summarized within each sub-catchment drainage summary in Appendix A.

2.2 EXISTING CONDITIONS

For the purposes of this analysis, the subject parcel was analyzed as a single watershed that discharges to an abutting property in the predevelopment condition.

2.2.1 Table A – Existing Conditions (2, 10, 25, and 50-year storm events)

Watershed	**Pre-Development Volume (af)**	**Pre Development Peak Flows (cfs)**			
Discharge Point	**2-yr**	**2-yr**	**10-yr**	**25-yr**	**50-yr**
A	0.00	0.0	0.1	0.3	0.5

2.3 DEVELOPED CONDITIONS

The post development model analyzes runoff to the post development discharge point, which is the closed drainage system in Locust Street.

2.3.1 Table B – Developed Conditions (2, 10, 25, and 50-year storm events)

Watershed	**Post-Development Volume (af)**	**Post Development Peak Flows (cfs)**			
Discharge Point	**2-yr**	**2-yr**	**10-yr**	**25-yr**	**50-yr**
A1	0.03	0.2	0.2	0.3	0.5

2.4 HYDROLOGIC COMPARISON

The analysis indicates that the proposed project will have negligible impact on the watershed.

2.4.1 Table C – Pre/Post Development Comparison (2, 10, 25, and 50-year storm events)

Watershed	Pre/**Post-Development Volume (af)**	Pre/**Post Development Peak Flows (cfs)**			
Discharge Point	**2-yr**	**2-yr**	**10-yr**	**25-yr**	**50-yr**
A	0.00/**0.03**	0.0/**0.2**	0.1/**0.2**	0.3/**0.3**	0.5/**0.5**

2.5 STORMWATER DESIGN

The project incorporates best management practices to mitigate runoff as well as treat and convey stormwater.

2.5.1 Stormwater Best Management Practices

The project incorporates three bio-retention basins to mitigate flow and water quality from the proposed development. Pre-treatment for the large bio-retention basin includes a sediment forebay and grassed swales. See Appendix B-1 for Best Management Practice Design forms.

2.5.2 Pollutant Removal

The site stormwater design captures 100% of the proposed onsite and 100% of the offsite impervious area (that flows onto the site) and directs it to the best management practices that provide pollutant removal. This project effectively treats 3,500+/- SF of previously untreated predevelopment impervious area. The project incorporates the following practices and associated pollutant removal efficacies as identified in the New Hampshire Stormwater Management Manual Volume 1, Appendix E:

	TSS	TN	TP
Bio-Retention Basin:	90%	65%	65%

The pollutant removal meets or exceeds The City of Dover's, Site Review Regulations. See Appendix B-2 for the removal efficiency data as provided in Volume 1.

2.5.3 Groundwater Recharge

Test pits (3) and borehole infiltration testing (3 locations) were performed on October 2nd, 2023. The results of these tests indicate soils are a silty or sandy loam with layers of silty clay. Seasonal high water tables varied between 22 and 32 inches. Borehole infiltration testing failed at borehole locations #1 and #2 during the first iteration of testing and in the second iteration for location #3. The site is not conducive to infiltration based best management practices nor is it capable of meeting the groundwater recharge requirements of the City of Dover's Site Review Regulations. See Appendix B-3 for test pit and borehole test information.

APPENDIX A

HYDROLOGIC CALCULATIONS

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Metadata for Point

Smoothing	Yes
State	New Hampshire
Location	New Hampshire, United States
Latitude	43.190 degrees North
Longitude	70.875 degrees West
Elevation	20 feet
Date/Time	Mon Sep 18 2023 15:41:12 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**

Powered by ACIS Northeast Regional Climate Center

Extreme Precipitation in New York & New England

An Interactive Web Tool for Extreme Precipitation Analysis

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

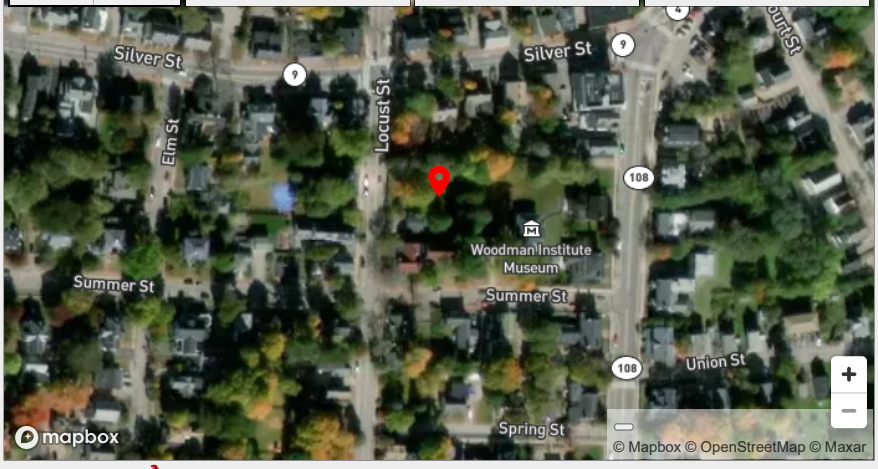
Select Product

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

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

Hybrid | Map | Satellite | Terrain

Locate by Address → | Locate by Lat/Lon 43.18° N -70.87° W → | Locate by State/County



Select Options

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Yes	Popup

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This project is a joint collaboration between:

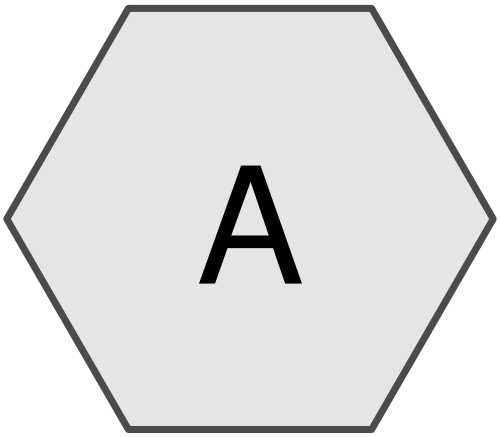
Northeast Regional Climate Center (NRCC) | Natural Resources Conservation Service (NRCS)

Cornell University

Contact: precip@cornell.edu

A – 1

EXISTING WATERSHEDS



A

Subcat Reach Pond Link

Routing Diagram for 23029 - Pre
Prepared by Civilworks New England, Printed 2/21/2024
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.365	39	>75% Grass cover, Good, HSG A (A)
0.011	96	Gravel surface, HSG A (A)
0.026	98	Paved parking, HSG A (A)
0.043	98	Roofs, HSG A (A)
0.445	**50**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.445	HSG A	A
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.445		**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
0.365	0.000	0.000	0.000	0.000	0.365	>75% Grass cover, Good	A
0.011	0.000	0.000	0.000	0.000	0.011	Gravel surface	A
0.026	0.000	0.000	0.000	0.000	0.026	Paved parking	A
0.043	0.000	0.000	0.000	0.000	0.043	Roofs	A
0.445	**0.000**	**0.000**	**0.000**	**0.000**	**0.445**	**TOTAL AREA**	

A – 1

NODE LISTING – 2-YR

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

Subcatchment A: A Runoff Area=19,378 sf 15.48% Impervious Runoff Depth=0.12"
Flow Length=126' Slope=0.0400 '/' Tc=9.0 min CN=50 Runoff=0.0 cfs 0.00 af

Total Runoff Area = 0.445 ac Runoff Volume = 0.00 af Average Runoff Depth = 0.12"
84.52% Pervious = 0.376 ac 15.48% Impervious = 0.069 ac

A – 1

NODE LISTING – 10-YR

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

Subcatchment A: A Runoff Area=19,378 sf 15.48% Impervious Runoff Depth=0.59"
Flow Length=126' Slope=0.0400 '/' Tc=9.0 min CN=50 Runoff=0.1 cfs 0.02 af

Total Runoff Area = 0.445 ac Runoff Volume = 0.02 af Average Runoff Depth = 0.59"
84.52% Pervious = 0.376 ac 15.48% Impervious = 0.069 ac

A – 1

10-YR STORM SUMMARY

Summary for Subcatchment A: A

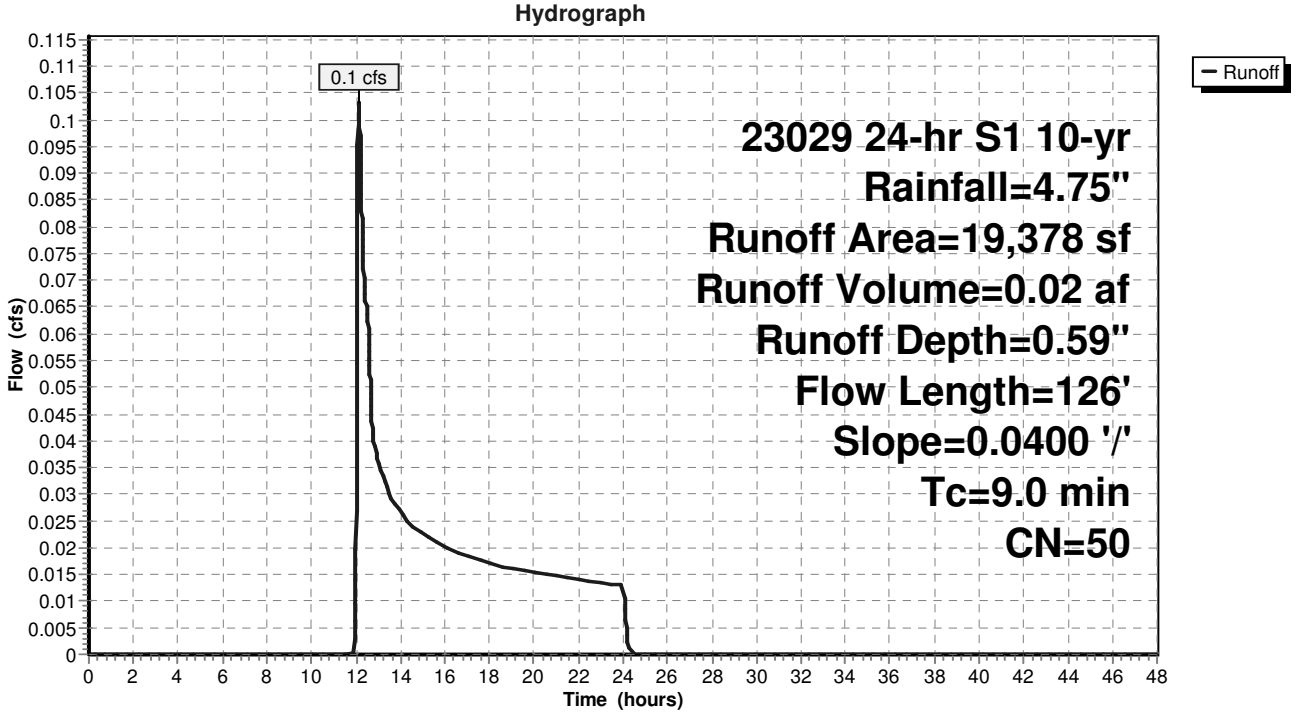
Runoff = 0.1 cfs @ 12.12 hrs, Volume= 0.02 af, Depth= 0.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
23029 24-hr S1 10-yr Rainfall=4.75"

Area (sf)	CN	Description
15,888	39	>75% Grass cover, Good, HSG A
491	96	Gravel surface, HSG A
1,122	98	Paved parking, HSG A
1,877	98	Roofs, HSG A
19,378	50	Weighted Average
16,379		84.52% Pervious Area
2,999		15.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	126	0.0400	0.23		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.15"

Subcatchment A: A



A – 1

NODE LISTING – 25-YR

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

Subcatchment A: A Runoff Area=19,378 sf 15.48% Impervious Runoff Depth=1.15"
Flow Length=126' Slope=0.0400 '/' Tc=9.0 min CN=50 Runoff=0.3 cfs 0.04 af

Total Runoff Area = 0.445 ac Runoff Volume = 0.04 af Average Runoff Depth = 1.15"
84.52% Pervious = 0.376 ac 15.48% Impervious = 0.069 ac

A – 1

NODE LISTING – 50-YR

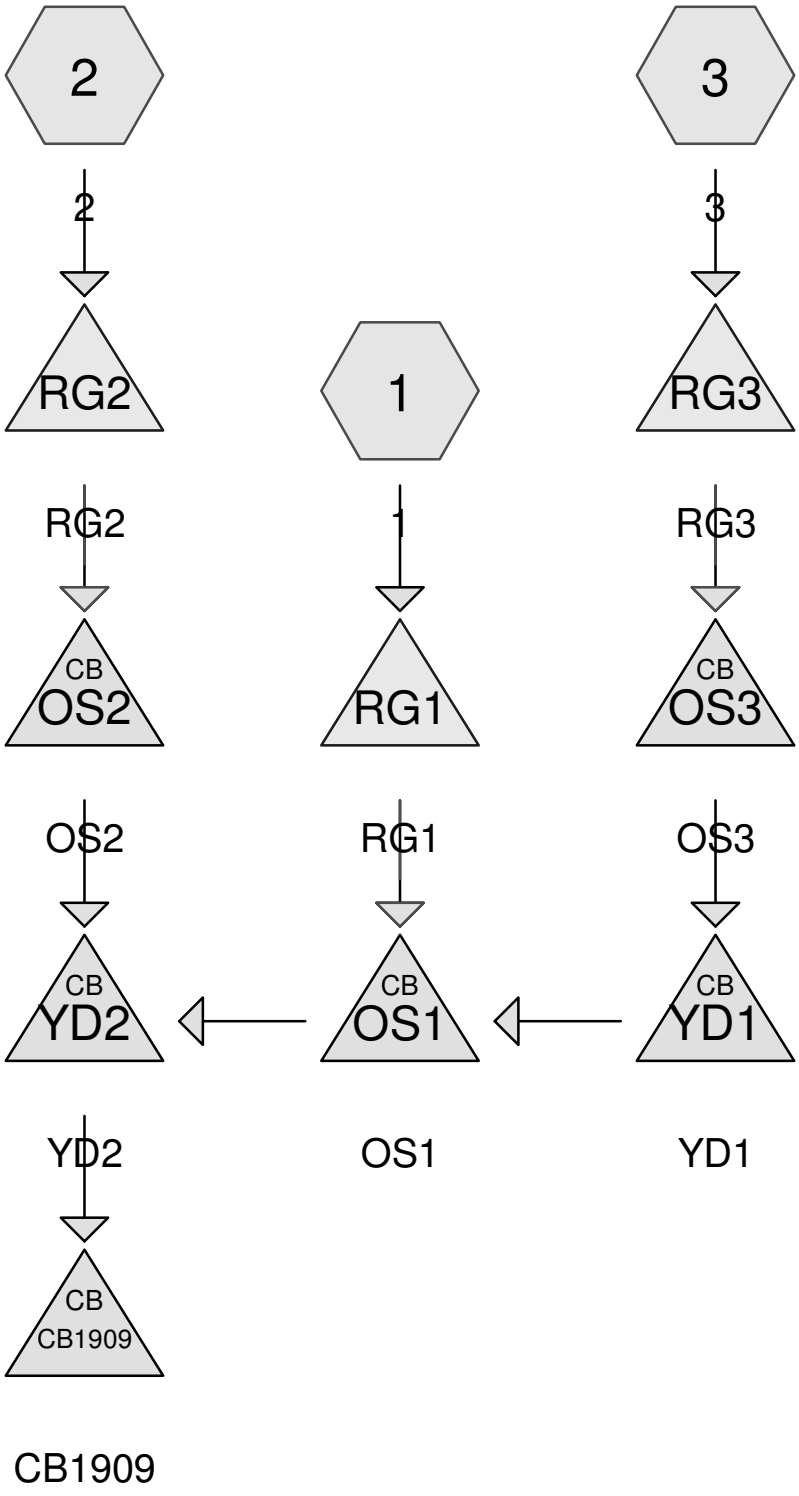
Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A: A Runoff Area=19,378 sf 15.48% Impervious Runoff Depth=1.77"
Flow Length=126' Slope=0.0400 '/' Tc=9.0 min CN=50 Runoff=0.5 cfs 0.07 af

Total Runoff Area = 0.445 ac Runoff Volume = 0.07 af Average Runoff Depth = 1.77"
84.52% Pervious = 0.376 ac 15.48% Impervious = 0.069 ac

A – 2

DEVELOPED WATERSHEDS



Subcat Reach Pond Link

Routing Diagram for 23029 - Post
Prepared by Civilworks New England, Printed 2/21/2024
HydroCAD® 10.10-5a s/n 03240 © 2020 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.207	39	>75% Grass cover, Good, HSG A (1, 2, 3)
0.137	98	Paved parking, HSG A (1, 2, 3)
0.100	98	Roofs, HSG A (1, 2, 3)
0.445	**71**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.445	HSG A	1, 2, 3
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.445		**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
0.207	0.000	0.000	0.000	0.000	0.207	>75% Grass cover, Good	1, 2, 3
0.137	0.000	0.000	0.000	0.000	0.137	Paved parking	1, 2, 3
0.100	0.000	0.000	0.000	0.000	0.100	Roofs	1, 2, 3
0.445	**0.000**	**0.000**	**0.000**	**0.000**	**0.445**	**TOTAL AREA**	

A – 2

NODE LISTING – 2-YR

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

Subcatchment 1: 1 Runoff Area=1,114 sf 32.23% Impervious Runoff Depth=0.32"
Flow Length=29' Slope=0.0400 '/' Tc=2.8 min CN=58 Runoff=0.0 cfs 0.00 af

Subcatchment 2: 2 Runoff Area=1,098 sf 32.60% Impervious Runoff Depth=0.32"
Flow Length=29' Slope=0.0400 '/' Tc=2.8 min CN=58 Runoff=0.0 cfs 0.00 af

Subcatchment 3: 3 Runoff Area=17,166 sf 56.10% Impervious Runoff Depth=0.90"
Flow Length=99' Slope=0.0310 '/' Tc=8.2 min CN=72 Runoff=0.3 cfs 0.03 af

Pond CB1909: CB1909 Peak Elev=92.38' Inflow=0.2 cfs 0.03 af
15.0" Round Culvert n=0.012 L=26.0' S=0.0000 '/' Outflow=0.2 cfs 0.03 af

Pond OS1: OS1 Peak Elev=92.89' Inflow=0.2 cfs 0.03 af
12.0" Round Culvert n=0.012 L=3.0' S=0.0233 '/' Outflow=0.2 cfs 0.03 af

Pond OS2: OS2 Peak Elev=95.84' Inflow=0.0 cfs 0.00 af
12.0" Round Culvert n=0.012 L=42.0' S=0.0119 '/' Outflow=0.0 cfs 0.00 af

Pond OS3: OS3 Peak Elev=93.63' Inflow=0.2 cfs 0.03 af
12.0" Round Culvert n=0.012 L=21.0' S=0.0081 '/' Outflow=0.2 cfs 0.03 af

Pond RG1: RG1 Peak Elev=96.47' Storage=7 cf Inflow=0.0 cfs 0.00 af
Primary=0.0 cfs 0.00 af Secondary=0.0 cfs 0.00 af Outflow=0.0 cfs 0.00 af

Pond RG2: RG2 Peak Elev=96.47' Storage=9 cf Inflow=0.0 cfs 0.00 af
Primary=0.0 cfs 0.00 af Secondary=0.0 cfs 0.00 af Outflow=0.0 cfs 0.00 af

Pond RG3: RG3 Peak Elev=94.08' Storage=230 cf Inflow=0.3 cfs 0.03 af
Primary=0.2 cfs 0.03 af Secondary=0.0 cfs 0.00 af Outflow=0.2 cfs 0.03 af

Pond YD1: YD1 Peak Elev=93.45' Inflow=0.2 cfs 0.03 af
12.0" Round Culvert n=0.012 L=71.0' S=0.0082 '/' Outflow=0.2 cfs 0.03 af

Pond YD2: YD2 Peak Elev=92.80' Inflow=0.2 cfs 0.03 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0100 '/' Outflow=0.2 cfs 0.03 af

Total Runoff Area = 0.445 ac Runoff Volume = 0.03 af Average Runoff Depth = 0.83"
46.60% Pervious = 0.207 ac 53.40% Impervious = 0.238 ac

A – 2

NODE LISTING – 10-YR

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

Subcatchment 1: 1 Runoff Area=1,114 sf 32.23% Impervious Runoff Depth=1.03"
Flow Length=29' Slope=0.0400 '/' Tc=2.8 min CN=58 Runoff=0.0 cfs 0.00 af

Subcatchment 2: 2 Runoff Area=1,098 sf 32.60% Impervious Runoff Depth=1.03"
Flow Length=29' Slope=0.0400 '/' Tc=2.8 min CN=58 Runoff=0.0 cfs 0.00 af

Subcatchment 3: 3 Runoff Area=17,166 sf 56.10% Impervious Runoff Depth=2.01"
Flow Length=99' Slope=0.0310 '/' Tc=8.2 min CN=72 Runoff=0.7 cfs 0.07 af

Pond CB1909: CB1909 Peak Elev=92.42' Inflow=0.2 cfs 0.07 af
15.0" Round Culvert n=0.012 L=26.0' S=0.0000 '/' Outflow=0.2 cfs 0.07 af

Pond OS1: OS1 Peak Elev=92.93' Inflow=0.2 cfs 0.07 af
12.0" Round Culvert n=0.012 L=3.0' S=0.0233 '/' Outflow=0.2 cfs 0.07 af

Pond OS2: OS2 Peak Elev=95.88' Inflow=0.0 cfs 0.00 af
12.0" Round Culvert n=0.012 L=42.0' S=0.0119 '/' Outflow=0.0 cfs 0.00 af

Pond OS3: OS3 Peak Elev=93.67' Inflow=0.2 cfs 0.07 af
12.0" Round Culvert n=0.012 L=21.0' S=0.0081 '/' Outflow=0.2 cfs 0.07 af

Pond RG1: RG1 Peak Elev=96.74' Storage=12 cf Inflow=0.0 cfs 0.00 af
Primary=0.0 cfs 0.00 af Secondary=0.0 cfs 0.00 af Outflow=0.0 cfs 0.00 af

Pond RG2: RG2 Peak Elev=96.60' Storage=13 cf Inflow=0.0 cfs 0.00 af
Primary=0.0 cfs 0.00 af Secondary=0.0 cfs 0.00 af Outflow=0.0 cfs 0.00 af

Pond RG3: RG3 Peak Elev=96.19' Storage=563 cf Inflow=0.7 cfs 0.07 af
Primary=0.2 cfs 0.07 af Secondary=0.0 cfs 0.00 af Outflow=0.2 cfs 0.07 af

Pond YD1: YD1 Peak Elev=93.48' Inflow=0.2 cfs 0.07 af
12.0" Round Culvert n=0.012 L=71.0' S=0.0082 '/' Outflow=0.2 cfs 0.07 af

Pond YD2: YD2 Peak Elev=92.83' Inflow=0.2 cfs 0.07 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0100 '/' Outflow=0.2 cfs 0.07 af

Total Runoff Area = 0.445 ac Runoff Volume = 0.07 af Average Runoff Depth = 1.90"
46.60% Pervious = 0.207 ac 53.40% Impervious = 0.238 ac

A – 2

10-YR STORM SUMMARY

Summary for Subcatchment 1: 1

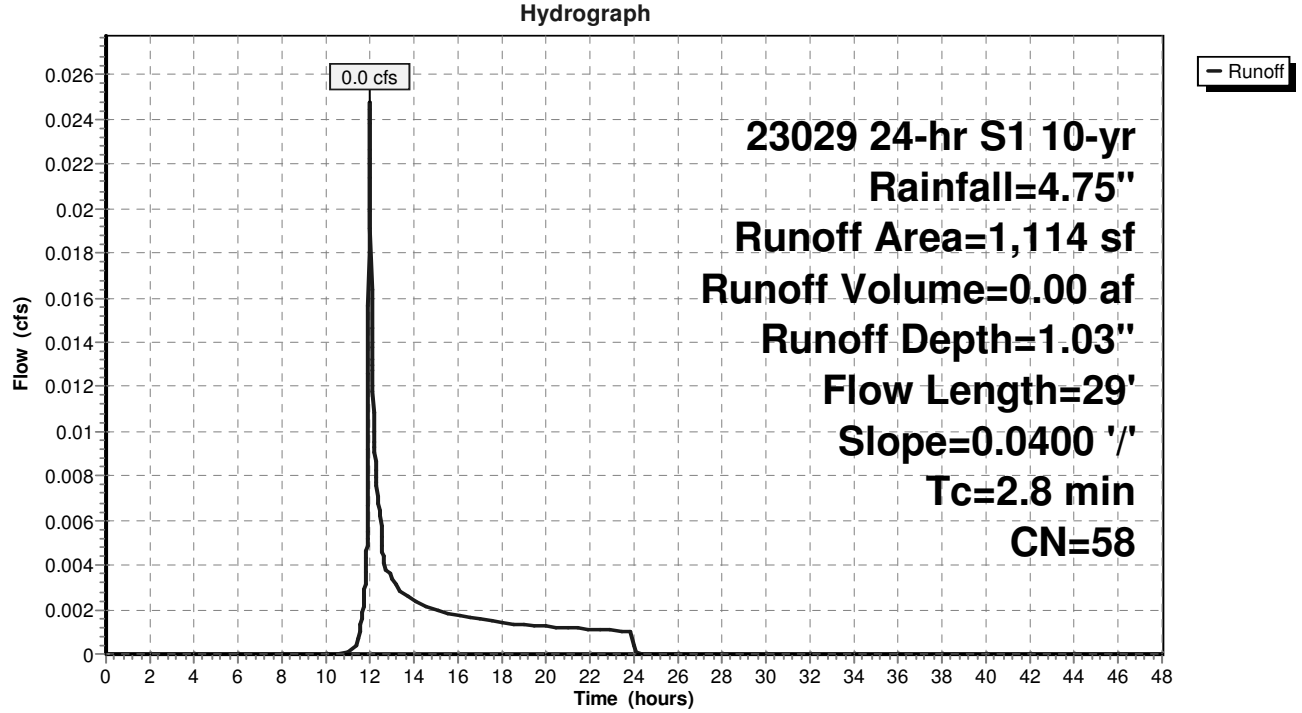
Runoff = 0.0 cfs @ 12.01 hrs, Volume= 0.00 af, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
23029 24-hr S1 10-yr Rainfall=4.75"

Area (sf)	CN	Description
755	39	>75% Grass cover, Good, HSG A
47	98	Paved parking, HSG A
312	98	Roofs, HSG A
1,114	58	Weighted Average
755		67.77% Pervious Area
359		32.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	29	0.0400	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.15"

Subcatchment 1: 1



Summary for Subcatchment 2: 2

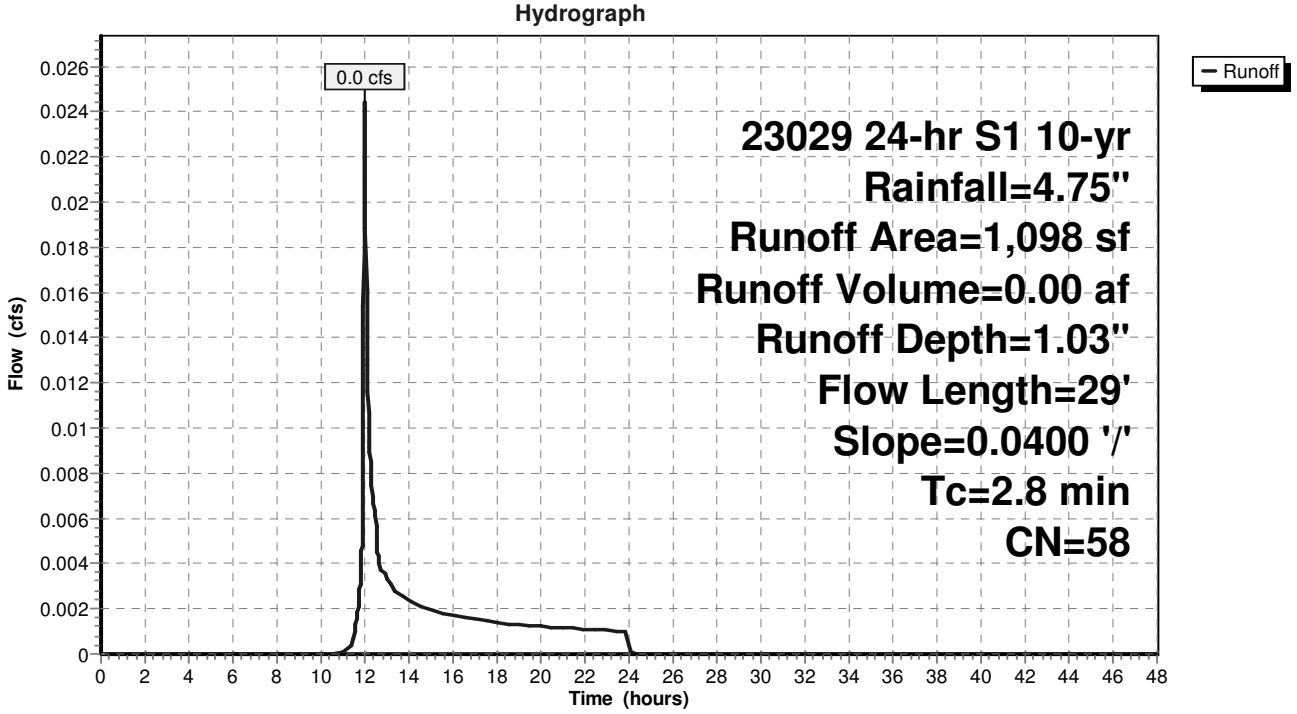
Runoff = 0.0 cfs @ 12.01 hrs, Volume= 0.00 af, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
23029 24-hr S1 10-yr Rainfall=4.75"

Area (sf)	CN	Description
740	39	>75% Grass cover, Good, HSG A
45	98	Paved parking, HSG A
313	98	Roofs, HSG A
1,098	58	Weighted Average
740		67.40% Pervious Area
358		32.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	29	0.0400	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.15"

Subcatchment 2: 2



Summary for Subcatchment 3: 3

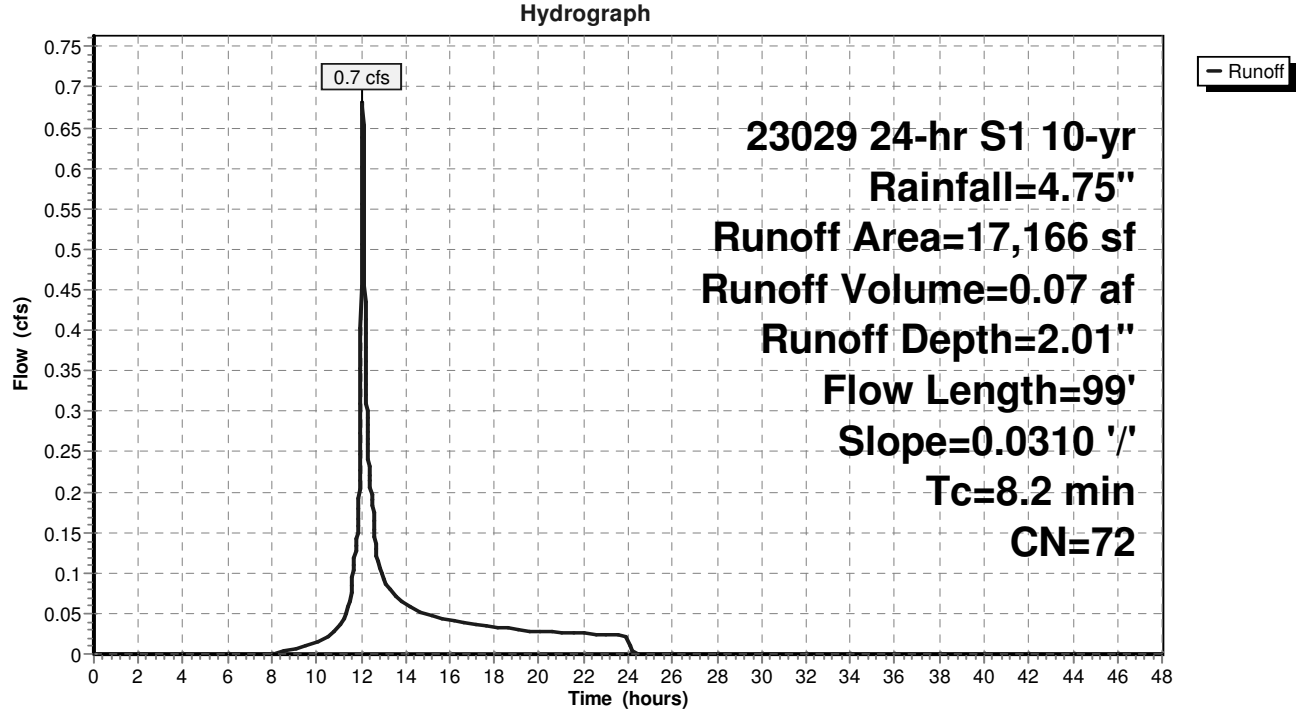
Runoff = 0.7 cfs @ 12.07 hrs, Volume= 0.07 af, Depth= 2.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
23029 24-hr S1 10-yr Rainfall=4.75"

Area (sf)	CN	Description
7,536	39	>75% Grass cover, Good, HSG A
5,879	98	Paved parking, HSG A
3,751	98	Roofs, HSG A
17,166	72	Weighted Average
7,536		43.90% Pervious Area
9,630		56.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	99	0.0310	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.15"

Subcatchment 3: 3



Summary for Pond CB1909: CB1909

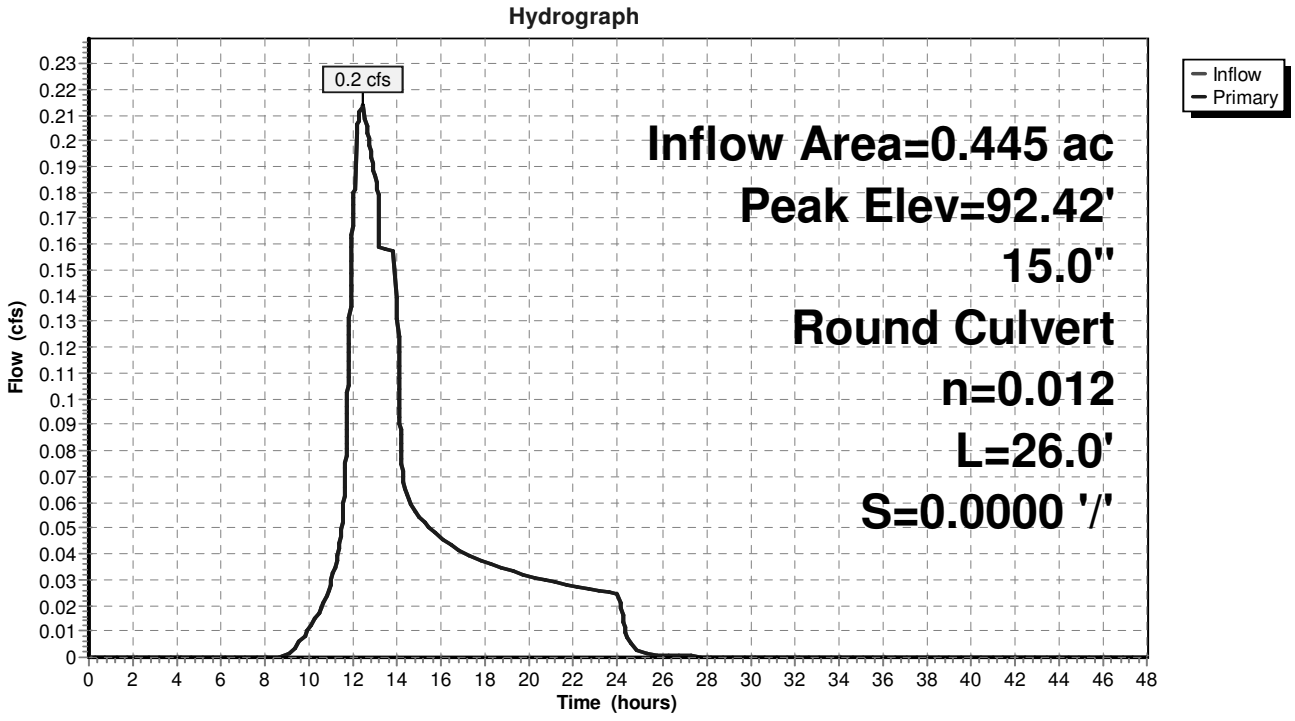
Inflow Area = 0.445 ac, 53.40% Impervious, Inflow Depth > 1.89" for 10-yr event
Inflow = 0.2 cfs @ 12.43 hrs, Volume= 0.07 af
Outflow = 0.2 cfs @ 12.43 hrs, Volume= 0.07 af, Atten= 0%, Lag= 0.0 min
Primary = 0.2 cfs @ 12.43 hrs, Volume= 0.07 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 92.42' @ 12.43 hrs
Flood Elev= 100.92'

Device	Routing	Invert	Outlet Devices
#1	Primary	92.10'	**15.0" Round Culvert** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 92.10' / 92.10' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.2 cfs @ 12.43 hrs HW=92.42' (Free Discharge)
1=Culvert (Barrel Controls 0.2 cfs @ 1.32 fps)

Pond CB1909: CB1909



Summary for Pond OS1: OS1

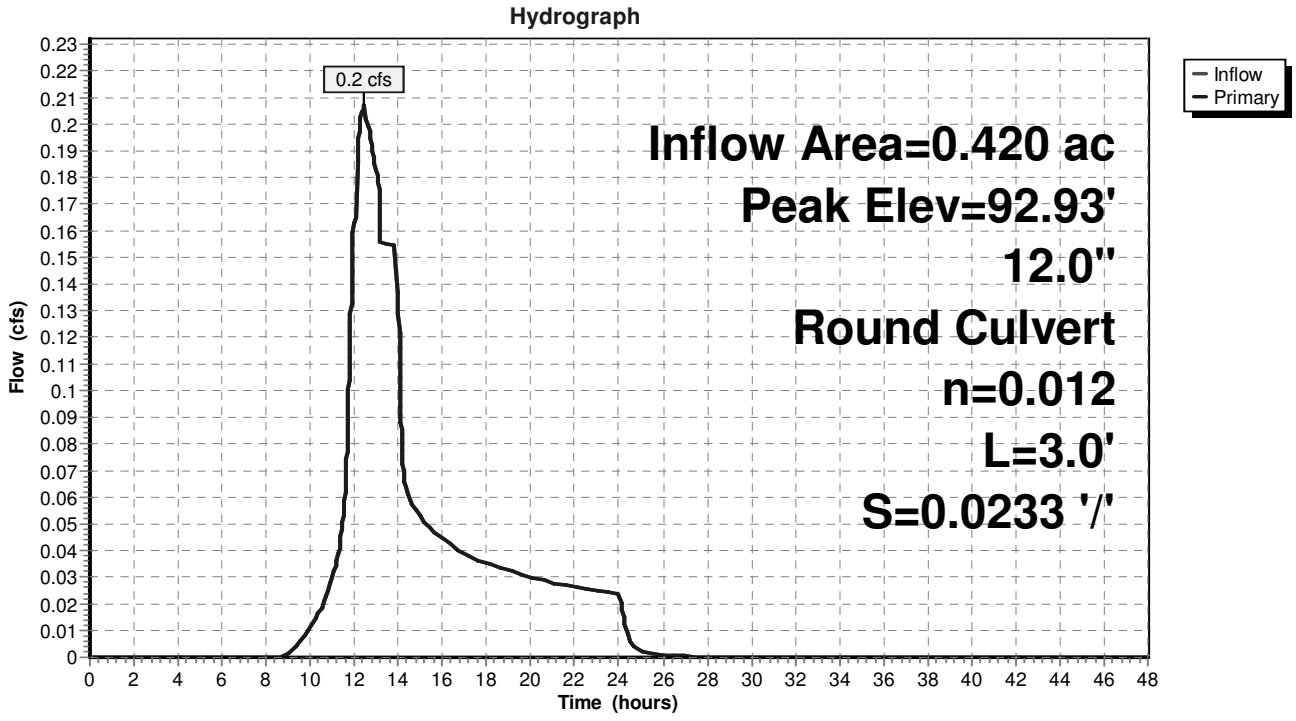
Inflow Area = 0.420 ac, 54.64% Impervious, Inflow Depth > 1.95" for 10-yr event
Inflow = 0.2 cfs @ 12.43 hrs, Volume= 0.07 af
Outflow = 0.2 cfs @ 12.43 hrs, Volume= 0.07 af, Atten= 0%, Lag= 0.0 min
Primary = 0.2 cfs @ 12.43 hrs, Volume= 0.07 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 92.93' @ 12.43 hrs
Flood Elev= 100.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	92.67'	**12.0" Round Culvert** L= 3.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 92.67' / 92.60' S= 0.0233 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.2 cfs @ 12.43 hrs HW=92.93' TW=92.83' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.2 cfs @ 1.91 fps)

Pond OS1: OS1



Summary for Pond OS2: OS2

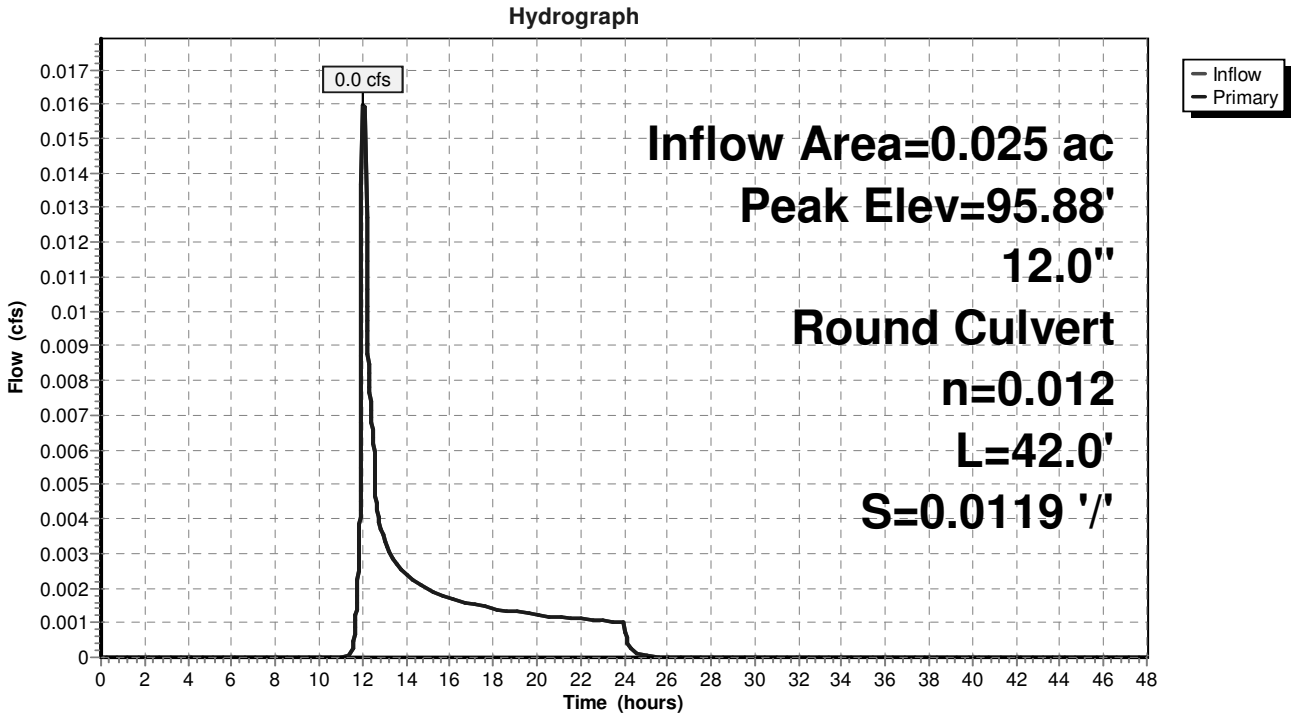
Inflow Area = 0.025 ac, 32.60% Impervious, Inflow Depth = 1.03" for 10-yr event
Inflow = 0.0 cfs @ 12.01 hrs, Volume= 0.00 af
Outflow = 0.0 cfs @ 12.02 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.6 min
Primary = 0.0 cfs @ 12.02 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 95.88' @ 12.02 hrs
Flood Elev= 99.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	95.82'	**12.0" Round Culvert** L= 42.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 95.82' / 95.32' S= 0.0119 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.0 cfs @ 12.02 hrs HW=95.88' TW=92.81' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 0.0 cfs @ 1.26 fps)

Pond OS2: OS2



Summary for Pond OS3: OS3

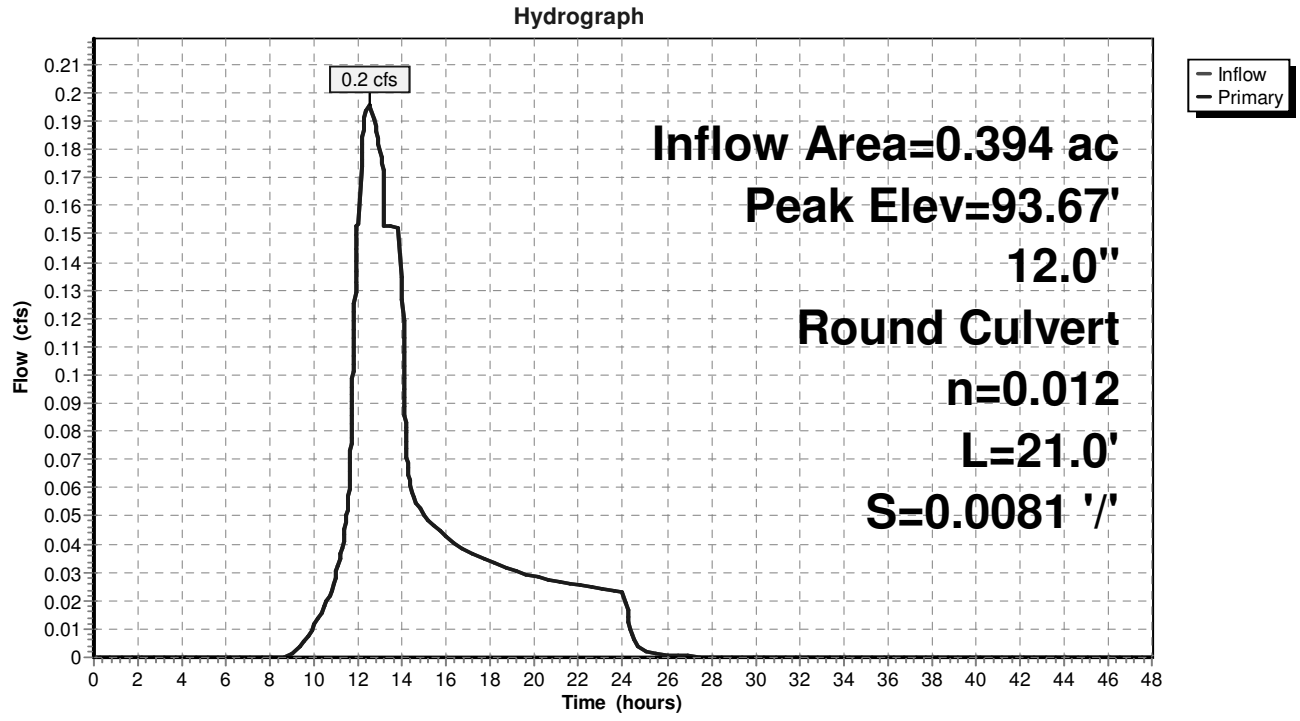
Inflow Area = 0.394 ac, 56.10% Impervious, Inflow Depth = 2.01" for 10-yr event
Inflow = 0.2 cfs @ 12.48 hrs, Volume= 0.07 af
Outflow = 0.2 cfs @ 12.48 hrs, Volume= 0.07 af, Atten= 0%, Lag= 0.0 min
Primary = 0.2 cfs @ 12.48 hrs, Volume= 0.07 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 93.67' @ 12.46 hrs
Flood Elev= 97.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	93.42'	**12.0" Round Culvert** L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 93.42' / 93.25' S= 0.0081 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.2 cfs @ 12.48 hrs HW=93.67' TW=93.48' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.2 cfs @ 1.96 fps)

Pond OS3: OS3



Summary for Pond RG1: RG1

Inflow Area = 0.026 ac, 32.23% Impervious, Inflow Depth = 1.03" for 10-yr event
Inflow = 0.0 cfs @ 12.01 hrs, Volume= 0.00 af
Outflow = 0.0 cfs @ 11.97 hrs, Volume= 0.00 af, Atten= 53%, Lag= 0.0 min
Primary = 0.0 cfs @ 11.97 hrs, Volume= 0.00 af
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 96.42' Surf.Area= 50 sf Storage= 6 cf
Peak Elev= 96.74' @ 12.13 hrs Surf.Area= 50 sf Storage= 12 cf (6 cf above start)
Flood Elev= 100.10' Surf.Area= 288 sf Storage= 159 cf (153 cf above start)

Plug-Flow detention time= 52.7 min calculated for 0.00 af (94% of inflow)
Center-of-Mass det. time= 6.9 min (944.8 - 937.9)

Volume	Invert	Avail.Storage	Storage Description
#1	96.08'	159 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

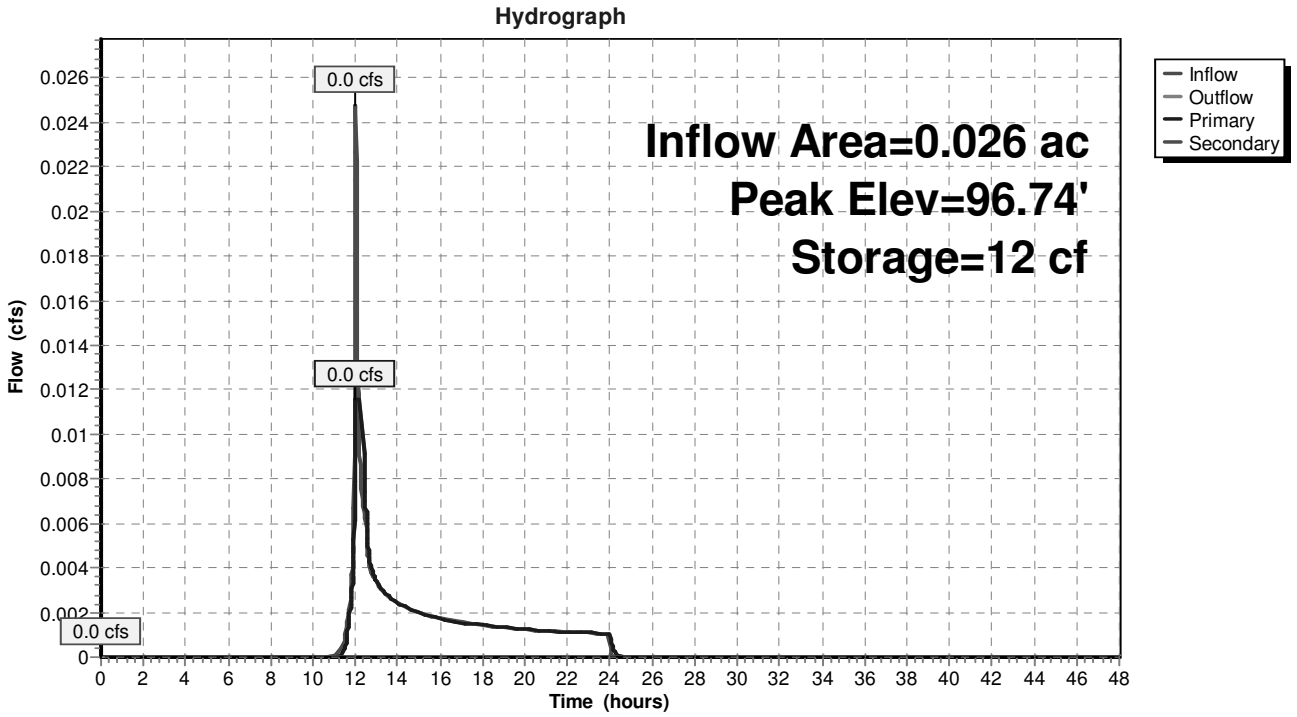
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
96.08	50	31.1	0.0	0	0	50
97.25	50	31.1	35.0	20	20	86
97.50	50	31.1	20.0	3	23	94
99.00	50	31.1	10.0	8	30	141
99.50	103	40.5	100.0	37	68	197
100.00	174	50.7	100.0	68	136	275
100.10	288	63.3	100.0	23	159	389

Device	Routing	Invert	Outlet Devices
#1	Primary	96.42'	**6.0" Round Culvert** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 96.42' / 96.42' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Device 1	96.08'	**10.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Secondary	99.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.0 cfs @ 11.97 hrs HW=96.54' TW=92.90' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 0.0 cfs of 0.0 cfs potential flow)
↑—**2=Exfiltration** (Exfiltration Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=96.42' TW=92.67' (Dynamic Tailwater)
↑—**3=Orifice/Grate** (Controls 0.0 cfs)

Pond RG1: RG1


Hydrograph
Inflow Area=0.026 ac
Peak Elev=96.74'
Storage=12 cf
0.0 cfs
0.0 cfs
0.0 cfs
Inflow
Outflow
Primary
Secondary
Flow (cfs)
Time (hours)
0
0.002
0.004
0.006
0.008
0.01
0.012
0.014
0.016
0.018
0.02
0.022
0.024
0.026
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Pond RG2: RG2

Inflow Area = 0.025 ac, 32.60% Impervious, Inflow Depth = 1.03" for 10-yr event
Inflow = 0.0 cfs @ 12.01 hrs, Volume= 0.00 af
Outflow = 0.0 cfs @ 12.01 hrs, Volume= 0.00 af, Atten= 35%, Lag= 0.0 min
Primary = 0.0 cfs @ 12.01 hrs, Volume= 0.00 af
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 96.42' Surf.Area= 69 sf Storage= 8 cf
Peak Elev= 96.60' @ 12.05 hrs Surf.Area= 69 sf Storage= 13 cf (4 cf above start)
Flood Elev= 99.75' Surf.Area= 222 sf Storage= 141 cf (132 cf above start)

Plug-Flow detention time= 73.7 min calculated for 0.00 af (91% of inflow)
Center-of-Mass det. time= 9.6 min (947.5 - 937.9)

Volume	Invert	Avail.Storage	Storage Description
#1	96.08'	141 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

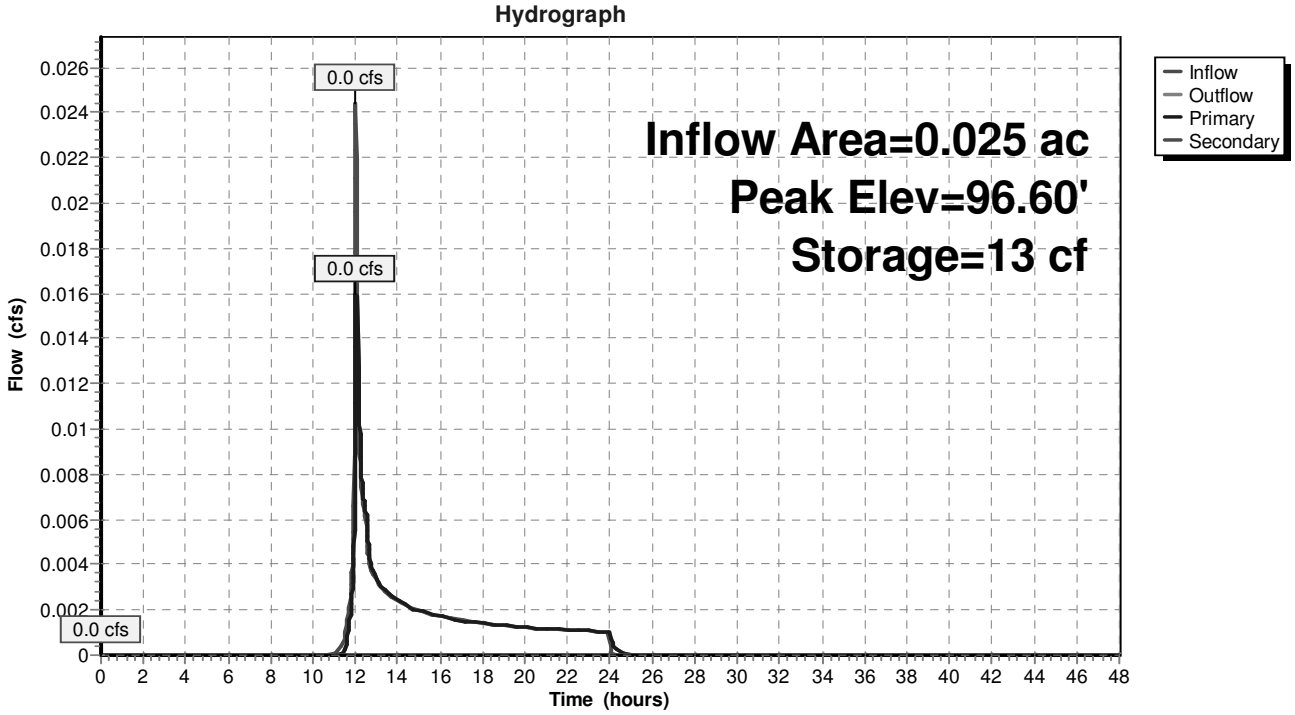
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
96.08	69	36.0	0.0	0	0	69
97.25	69	36.0	35.0	28	28	111
97.50	69	36.0	20.0	3	32	120
99.00	69	36.0	10.0	10	42	174
99.50	147	54.9	100.0	53	95	313
99.75	222	75.9	100.0	46	141	532

Device	Routing	Invert	Outlet Devices
#1	Primary	96.42'	**6.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 96.42' / 96.42' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Device 1	96.08'	**10.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Secondary	99.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.0 cfs @ 12.01 hrs HW=96.57' TW=95.88' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 0.0 cfs of 0.0 cfs potential flow)
↑—**2=Exfiltration** (Exfiltration Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=96.42' TW=95.82' (Dynamic Tailwater)
↑—**3=Orifice/Grate** (Controls 0.0 cfs)

Pond RG2: RG2


Hydrograph
Inflow Area=0.025 ac
Peak Elev=96.60'
Storage=13 cf
0.0 cfs
0.0 cfs
0.0 cfs
Inflow
Outflow
Primary
Secondary
Flow (cfs)
Time (hours)
0
0.002
0.004
0.006
0.008
0.01
0.012
0.014
0.016
0.018
0.02
0.022
0.024
0.026
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Pond RG3: RG3

Inflow Area = 0.394 ac, 56.10% Impervious, Inflow Depth = 2.01" for 10-yr event
Inflow = 0.7 cfs @ 12.07 hrs, Volume= 0.07 af
Outflow = 0.2 cfs @ 12.48 hrs, Volume= 0.07 af, Atten= 71%, Lag= 24.7 min
Primary = 0.2 cfs @ 12.48 hrs, Volume= 0.07 af
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 93.42' Surf.Area= 659 sf Storage= 78 cf
Peak Elev= 96.19' @ 12.48 hrs Surf.Area= 846 sf Storage= 563 cf (485 cf above start)
Flood Elev= 97.15' Surf.Area= 1,902 sf Storage= 1,639 cf (1,560 cf above start)

Plug-Flow detention time= 49.0 min calculated for 0.06 af (97% of inflow)
Center-of-Mass det. time= 25.3 min (912.1 - 886.8)

Volume	Invert	Avail.Storage	Storage Description
#1	96.00'	186 cf	**Sediment Forebay (Irregular)** Listed below (Recalc)
#2	93.08'	1,453 cf	**Rain Garden 3 (Irregular)** Listed below
		1,639 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
96.00	81	41.8	0	0	81
97.00	317	107.5	186	186	865

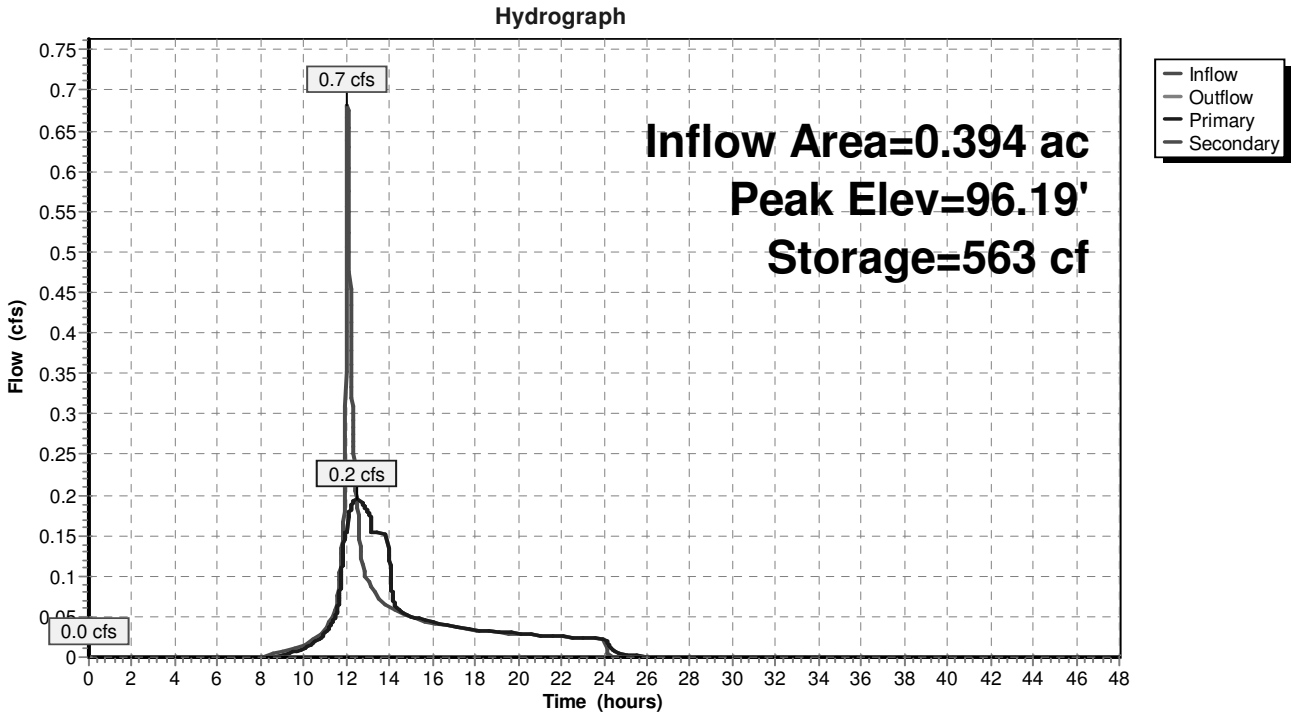
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
93.08	659	109.8	0.0	0	0	659
94.25	659	109.8	35.0	270	270	787
94.50	659	109.8	20.0	33	303	815
96.00	659	109.8	10.0	99	402	980
96.50	850	133.9	100.0	376	778	1,451
96.65	906	136.7	100.0	132	910	1,515
97.00	1,069	156.8	100.0	345	1,255	1,987
97.15	1,585	233.0	100.0	198	1,453	4,351

Device	Routing	Invert	Outlet Devices
#1	Primary	93.42'	**6.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 93.42' / 93.42' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Device 1	93.08'	**10.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Secondary	96.65'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.2 cfs @ 12.48 hrs HW=96.19' TW=93.67' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 0.2 cfs of 1.2 cfs potential flow)
↑—**2=Exfiltration** (Exfiltration Controls 0.2 cfs)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=93.42' TW=93.42' (Dynamic Tailwater)
↑—**3=Orifice/Grate** (Controls 0.0 cfs)

Pond RG3: RG3


Hydrograph
Inflow Area=0.394 ac
Peak Elev=96.19'
Storage=563 cf
0.7 cfs
0.2 cfs
0.0 cfs
Flow (cfs)
Time (hours)
Inflow
Outflow
Primary
Secondary

Summary for Pond YD1: YD1

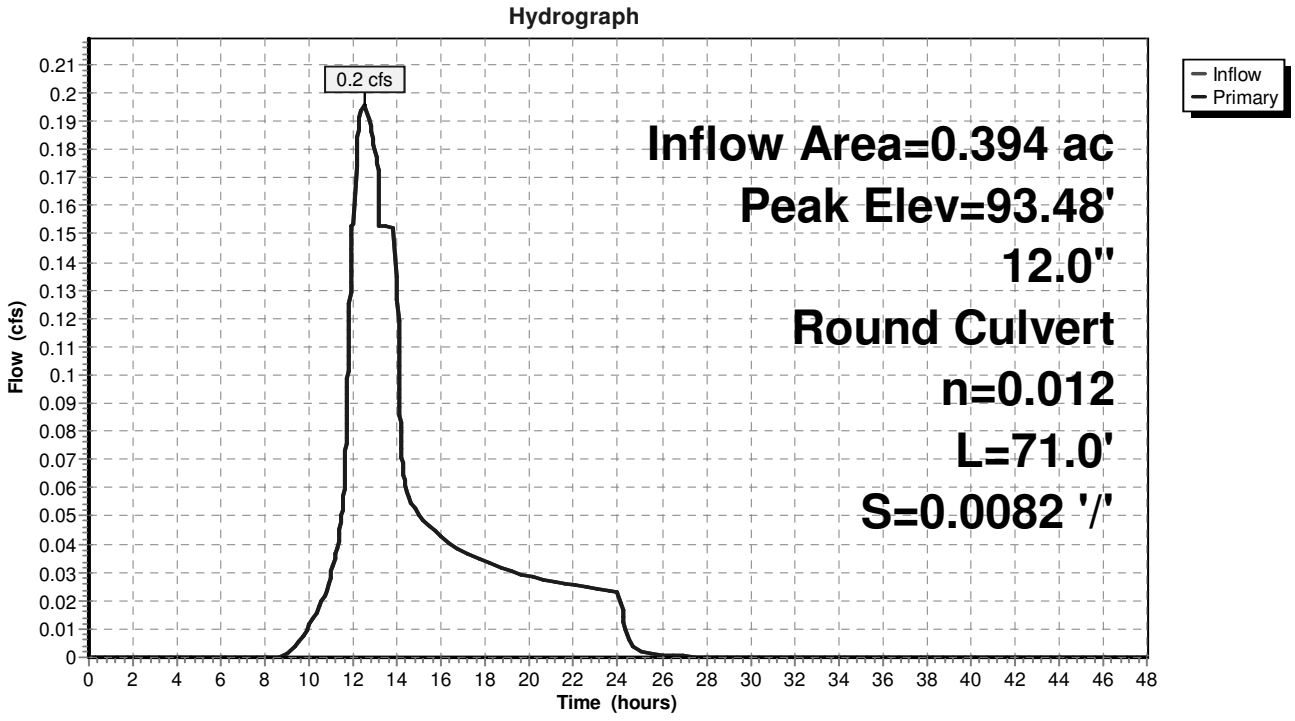
Inflow Area = 0.394 ac, 56.10% Impervious, Inflow Depth = 2.01" for 10-yr event
Inflow = 0.2 cfs @ 12.48 hrs, Volume= 0.07 af
Outflow = 0.2 cfs @ 12.48 hrs, Volume= 0.07 af, Atten= 0%, Lag= 0.0 min
Primary = 0.2 cfs @ 12.48 hrs, Volume= 0.07 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 93.48' @ 12.45 hrs
Flood Elev= 99.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	93.25'	**12.0" Round Culvert** L= 71.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 93.25' / 92.67' S= 0.0082 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.2 cfs @ 12.48 hrs HW=93.48' TW=92.93' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.2 cfs @ 2.17 fps)

Pond YD1: YD1



Summary for Pond YD2: YD2

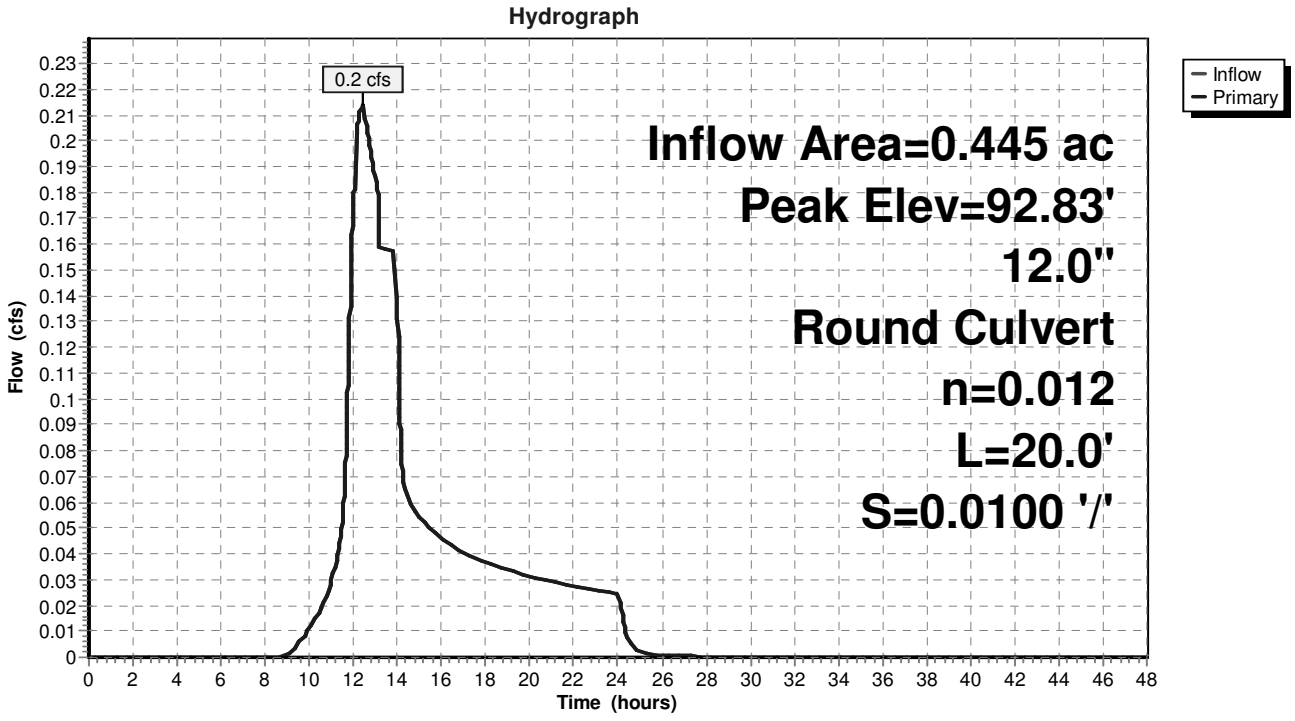
Inflow Area = 0.445 ac, 53.40% Impervious, Inflow Depth > 1.89" for 10-yr event
Inflow = 0.2 cfs @ 12.43 hrs, Volume= 0.07 af
Outflow = 0.2 cfs @ 12.43 hrs, Volume= 0.07 af, Atten= 0%, Lag= 0.0 min
Primary = 0.2 cfs @ 12.43 hrs, Volume= 0.07 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 92.83' @ 12.43 hrs
Flood Elev= 100.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	92.60'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 92.60' / 92.40' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.2 cfs @ 12.43 hrs HW=92.83' TW=92.42' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 0.2 cfs @ 2.30 fps)

Pond YD2: YD2



A – 2

NODE LISTING – 25-YR

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

Subcatchment 1: 1 Runoff Area=1,114 sf 32.23% Impervious Runoff Depth=1.76"
Flow Length=29' Slope=0.0400 '/' Tc=2.8 min CN=58 Runoff=0.0 cfs 0.00 af

Subcatchment 2: 2 Runoff Area=1,098 sf 32.60% Impervious Runoff Depth=1.76"
Flow Length=29' Slope=0.0400 '/' Tc=2.8 min CN=58 Runoff=0.0 cfs 0.00 af

Subcatchment 3: 3 Runoff Area=17,166 sf 56.10% Impervious Runoff Depth=3.00"
Flow Length=99' Slope=0.0310 '/' Tc=8.2 min CN=72 Runoff=1.0 cfs 0.10 af

Pond CB1909: CB1909 Peak Elev=92.45' Inflow=0.3 cfs 0.11 af
15.0" Round Culvert n=0.012 L=26.0' S=0.0000 '/' Outflow=0.3 cfs 0.11 af

Pond OS1: OS1 Peak Elev=92.97' Inflow=0.3 cfs 0.10 af
12.0" Round Culvert n=0.012 L=3.0' S=0.0233 '/' Outflow=0.3 cfs 0.10 af

Pond OS2: OS2 Peak Elev=95.88' Inflow=0.0 cfs 0.00 af
12.0" Round Culvert n=0.012 L=42.0' S=0.0119 '/' Outflow=0.0 cfs 0.00 af

Pond OS3: OS3 Peak Elev=93.70' Inflow=0.2 cfs 0.10 af
12.0" Round Culvert n=0.012 L=21.0' S=0.0081 '/' Outflow=0.2 cfs 0.10 af

Pond RG1: RG1 Peak Elev=97.63' Storage=24 cf Inflow=0.0 cfs 0.00 af
Primary=0.0 cfs 0.00 af Secondary=0.0 cfs 0.00 af Outflow=0.0 cfs 0.00 af

Pond RG2: RG2 Peak Elev=96.96' Storage=21 cf Inflow=0.0 cfs 0.00 af
Primary=0.0 cfs 0.00 af Secondary=0.0 cfs 0.00 af Outflow=0.0 cfs 0.00 af

Pond RG3: RG3 Peak Elev=96.55' Storage=889 cf Inflow=1.0 cfs 0.10 af
Primary=0.2 cfs 0.10 af Secondary=0.0 cfs 0.00 af Outflow=0.2 cfs 0.10 af

Pond YD1: YD1 Peak Elev=93.51' Inflow=0.2 cfs 0.10 af
12.0" Round Culvert n=0.012 L=71.0' S=0.0082 '/' Outflow=0.2 cfs 0.10 af

Pond YD2: YD2 Peak Elev=92.87' Inflow=0.3 cfs 0.11 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0100 '/' Outflow=0.3 cfs 0.11 af

Total Runoff Area = 0.445 ac Runoff Volume = 0.11 af Average Runoff Depth = 2.86"
46.60% Pervious = 0.207 ac 53.40% Impervious = 0.238 ac

A – 2

NODE LISTING – 50-YR

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

Subcatchment 1: 1 Runoff Area=1,114 sf 32.23% Impervious Runoff Depth=2.53"
Flow Length=29' Slope=0.0400 '/' Tc=2.8 min CN=58 Runoff=0.1 cfs 0.01 af

Subcatchment 2: 2 Runoff Area=1,098 sf 32.60% Impervious Runoff Depth=2.53"
Flow Length=29' Slope=0.0400 '/' Tc=2.8 min CN=58 Runoff=0.1 cfs 0.01 af

Subcatchment 3: 3 Runoff Area=17,166 sf 56.10% Impervious Runoff Depth=3.98"
Flow Length=99' Slope=0.0310 '/' Tc=8.2 min CN=72 Runoff=1.2 cfs 0.13 af

Pond CB1909: CB1909 Peak Elev=92.58' Inflow=0.5 cfs 0.14 af
15.0" Round Culvert n=0.012 L=26.0' S=0.0000 '/' Outflow=0.5 cfs 0.14 af

Pond OS1: OS1 Peak Elev=93.11' Inflow=0.5 cfs 0.14 af
12.0" Round Culvert n=0.012 L=3.0' S=0.0233 '/' Outflow=0.5 cfs 0.14 af

Pond OS2: OS2 Peak Elev=95.88' Inflow=0.0 cfs 0.01 af
12.0" Round Culvert n=0.012 L=42.0' S=0.0119 '/' Outflow=0.0 cfs 0.01 af

Pond OS3: OS3 Peak Elev=93.84' Inflow=0.5 cfs 0.13 af
12.0" Round Culvert n=0.012 L=21.0' S=0.0081 '/' Outflow=0.5 cfs 0.13 af

Pond RG1: RG1 Peak Elev=99.14' Storage=38 cf Inflow=0.1 cfs 0.01 af
Primary=0.0 cfs 0.01 af Secondary=0.0 cfs 0.00 af Outflow=0.0 cfs 0.01 af

Pond RG2: RG2 Peak Elev=97.88' Storage=34 cf Inflow=0.1 cfs 0.01 af
Primary=0.0 cfs 0.01 af Secondary=0.0 cfs 0.00 af Outflow=0.0 cfs 0.01 af

Pond RG3: RG3 Peak Elev=96.71' Storage=1,076 cf Inflow=1.2 cfs 0.13 af
Primary=0.3 cfs 0.13 af Secondary=0.2 cfs 0.01 af Outflow=0.5 cfs 0.13 af

Pond YD1: YD1 Peak Elev=93.64' Inflow=0.5 cfs 0.13 af
12.0" Round Culvert n=0.012 L=71.0' S=0.0082 '/' Outflow=0.5 cfs 0.13 af

Pond YD2: YD2 Peak Elev=92.99' Inflow=0.5 cfs 0.14 af
12.0" Round Culvert n=0.012 L=20.0' S=0.0100 '/' Outflow=0.5 cfs 0.14 af

Total Runoff Area = 0.445 ac Runoff Volume = 0.14 af Average Runoff Depth = 3.82"
46.60% Pervious = 0.207 ac 53.40% Impervious = 0.238 ac

APPENDIX B

DESIGN

B – 1

STORMWATER BEST MANAGEMENT PRACTICES

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

FILTRATION PRACTICE DESIGN CRITERIA (Env-Wq 1508.07)

Type/Node Name: **Rain Garden 1 (RG1)**

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

YES		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.03	ac	A = Area draining to the practice	
0.01	ac	A_I = Impervious area draining to the practice	
0.32	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.34	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.01	ac-in	WQV= 1" x Rv x A	
32	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
8	cf	25% x WQV (check calc for sediment forebay volume)	
24	cf	75% x WQV (check calc for surface sand filter volume)	
Roof Runoff		Method of Pretreatment? (not required for clean or roof runoff)	
-	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
Calculate time to drain if system IS NOT underdrained:			
	sf	A_{SA} = Surface area of the practice	
	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
		If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
	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:			
99.37	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
0.01	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
1.75	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	**≤ 72-hrs**
97.50	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
96.42	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
96.42	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
96.08	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.08	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	**≥ 1'**
1.42	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	**≥ 1'**
1.08	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	**≥ 1'**
99.14	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
100.10	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**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 75%WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	**← yes**

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
45	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
18.0	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet	14	Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	**≥ 3:1**
Sheet	L1.0	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 RG1: RG1

Inflow Area = 0.026 ac, 32.23% Impervious, Inflow Depth = 2.53" for 50-yr event
Inflow = 0.1 cfs @ 12.01 hrs, Volume= 0.01 af
Outflow = 0.0 cfs @ 12.44 hrs, Volume= 0.01 af, Atten= 77%, Lag= 26.1 min
Primary = 0.0 cfs @ 12.44 hrs, Volume= 0.01 af
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 96.42' Surf.Area= 50 sf Storage= 6 cf
Peak Elev= 99.14' @ 12.44 hrs Surf.Area= 63 sf Storage= 38 cf (32 cf above start)
Flood Elev= 100.10' Surf.Area= 288 sf Storage= 159 cf (153 cf above start)

Plug-Flow detention time= 35.8 min calculated for 0.01 af (97% of inflow)
Center-of-Mass det. time= 14.7 min (919.2 - 904.5)

Volume	Invert	Avail.Storage	Storage Description
#1	96.08'	159 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
96.08	50	31.1	0.0	0	0	50
97.25	50	31.1	35.0	20	20	86
97.50	50	31.1	20.0	3	23	94
99.00	50	31.1	10.0	8	30	141
99.50	103	40.5	100.0	37	68	197
100.00	174	50.7	100.0	68	136	275
100.10	288	63.3	100.0	23	159	389

Storage provided = 45 cf

Device	Routing	Invert	Outlet Devices
#1	Primary	96.42'	**6.0" Round Culvert** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 96.42' / 96.42' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Device 1	96.08'	**10.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Secondary	99.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.0 cfs @ 12.44 hrs HW=99.14' TW=93.07' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.0 cfs of 1.2 cfs potential flow)
└─**2=Exfiltration** (Exfiltration Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=96.42' TW=92.67' (Dynamic Tailwater)
└─**3=Orifice/Grate** (Controls 0.0 cfs)

Stage-Area-Storage for Pond RG1: RG1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
96.08	50	0
96.13	50	1
96.18	50	2
96.23	50	3
96.28	50	4
96.33	50	4
96.38	50	5
96.43	50	6
96.48	50	7
96.53	50	8
96.58	50	9
96.63	50	10
96.68	50	10
96.73	50	11
96.78	50	12
96.83	50	13
96.88	50	14
96.93	50	15
96.98	50	16
97.03	50	17
97.08	50	18
97.13	50	18
97.18	50	19
97.23	50	20
97.28	50	21
97.33	50	21
97.38	50	22
97.43	50	22
97.48	50	23
97.53	50	23
97.58	50	23
97.63	50	24
97.68	50	24
97.73	50	24
97.78	50	24
97.83	50	25
97.88	50	25
97.93	50	25
97.98	50	25
98.03	50	26
98.08	50	26
98.13	50	26
98.18	50	26
98.23	50	27
98.28	50	27
98.33	50	27
98.38	50	27
98.43	50	28
98.48	50	28
98.53	50	28
98.58	50	28
98.63	50	29
98.68	50	29
98.73	50	29
98.78	50	29
98.83	50	30
98.88	50	30
98.93	50	30
98.98	50	30
99.03	53	32
99.08	57	35
99.13	62	38
99.18	67	41
99.23	72	44
99.28	77	48
99.33	83	52
99.38	89	56
99.43	94	61
99.48	101	66
99.53	107	71
99.58	113	77
99.63	120	82
99.68	126	89
99.73	133	95
99.78	140	102
99.83	148	109
99.88	155	117
99.93	163	125
99.98	171	133
100.03	205	142
100.08	**263**	**154**

99.37' ~ 55 cf

97.50' ~ 23cf

El. WQV = 32cf + 23cf = 55cf ~ 99.37'

FILTRATION PRACTICE DESIGN CRITERIA
(Env-Wq 1508.07)

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Type/Node Name: **Rain Garden 2 (RG2)**

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

YES		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.03	ac	A = Area draining to the practice	
0.01	ac	A_I = Impervious area draining to the practice	
0.33	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.34	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.01	ac-in	WQV= 1" x Rv x A	
31	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
8	cf	25% x WQV (check calc for sediment forebay volume)	
24	cf	75% x WQV (check calc for surface sand filter volume)	
Roof Runoff		Method of Pretreatment? (not required for clean or roof runoff)	
-	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
Calculate time to drain if system IS NOT underdrained:			
	sf	A_{SA} = Surface area of the practice	
	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
		If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
	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:			
99.24	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
0.02	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
0.87	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	**≤ 72-hrs**
97.50	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
96.42	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
96.42	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
96.08	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.08	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	**≥ 1'**
1.42	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	**≥ 1'**
1.08	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	**≥ 1'**
97.88	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
99.75	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**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 75%WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	**← yes**

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
63	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
18.0	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet	14	Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	**≥ 3:1**
Sheet	L1.0	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 RG2: RG2

Inflow Area = 0.025 ac, 32.60% Impervious, Inflow Depth = 2.53" for 50-yr event
Inflow = 0.1 cfs @ 12.01 hrs, Volume= 0.01 af
Outflow = 0.0 cfs @ 11.93 hrs, Volume= 0.01 af, Atten= 74%, Lag= 0.0 min
Primary = 0.0 cfs @ 11.93 hrs, Volume= 0.01 af
Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 96.42' Surf.Area= 69 sf Storage= 8 cf
Peak Elev= 97.88' @ 12.34 hrs Surf.Area= 69 sf Storage= 34 cf (26 cf above start)
Flood Elev= 99.75' Surf.Area= 222 sf Storage= 141 cf (132 cf above start)

Plug-Flow detention time= 40.4 min calculated for 0.01 af (96% of inflow)
Center-of-Mass det. time= 11.4 min (915.9 - 904.5)

Volume	Invert	Avail.Storage	Storage Description
#1	96.08'	141 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
96.08	69	36.0	0.0	0	0	69
97.25	69	36.0	35.0	28	28	111
97.50	69	36.0	20.0	3	32	120
99.00	69	36.0	10.0	10	42	174
99.50	147	54.9	100.0	53	95	313
99.75	222	75.9	100.0	46	141	532

Storage provided = 63 cf

Device	Routing	Invert	Outlet Devices
#1	Primary	96.42'	**6.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 96.42' / 96.42' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Device 1	96.08'	**10.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Secondary	99.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.0 cfs @ 11.93 hrs HW=96.56' TW=95.88' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.0 cfs of 0.0 cfs potential flow)
└─**2=Exfiltration** (Exfiltration Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 0.00 hrs HW=96.42' TW=95.82' (Dynamic Tailwater)
└─**3=Orifice/Grate** (Controls 0.0 cfs)

Stage-Area-Storage for Pond RG2: RG2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
96.08	69	0
96.13	69	1
96.18	69	2
96.23	69	4
96.28	69	5
96.33	69	6
96.38	69	7
96.43	69	8
96.48	69	10
96.53	69	11
96.58	69	12
96.63	69	13
96.68	69	14
96.73	69	16
96.78	69	17
96.83	69	18
96.88	69	19
96.93	69	21
96.98	69	22
97.03	69	23
97.08	69	24
97.13	69	25
97.18	69	27
97.23	69	28
97.28	69	29
97.33	69	29
97.38	69	30
97.43	69	31
97.48	69	31
97.53	69	32
97.58	69	32
97.63	69	33
97.68	69	33
97.73	69	33
97.78	69	34
97.83	69	34
97.88	69	34
97.93	69	35
97.98	69	35
98.03	69	35
98.08	69	36
98.13	69	36
98.18	69	36
98.23	69	37
98.28	69	37
98.33	69	37
98.38	69	38
98.43	69	38
98.48	69	38
98.53	69	39
98.58	69	39
98.63	69	40
98.68	69	40
98.73	69	40

97.50' ~ 32 cf

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
98.78	69	41
98.83	69	41
98.88	69	41
98.93	69	42
98.98	69	42
99.03	73	44
99.08	80	48
99.13	86	52
99.18	94	57
99.23	101	62
99.28	109	67
99.33	117	72
99.38	126	79
99.43	134	85
99.48	143	92
99.53	155	99
99.58	169	107
99.63	184	116
99.68	199	126
99.73	**215**	**136**

99.24' ~ 63 cf

El. WQV = 32cf + 31cf = 63cf ~ 99.24'

FILTRATION PRACTICE DESIGN CRITERIA
(Env-Wq 1508.07)

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Type/Node Name: **Rain Garden 3 (RG3)**

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

YES		Check if you reviewed the restrictions on unlined systems outlined in Env-Wq 1508.07(a).	
0.39	ac	A = Area draining to the practice	
0.22	ac	A_I = Impervious area draining to the practice	
0.56	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.55	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.22	ac-in	WQV= 1" x Rv x A	
792	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
198	cf	25% x WQV (check calc for sediment forebay volume)	
594	cf	75% x WQV (check calc for surface sand filter volume)	
Sediment Forebay		Method of Pretreatment? (not required for clean or roof runoff)	
186	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
Calculate time to drain if system IS NOT underdrained:			
	sf	A_{SA} = Surface area of the practice	
	iph	$Ksat_{DESIGN}$ = Design infiltration rate[1]	
		If Ksat (prior to factor of safety) is < 0.50 iph, has an underdrain been provided?	
	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:			
96.65	ft	E_{WQV} = Elevation of WQV (attach stage-storage table)	
0.26	cfs	Q_{WQV} = Discharge at the E_{WQV} (attach stage-discharge table)	
1.69	hours	T_{DRAIN} = Drain time = 2WQV/Q_{WQV}	**≤ 72-hrs**
94.50	feet	E_{FC} = Elevation of the bottom of the filter course material[2]	
93.42	feet	E_{UD} = Invert elevation of the underdrain (UD), if applicable	
93.42	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
92.60	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.08	feet	$D_{FC\ to\ UD}$ = Depth to UD from the bottom of the filter course	**≥ 1'**
1.90	feet	$D_{FC\ to\ ROCK}$ = Depth to bedrock from the bottom of the filter course	**≥ 1'**
1.08	feet	$D_{FC\ to\ SHWT}$ = Depth to SHWT from the bottom of the filter course	**≥ 1'**
96.71	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
97.15	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**
	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ 75%WQV**
	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet		Note what sheet in the plan set contains the filter course specification.	
	Yes/No	Access grate provided?	**← yes**

If a bioretention area is proposed:			
YES	ac	Drainage Area no larger than 5 ac?	**← yes**
793	cf	V = Volume of storage[3] (attach a stage-storage table)	**≥ WQV**
18.0	inches	D_{FC} = Filter course thickness	**18", or 24" if within GPA**
Sheet	14	Note what sheet in the plan set contains the filter course specification	
3.0	:1	Pond side slopes	**≥ 3:1**
Sheet	L1.0	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: 39% of the impervious area directed to the RG is roof runoff which does not require pre-treatment. The sediment forbay is sized accordingly for the impervious pavement areas draining to it.

Summary for Pond RG3: RG3

Inflow Area = 0.394 ac, 56.10% Impervious, Inflow Depth = 3.98" for 50-yr event
Inflow = 1.2 cfs @ 12.06 hrs, Volume= 0.13 af
Outflow = 0.5 cfs @ 12.30 hrs, Volume= 0.13 af, Atten= 60%, Lag= 13.9 min
Primary = 0.3 cfs @ 12.30 hrs, Volume= 0.13 af
Secondary = 0.2 cfs @ 12.30 hrs, Volume= 0.01 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 93.42' Surf.Area= 659 sf Storage= 78 cf
Peak Elev= 96.71' @ 12.30 hrs Surf.Area= 1,167 sf Storage= 1,076 cf (998 cf above start)
Flood Elev= 97.15' Surf.Area= 1,902 sf Storage= 1,639 cf (1,560 cf above start)

Plug-Flow detention time= 44.2 min calculated for 0.13 af (99% of inflow)
Center-of-Mass det. time= 30.1 min (892.7 - 862.5)

Volume	Invert	Avail.Storage	Storage Description
#1	96.00'	186 cf	**Sediment Forebay (Irregular)** Listed below (Recalc)
#2	93.08'	1,453 cf	**Rain Garden 3 (Irregular)** Listed below
		1,639 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
96.00	81	41.8	0	0	81
97.00	317	107.5	186	186	865

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
93.08	659	109.8	0.0	0	0	659
94.25	659	109.8	35.0	270	270	787
94.50	659	109.8	20.0	33	303	815
96.00	659	109.8	10.0	99	402	980
96.50	850	133.9	100.0	376	778	1,451
96.65	906	136.7	100.0	132	910	1,515
97.00	1,069	156.8	100.0	345	1,255	1,987
97.15	1,585	233.0	100.0	198	1,453	4,351

Storage provided = 793cf El. WQV = 96.65'

Device	Routing	Invert	Outlet Devices
#1	Primary	93.42'	**6.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 93.42' / 93.42' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Device 1	93.08'	**10.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Secondary	96.65'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.3 cfs @ 12.30 hrs HW=96.71' TW=93.84' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 0.3 cfs of 1.3 cfs potential flow)
↑—**2=Exfiltration** (Exfiltration Controls 0.3 cfs)

Secondary OutFlow Max=0.2 cfs @ 12.30 hrs HW=96.71' TW=93.84' (Dynamic Tailwater)
↑—**3=Orifice/Grate** (Weir Controls 0.2 cfs @ 0.81 fps)

Stage-Area-Storage for Pond RG3: RG3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
93.08	659	0
93.13	659	12
93.18	659	23
93.23	659	35
93.28	659	46
93.33	659	58
93.38	659	69
93.43	659	81
93.48	659	92
93.53	659	104
93.58	659	115
93.63	659	127
93.68	659	138
93.73	659	150
93.78	659	161
93.83	659	173
93.88	659	185
93.93	659	196
93.98	659	208
94.03	659	219
94.08	659	231
94.13	659	242
94.18	659	254
94.23	659	265
94.28	659	274
94.33	659	280
94.38	659	287
94.43	659	294
94.48	659	300
94.53	659	305
94.58	659	308
94.63	659	311
94.68	659	315
94.73	659	318
94.78	659	321
94.83	659	325
94.88	659	328
94.93	659	331
94.98	659	334
95.03	659	338
95.08	659	341
95.13	659	344
95.18	659	348
95.23	659	351
95.28	659	354
95.33	659	358
95.38	659	361
95.43	659	364
95.48	659	367
95.53	659	371
95.58	659	374
95.63	659	377
95.68	659	381
95.73	659	384
95.78	659	387
95.83	659	390
95.88	659	394
95.93	659	397
95.98	659	400
96.03	756	427
96.08	784	469
96.13	812	511
96.18	840	554
96.23	868	598
96.28	897	642
96.33	927	686
96.38	957	731
96.43	987	777
96.48	1,017	823
96.53	1,048	873
96.58	1,079	927
96.63	1,110	981
96.68	1,145	1,039
96.73	1,181	1,100
96.78	1,218	1,161
96.83	1,256	1,224
96.88	1,294	1,287
96.93	1,332	1,350
96.98	1,370	1,415
97.03	1,489	1,480
97.08	1,661	1,546
97.13	**1,833**	**1,612**

B – 2

POLLUTANT REMOVAL

Appendix E.
BMP Pollutant Removal Efficiency

Pollutant Removal Efficiencies for Best Management Practices for Use in Pollutant Loading Analysis

Best Management Practice (BMP) removal efficiencies for pollutant loading analysis for total suspended solids (TSS), total nitrogen (TN), and total phosphorus (TP) are presented in the table below. These removal efficiencies were developed by reviewing various literature sources and using best professional judgment based on literature values and general expectation of how values for different BMPS should relate to one another. The intent is to update this information and add BMPs and removal efficiencies for other parameters as more information/data becomes available in the future.

NHDES will consider other BMP removal efficiencies if sufficient documentation is provided.

Please note that all BMPs must be designed in accordance with the specifications in the Alteration of Terrain (AoT) Program Administrative Rules (Env-Wq 1500). If BMPs are not designed in accordance with the AoT Rules, NHDES may require lower removal efficiencies to be used in the analysis.

BMP in Series: When BMPs are placed in series, the BMP with the highest removal efficiency shall be the efficiency used in the model for computing annual loadings. Adding efficiencies together is generally not allowed because removals typically decrease rapidly with decreasing influent concentration and, in the case of primary BMPs (i.e., stormwater ponds, infiltration and filtering practices), pre-treatment is usually part of the design and is therefore, most likely already accounted for in the efficiencies cited for these BMPs.

Pollutant Removal Efficiencies for Best Management Practices for Use in Pollutant Loading Analysis				Values Accepted for Loading Analyses		
BMP Type	**BMP**	**Notes**	**Lit. Ref.**	**TSS**	**TN**	**TP**
Stormwater Ponds	Wet Pond		B, F	70%	35%	45%
	Wet Extended Detention Pond		A, B	80%	55%	68%
	Micropool Extended Detention Pond	TBA				
	Multiple Pond System	TBA				
	Pocket Pond	TBA				
Stormwater Wetlands	Shallow Wetland		A, B, F, I	80%	55%	45%
	Extended Detention Wetland		A, B, F, I	80%	55%	45%
	Pond/Wetland System	TBA				
	Gravel Wetland		H	95%	85%	64%
Infiltration Practices	Infiltration Trench (≥75 ft from surface water)		B, D, I	90%	55%	60%
	Infiltration Trench (<75 ft from surface water)		B, D, I	90%	10%	60%
	Infiltration Basin (≥75 ft from surface water)		A, F, B, D, I	90%	60%	65%
	Infiltration Basin (<75 ft from surface water)		A, F, B, D, I	90%	10%	65%
	Dry Wells			90%	55%	60%
	Drip Edges			90%	55%	60%
Filtering Practices	Aboveground or Underground Sand Filter that infiltrates WQV (≥75 ft from surface water)		A, F, B, D, I	90%	60%	65%
	Aboveground or Underground Sand Filter that infiltrates WQV (<75 ft from surface water)		A, F, B, D, I	90%	10%	65%
	Aboveground or Underground Sand Filter with underdrain		A, I, F, G, H	85%	10%	45%
	Tree Box Filter	TBA				
	Bioretention System		I, G, H	90%	65%	65%
	Permeable Pavement that infiltrates WQV (≥75 ft from surface water)		A, F, B, D, I	90%	60%	65%
	Permeable Pavement that infiltrates WQV (<75 ft from surface water)		A, F, B, D, I	90%	10%	65%
	Permeable Pavement with underdrain		Use TN and TP values for sand filter w/ underdrain and outlet pipe	90%	10%	45%

Pollutant Removal Efficiencies for Best Management Practices for Use in Pollutant Loading Analysis				Values Accepted for Loading Analyses		
BMP Type	**BMP**	**Notes**	**Lit. Ref.**	**TSS**	**TN**	**TP**
Treatment Swales	Flow Through Treatment Swale	TBA				
Vegetated Buffers	Vegetated Buffers		A, B, I	73%	40%	45%
Pre-Treatment Practices	Sediment Forebay	TBA				
	Vegetated Filter Strip		A, B, I	73%	40%	45%
	Vegetated Swale		A, B, C, F, H, I	65%	20%	25%
	Flow-Through Device - Hydrodynamic Separator		A, B, G, H	35%	10%	5%
	Flow-Through Device - ADS Underground Multichamber Water Quality Unit (WQU)		G, H	72%	10%	9%
	Other Flow-Through Devices	TBA				
	Off-line Deep Sump Catch Basin		J, K, L, M	15%	5%	5%

B – 3

GROUNDWATER RECHARGE

Job CNE#23029 - Perez
Conducted By: Michael Menary
Witnessed By: Douglas LaRosa
Date: 10/2/2023

Test Pit: 1 **Date:** 10/2/2023

Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-10"	10YR 4/4	FINE SANDY LOAM	MASSIVE	FRIABLE		
10"-24"	10YR 5/3	SILTY LOAM	MASSIVE	FRIABLE	5YR 6/4 2% @ 24"	ROOTS @ 24" MANY FINE
24"-48"	2.5Y 6/4	SILTY CLAY	PLATTY	FIRM		

Seasonal High Water (in): 24"
Observed Water (in): NONE
Restrictive Layer (in): NONE
Bedrock/Refusal (in): NONE

Soil Series:
NHDES Soil Group:
Hydrologic Soil Group:

Depth Perc Test Inches Per Hour

Notes:

Test Pit: 2 **Date:** 10/2/2023

Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-10"	10YR 3/4	FINE SANDY LOAM	MASSIVE	FRIABLE		
10"-22"	10YR 4/4	SANDY LOAM	MASSIVE	FRIABLE	5YR 6/4 2% @ 22"	
22"-38"	2.5Y 6/2	SILTY CLAY	BLOCKY	FRIABLE		

Seasonal High Water (in): 22"
Observed Water (in): NONE
Restrictive Layer (in): NONE
Bedrock/Refusal (in): NONE

Soil Series:
NHDES Soil Group:
Hydrologic Soil Group:

Percolation Test
Depth Perc Test Inches Per Hour

Notes:

NEW HAMPSHIRE
Designer
of
Subsurface Disposal
Systems
★ ★ ★
Douglas J. LaRosa
No. 849
Department of Environmental Services

Test Pit: 3 **Date:** 10/2/2023

Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-14"	10YR 3/3	FINE SANDY LOAM	MASSIVE	FRIABLE		
14-32"	5 YR 5/6	FINE SANDY LOAM	MASSIVE	FRIABLE		
32-48"	2.5Y 4/3	SILTY LOAM	MASSIVE	FRIABLE	5YR 6/4 2% @ 32"	

Seasonal High Water (in): 32
Observed Water (in): NONE
Restrictive Layer (in): NONE
Bedrock/Refusal (in): NONE

Soil Series:
NHDES Soil Group:
Hydrologic Soil Group:

Percolation Test
Depth Perc Test Inches Per Hour

Notes:

Test Pit: **Date:**

Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes

Seasonal High Water (in):
Observed Water (in):
Restrictive Layer (in):
Bedrock/Refusal (in):

Soil Series:
NHDES Soil Group:
Hydrologic Soil Group:

Percolation Test
Depth Perc Test Inches Per Hour

Notes:

NEW HAMPSHIRE
Designer
of
Subsurface Disposal
Systems
★ ★ ★
Douglas J. LaRosa
No. 849
Department of Environmental Services

Stormwater Infiltration Testing Log

Project Name:	CNE#23029 - Perez	**Date:**	10/2/2023
Project Address:	Locus Street	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Michael Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	1	**Test Pit/Boring Hole Number:**	BH1	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):	4 (92.7)	**Surface Elevation (feet):**	96.7	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):

Presoak (Presoaked on 10/1/2023)

Time:	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
10:00AM	**0**	**24**	**0**
10:00AM	**24**	**0**	**24**

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
10:05AM	**10:20AM**	**24**			**Start**
10:20AM	**10:35AM**	**9**			
10:35AM	**10:50AM**	**5.5**			
10:50AM	**11:05AM**	**5.5**			
11:05AM		**5.5**			**Finish**

Stormwater Infiltration Testing Log

Project Name:	CNE#23029 - Perez	**Date:**	10/2/2023
Project Address:	Locus Street	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Michael Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	2	**Test Pit/Boring Hole Number:**	BH1	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):	4 (92.7)	**Surface Elevation (feet):**	96.7	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):

Presoak (Presoaked on 10/1/2023)

Time:	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
10:00AM	**0**	**24**	**0**
10:00AM	**24**	**0**	**24**

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
11:05AM	**11:20AM**	**24**			**Start**
11:20AM	**11:35AM**	**6**			
11:35AM	**11:50AM**	**6**			
11:50AM	**12:05PM**	**6**			
12:05PM		**6**			**Finish**
Stabilized Infiltration Testing Rate (inches per hour):				**Failed**	

Notes:

Pond Area

Stormwater Infiltration Testing Log

Project Name:	CNE#23029 - Perez	**Date:**	10/2/2023
Project Address:	Locus Street	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Michael Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	3	**Test Pit/Boring Hole Number:**	BH1	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):	4 (92.7)	**Surface Elevation (feet):**	96.7	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):

Presoak (Presoaked on 10/1/2023)

Time:	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
10:00AM	**0**	**24**	**0**
10:00AM	**24**	**0**	**24**

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
12:05PM	**12:20PM**	**24**			**Start**
12:20PM	**12:35PM**	**9**			
12:35PM	**12:50PM**	**9**			
12:50PM	**1:05PM**	**9**			
1:05PM		**9**			**Finish**
Stabilized Infiltration Testing Rate (inches per hour):				**Failed**	

Notes:

Pond Area

Stormwater Infiltration Testing Log

Project Name:	CNE#23029 - Perez	**Date:**	10/2/2023
Project Address:	Locus Street	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Michael Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	1	**Test Pit/Boring Hole Number:**	BH2	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):	4 (94.4)	**Surface Elevation (feet):**	98.4	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):

Presoak (Presoaked on 10/1/2023)

Time:	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
10:45AM	**0**	**24**	**0**
10:45AM	**24**	**0**	**24**

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
11:45AM	**12:00PM**	**24**			**Start**
12:00PM	**12:15PM**	**9.5**			
12:15PM	**12:30PM**	**9.5**			
12:30PM	**12:45PM**	**9.5**			
12:45PM		**9.5**			**Finish**

Stormwater Infiltration Testing Log

Project Name:	CNE#23029 - Perez	**Date:**	10/2/2023
Project Address:	Locus Street	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Michael Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	1	**Test Pit/Boring Hole Number:**	BH3	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):	4 (95.25)	**Surface Elevation (feet):**	99.25	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):

Presoak (Presoaked on 10/1/2023)

Time:	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
10:45AM	**0**	**24**	**0**
10:45AM	**24**	**0**	**24**

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
12:15AM	**12:30PM**	**24**			**Start**
12:30PM	**12:45PM**	**12**			
12:45PM	**1:00PM**	**10.5**			
1:00PM	**1:15PM**	**9.25**			
1:15PM		**8.25**	**15.75**	**15.75**	**Finish**
Stabilized Infiltration Testing Rate (inches per hour):				**Failed**	Use Test 2

Notes:

Parking Area

Stormwater Infiltration Testing Log

Project Name:	CNE#23029 - Perez	**Date:**	10/2/2023
Project Address:	Locus Street	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Michael Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	2	**Test Pit/Boring Hole Number:**	BH3	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):	4 (95.25)	**Surface Elevation (feet):**	99.25	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):

Presoak (Presoaked on 10/1/2023)

Time:	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
10:45AM	**0**	**24**	**0**
10:45AM	**24**	**0**	**24**

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
12:15AM	**12:30PM**	**24**			**Start**
12:30PM	**12:45PM**	**12.5**			
12:45PM	**1:00PM**	**12**			
1:00PM	**1:15PM**	**12**			
1:15PM		**12**			**Finish**

APPENDIX C

INSPECTION AND MAINTENANCE

C – 1

STORMWATER MANAGEMENT SYSTEM INSPECTION & MAINTENANCE PLAN

Stormwater Management System Inspection & Maintenance Plan

Prepared for:

LOCUST STREET RESIDENTIAL DEVELOPMENT
Map 12, Lot 35-1

Locust Street
Dover, New Hampshire
Strafford County

February 2024

Owner of Record:

17 – 19 SUMMER STREET PROPERTIES, LLC
71 Lafayette Road
Hampton Falls, New Hampshire 03844

Prepared By:

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

Introduction

Civilworks NE, has prepared the following Stormwater Management System Inspection & Maintenance Plan for **17 – 19 Summer Street Properties, LLC.** The intent of this plan is to provide a list of procedures that document the inspection and maintenance requirements of the Stormwater Management System for this site.

The inspection and maintenance requirements outlined in this document are required to be performed in perpetuity. In the event the property is sold, future owners will be responsible for implementing the responsibilities outlined in this document.

The following inspection and maintenance program is necessary in order to keep the Stormwater Management System functioning properly. These measures will also help to minimize potential environmental impacts to the areas surrounding the developed site. By following the enclosed procedures, the property owners, and maintenance personnel will be able to maintain the functional design of the Stormwater Management System and maximize its ability to remove sediment and other contaminants from site generated stormwater runoff.

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

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

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

Owner:

17 – 19 Summer Street Properties, LLC
71 Lafayette Road
Hampton Falls, NH 03844

In the event of a change in ownership, this Inspection and Maintenance Plan shall be transferred to the new party.

Contact / Responsible Party:

17 – 19 Summer Street Properties, LLC
71 Lafayette Road
Hampton Falls, NH 03844

Ben Perez
Phone: (603) 944-0516
Email: Ben@bostonnorthdevelopment.com

The contact information for the Contact / Responsible Party shall be kept current.

Management Company:

17 – 19 Summer Street Properties, LLC
71 Lafayette Road
Hampton Falls, NH 03844

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

Inspection Schedule / Record Retention

Inspection frequency should, at a minimum, be in accordance with New Hampshire Stormwater Manual, Volume 2, latest edition, as updated by NHDES. See the Inspection and Maintenance Plan for frequency requirements. A copy of the completed Stormwater Management System's Inspection & Maintenance Log and Deicing Salt Quantity Use Log shall be maintained, kept on-site, and be made available to local, state, or federal regulators as applicable by law. All Inspection and Maintenance records must be provided to the City of Dover Community Services Department annually before Dec 15th.

Stormwater Management System Components

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

- Pipes/Culverts
- Outlet Structures
- Sediment Forebay
- Yard Drains
- Bioretention Basins
- Grassed Lined Conveyance Swale
- Pavement
- Litter / Trash Removal

Design elements are identified in the design plans, a copy of which shall be maintained with this Inspection and Maintenance Plan.

Control of Invasive Species

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

Inspection and Maintenance Plan

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

PIPES/CULVERTS:

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

OUTLET STRUCTURES:

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

SEDIMENT FOREBAY:

- Vegetated areas shall be mowed to maintain a 4" start of vegetative growth.
- Inspect at least once per year.
- Inspect for sediment accumulation.
- Remove all debris immediately.

YARD DRAINS:

- Inspect once per year.
- Inspect for floatables, sediment accumulation, and hydrocarbons (oils and grease).
- Remove all floatables immediately and sediment accumulations ≥ 1 foot.
- Hydrocarbons shall be removed immediately by skimming, absorbent materials, or other methods and should be disposed of in accordance with applicable State and Federal regulations.

BIORETENTION BASINS:

- Inspection, by a **qualified professional**, of the Bioretention Basin at least twice annually, and following any rainfall event exceeding 2.5 inches in a 24-hour period, with maintenance or rehabilitation conducted as warranted by such inspection. If the Bioretention Basin systems do not drain within 72-hours following a rainfall event, a qualified professional should assess the condition and determine measures required to restore filtration practice (as applicable).
- Embankments and spillways should be inspected by a **qualified professional** for settlement, erosion, seepage, animal burrows, woody vegetation, and other conditions that could degrade the embankment and reduce its stability for impounding water. Immediate corrective action should be implemented if any such conditions are found.
- Inlet and outlet pipes, inlet and outlet structures, energy dissipation structures or practices, and other structural appurtenances should be inspected by a **qualified professional**, and corrective action implemented (e.g., maintenance, repairs, or replacement) as indicated by such inspection.
- The bottoms, interior and exterior side slopes, and crest of earthen detention basins should be mowed, and the vegetation maintained in healthy condition, as appropriate to the function of the facility and type of vegetation.

- Vegetated embankments that serve as “berms” or “dams” that impound water should be mowed at least once annually to prevent the establishment of woody vegetation.
- Trash and debris should be removed from the pond and any inlet or outlet structures whenever observed.
- Accumulated sediment should be removed when it significantly affects pond capacity.

GRASS LINED CONVEYANCE SWALE:

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

PAVEMENT:

- Minimize sanding.
- Minimize application of salt for ice control.
- Clean periodically (1-2 times per year) using a sweeper or vacuum sweeper. Vacuum sweeping is the preferred method.

LITTER / TRASH REMOVAL:

- Routinely patrol site for litter pick up.

DE-ICING AGENTS:

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

ANTI-ICING AND SALT MINIMIZATION:

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

Inspection & Maintenance Table

System Component / BMP	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
Pipes/Culverts	Annually	• Check for clogging • Check for sediment accumulation	Remove when noticed Clean when necessary
Outlet Structures	Annually	• Inspect once per year. • Inspect for clogging and sediment accumulation. • Remove all debris immediately and sediment accumulations ≥ 2 inches.	≥ 2 in. sediment Remove immediately
Sediment Forebay	Annually	• Check for sediment accumulation • Check for woody vegetation growth • Check for debris • Vegetated areas shall be mowed to maintain a 4” start of vegetative growth.	Remove/Dispose of accordingly Mow twice per year Remove/Dispose of accordingly
Yard Drains	Annually	• Check for sediment accumulation • Check for floatable contaminants • Check for hydrocarbons (oils and grease)	≥ 1 ft. sediment depth Remove all floatables Remove immediately
Bioretention Basins • Outlet Structure • Inlet/Outlet Piping • Embankments • Pond Sediment • Trash/Debris • Vegetation (Veg.)	Bi-Annually “ “ “ “ Periodically “ “ “ “	• See Outlet Structure (OS) Req. • Check for erosion, settlement, seepage, etc. • Check for sediment accumulation in pond • Check for trash (in pond and structures) • Maintain 95% veg. (pond & slopes) • Maintain healthy stand of veg.	See OS Req. Repair immediately ≥ 2 in. sediment Remove all trash/debris Restore veg. in-kind Mow when ≥ 6 in
Grass Lined Conveyance Swale	Annually	• Check for sediment accumulation • Check for erosion • Ensure swale is stabilized • Maintain healthy stand of veg., 4” minimum • Inspect for invasive species	≥ 1 in. sediment Repair immediately Restore vegetation in-kind Mow twice per year Remove/Dispose of accordingly
Pavement: • Sanding • Salt Applications • Sweep/Vacuum • Trash/Debris	Limit use As required 1 - 2 x’s Year Periodically	• Minimize use to prevent tracking issues • RECORD APPLICATION RATES • Sweep or vacuum to prevent tracking issues • Check for trash/debris	Sweep to prevent issues Minimize (as required) Sweep/Vac as needed Remove when noticed
Litter / Trash Removal	Periodically	• Check for litter and trash	Remove when noticed

Inspection & Maintenance Checklist/Log

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

Stormwater Management System's Inspection & Maintenance Log

Date of Inspection/Maintenance_____ Inspector:_____

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

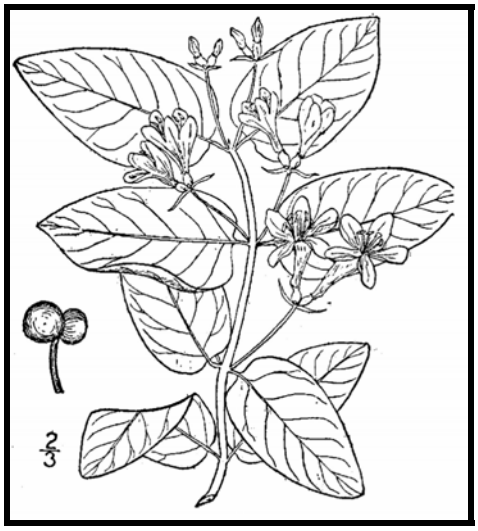
Deicing Salt Quantity Use Log

Date	Amount of Material Applied	Comments

University of New Hampshire Cooperative Extension

Methods for Disposing Non-Native Invasive Plants

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



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

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

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

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

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

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

New Hampshire Regulations

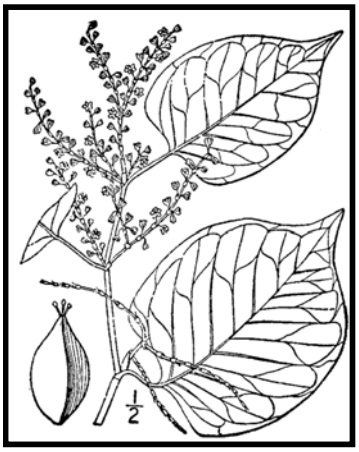
Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

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

How and When to Dispose of Invasives?

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

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



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

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

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

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

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

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

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

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

Suggested Disposal Methods for Non-Native Invasive Plants

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

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

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

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

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

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

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

January 2010

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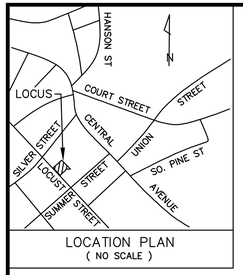
APPENDIX D

WATERSHED PLANS

D – 1

PRE-DEVELOPMENT CONDITIONS



LOCATION PLAN
(NO SCALE)

NH STATE PLANE
NAD 83 - GPS OBS.

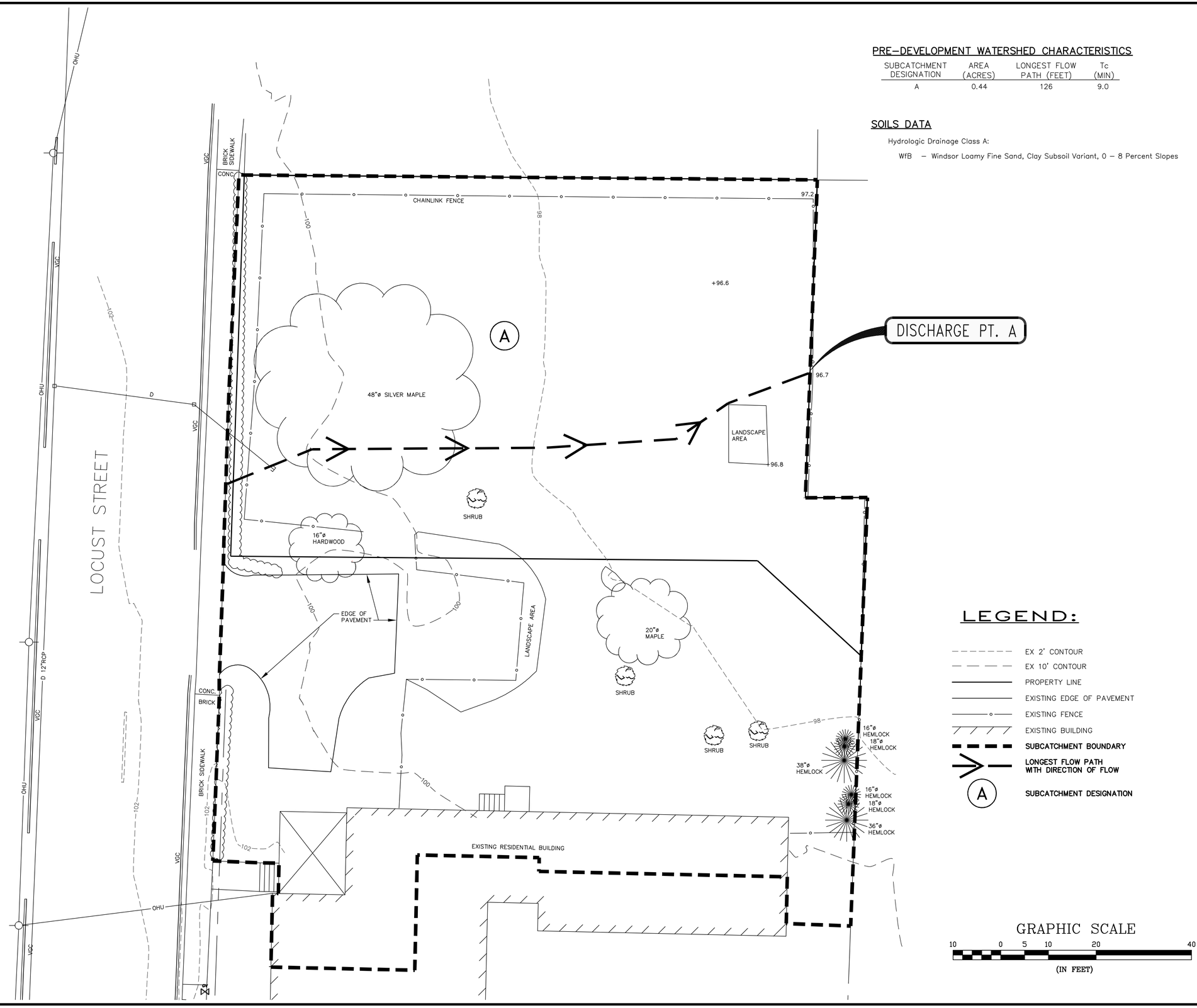
PRE-DEVELOPMENT WATERSHED CHARACTERISTICS

SUBCATCHMENT DESIGNATION	AREA (ACRES)	LONGEST FLOW PATH (FEET)	Tc (MIN)
A	0.44	126	9.0

SOILS DATA

Hydrologic Drainage Class A:

WfB – Windsor Loamy Fine Sand, Clay Subsoil Variant, 0 – 8 Percent Slopes



LEGEND:

- EX 2' CONTOUR
- EX 10' CONTOUR
- PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING FENCE
- EXISTING BUILDING
- SUBCATCHMENT BOUNDARY
- LONGEST FLOW PATH WITH DIRECTION OF FLOW
- (A) SUBCATCHMENT DESIGNATION

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

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

NO.	REVISION	APP'D	DATE

DATE: 2-29-24
SCALE: 1"=10'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO: 23029
FILE: 23029 - Dm

PRE-DEVELOPMENT WATERSHED PLAN

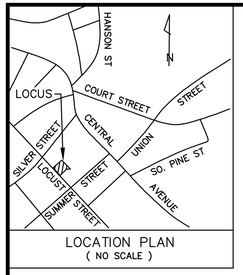
17-19 SUMMER STREET
PROPERTIES, LLC
71 LAFAYETTE ROAD
HAMPTON FALLS, NH 03844

LOCUST STREET
RESIDENTIAL DEVELOPMENT
DOVER, NH

WS-1

D – 2

POST-DEVELOPMENT CONDITIONS



LOCATION PLAN
(NO SCALE)

NH STATE PLANE
NAD 83 - GPS OBS.

DISCHARGE PT.CB1909

CB 1910

CB 1909
RIM = 100.92'
INV. IN = 92.4' (12" HDPE)
INV. OUT = 92.1' (15" HDPE)
SUMP = 89.3'

LOCUST STREET

D 12"RCP

RAIN GARDEN 2 (RG2)

RAIN GARDEN 1 (RG1)

RAIN GARDEN 3 (RG3)

CHAINLINK FENCE

BRICK SIDEWALK

BRICK

BRICK SIDEWALK

EXISTING RESIDENTIAL BUILDING

OS1

OS2

OS3

YD1

YD2

PD

VGC

SHRUB

16"ø HEMLOCK

18"ø HEMLOCK

36"ø HEMLOCK

POST-DEVELOPMENT WATERSHED CHARACTERISTICS

SUBCATCHMENT DESIGNATION	AREA (ACRES)	LONGEST FLOW PATH (FEET)	Tc (MIN)
1	0.03	29	2.8
2	0.03	29	2.8
3	0.39	99	8.2

SOILS DATA

Hydrologic Drainage Class A:

WfB – Windsor Loamy Fine Sand, Clay Subsoil Variant, 0 – 8 Percent Slopes

LEGEND:

- EX 2' CONTOUR
- EX 10' CONTOUR
- PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING FENCE
- EXISTING BUILDING
- PROPOSED EDGE OF PAVEMENT
- PROPOSED BUILDING
- SUBCATCHMENT BOUNDARY
- LONGEST FLOW PATH WITH DIRECTION OF FLOW
- (1) SUBCATCHMENT DESIGNATION

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

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

NO.	REVISION	APP'D	DATE

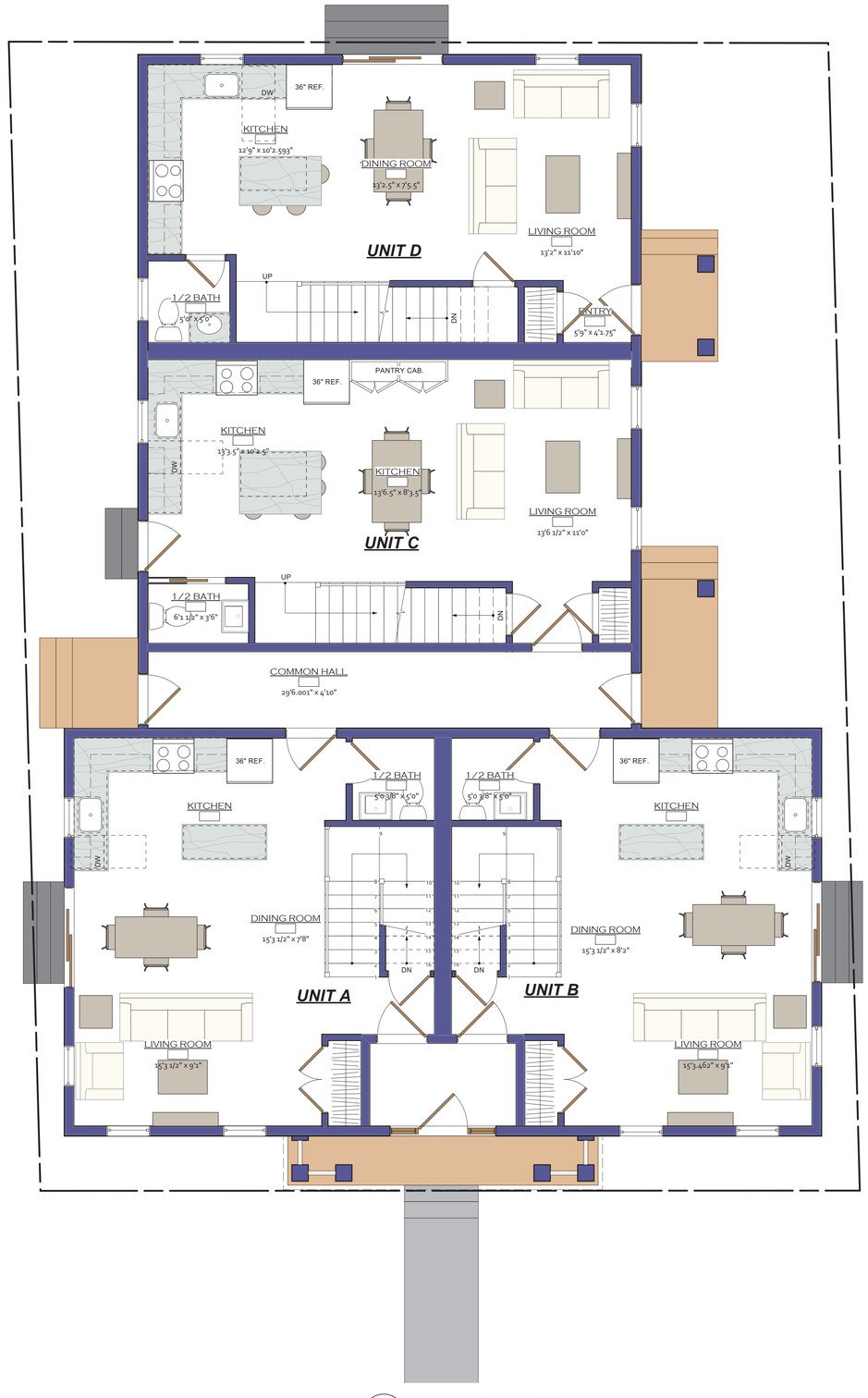
DATE: 2-29-24
SCALE: 1"=10'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO: 23029
FILE: 23029 - Dm

POST-DEVELOPMENT WATERSHED PLAN

17-19 SUMMER STREET
PROPERTIES, LLC
71 LAFAYETTE ROAD
HAMPTON FALLS, NH 03844

LOCUST STREET
RESIDENTIAL DEVELOPMENT
DOVER, NH

WS-2



1 PROPOSED FIRST FLOOR PLAN
Scale: 1/4" = 1'-0"

SQUARE FOOTAGE OPTION 2	
UNIT A	
1st FLOOR GROSS SQ.FT.	567 SQ.FT.
2nd FLOOR GROSS SQ.FT.	581 SQ.FT.
ATTIC GROSS SQ.FT.	499 SQ.FT.
UNIT A - PROPOSED FINISHED SPACE TOTAL	**1647 SQ.FT.**
UNIT B	
1st FLOOR GROSS SQ.FT.	567 SQ.FT.
2nd FLOOR GROSS SQ.FT.	581 SQ.FT.
ATTIC GROSS SQ.FT.	479 SQ.FT.
UNIT B - PROPOSED FINISHED SPACE TOTAL	**1626 SQ.FT.**
UNIT C	
1st FLOOR GROSS SQ.FT.	552 SQ.FT.
2nd FLOOR GROSS SQ.FT.	704 SQ.FT.
ATTIC GROSS SQ.FT.	591 SQ.FT.
UNIT C - PROPOSED FINISHED SPACE TOTAL	**1847 SQ.FT.**
UNIT D	
1st FLOOR GROSS SQ.FT.	550 SQ.FT.
2nd FLOOR GROSS SQ.FT.	550 SQ.FT.
ATTIC GROSS SQ.FT.	466 SQ.FT.
UNIT D - PROPOSED FINISHED SPACE TOTAL	**1565 SQ.FT.**
COMMON CORRIDOR	126 SQ.FT.

DD BY

DISTINCTION
BY DESIGN

REVISION & REISSUE NOTES

No.	Date	Notes

4 UNITS APARTMENT BUILDING

135 LOCUST ST., DOVER, NH 03820

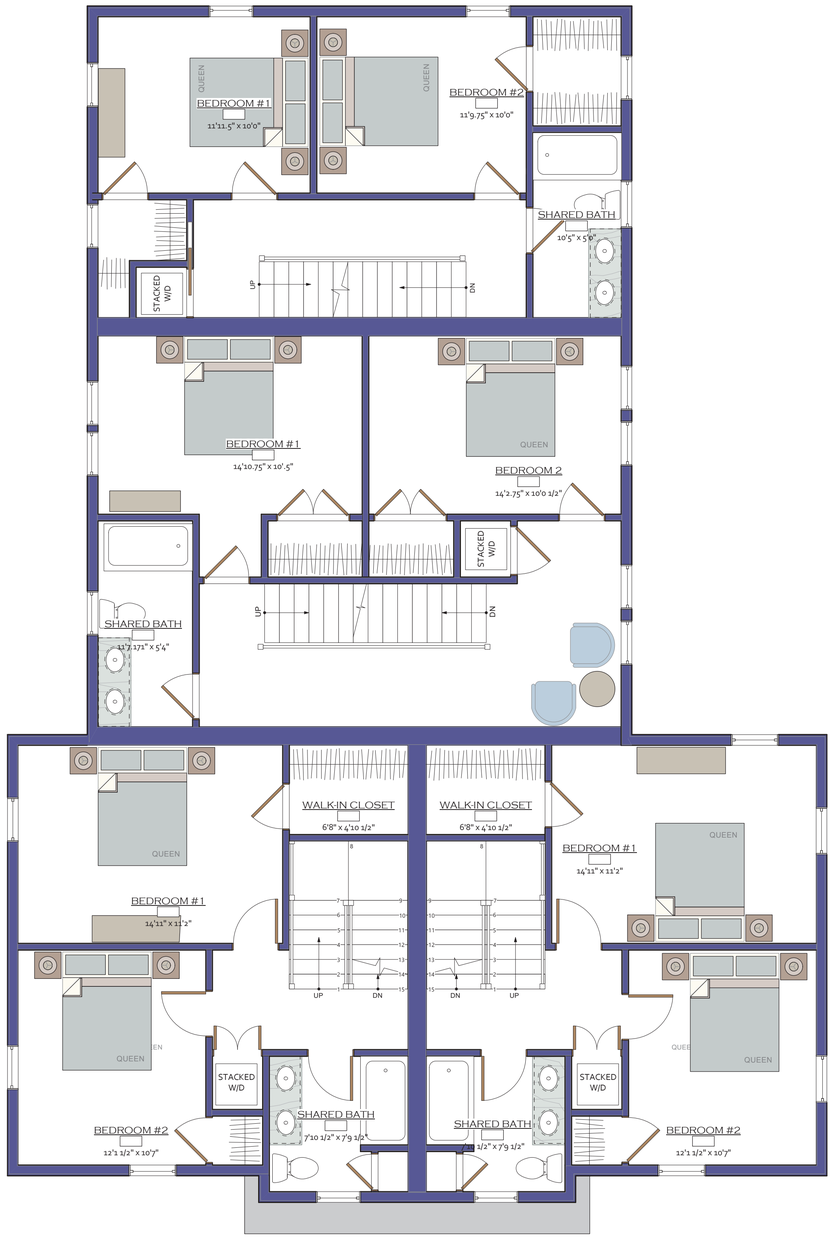
Project Manager	Project #	Date
ST	2022-02	05-13-2022

Scale: AS NOTED

FIRST FLOOR PLAN

A1.1

CAD File Name
Summer street SD -3.vwx



1 PROPOSED SECOND FLOOR PLAN
Scale: 1/4" = 1'-0"

SQUARE FOOTAGE OPTION 2	
UNIT A	
1st FLOOR GROSS SQ.FT.	567 SQ.FT.
2nd FLOOR GROSS SQ.FT.	581 SQ.FT.
ATTIC GROSS SQ.FT.	499 SQ.FT.
UNIT A - PROPOSED FINISHED SPACE TOTAL	**1647 SQ.FT.**
UNIT B	
1st FLOOR GROSS SQ.FT.	567 SQ.FT.
2nd FLOOR GROSS SQ.FT.	581 SQ.FT.
ATTIC GROSS SQ.FT.	479 SQ.FT.
UNIT B - PROPOSED FINISHED SPACE TOTAL	**1626 SQ.FT.**
UNIT C	
1st FLOOR GROSS SQ.FT.	552 SQ.FT.
2nd FLOOR GROSS SQ.FT.	704 SQ.FT.
ATTIC GROSS SQ.FT.	591 SQ.FT.
UNIT C - PROPOSED FINISHED SPACE TOTAL	**1847 SQ.FT.**
UNIT D	
1st FLOOR GROSS SQ.FT.	550 SQ.FT.
2nd FLOOR GROSS SQ.FT.	550 SQ.FT.
ATTIC GROSS SQ.FT.	466 SQ.FT.
UNIT D - PROPOSED FINISHED SPACE TOTAL	**1565 SQ.FT.**
COMMON CORRIDOR	126 SQ.FT.

DD BY

DISTINCTION
BY DESIGN

REVISION & REISSUE NOTES		
No.	Date	Notes

4 UNITS APARTMENT BUILDING

135 LOCUST ST., DOVER, NH 03820

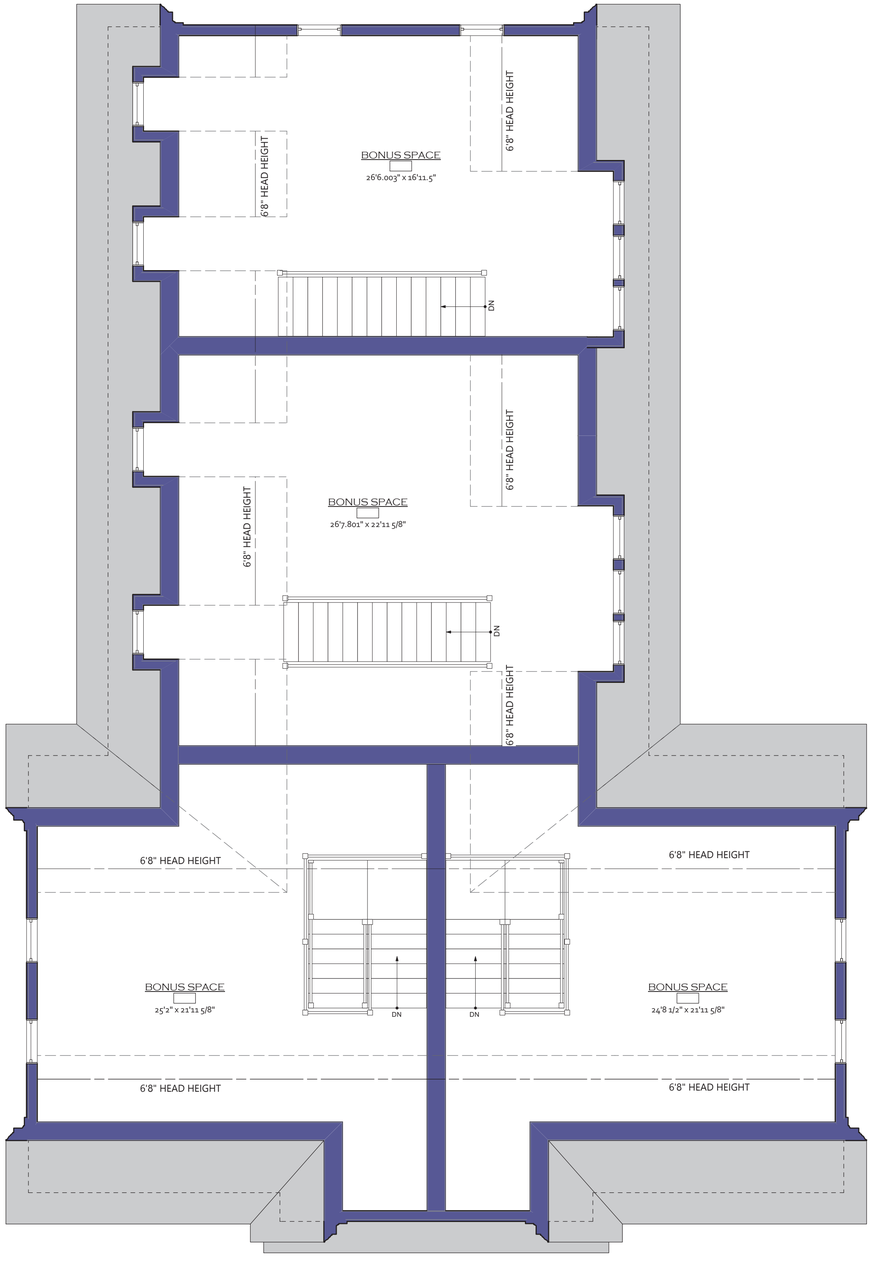
Project Manager	Project #	Date
ST	2022-02	05-13-2022

Scale: AS NOTED

SECOND FLOOR PLAN

A1.2

CAD File Name
Summer street SD -3.vwx



1 PROPOSED ATTIC PLAN
Scale: 1/4" = 1'-0"

SQUARE FOOTAGE OPTION 2	
UNIT A	
1st FLOOR GROSS SQ.FT.	567 SQ.FT.
2nd FLOOR GROSS SQ.FT.	581 SQ.FT.
ATTIC GROSS SQ.FT.	499 SQ.FT.
UNIT A - PROPOSED FINISHED SPACE TOTAL	**1647 SQ.FT.**
UNIT B	
1st FLOOR GROSS SQ.FT.	567 SQ.FT.
2nd FLOOR GROSS SQ.FT.	581 SQ.FT.
ATTIC GROSS SQ.FT.	479 SQ.FT.
UNIT B - PROPOSED FINISHED SPACE TOTAL	**1626 SQ.FT.**
UNIT C	
1st FLOOR GROSS SQ.FT.	552 SQ.FT.
2nd FLOOR GROSS SQ.FT.	704 SQ.FT.
ATTIC GROSS SQ.FT.	591 SQ.FT.
UNIT C - PROPOSED FINISHED SPACE TOTAL	**1847 SQ.FT.**
UNIT D	
1st FLOOR GROSS SQ.FT.	550 SQ.FT.
2nd FLOOR GROSS SQ.FT.	550 SQ.FT.
ATTIC GROSS SQ.FT.	466 SQ.FT.
UNIT D - PROPOSED FINISHED SPACE TOTAL	**1565 SQ.FT.**
COMMON CORRIDOR	126 SQ.FT.

DD BY

DISTINCTION
BY DESIGN

REVISION & REISSUE NOTES		
No.	Date	Notes

4 UNITS APARTMENT BUILDING

135 LOCUST ST., DOVER, NH 03820

Project Manager	Project #	Date
ST	2022-02	05-13-2022

Scale: AS NOTED

ATTIC PLAN

A1.3

CAD File Name
Summer street SD 3.vwx

2 LOCUST STREET ELEVATION
Scale: 1/4" = 1'-0"

5 REAR ELEVATION
Scale: 1/4" = 1'-0"

HERITAGE DISTRICT
ARCHITECTURAL DESIGN ELEMENTS

1	CLAPBOARD SIDING
2	STEEP ROOF PITCH
3	DENTILS AT FRIEZE BOARD
4	TUSCAN COLUMNS
5	DORMERS
6	ENTABLATURE
7	GABLES
8	TRANSOM
9	PORTICO
10	DEEP EAVE OVERHANG
11	DOMINANT FRONT GABLE CANTELIVER ABOVE FLOOR BELOW
12	BALLUSTRADE

DISTINCTION
BY DESIGN

REVISION & REISSUE NOTES

No.	Date	Notes

4 UNITS APARTMENT BUILDING

135 LOCUST ST., DOVER, NH 03820

Project Manager	Project #	Date
ST	2022-02	05-13-2022

Scale: AS NOTED

EXTERIOR ELEVATIONS

A2.0

CAD File Name
Summer street SD -3.vwx

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

2 LEFT ELEVATION
Scale: 1/4" = 1'-0"

HERITAGE DISTRICT
ARCHITECTURAL DESIGN ELEMENTS

1	CLAPBOARD SIDING
2	STEEP ROOF PITCH
3	DENTILS AT FRIEZE BOARD
4	TUSCAN COLUMNS
5	DORMERS
6	ENTABLATURE
7	GABLES
8	TRANSOM
9	PORTICO
10	DEEP EAVE OVERHANG
11	DOMINANT FRONT GABLE CANTELIVER ABOVE FLOOR BELOW
12	BALLUSTRADE

CAD File Name
Summer street SD -3.vwx

DISTINCTION
BY DESIGN

REVISION & REISSUE NOTES

No.	Date	Notes

4 UNITS APARTMENT BUILDING

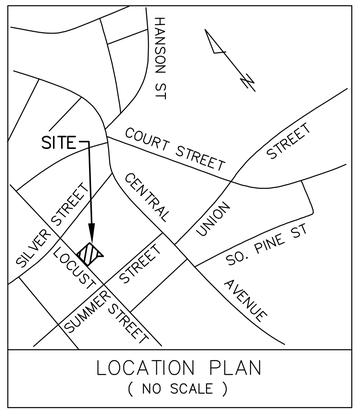
135 LOCUST ST., DOVER, NH 03820

Project Manager	Project #	Date
ST	2022-02	05-13-2022

Scale: AS NOTED

EXTERIOR ELEVATIONS

A2.1



LOCATION PLAN
(NO SCALE)

SITE PLAN
FOR
LOCUST STREET RESIDENTIAL DEVELOPMENT

TAX MAP 12, LOT 35-1

LOCUST STREET

DOVER, NH

FEBRUARY 29, 2024

OWNER/APPLICANT

17–19 SUMMER STREET PROPERTIES, LLC
71 LAFAYETTE ROAD
HAMPTON FALLS, NH 03844

_____ _____
DATE

SITE CIVIL ENGINEER

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

LAND SURVEYOR

MCENEANEY SURVEY ASSOCIATES OF NEW ENGLAND
P.O. BOX 1166
181 WATSON ROAD
DOVER, NH 03821
(603) 742–0911

ARCHITECT

DISTINCTION BY DESIGN
49 OAK STREET
DOVER, NH 03820

LANDSCAPE ARCHITECT

JEFFREY R. HYLAND, LANDSCAPE ARCHITECT #00026
IRONWOOD DESIGN GROUP, LLC
PO BOX 873
EXETER, NH 03822
(603) 772–0590

SHEET INDEX	SHEET
COVER SHEET	1
NEIGHBORHOOD PLAN	2
EXISTING CONDITIONS PLAN (BY MCENEANEY SURVEY)	3
NOTE SHEET	4
DEMOLITION PLAN	5
SITE PLAN	6
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EROSION CONTROL NOTES	9
EROSION CONTROL DETAILS	10-11
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SECOND FLOOR PLAN	A1.2
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EXTERIOR ELEVATIONS	A2.1
LANDSCAPE PLANS	
LANDSCAPE PLAN	L1.0
LANDSCAPE DETAILS	L2.0

PLANNING FILE NO.: SITE–2024–XXXXX

ABUTTERS LIST
(WITHIN 200 FT)

TAX MAP	LOT NO.	NAME & ADDRESS
9/47	47	CALAGUIRO JOSHUA 35 A SILVER ST DOVER NH 03820
9/76	76	TNT SILVER STREET GROUP LLC 10 DURHAM RD DOVER NH 03820
9/77	77	WOTTON KATHLEEN D 25 SILVER STREET DOVER NH 03820
9/78	78	JJI PROPERTIES LLC C/O JENNY ISHII 33 BAXTER ST MEDFORD MA 02155
12/41	41	BREWITT DARCY D 50 SILVER ST DOVER NH 03820-3950
12/40	40	STENDER SARAH STENDER NEIL 38 SILVER STREET DOVER, NH 03820
12/39	39	DUGDALE MARY & SWIDER KEITH 36 SILVER STREET DOVER, NH 03820
12/33	33	SANBORN JEFFERY MARTIN & SANBORN MAUREEN 30 SILVER STREET DOVER, NH 03820
12/32	32	CURTIS SHANNON 24 26 SILVER STREET DOVER, NH 03820
12/31	31	20-22 SILVER ST LLC 862 FRANKLIN PIERCE HWY BARRINGTON NH 03825
12/30	30	ALLEN TYLER D 14 SILVER ST DOVER NH 03820
12/28	28	FIRST-RATE REAL ESTATE GROUP LLC 290 HERITAGE AVE PORTSMOUTH NH 03801-5680
12/27	27	CENTRAL AVE OWNER LLC 889 ELM STREET 6TH FLOOR MANCHESTER NH 03101
12/26	26	CENTRAL AVE OWNER LLC 889 ELM STREET 6TH FLOOR MANCHESTER NH 03101
12/38	38	KUZIOMKO FROST VIRGINIA J & KUZIOMKO HENRY C 310 DOVER POINT ROAD DOVER, NH 03820
12/37	37	BEDNARZ PAUL 143 LOCUST STREET DOVER, NH 03820
12/36	36	WOODMAN ANNIE E INSTITUTE P.O. BOX 1916 DOVER, NH 03821-1916
12/35-1	35-1	17-19 SUMER STREET PROPERTIES LLC 71 LAFAYETTE ROAD HAMPTON FALLS, NH 03844
12/35	35	17-19 SUMMER STREET PROPERTIES, LLC 71 LAFAYETTE ROAD HAMPTON FALLS, NH 03844
12/25	25	WOODMAN ANNIE E INSTITUTE PO BOX 1916 DOVER NH 03821-1916
12/45	45	WINTERS GARY & LOIS TRUSTEES WINTERS FAMILY TRUST 31 SUMMER ST DOVER NH 03820
12/46	46	BRATT JUSTIN M BRATT JASON L 4 GOVERNOR POWELL RD HAMPTON FALLS NH 03844
12/71	71	O BRIEN EDMUND J JR 147 LOCUST STREET DOVER NH 03820
12/24	24	TREACY HILL SARA G REVOCABLE TRUST TREACY HILL SARA G TRUSTEE 148 LOCUST STREET DOVER NH 03820
12/23	23	LAPOINT KEVIN & MAZARAS TIFFANY 16 SUMMER ST DOVER NH 03820
12/22	22	ALGO OPPORTUNITY ZONE FUND I LLC 8 MERRILL LN HOLLIS NH 03049-6594
12/21	21	HOLGATE LIMITED PARTNERSHIP HOPKINS WILLIAM F JR TRUSTEE 130 CENTRAL AVE DOVER NH 03820

D/11 TAX MAP LOT NUMBER

PLANNING FILE NO.: SITE-2024-XXXXX

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

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

NO.	REVISION	APP'D	DATE

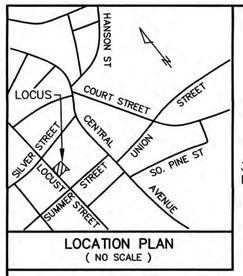
DATE: 2-29-24
SCALE: 1"=40'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO: 23029
FILE: SITE.DWG

NEIGHBORHOOD PLAN

17-19 SUMMER STREET
PROPERTIES, LLC
71 LAFAYETTE ROAD
HAMPTON FALLS, NH 03844

LOCUST STREET
RESIDENTIAL DEVELOPMENT
DOVER, NH

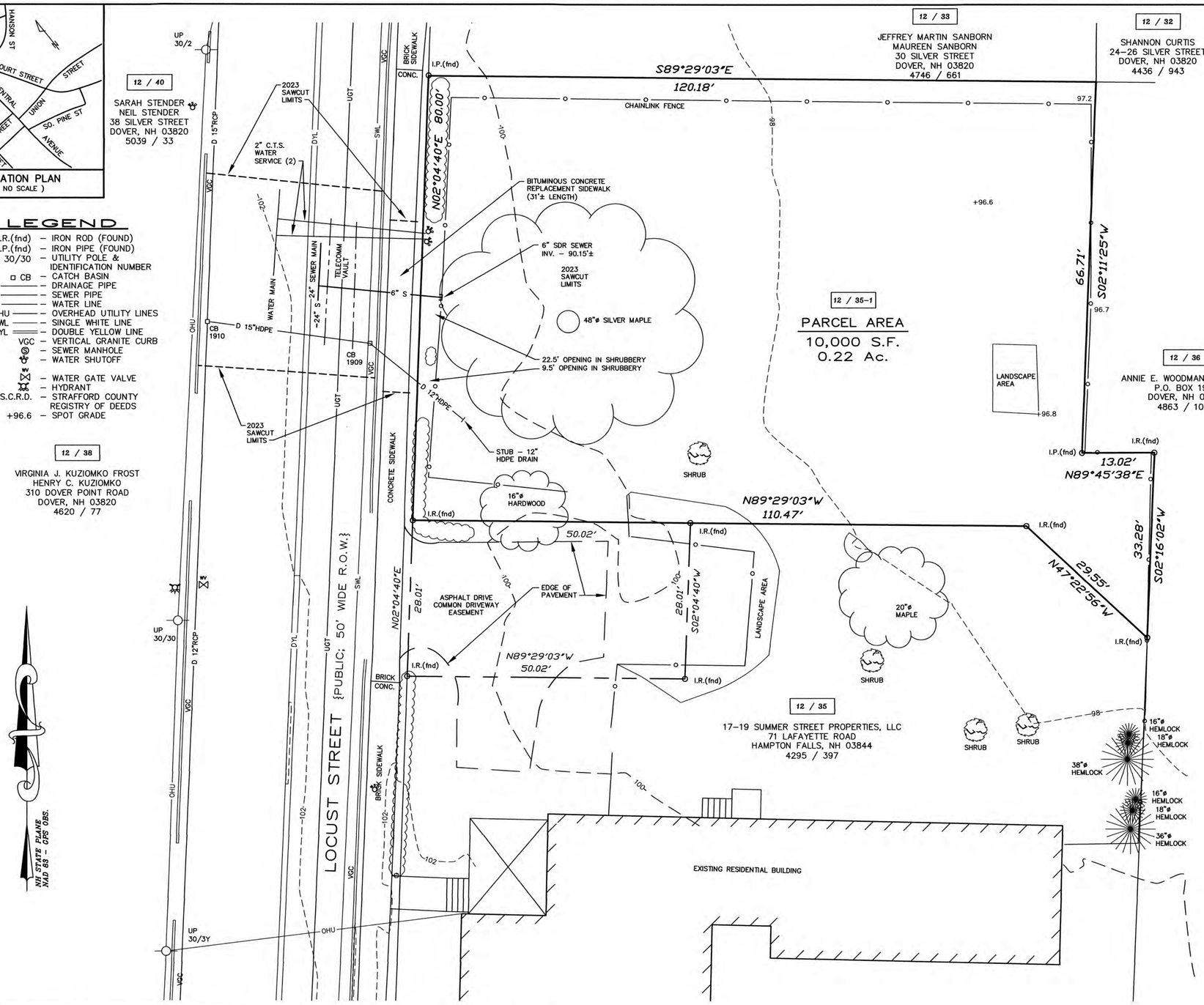
2



LOCATION PLAN
(NO SCALE)

LEGEND

I.R.(fnd) – IRON ROD (FOUND)
I.P.(fnd) – IRON PIPE (FOUND)
UP 30/30 – UTILITY POLE & IDENTIFICATION NUMBER
CB – CATCH BASIN
D – DRAINAGE PIPE
S – SEWER PIPE
W – WATER LINE
OHU – OVERHEAD UTILITY LINES
SWL – SINGLE WHITE LINE
DYL – DOUBLE YELLOW LINE
VGC – VERTICAL GRANITE CURB
S – SEWER MANHOLE
WATER SHUTOFF
WATER GATE VALVE
HYDRANT
S.C.R.D. – STRAFFORD COUNTY REGISTRY OF DEEDS
+96.6 – SPOT GRADE



NOTES:

1.) OWNER OF RECORD:
17–19 SUMMER STREET PROPERTIES, LLC
71 LAFAYETTE ROAD
HAMPTON FALLS, NEW HAMPSHIRE 03844
S.C.R.D. VOLUME 4925, PAGE 399

2.) K / 19 – DENOTES TAX MAP AND PARCEL NUMBER.

3.) PARCEL AREA: 10,000 S.F. / 0.22 Ac.

4.) THE INTENT OF THIS PLAN IS TO DEPICT THE PARCEL BOUNDARIES AND EXISTING SITE CONDITIONS AS OF MAY 24, 2023; AND TO SHOW NOVEMBER 2023 UTILITY AND DRAINAGE IMPROVEMENTS WITHIN THE LOCUST STREET RIGHT OF WAY.

5.) ZONING DISTRICT: HERITAGE RESIDENTIAL

DIMENSIONAL REQUIREMENTS:	
MINIMUM LOT SIZE	= 10,000 S.F.
MAXIMUM LOT COVERAGE	= 40 PERCENT
MINIMUM FRONTAGE	= 80 FEET
BUILDING SETBACK REQUIREMENTS:	
FRONT SETBACK	= 8.7 FEET ±5 FEET
SIDE SETBACK	= 15 FEET
REAR SETBACK	= 30 FEET
MAXIMUM BUILDING HEIGHT	= 40 FEET

6.) THE SUBJECT PARCEL IS NOT LOCATED WITHIN THE SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1 PERCENT ANNUAL CHANCE FLOOD, AS SHOWN ON FLOOD INSURANCE RATE MAP 33017C0330E, EFFECTIVE DATE SEPTEMBER 30, 2015.

7.) BASIS OF BEARING IS NH STATE PLANE (NAD83) BASED REFERENCE PLAN #1. VERTICAL DATUM IS NAVD88 BASED ON GPS OBSERVATION DATED MAY 24, 2023. CONTOUR INTERVAL IS TWO (2) FEET.

8.) PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM REFERENCE PLAN #1.

9.) ACCESS NOTE: THE PARCEL IS TO BE ACCESSED FROM LOCUST STREET OVER A COMMON DRIVEWAY ACCESS EASEMENT LOT 12/35.

10.) THE IMPROVEMENTS AND UTILITIES SHOWN ARE FROM OBSERVATIONS MADE IN THE FIELD OR REFERENCE PLANS. LOCATIONS OF UNDERGROUND UTILITIES NOT MARKED ON THE SURFACE WERE NOT LOCATED. ALL VISIBLE UTILITIES ARE SHOWN.

2023 DRAINAGE STRUCTURE SCHEDULE

CB 1909 (REPLACE CB 1826)
RIM = 100.92'
INV. IN 12" HDPE = 92.4' (SITE)
INV. OUT 15" HDPE = 92.1' (CB 1910)
SUMP = 89.3'

CB 1910 (REPLACE CB 1827)
RIM = 100.97'
INV. IN 15" HDPE = 92.1' (CB 1909)
INV. IN 12" RCP = 91.7'
INV. OUT 15" RCP = 91.7'
SUMP = 89.8'

NO.	DATE	DESCRIPTION	BY	CHK
		REVISIONS		
2	2/13/24	CORRECT PIPE INVERT TO 92.1' OUT	RJM	KMM
1	12/1/23	UPDATE TO 2023 UTILITY CONSTRUCTION AS–BUILT	RJM	KMM

PROJECT NO	TYPE	FIELDBOOK & PAGES	
23–2508	EXIST. COND.	23–04	52–57

REFERENCE PLANS:

1.) SUBDIVISION PLAN LAND OF KEVIN P. MCLEAN & ANGELA M. LAZZARO, 17/19 SUMMER STREET, DOVER, N.H., TAX MAP 12, LOT 35; SCALE: 1" = 20'; DATED: NOVEMBER 19, 2019, REVISED THROUGH 2–25–2020; BY: BERRY SURVEYING & ENGINEERING; RECORDED S.C.R.D. PLAN 12090.

EXISTING CONDITIONS PLAN
PREPARED FOR
17–19 SUMMER STREET PROPERTIES, LLC
TAX MAP 12, LOT No. 35–1
LOCUST STREET
CITY of DOVER
COUNTY of STRAFFORD
STATE of NEW HAMPSHIRE

DRAWN BY: KJF, RJM | FILE: MSA\2508\D\23–2508
SCALE: 1" = 10' | DATE: MAY 31, 2023

10 5 0 5 10 20 30 40

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

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

2/13/2024 10:24:15 File: M:\2508\Drawings\23-2508 EC UTILITY AS-BUILT.dwg Layout: EC

DOVER NOTES:

1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE PROPOSED CONSTRUCTION OF A ±2,400 S.F. 4 UNIT RESIDENTIAL BUILDING WITH ASSOCIATED SITE IMPROVEMENTS.
2. OWNER(S) OF RECORD:
   17–19 SUMMER STREET PROPERTIES, LLC
   71 LAFAYETTE ROAD
   HAMPTON FALLS, NEW HAMPSHIRE 03844
   S.C.R.D. VOLUME 4925, PAGE 399
3. 12 / 35-1 – DENOTES TAX MAP AND PARCEL NUMBER.
4. PARCEL AREA: 10,000 S.F. / 0.22 Ac.
5. TITLE REFERENCE: SEE S.C.R.D. VOLUME 4925, PAGE 3991
6. REFERENCE PLANS:
   SUBDIVISION PLAN LAND OF KEVIN P. MCLEAN & ANGELA M. LAZZARO, 17/19 SUMMER STREET, DOVER, N.H., TAX MAP 12, LOT 35; SCALE: 1" = 20'; DATED: NOVEMBER 19, 2019, REVISED THROUGH 2–25–2020; BY: BERRY SURVEYING & ENGINEERING; RECORDED S.C.R.D. PLAN 12090.
5. PROJECT WILL PROPOSE A SITE ACCESS AND PARKING EASEMENT AS WELL AS A DRAINAGE EASEMENT.
6. ZONING DISTRICT: HERITAGE RESIDENTIAL

DIMENSIONAL REQUIREMENTS:	REQUIRED	PROPOSED
MINIMUM LOT SIZE	10,000 S.F	10,000 S.F.
MAXIMIMUM LOT COVERAGE	40 PERCENT	24%
MINIMUM FRONTAGE	80 FEET	80 FEET
BUILDING SETBACK REQUIREMENTS:		
FRONT SETBACK	8.7 FEET ±5 FEET	14.8 FEET
SIDE SETBACK	15 FEET	15.5 FEET
REAR SETBACK	30 FEET	39.4 FEET
MAXIMUM BUILDING HEIGHT	40 FEET	< 40 FEET

7. LIST ANY VARIANCE 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. (SEE PROJECT VARIANCE/PERMIT SECTION)
8. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM REFERENCE PLAN #1.
9. THE SUBJECT PARCEL IS NOT LOCATED WITHIN THE SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1 PERCENT ANNUAL CHANCE FLOOD, AS SHOWN ON FLOOD INSURANCE RATE MAP 33017C0330E, EFFECTIVE DATE SEPTEMBER 30, 2015.
10. THERE ARE NO WETLANDS ON SITE.
11. 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.
12. THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION AND TELEPHONE LINES SHALL BE UNDERGROUND THROUGHOUT THE SITE FOR WHICH DEVELOPMENT IS PROPOSED.
13. THE SUBJECT PARCEL IS SERVED BY MUNICIPAL WATER AND SEWER.
14. 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.
15. EROSION CONTROL NOTES 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.
16. THE LIMITS OF CONSTRUCTION DISTURBANCE THAT ARE LOCATED IN OR WITHIN 50 FT. OF CONSERVATION AND WETLAND DISTRICTS SHALL BE STAKED, FLAGGED AND CLEARLY IDENTIFIED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS.
17. ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS.
18. 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.
19. 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.
20. SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY–FRIDAY 7 AM–6 PM, SATURDAY 9 AM 4 PM. HOURS OF CONSTRUCTION MUST BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. SAID SIGNAGE MUST BE LOCATED AND APPROVED BY THE CITY ENGINEER OR PLANNING DIRECTOR. WORK PRECLUDED ON SUNDAYS AND FEDERAL HOLIDAYS.
21. BUILDING ADDRESSES (INCLUDING APT/UNIT NUMBERS, IF APPLICABLE) SHALL BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.
22. THE PROPOSED USE FOR THE SITE IS MULTI FAMILY RESIDENTIAL.
23. THE FOLLOWING FEDERAL AND STATE PERMITS HAVE BEEN ISSUED FOR THE SUBJECT PROPERTY: (SEE PROJECT VARIANCE/PERMIT SECTION)

DOVER NOTES CONTINUED:

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 THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
28. ANY PROPOSED 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: //PTAPP.UNH.EDU/
30. IF APPLICABLE, 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 14 PROVIDED IS 16.
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 MCENEANEY SURVEY ASSOCIATE, MAY 24, 2023.
35. VERTICAL DATUM IS NAVD 88 BASED ON GPS OBSERVATION DATED MAY 24, 2023
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. (AS APPLICABLE)
37. APPROVED BACKFLOW PREVENTERS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.
38. THE 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 ALSO BE DESIGNED IN ACCORDANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS. (I.E. IBC, ANSI–117.1) AND NH RSA 155–A:5.
42. DESIGN ENGINEER SHALL PROVIDE SIGNED LETTER TO CITY ENGINEER CERTIFYING THAT THE STORMWATER MANAGEMENT SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS.
43. ALL MANHOLE COVERS SHALL BE LIFTMATE R–1743–LM OR APPROVED EQUAL WITH 90 DEGREE HINGE.
44. REQUIRED BLASTING AND EXCAVATION – DOVER FIRE DEPARTMENT SHALL BE NOTIFIED PRIOR TO ANY BLASTING ACTIVITIES AND A BLASTING PERMIT FROM THE DOVER FIRE DEPARTMENT MUST BE OBTAINED.
45. THE WATER MAIN SHALL BE POLY WRAPPED IN ACCORDANCE WITH THE CITY OF DOVER STANDARDS.
46. ALL SEWER MAINS AND MANHOLES SHALL BE TESTED IN ACCORDANCE WITH NHDES ENV–WQ 700 REQUIREMENTS. COPIES OF TEST RESULTS SHALL BE PROVIDED TO THECITY OF DOVER ENGINEERING DEPARTMENT.
47. WETLAND PLACARDS SHOULD IDENTIFY THE NO CUT WETLAND BUFFER AND SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION AND AFTER.
48. ALL FITTINGS MUST BE CLASS 140 WATER FITTINGS.
49. ALL GATE VALVES MUST BE MANUFACTURED BY MUELLER OR CLOW.

DEMOLITION NOTES:

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

SITE NOTES

1. REVIEW DOVER NOTES FOR ALL APPLICABLE NOTES.
2. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO APPLICABLE CITY AND STATE CODES.
3. ALL CONSTRUCTION LAYOUT SHALL BE DONE BY A LICENSED SURVEYOR UNDER CONTRACT WITH THE CONTRACTOR.
4. SEE DETAILS FOR SIGN LEGENDS.
5. ALL PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", THE "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", AND THE AMERICAN WITH DISABILITIES ACT, LATEST EDITIONS.
6. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE CONSTRUCTION PROCEDURES AND SEQUENCE TO ENSURE THE SAFETY OF THE FACILITIES AND THEIR COMPONENTS DURING DEMOLITION AND CONSTRUCTION UNLESS OTHERWISE DIRECTED BY THE OWNERS REPRESENTATIVE. THIS INCLUDES THE ADDITION OF NECESSARY SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIE–DOWNS. SUCH MATERIALS SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AT THE COMPLETION OF THE PROJECT.
7. METHODS OF DEMOLITION, CONSTRUCTION AND ERECTION ARE THE CONTRACTOR'S RESPONSIBILITY UNLESS OTHERWISE SPECIFIED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE AND MAINTAIN ENVIRONMENTAL CONTROLS AS REQUIRED BY FEDERAL, STATE AND MUNICIPAL REGULATIONS AND PERMITS. ENVIRONMENTAL CONTROLS SHALL INCLUDE BUT SHALL NOT BE LIMITED TO DUST CONTROL AND SILT BARRIERS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE DONE TO STRUCTURES OR UTILITIES OR INJURIES TO THE PUBLIC DURING THE CONSTRUCTION PHASE CAUSED BY HIMSELF, HIS EMPLOYEES, HIS SUBCONTRACTORS OR EMPLOYEES OF SAME. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TEMPORARY FACILITIES FOR THE PROTECTION OF THE WORK, WORKERS AND PUBLIC SAFETY.
9. THE SITE SHALL BE MAINTAINED TO PROVIDE ACCESSIBILITY IN ALL WEATHER CONDITIONS.
10. REFUSE PICKUP WILL BE BY PRIVATE CONTRACTOR AND WILL BE VIA DUMPSTER ON–SITE.
11. SNOW STORAGE WILL BE ACCORDING TO THE OPERATION AND MAINTENANCE PLAN AND WITHIN AREAS AS INDICATED. ON–SITE SNOW STORAGE SHALL OCCUR ALONG THE EDGES OF PROPOSED PAVEMENT.
12. ALL EXTERIOR DOORS ARE MANUAL AND OPENED FROM THE INTERIOR BY PANIC HARDWARE. ALL EXTERIOR DOORS SHALL COMPLY WITH ADA AND ALL LOCAL BUILDING CODE REQUIREMENTS.
13. ANY DEED RELATED ITEMS TO THE TRANSFER OF THE PROPERTY WILL BE REVIEWED BY THE CITY ATTORNEY WHILE STILL OWNED BY DIBDA.

GRADING NOTES:

1. REVIEW DOVER NOTES FOR ALL APPLICABLE NOTES.
2. CONTRACTOR SHALL RETAIN A GEOTECHNICAL ENGINEERING CONSULTANT APPROVED BY THE OWNER, TO CONDUCT COMPACTION TESTING AND FILL GRADATION MONITORING.
3. SEE EROSION CONTROL NOTES & DETAIL SHEET FOR TEMPORARY AND PERMANENT EROSION CONTROL MEASURES.
4. ALL DRAINAGE PIPES SHALL BE HDPE OR APPROVED EQUAL UNLESS OTHERWISE NOTED.
5. ALL DISTURBED AREAS NOT OTHERWISE CALLED FOR SURFACE TREATMENT SHALL RECEIVE 6" OF HIGH QUALITY LOAM AND SHALL BE SEEDED WITH GRASS.
6. ALL SITEWORK CONSTRUCTION SHALL BE ADVANCED USING "BEST MANAGEMENT PRACTICES" SANCTIONED BY THE USDA, SCS AND NHDES.
7. TEMPORARY CONSTRUCTION ENTRANCE SHALL BE INSTALLED, UTILIZED AND MAINTAINED UNTIL BASE MATERIALS ARE CONSTRUCTED.
8. CONTRACTOR SHALL PROVIDE A FINISH GRADED SURFACE FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCE AND UNDER RAISED STRUCTURES.
9. PROVIDE INLET PROTECTION BARRIERS AROUND ALL EXISTING AND PROPOSED STORM DRAINAGE INLETS WITHIN THE WORK LIMITS AND AS SHOWN ON PLAN. MAINTAIN FOR THE DURATION OF THE PROJECT UNTIL PAVEMENT HAS BEEN INSTALLED AND UPSTREAM AREAS HAVE BEEN STABILIZED.
10. INSPECT SILT BARRIERS AFTER EACH RAIN STORM OF 1/4 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF THE FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE STRUCTURE HEIGHT.
11. LIMIT TREE CLEARING TO ONLY THE EXTENT NECESSARY FOR CONSTRUCTION.
12. CONTRACTOR SHALL NOTIFY THE CITY OF DOVER AND THE DESIGN ENGINEER 48 HOURS PRIOR TO THE INSTALLATION OF PERMANENT STORMWATER BMP'S TO PROVIDE THE CITY AND THE ENGINEER THE OPPORTUNITY TO WITNESS THE CONSTRUCTION AND MATERIALS.
13. DENSITY REQUIREMENTS:

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

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

PROJECT VARIANCE / PERMIT SUMMARY:

1. FEDERAL AND STATE PERMITS ARE NOT APPLICABLE.
2. LIST ANY VARIANCES OR SPECIAL EXCEPTIONS GRANTED BY THE ZONING BOARD OF ADJUSTMENT OR CONDITIONAL USE PERMITS GRANTED BY THE PLANNING BOARD FOR THE PROPOSED USE OR STRUCTURE, INCLUDING THE CASE NUMBER AND DATE OF DECISION AND ANY CONDITIONS.

   SITE PLAN: SITE–2024–_____ – PENDING

   CONDITIONAL USE PERMIT: CUP–2024–_____ – PENDING

LEGEND

S.F.	SQUARE FEET	©	EXISTING DRAINAGE MANHOLE
Ac.	ACRE	⬦	EXISTING CATCHBASIN
±	MORE OR LESS	5'R	PAVEMENT RADIUS
(TYP.)	TYPICAL	VGC	VERTICAL GRANITE CURB
S.C.R.D.	STRAFFORD REGISTRY OF DEEDS	x 74.00	EXISTING SPOT GRADE
NHHD	NEW HAMPSHIRE HIGHWAY DEPT.		
TBR	TO BE REMOVED	-------94---------	EXISTING GRADE
ELEV.	ELEVATION	——OHW——	OVERHEAD UTILITIES
INV.	INVERT	——E——	EXISTING ELECTRIC
R.O.W.	RIGHT–OF–WAY	——W——	EXISTING WATER LINE
	EXISTING UTILITY POLE	——S——	EXISTING SEWER LINE
	EXISTING SIGN	——D——	EXISTING DRAINAGE LINE
	EXISTING WATER SHUT–OFF	——UGT——	EXISTING UNDERGROUND TELEPHONE
	EXISTING WATER VALVE		
	EXISTING GAS VALVE	74	PROPOSED FINISH GRADE
	EXISTING HYDRANT	x 74.00	PROPOSED SPOT GRADE
	EXISTING LIGHT/SIGNAL POLE		PAVEMENT WITH CURB
	EXISTING SEWER MANHOLE		SILT BARRIER

——PS——	PROPOSED SEWER
——PW——	PROPOSED WATER
——PE——	PROPOSED ELECTRIC
——PD——	PROPOSED DRAIN LINE
——PUD——	PROPOSED UNDERDRAIN LINE
○	PROPOSED YARDDRAIN/ OUTLET STRUCTURE
	INLET PROTECTION
	PROPOSED BRICK
	PROPOSED CONCRETE
	PROPOSED BITUMINOUS SIDEWALK
TP#3	TEST PIT
BH#3	BORE HOLE

UTILITY NOTES

1. REVIEW DOVER NOTES FOR ALL APPLICABLE NOTES.
2. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES, AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
3. SEE EXISTING CONDITIONS PLAN FOR BENCHMARK INFORMATION.
4. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
5. SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
6. ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, DOUBLE CEMENT LINED DUCTILE IRON PIPE OR TYPE "K" COPPER, OR CITY APPROVED MATERIAL.
7. ALL WATER MAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION PRIOR TO ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE CHLORINATION AND TESTING WITH THE CITY OF DOVER WATER DEPARTMENT.
8. ALL GRAVITY SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE NOTED AND CONFORM TO THE REQUIREMENTS OF THE CITY OF DOVER SEWER DEPARTMENT STANDARDS.
9. EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE CITY OF DOVER COMMUNITY SERVICES DEPARTMENT STANDARDS FOR CAPPING OF WATER AND SEWER SERVICES.
10. ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
11. THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE BUILDING DRAWINGS AND THE UTILITY COMPANIES.
12. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
13. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO THE COMPLETION OF THIS PROJECT.
14. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES, AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
15. CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES. COORDINATE WITH GAS COMPANY.
16. A 10–FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18–INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS.
17. THE CONTRACTOR SHALL CONTACT "DIG–SAFE" 72 HOURS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL HAVE THE "DIG–SAFE" NUMBER ON SITE AT ALL TIMES.
18. SAWCUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN.
19. GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE CITY OF DOVER.
20. COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE CITY OF DOVER.
21. CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK INCLUDING BUT NOT LIMITED TO: CONDUIT CONSTRUCTION, MANHOLE CONSTRUCTION, UTILITY POLE CONSTRUCTION, OVERHEAD WIRE RELOCATION, AND TRANSFORMER CONSTRUCTION WITH POWER COMPANY.
22. CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION, PARTICULARLY WATER MAIN AND GAS MAIN CONSTRUCTION AS TO MAINTAIN CONTINUOUS SERVICE TO ABUTTING PROPERTIES. CONTRACTOR SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH THE UTILITY COMPANY AND AFFECTED ABUTTER.
23. SITE LIGHTING SPECIFICATIONS, CONDUIT LAYOUT AND CIRCUITRY FOR PROPOSED SITE LIGHTING AND SIGN ILLUMINATION SHALL BE PREPARED BY THE PROJECT ELECTRICAL ENGINEER.
24. THE PROPOSED STRUCTURE SHALL COMPLY WITH CHAPTER 81, ARTICLE IV, SECTION 81–27 AND THE STATE BUILDING CODES OF THE CODE OF THE CITY OF DOVER.
25. FIRE SUPPRESSION PLANS SHALL BE PROVIDED TO THE FIRE/INSPECTION DEPARTMENT PRIOR TO INSTALLATION.
26. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.
27. SEWAGE LOADING (PER NHDES ENV–WQ 1008.03)
    APARTMENT – 2 OR MORE BEDROOM
    4 APARTMENT x 2 BEDROOM/APARTMENT x 150 GPD/BEDROOM
    = 1,200 GPD.

UTILITY CONTACTS

WATER & SEWER: –
CONTACT: CITY OF DOVER COMMUNITY SERVICES DEPARTMENT
PUBLIC WORKS & UTILITIES
KEN MAVROGEORGE, PE
271 MAST ROAD
DOVER, NH 03820
TEL: (603)–516–6450
EMAIL: K.MAVROGEORGE@DOVER.NH.GOV

ELECTRIC: –
CONTACT: EVERSOURCE
TREVER EMMONS
4 OLD DOVER ROAD
ROCHESTER, NH 03867
TEL: (603)–332–7515
EMAIL: TREVER.EMMONS@EVERSOURCE.COM

PLANNING FILE NO.: SITE–2024–XXXX

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

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

NO.	REVISION	APP'D	DATE

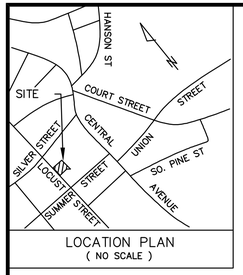
DATE: 2–29–24
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO: 23029
FILE: SITE.DWG

NOTE SHEET

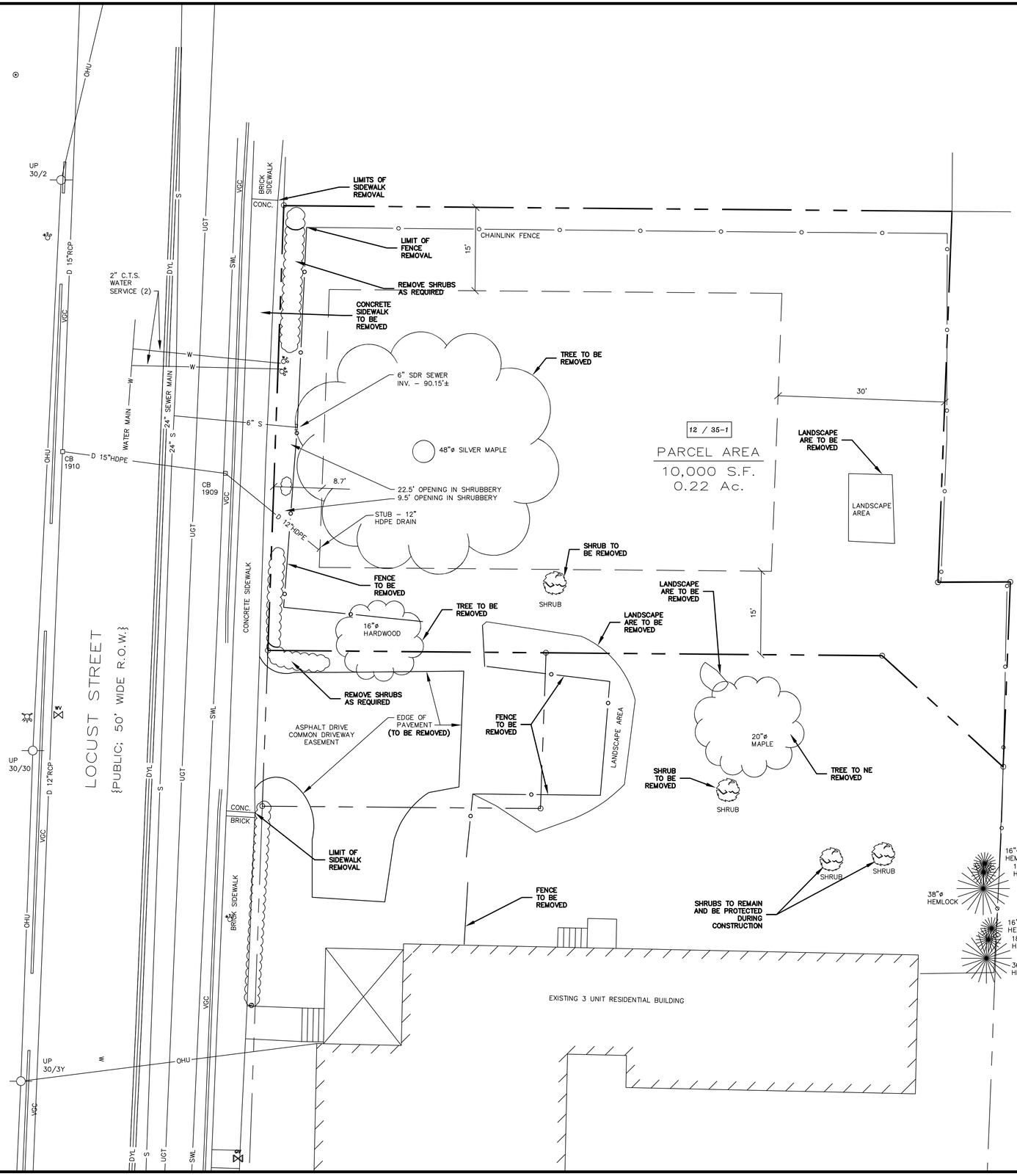
17–19 SUMMER STREET
PROPERTIES, LLC
71 LAFAYETTE ROAD
HAMPTON FALLS, NH 03844

LOCUST STREET
RESIDENTIAL DEVELOPMENT
DOVER, NH

4



LOCATION PLAN
(NO SCALE)



GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)

2023 DRAINAGE STRUCTURE SCHEDULE

CB 1909 (REPLACE CB 1826)
RIM=100.92'
INV.IN 12" HDPE=92.4' (SITE)
INV.OUT 15" HDPE=92.1' (CB 1910)
SUMP=89.3'

CB 1910 (REPLACE CB 1827)
RIM=100.97'
INV.IN 15" HDPE=92.1' (CB 1909)
INV.IN 12" RCP= 91.7'
INV.OUT 15" RCP= 91.7'
SUMP= 89.8'

PLANNING FILE NO.: SITE-2024-XXXXX

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CIVIL & WATERSHED ENGINEERING
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Dover, New Hampshire 03821
603.749.0443

NO.	REVISION	APP'D	DATE

DATE: 2-29-24
SCALE: 1"=10'
DRAWN BY: SRD
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APPROVED BY:SJH
PROJECT NO: 23029
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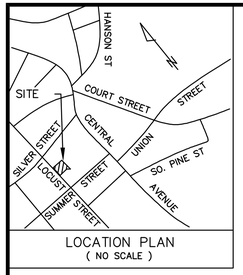
DEMOLITION PLAN

17-19 SUMMER STREET
PROPERTIES, LLC
71 LAFAYETTE ROAD
HAMPTON FALLS, NH 03844

LOCUST STREET
RESIDENTIAL DEVELOPMENT
DOVER, NH

5



LOCATION PLAN
(NO SCALE)

LOCUST STREET {PUBLIC; 50' WIDE R.O.W.}

PROPOSED THREE STORY 4 UNIT BUILDING

PROPOSED STAIRS

PROPOSED BRICK SIDEWALK MATCH EXISTING WIDTH

PROPOSED 5' WALK

PROPOSED PORCH

PROPOSED 5' WIDE SIDEWALK

PROPOSED ADA APPROVED CONCRETE RAMP MATCH EXISTING SIDEWALK WIDTH

PROPOSED CONRETE DRIVE APRON

PROPOSED SNOW STORAGE

PROPOSED CAR TURN AROUND

PROPOSED LIGHT POLE BASE

PROPOSED CONCRETE DUMPSTER PAD

PROPOSED DOUBLE GATE

PROPOSED DUMPSTER

PROPOSED DUMPSTER ENCLOSURE

PROPOSED BOLLARD (TYP OF TWO)

CHAINLINK FENCE

ASPHALT DRIVE COMMON DRIVEWAY EASEMENT

EXISTING 3 UNIT RESIDENTIAL BUILDING

BRICK SIDEWALK

VGC

D'W

SWL

3'R

15'

30'

8.7'

24'

9' TYP

18' TYP

9'

16"ø HEMLOCK
18"ø HEMLOCK
38"ø HEMLOCK
16"ø HEMLOCK
18"ø HEMLOCK
36"ø HEMLOCK

NH STATE PLANE
NAD 83 - GPS OBS.

SITE PARKING CALCULATIONS
HERITAGE RESIDENTIAL DISTRICT REQUIRES 2 OFF STREET PARKING SPACES PER UNIT.

EXISTING 3 UNIT BUILDING:
REQUIRED: 6
PROPOSED: 7

PROPOSED 4 UNIT BUILDING:
REQUIRED: 8
PROVIDED: 9

SNOW STORAGE CALCULATIONS
5,421 SF PAVEMENT 1 SF STORAGE / 10 SF PAVEMENT = ±542.1 SF

SNOW STORAGE AREA PROVIDED ±1,879 SF.

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)

PLANNING FILE NO.: SITE-2024-XXXXX

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CIVIL & WATERSHED ENGINEERING
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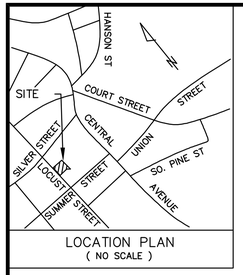
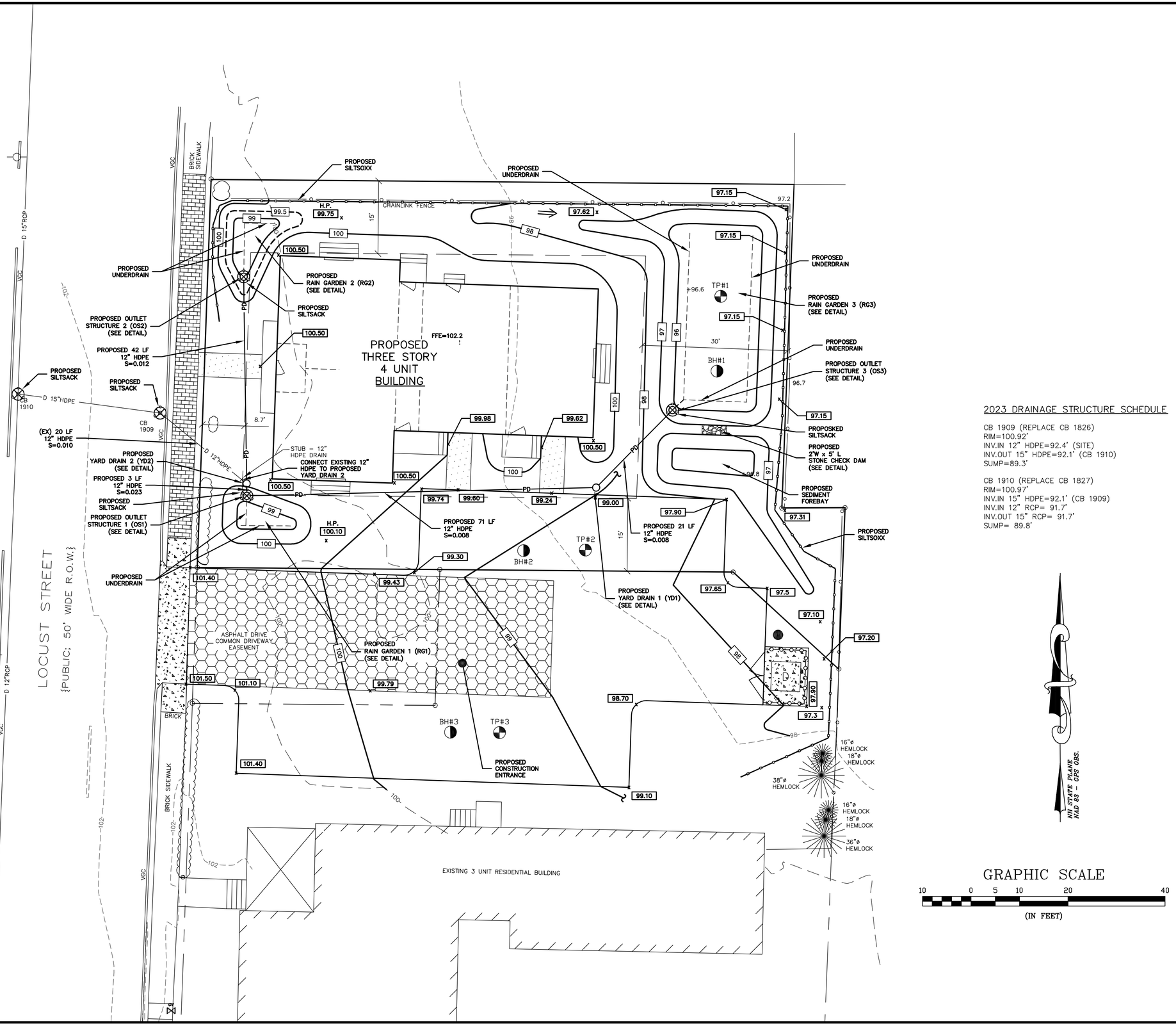
LOCUST STREET
RESIDENTIAL DEVELOPMENT
DOVER, NH

SITE PLAN

6



LOCATION PLAN
(NO SCALE)



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

NO.	REVISION	APP'D	DATE

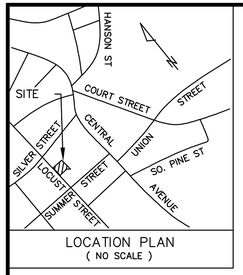
DATE: 2-29-24
SCALE: 1"=10'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO: 23029
FILE: SITE.DWG

GRADING, DRAINAGE & EROSION CONTROL PLAN

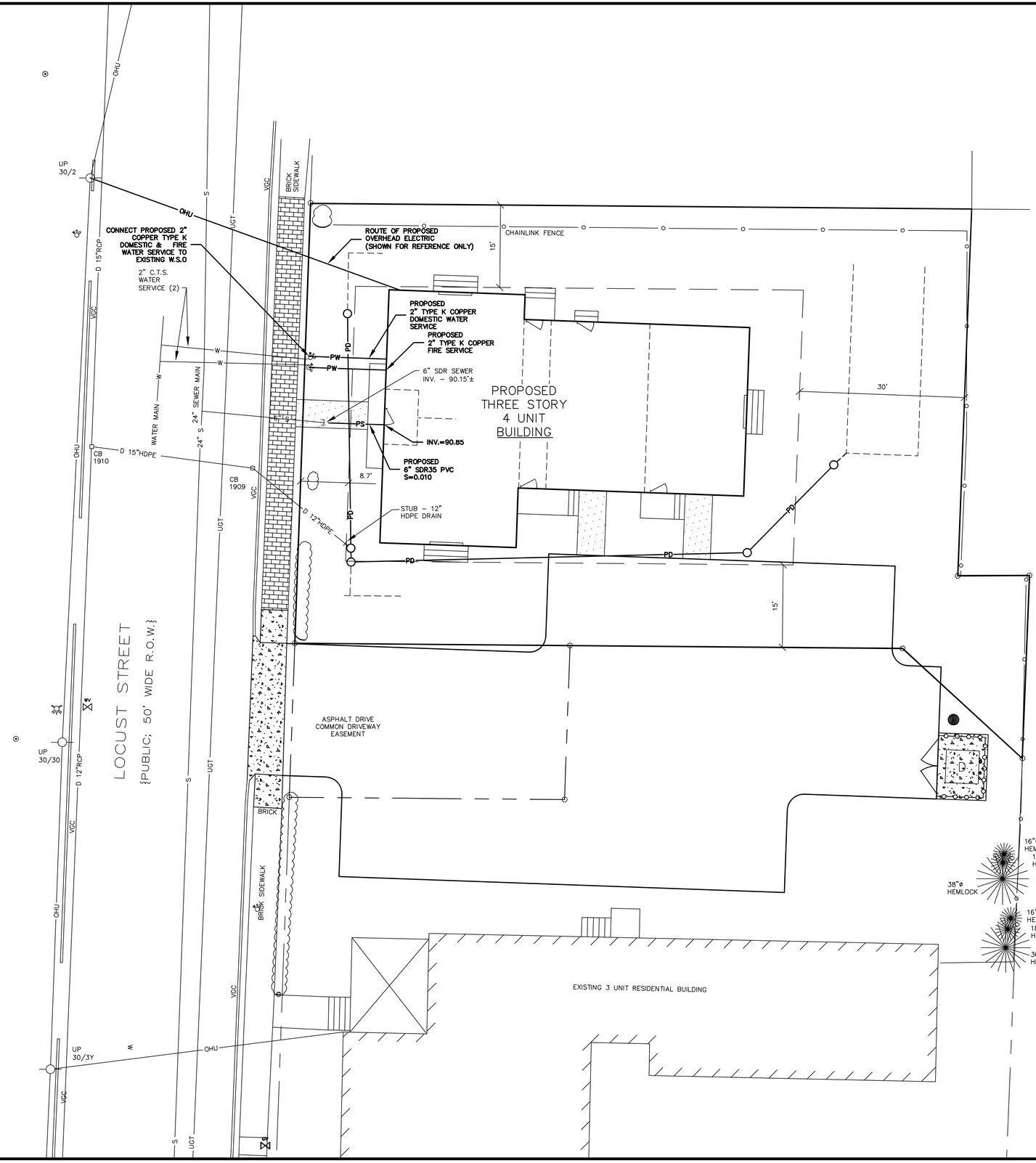
17-19 SUMMER STREET
PROPERTIES, LLC
71 LAFAYETTE ROAD
HAMPTON FALLS, NH 03844

LOCUST STREET
RESIDENTIAL DEVELOPMENT
DOVER, NH

7



LOCATION PLAN
(NO SCALE)



2023 DRAINAGE STRUCTURE SCHEDULE

CB 1909 (REPLACE CB 1826)
RIM=100.92'
INV.IN 12" HDPE=92.4' (SITE)
INV.OUT 15" HDPE=92.1' (CB 1910)
SUMP=89.3'

CB 1910 (REPLACE CB 1827)
RIM=100.97'
INV.IN 15" HDPE=92.1' (CB 1909)
INV.IN 12" RCP= 91.7'
INV.OUT 15" RCP= 91.7'
SUMP= 89.8'

PLANNING FILE NO.: SITE-2024-XXXXX

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

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UTILITY PLAN

17-19 SUMMER STREET
PROPERTIES, LLC
71 LAFAYETTE ROAD
HAMPTON FALLS, NH 03844

LOCUST STREET
RESIDENTIAL DEVELOPMENT
DOVER, NH

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DESCRIPTION

1. THE INTENT OF THIS PLAN IS TO SHOW SITE IMPROVEMENTS ASSOCIATED WITH THE CONSTRUCTION OF A 2,400 S.F. 4 UNIT RESIDENTIAL BUILDING WITH ASSOCIATED DRAINAGE, UTILITY IMPROVEMENTS AND SITE ACCESS.

PROJECT NAME AND LOCATION

17-19 SUMMER STREET PROPERTIES, LLC
71 LAFAYETTE ROAD
HAMPTON FALLS, NEW HAMPSHIRE 03844

LATITUDE *N43° 11' 23"*
LONGITUDE *W70° 52' 31"*

DISTURBED AREA

±14,500 S.F.

NOTES:

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

SEQUENCE OF MAJOR ACTIVITIES

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

DEFINITIONS

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

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

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

A. SILT BARRIER

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

B. MULCHING

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

C. TEMPORARY SEEDING

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

D. PERMANENT SEEDING

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

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

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

E. STORM DRAIN INLET PROTECTION

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

TIMING OF CONTROLS/MEASURES

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

WASTE DISPOSAL

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

MAINTENACE OF STORMWATER MANAGEMENT FACILITIES

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

CATCH BASINS & STORMWATER TREATMENT STRUCTURES

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

SPILL PREVENTION

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

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

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

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

AGR 3800 PROHIBITED INVASIVE PLANT SPECIES RULES

THE RULE, AGR 3800, STATES: NO PERSON SHALL COLLECT, TRANSPORT, IMPORT, EXPORT, MOVE, BUY SELL, DISTRIBUTE, PROPAGATE OR TRANSPLANT ANY LIVING AND VIABLE PORTION OF ANY PLANT SPECIES, WHICH INCLUDED ALL OF THEIR CULTIVARS AND VARIETIES, LISTED IN TABLE 3800.1, NEW HAMPSHIRE PROHIBITED INVASIVE SPECIES LIST'. A COMPLETE COPY OF THE RULES CAN BE ACCESSED ON THE INTERNET AT HTTP://AGRICULTURE.NH.GOV/TOPICS/PLANTS_INSECTS.HTM.

ENV-A 1002 FUGITIVE DUST: PRECAUTIONS TO PREVENT, ABATE, AND CONTROL FUGITIVE DUST.

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

WINTER CONSTRUCTION NOTES

1. ALL PROPOSED POST-DEVELOPMENT VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE PLACEMENT OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT.
2. ALL DITCHES & SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH SHALL BE STABILIZED WITH STONE OR EROSION CONTROL BLANKETS.
3. AFTER OCTOBER 15TH, INCOMPLETE ROAD AND PARKING SURFACES SHALL BE PROTECTED WITH A MINIMUM OF 3-INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT.

PLANNING FILE NO.: SITE-2024-XXXXX

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GNE CIVILWORKS NEW ENGLAND
GOVE & NATARELLI ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

NO.	REVISION	APP'D	DATE

DATE: 2-29-24
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO: 23029
FILE: SITE.DWG

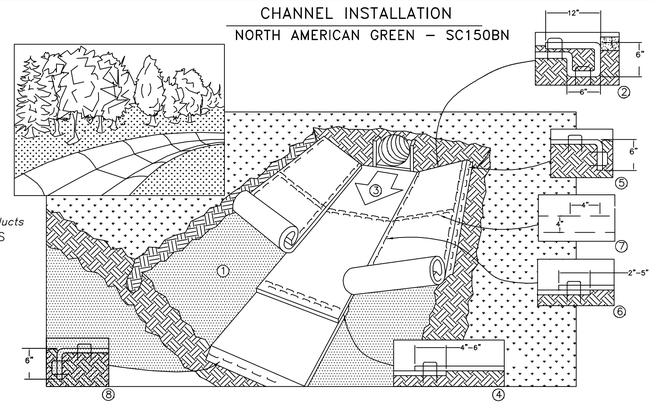
EROSION CONTROL NOTES

17-19 SUMMER STREET PROPERTIES, LLC
71 LAFAYETTE ROAD
HAMPTON FALLS, NH 03844

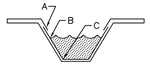
LOCUST STREET RESIDENTIAL DEVELOPMENT DOVER, NH

CHANNEL INSTALLATION
NORTH AMERICAN GREEN – SC150BN

NORTH AMERICAN GREEN
EROSION CONTROL *Products Guaranteed* SOLUTIONS



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



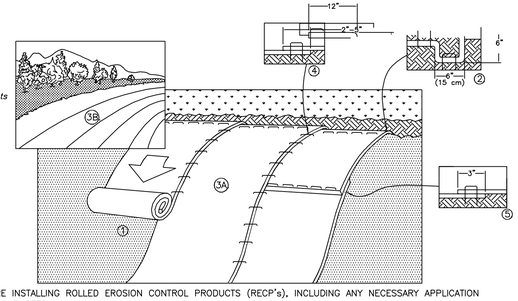
CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

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

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

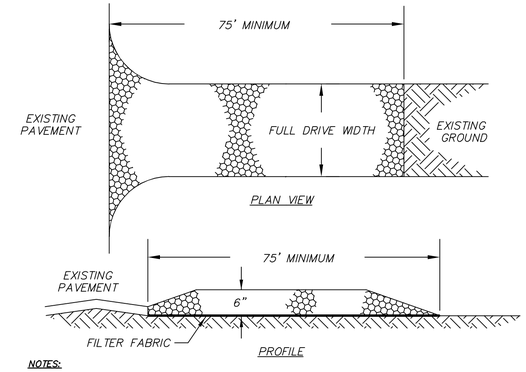
SLOPE INSTALLATION
NORTH AMERICAN GREEN – SC150BN

NORTH AMERICAN GREEN
EROSION CONTROL *Products Guaranteed* SOLUTIONS



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

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

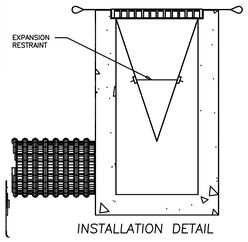


NOTES:
1. *SEE EROSION CONTROL NOTES BELOW FOR MATERIAL, INSTALLATION AND MAINTENANCE REQUIREMENTS.*
2. *TO BE INSTALLED AT EACH POINT OF EGRESS FROM THE WORK AREA.*

STABILIZED CONSTRUCTION ENTRANCE

1. SPECIFICATIONS
   A. AGGREGATE SIZE: USE THREE (3) INCHES STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
   B. AGGREGATE THICKNESS: NOT LESS THAN SIX (6) INCHES.
   C. WIDTH TEN (10) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH OF POINTS WHERE INGRESS OR EGRESS OCCURS.
   D. LENGTH: AS REQUIRED, BUT NOT LESS THAN SEVENTY-FIVE (75) FEET. PIPING OF SURFACE WATER UNDER ENTRANCE SHALL BE PROVIDED AS REQUIRED.
   E. GEOTEXTILE: TO BE PLACED OVER THE ENTIRE AREA TO BE COVERED WITH AGGREGATE.
   F. CRITERIA FOR GEOTEXTILE: THE FABRICS SHALL BE TREVIA SPUNBOND 1135, MIRAFI 600X OR EQUAL.
2. MAINTENANCE
   THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH AGGREGATE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS.

STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



INSTALLATION DETAIL

OIL-ABSORBANT SILTSACK®

(FOR AREAS WHERE THERE IS A CONCERN FOR OIL RUN-OFF OR SPILLS)
DEPENDING ON YOUR PARTICULAR APPLICATION, THE SILTSACK® CAN BE MADE FROM EITHER ONE OF THE ABOVE FABRICS WITH AN OIL-ABSORBANT PILLOW INSERT OR, MADE COMPLETELY FROM AN OIL-ABSORBANT SILTSACK®, WITH A WOVEN PILLOW INSERT.

SILTSACK®
SPECIFICATIONS

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

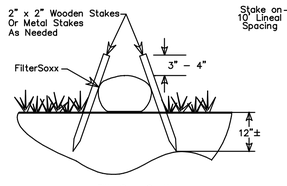
REGULAR FLOW SILTSACK®
(FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80 %
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC -1

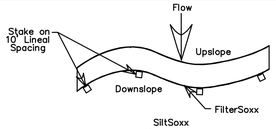
HI-FLOW SILTSACK®
(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

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

DETAIL OF INLET SEDIMENT CONTROL DEVICE



FilterSoxx Section

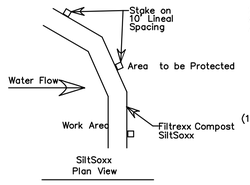


SiltSoxx Plan View

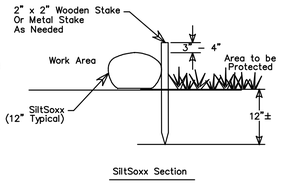
At Ends of Run Cross Stakes

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

FilterSoxx Staking Details



SiltSoxx Plan View



SiltSoxx Section

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

SILTSOXX DETAILS
NOT TO SCALE

PLANNING FILE NO.: SITE-2024-XXXXX

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CIVIL & WATERSHED ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
603.749.0443

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DESIGN BY: SRD
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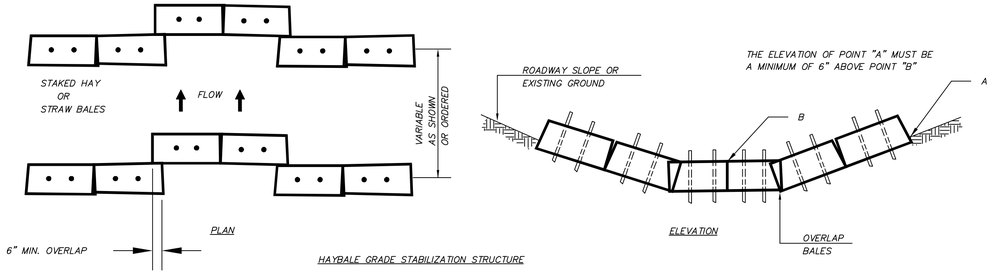
EROSION CONTROL DETAILS

17-19 SUMMER STREET
PROPERTIES, LLC
71 LAFAYETTE ROAD
HAMPTON FALLS, NH 03844

LOCUST STREET
RESIDENTIAL DEVELOPMENT
DOVER, NH

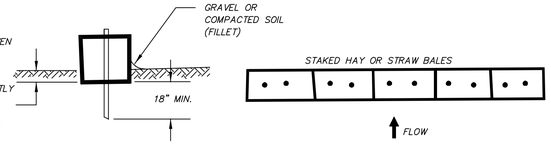
10



HAYBALE GRADE STABILIZATION STRUCTURE

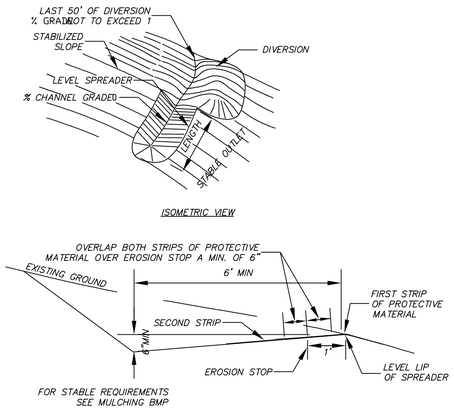
CONSTRUCTION SPECIFICATIONS

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



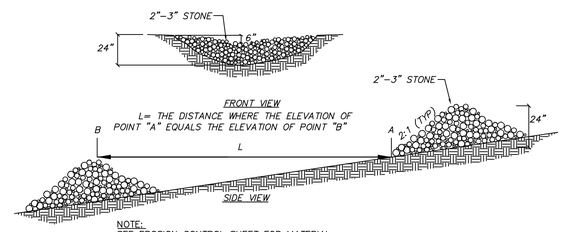
HAYBALE NOTES AND DETAILS

NOT TO SCALE



LEVEL SPREADER DETAIL

NOT TO SCALE



NOTE:
SEE EROSION CONTROL SHEET FOR MATERIAL, INSTALLATION AND MAINTENANCE REQUIREMENTS.

STONE CHECK DAM

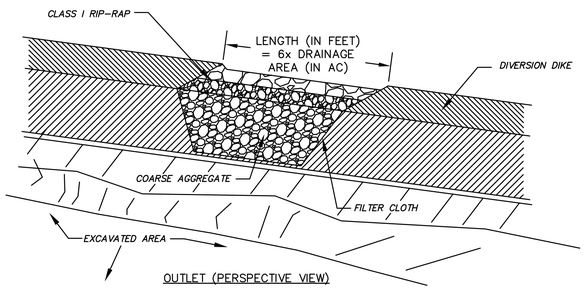
NOT TO SCALE

NORMAL USE AROUND CATCH BASINS

TEMPORARY EROSION CONTROL

NOT TO SCALE

CROSS SECTION OF OUTLET

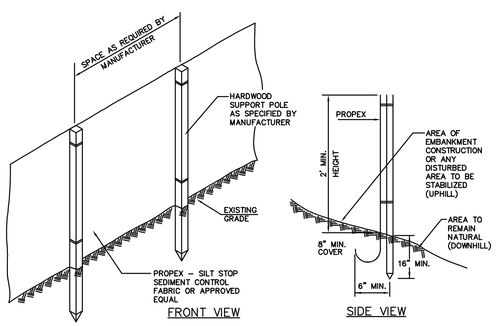


OUTLET (PERSPECTIVE VIEW)

NOTES:
1. COARSE AGGREGATE SHALL MEET NHDOT 304.5 SPECIFICATIONS AND SHALL NOT CONTAIN MORE THAN 5% FINES PASSING THE #200 SIEVE.
2. FILTER CLOTH SHALL BE MIRAFI 700X OR APPROVED EQUAL.
3. CLASS I RIPRAP SHALL MEET NHDOT 583 SS SPECIFICATIONS.
4. THE MAXIMUM CONTRIBUTING AREA TO THE TRAP SHALL BE LESS THAN 5 AC.
5. THE TRAP SHALL BE CLEANED WHEN 50% OF THE ORIGINAL VOLUME IS FILLED.
6. MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AND STABILIZED.

TEMPORARY SEDIMENT TRAP

NOT TO SCALE



SILT FENCE DETAIL

NOT TO SCALE

PLANNING FILE NO.: SITE-2024-XXXXX

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CIVIL & WATERSHED ENGINEERING
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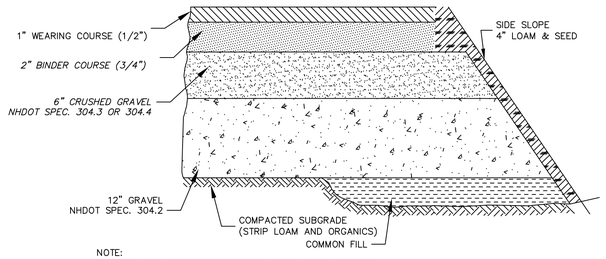
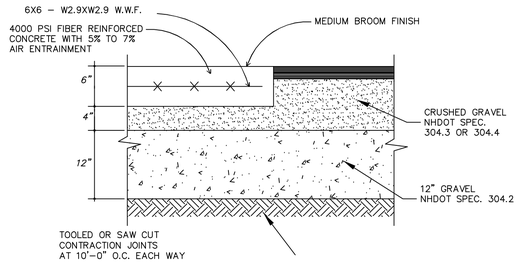


NOTE:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
3. GEOTEXTILE FABRIC MAYBE REQUIRED UNDER THE ROADWAY AND /OR THE PARKING AREAS AS REQUIRED BY THE ENGINEER BASED UPON SITE CONDITIONS.

TYPICAL PAVEMENT SECTION

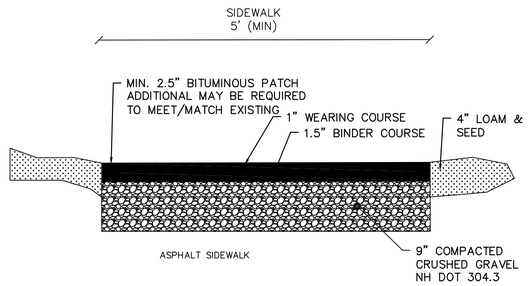
NOT TO SCALE

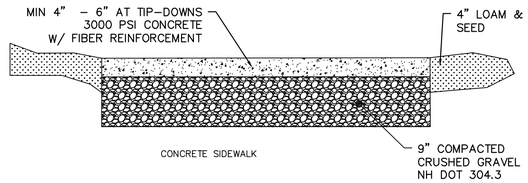


NOTE: PITCH CONCRETE PAD GRADING TO CENTER

DUMPSTER PAD DETAIL

NOT TO SCALE

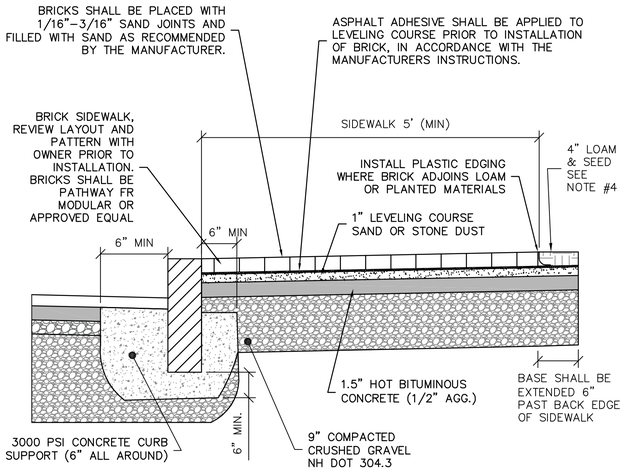




NOTES:
1. MATERIALS SHALL BE IN ACCORDANCE WITH THE CITY OF DOVER STANDARDS SPECIFICATIONS.
2. SIDEWALK AND DRIVEWAY WIDTHS SHALL BE EQUAL TO EXISTING WIDTHS OR AS APPROVED AND SHALL SLOPE TO MATCH EXISTING ELEVATIONS.
3. BASE FOR THE SIDEWALKS AND DRIVEWAYS SHALL BE 9-INCHES OF CRUSHED GRAVEL.

CITY OF DOVER D-6
ASPHALT & CONCRETE SIDEWALK DETAIL

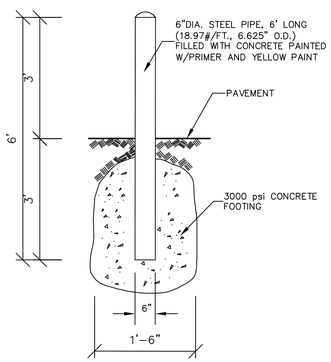
NOT TO SCALE



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.
4. LOAM AND SEED SHOULD BE IN COMPLIANCE WITH NH DOT 641, 642, 643, 644 AND 645.

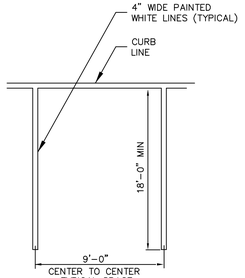
CITY OF DOVER D-7
BRICK WALKWAY/SIDEWALK

NOT TO SCALE



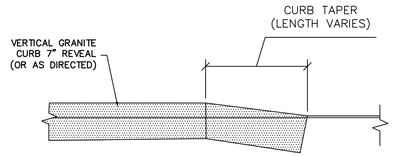
BOLLARD DETAIL

NOT TO SCALE

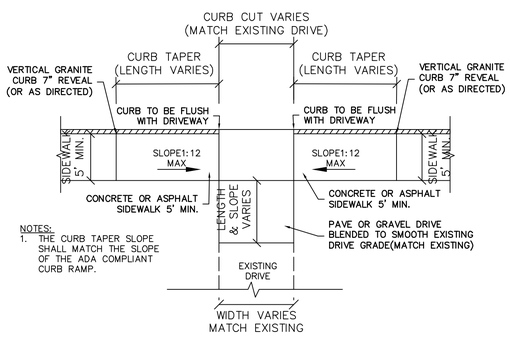


STANDARD
PARKING STALL

NOT TO SCALE



GRANITE CURB TRANSITION AT TIP DOWN

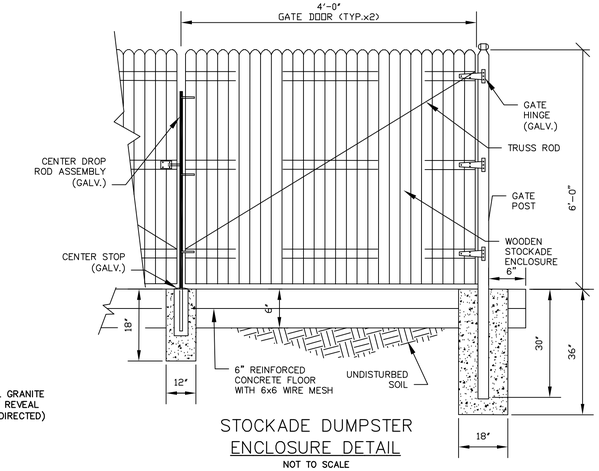


NOTES:
1. THE CURB TAPER SLOPE SHALL MATCH THE SLOPE OF THE ADA COMPLIANT CURB RAMP.

DRIVEWAY PLAN WITH SIDEWALK TIP DOWNS

CITY OF DOVER D-9
SIDEWALK TIP DOWN AT DRIVEWAY

NOT TO SCALE



STOCKADE DUMPSTER
ENCLOSURE DETAIL

NOT TO SCALE

PLANNING FILE NO.: SITE-2024-XXXXX

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

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

NO.	REVISION	APP'D	DATE

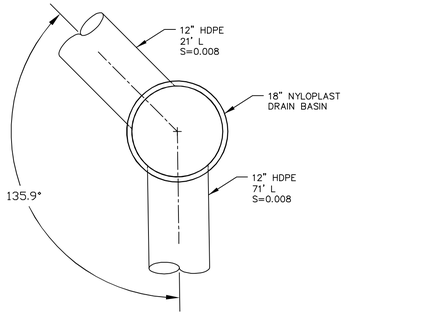
DATE: 2-29-24
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:23029
FILE: SITE.DWG

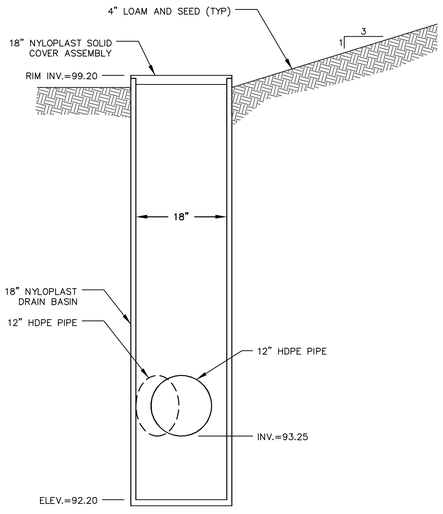
17-19 SUMMER STREET
PROPERTIES, LLC
71 LAFAYETTE ROAD
HAMPTON FALLS, NH 03844

LOCUST STREET
RESIDENTIAL DEVELOPMENT
DOVER, NH

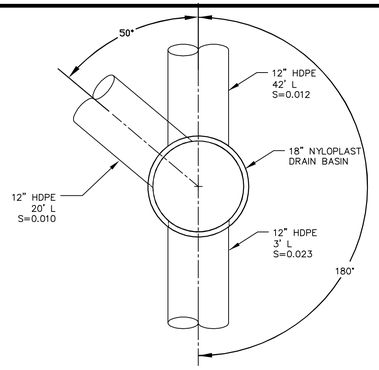
DETAILS

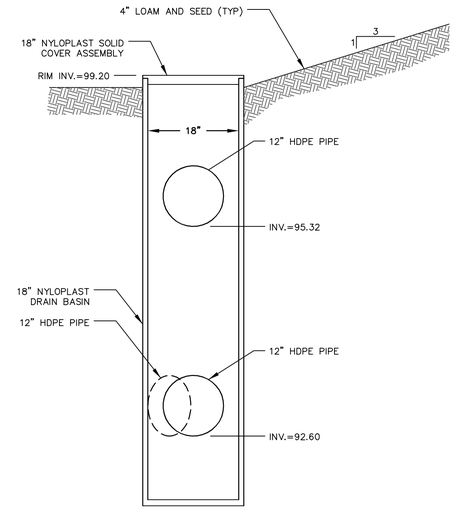
12



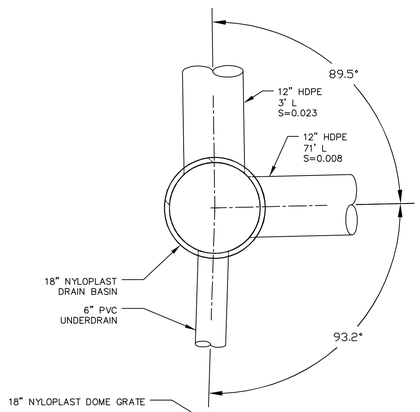


YARD DRAIN 1 (YD1) DETAIL
NOT TO SCALE

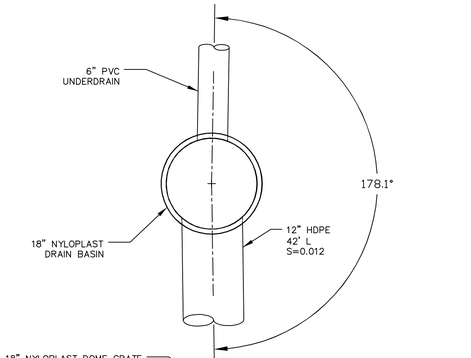


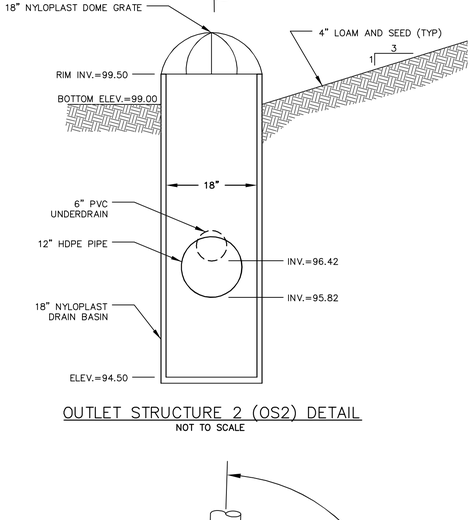


YARD DRAIN 2 (YD2) DETAIL
NOT TO SCALE

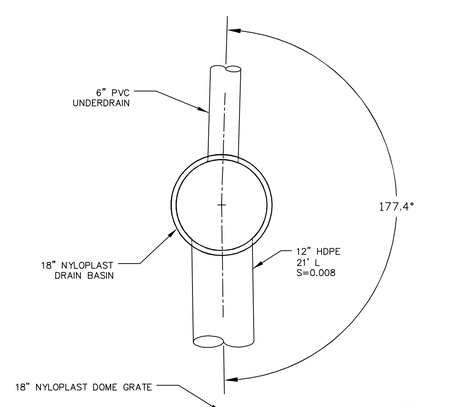


OUTLET STRUCTURE 1 (OS1) DETAIL
NOT TO SCALE



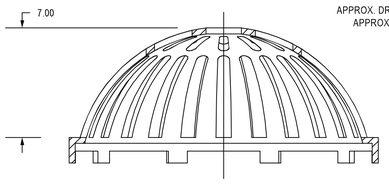


OUTLET STRUCTURE 2 (OS2) DETAIL
NOT TO SCALE



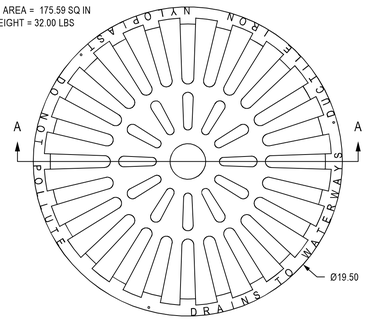
OUTLET STRUCTURE 3 (OS3) DETAIL
NOT TO SCALE

1899CGD



SECTION A-A

APPROX. DRAIN AREA = 175.59 SQ IN
APPROX. WEIGHT = 32.00 LBS



DIMENSIONS ARE FOR REFERENCE ONLY
ACTUAL DIMENSIONS MAY VARY
DIMENSIONS ARE IN INCHES
QUALITY: MATERIALS SHALL CONFORM TO ASTM A536 GRADE 70-50-05
PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT
LOCKING DEVICE AVAILABLE UPON REQUEST

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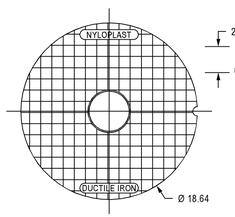
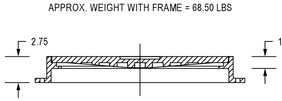
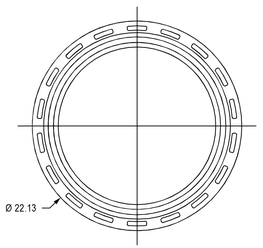
DRAWN BY EBC	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
DATE 03-08-06	DUCTILE IRON		
REVISED BY CCA	PROJECT NO./NAME	TITLE	
DATE 08-30-13		18 IN DOME GRATE	
DWG SIZE A	SCALE 1:6 SHEET 1 OF 1	DWG NO. 7001-110-215	REV E

1899CGC

APPROX. WEIGHT WITH FRAME = 68.50 LBS







DIMENSIONS ARE FOR REFERENCE ONLY
ACTUAL DIMENSIONS MAY VARY
DIMENSIONS ARE IN INCHES
GRATE MEETS H-20 LOAD RATING
QUALITY: MATERIALS SHALL CONFORM TO ASTM A536 GRADE 70-50-05
PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT
LOCKING DEVICE AVAILABLE UPON REQUEST SEE DRAWING NO.
7001-110-027

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DRAWN BY EBC	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
DATE 03-08-06	DUCTILE IRON		
REVISED BY CCA	PROJECT NO./NAME	TITLE	
DATE 08-30-13		18 IN SOLID COVER ASSEMBLY - TYPE C	
DWG SIZE A	SCALE 1:10 SHEET 1 OF 1	DWG NO. 7001-110-214	REV D

PLANNING FILE NO.: SITE-2024-XXXXX

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

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

NO.	REVISION	APP'D	DATE

DATE: 2-29-24
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO: 23029
FILE: SITE.DWG

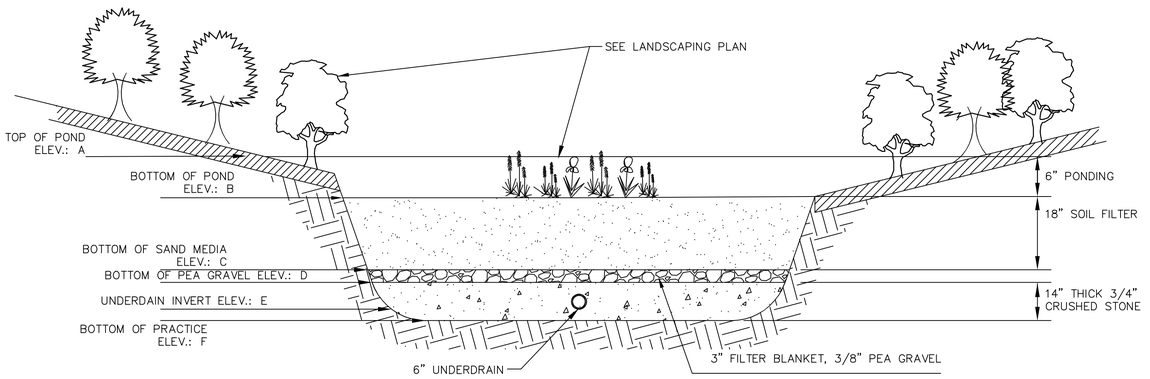
17-19 SUMMER STREET
PROPERTIES, LLC
71 LAFAYETTE ROAD
HAMPTON FALLS, NH 03844

LOCUST STREET
RESIDENTIAL DEVELOPMENT
DOVER, NH

DETAILS

NOTES:

1. DO NOT BEGIN CONSTRUCTION OF THE BIORETENTION AREAS UNTIL LAWN AREA ON THE ENTIRE SITE IS ESTABLISHED WITH AT LEAST 80 PERCENT TURF. PREVENT SILTATION INTO THE BIORETENTION AREA.
2. THE RAIN GARDEN SUBGRADE SHALL BE EXCAVATED TO THE DESIGN DEPTH PLUS TWO (2) INCHES. AT THAT DEPTH FOUR (4) INCHES OF COMPOST SHALL BE TILLED INTO THE EXISTING SOILS SUCH THAT THE SOILS ARE WELL MIXED.
3. DO NOT DRIVE CONSTRUCTION EQUIPMENT ON FILTER SUBGRADE NOR ON THE FILTER MATERIAL. INSTALL FILTER MATERIAL BY MEANS OF AN EXCAVATOR LOCATED ADJACENT TO THE FILTER AREA.
4. MATERIALS: CRUSHED STONE LAYER SHALL MEET NHDOT 304.4. PEA STONE SHALL CONTAIN NO MORE THAN 5% FINES PASSING THE #200 SIEVE. TOPSOIL SHALL CONTAIN 15 TO 25% FINES PASSING THE #200 SIEVE. MULCH SHALL BE SHREDDED HARDWOOD, AGED IN A STOCKPILE OR STORED FOR AT LEAST 12 MONTHS. UNDERDRAIN SHALL BE PERFORATED 6" PVC OR TRIPLE WALL PE PIPE.
5. REFER TO LANDSCAPE DRAWINGS FOR GRASS SEED MIXES AND PLANTINGS. FERTILIZATION OF THE FILTER AREA SHALL BE AVOIDED UNLESS ABSOLUTELY NECESSARY TO ESTABLISH VEGETATION.
6. INITIAL ESTABLISHMENT: DURING THE FIRST 2–3 MONTHS OF ESTABLISHMENT WATER THE GRASS ON A WEEKLY BASIS (TO SUPPLEMENT RAINFALL FOR TOTAL OF 1 INCH PER WEEK).
7. ANNUAL MAINTENANCE: IN THE SPRING OF EACH YEAR, ANY DEAD VEGETATION SHALL BE REMOVED TO ALLOW FOR NEW GROWTH, AND ANY ACCUMULATED SEDIMENT (NORMALLY AT THE ENTRANCE TO THE GARDEN) SHALL ALSO BE REMOVED. DURING THE GROWING SEASON THE RAIN GARDEN SHALL BE WEEDED TWO (2) TIMES. TURF AT FILTER SHALL BE MOWED NO MORE THAN 3 TIMES PER GROWING SEASON. IF WATER PONDS ON THE SURFACE FOR MORE THAN 24 HOURS DURING THE FIRST YEAR OR 72 HOURS THEREAFTER, THE FILTER SURFACE SHALL BE AERATED WITH DEEP TINES OR THE SURFACE REPLACED.
8. GRASS SEED SHALL BE NATIVE NON–INVASIVE SPECIES, SEE LANDSCAPE ARCHITECT DRAWINGS.
9. ALL MATERIALS SHALL BE SUBMITTED TO, AND APPROVED BY, THE DESIGN ENGINEER PRIOR TO CONSTRUCTION.



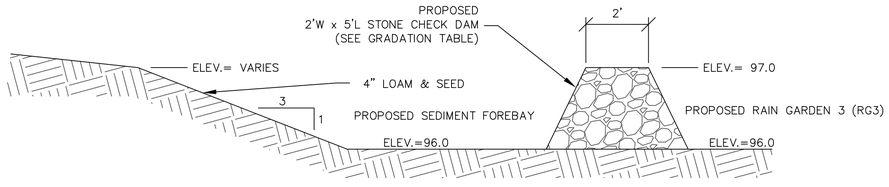
BIORETENTION POND SYSTEM CHART

POND	POND ELEVATION					
	A	B	C	D	E	F
RG1	100.10	99.00	97.50	97.25	96.42	96.08
RG2	99.75	99.00	97.50	97.25	96.42	96.08
RG3	97.15	96.00	94.50	94.25	93.42	93.08

BIORETENTION FILTER MEDIA SPECIFICATIONS			
COMPONENT MATERIAL	PERCENT OF MIXTURE BY VOLUME	GRADATION OF MATERIAL	
		SIEVE NO.	PERCENT BY WEIGHT PASSING STANDARD SIEVE
FILTER MEDIA OPTION A			
ASTM C–33 CONCRETE SAND	50 TO 55		
LOAMY SAND TOPSOIL, WITH FINES AS INDICATED	20 TO 30	200	15 TO 25
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH, WITH FINES AS INDICATED	20 TO 30	200	< 5
FILTER MEDIA OPTION B			
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH, WITH FINES AS INDICATED	20 TO 30	200	< 5
LOAMY COARSE SAND	70 TO 80	10	85 TO 100
		20	70 TO 100
		60	15 TO 40
		200	8 TO 15

RAIN GARDEN DETAIL

NOT TO SCALE



STONE CHECK DAM GRADATION

SIEVE DESIGNATION	PERCENT BY WEIGHT PASSING SQUARE MESH SIEVE
12–INCH	100%
6–INCH	84%–100%
3–INCH	68%–83%
1–INCH	42%–55%
NO.4	8%–12%

STONE CHECK DAM DETAIL

NOT TO SCALE

PLANNING FILE NO.: SITE–2024–XXXXX

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CIVIL & WATERSHED ENGINEERING
181 Watson Road, PO Box 1166
Dover, New Hampshire 03821
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17–19 SUMMER STREET
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LOCUST STREET
RESIDENTIAL DEVELOPMENT
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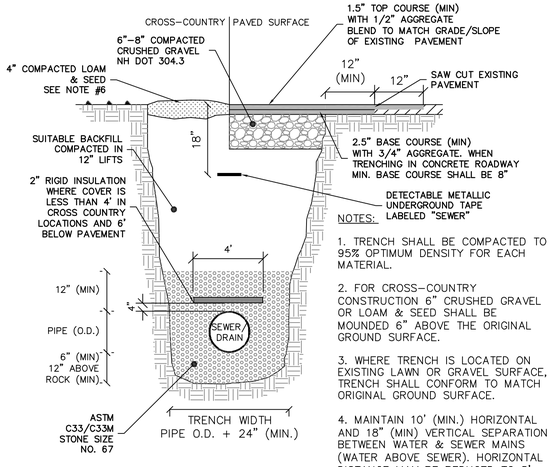
DETAILS



CITY OF DOVER D-3
SEWER TRENCH DETAIL

NOT TO SCALE

NOTES:

1. TRENCH SHALL BE COMPACTED TO 95% OPTIMUM DENSITY FOR EACH MATERIAL.

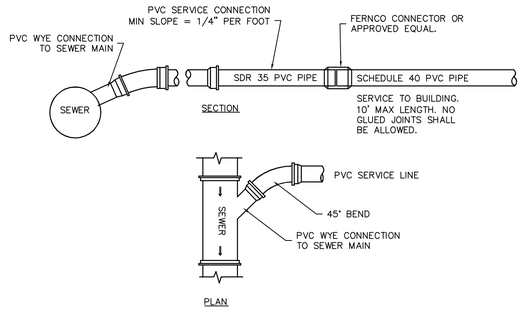
2. FOR CROSS-COUNTRY CONSTRUCTION 6" CRUSHED GRAVEL OR LOAM & SEED SHALL BE MOUNDED 6" ABOVE THE ORIGINAL GROUND SURFACE.

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.

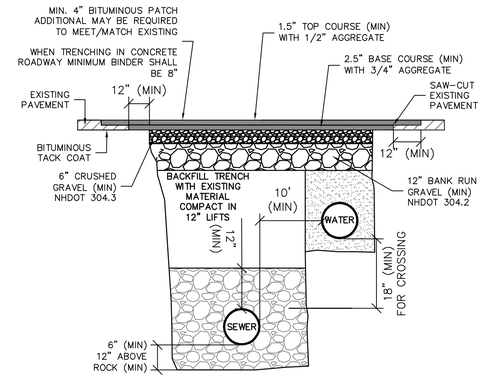


NOTES:

1. TRENCHING AND BEDDING REQUIREMENTS PER CITY SEWER TRENCH DETAIL (D-3).
2. SERVICE LATERAL DIAMETER VARIES PER APPLICATION. REVIEW SIZE WITH CITY ENGINEER PRIOR TO INSTALLATION.
3. SDR 35 SHALL NOT EXTEND INTO THE BUILDING

CITY OF DOVER D-17
SEWER SERVICE DETAIL

NOT TO SCALE

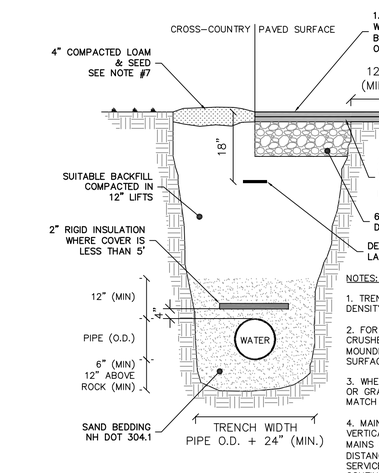


NOTES:

1. TRENCH SHALL BE COMPACTED TO 95% OPTIMUM DENSITY.
2. ALL WORK SHALL COMPLY WITH THE CITY OF DOVER CONSTRUCTION GUIDELINES AND PROCEDURES
3. 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.

CITY OF DOVER
TYPICAL TRENCH DETAIL

NOT TO SCALE



CITY OF DOVER D-4
WATER TRENCH DETAIL

NOT TO SCALE

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.

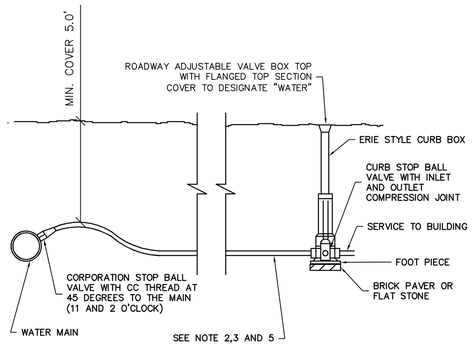
3. WHERE TRENCH IS LOCATED ON EXISTING LAWN OR GRAVEL SURFACE, TRENCH SHALL CONFORM TO MATCH ORIGINAL GROUND SURFACE.

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. PROVIDE MINIMUM 5' OF COVER. ENGINEERING APPROVAL REQUIRED FOR LESS THAN 5' OF COVER.

7. LOAM AND SEED SHOULD BE IN COMPLIANCE WITH NH DOT 641, 642, 643, 644 AND 645.

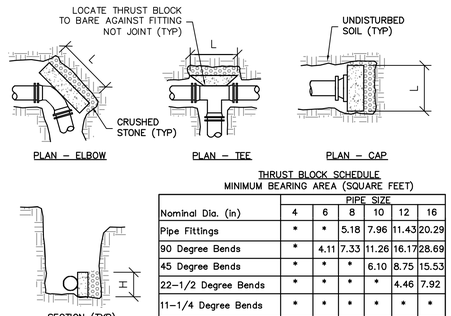


NOTES:

1. ALL WATER LINES 4" OR GREATER SHALL BE DUCTILE IRON WITH AN 8 MIL POLYETHYLENE WRAP, INCLUDING TEE AND OTHER CONNECTIONS.
2. WATER SERVICE LINES SHALL BE COPPER TUBING (TYPE K) BETWEEN MAIN AND CURB STOP.
3. SERVICE BETWEEN CURB STOP AND BUILDING MAY BE (BLUE OR BLACK) CTS SDR 9 PLASTIC POLYETHYLENE RATED FOR 250 psi.
4. CAM-LOCK REQUIRED FOR CTS OR IPS, MJ ADAPTER REQUIRED FOR HDPE
5. 3/4"- COPPER, CTS
   1"- COPPER, CTS
   2"- CTS, HDPE, IPS

CITY OF DOVER D-13
WATER SERVICE CONNECTION DETAIL

NOT TO SCALE



THRUST BLOCK SCHEDULE
MINIMUM BEARING AREA (SQUARE FEET)

	PIPE SIZE					
Nominal Dia. (in)	4	6	8	10	12	16
Pipe Fittings	*	*	5.18	7.96	11.43	20.29
90 Degree Bends	*	4.11	7.33	11.26	16.17	28.69
45 Degree Bends	*	*	*	6.10	8.75	15.53
22-1/2 Degree Bends	*	*	*	*	4.46	7.92
11-1/4 Degree Bends	*	*	*	*	*	*
*SEE NOTE 2	System Pressure: 125 psi Safety Factor: 1.5 Soil Bearing Capacity: 2,000 psf					

NOTES:

1. ALL THRUST BLOCKS SHALL BE PRE-CAST CONCRETE UNLESS APPROVED BY THE CITY ENGINEER.
2. 2'X2'X2' MINIMUM THRUST BLOCK REQUIRED. ANY BEARING AREA OVER 4SF REQUIRES THRUST BLOCKS, RESTRAINED JOINTS AND CALCULATIONS ASSOCIATED WITH THE JOINT.
3. THE MINIMUM BEARING AREAS SHOWN IN THE THRUST BLOCK SCHEDULE ARE BASED ON A SYSTEM PRESSURE OF 125 PSI. IF THE SYSTEM PRESSURE IS ABOVE 125 PSI, INCREASE THE NOTED AREAS PROPORTIONALLY TO THE ACTUAL SYSTEM PRESSURE.
4. FOR MINIMUM BEARING AREAS OVER 4 SF, THE LENGTH (L) OF THE BLOCK IS APPROXIMATELY TWICE AS LONG AS THE HEIGHT (H).
5. PLACE CRUSHED STONE BEHIND THRUST BLOCK AGAINST UNDISTURBED SOIL.
6. PLACE THRUST BLOCK ALONG MAXIMUM LENGTH OF THE FITTING TO MAXIMIZE BEARING AREA.
7. CONCRETE COMPRESSIVE STRENGTH: 2,000 PSI MINIMUM.
8. USE OF THRUST BLOCKS DOES NOT ELIMINATE THE REQUIREMENT OF OTHER RESTRAINTS OR VICE VERSA.

CITY OF DOVER D-15
THRUST BLOCK DETAIL

NOT TO SCALE

PLANNING FILE NO.: SITE-2024-XXXXX

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

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

NO.	REVISION	APP'D	DATE

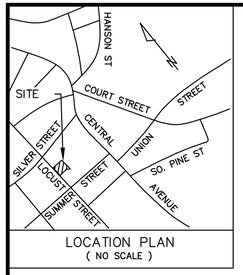
DATE: 2-29-24
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO: 23029
FILE: SITE.DWG

DETAILS

17-19 SUMMER STREET
PROPERTIES, LLC
71 LAFAYETTE ROAD
HAMPTON FALLS, NH 03844

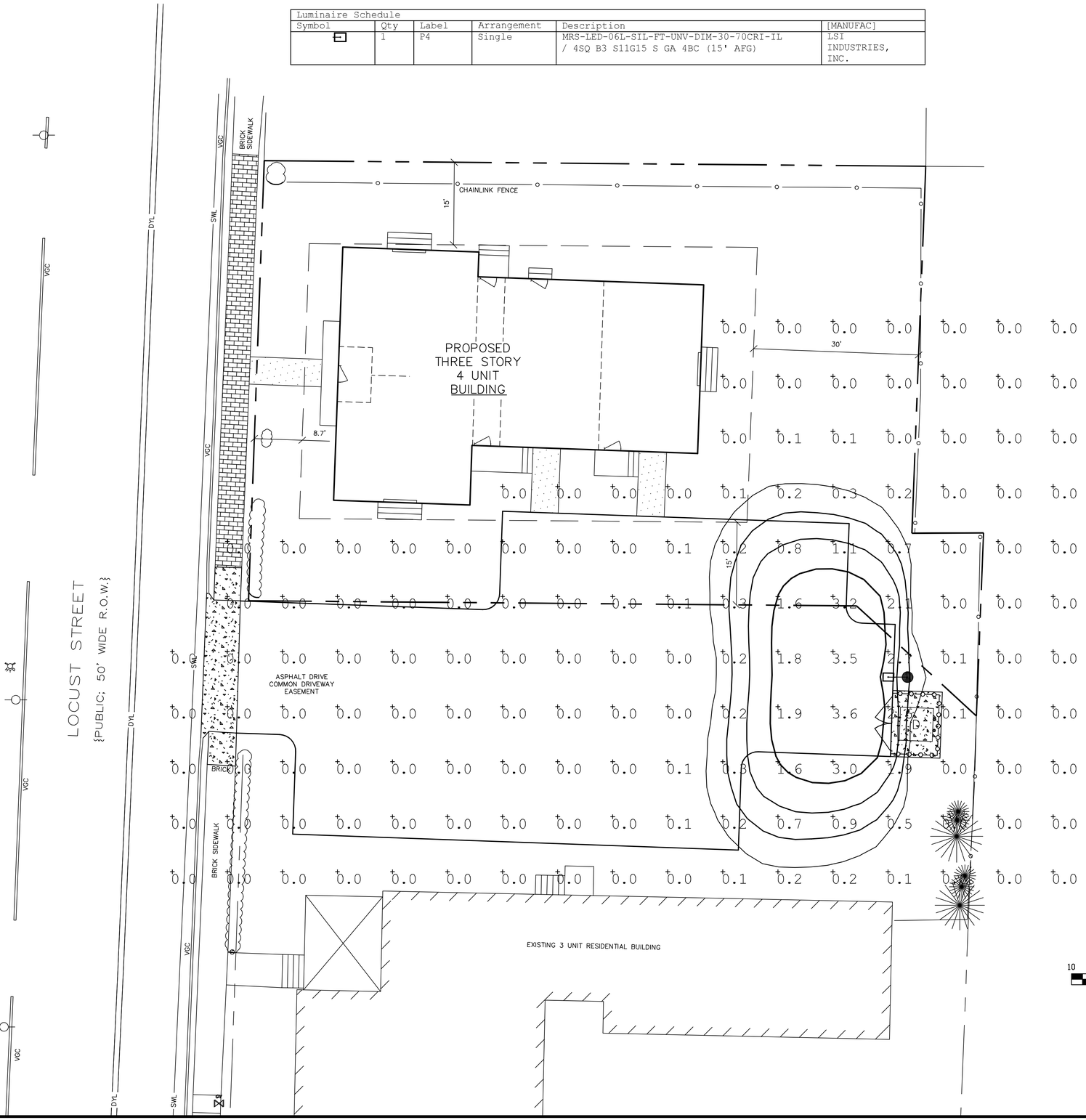
LOCUST STREET
RESIDENTIAL DEVELOPMENT
DOVER, NH

15



LOCATION PLAN
(NO SCALE)

Luminaire Schedule					
Symbol	Qty	Label	Arrangement	Description	[MANUFAC]
⊟	1	P4	Single	MRS-LED-06L-SIL-FT-UNV-DIM-30-70CRI-IL / 4SQ B3 S11G15 S GA 4BC (15' AFG)	LSI INDUSTRIES, INC.



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NO.	REVISION	APP'D	DATE

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LIGHTING PLAN

17-19 SUMMER STREET
PROPERTIES, LLC
71 LAFAYETTE ROAD
HAMPTON FALLS, NH 03844

LOCUST STREET
RESIDENTIAL DEVELOPMENT
DOVER, NH

16

Catalog # _____ Project : _____

Prepared By : _____ Date : _____

Mirada Small Area (MRS)

Outdoor LED Area Light

OVERVIEW	
Lumen Package	6,000 - 30,000
Wattage Range	39 - 209
Efficacy Range (LPW)	112 - 163
Weight lbs(kg)	20 (9.1)
Control Options	IMSBT, ALB, ALS, 7-Pin, PCI

QUICK LINKS

Ordering Guide | Performance | Photometrics | Dimensions

FEATURES & SPECIFICATIONS

Construction
- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Cast aluminum wiring access door located underneath.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 27 lbs in carton.

Optical System
- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP66 rated seal.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in distribution types 2, 3, 4, 5W, FT, and LC/RC.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93-95%.
- Zero uplight.
- Available in 5000K, 4000K, and 3000K color temperatures per ANSI C78.377
- Minimum CRI of 70.
- Integral louver (IL) and integral half louver (IH) options available for enhanced backlight control.

Electrical
- High-performance driver features over-voltage, under-voltage, short-circuit and over temperature protection.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 VAC) Input 50/60 Hz or optional High Voltage (347-480 VAC).
- L70 Calculated Life: >60k Hours
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F). 30L lumen packages rated to +40°C.
- Power factor: >.90
- Input power stays constant over life.
- Field replaceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Driver is fully encased in potting material for moisture resistance and complies with FCC standards. Driver and key electronic components can easily be accessed.

Controls
- Optional integral passive infrared Bluetooth™ motion and photocell sensor. Fixtures operate independently and can be commissioned via iOS or Android configuration app.
- LSI's AirLink™ wireless control system options reduce energy and maintenance costs while optimizing light quality 24/7.

Installation
- Designed to mount to square or round poles.
- A single fastener secures the hinged door, underneath the housing and provides quick & easy access to the electrical compartment.
- Included terminal block accepts up to 12 ga. wire.
- Utilizes LSI's traditional B3 drill pattern.

Warranty
- LSI luminaires carry a 5-year limited warranty. Refer to https://www.lsicorp.com/resources/terms-conditions-warranty/ for more information.

Listings
- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- IDA compliant; with 3000K color temperature selection.
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable for wet locations.
- IP66 rated Luminaire per IEC 60598-1.
- 3G rated for ANSI C136.31 high vibration applications are qualified.
- IK08 rated luminaire per IEC 66262 mechanical impact code
- DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

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Catalog # _____ Project : _____

Prepared By : _____ Date : _____

Steel Poles

Square Straight

QUICK LINKS

Ordering Guide | Configurations | Dimensions | EPA

FEATURES & SPECIFICATIONS

Pole Shaft
- Straight poles are 4", 5", or 6" square.
- Pole shaft is electro-welded ASTM-A500 Grade C steel tubing with a minimum yield strength of 50,000 psi.
- On Tenon Mount steel poles, tenon is 2-3/8" O.D. high-strength pipe. Tenon is 4-3/4" in length.

Hand-Hole
- Standard hand-hole location is 12" above pole base.
- Poles 22' and above have a 3" x 6" reinforced hand-hole. Shorter poles have a 2" x 4" non-reinforced hand-hole.

Base
- Pole base is ASTM-A36 hot-rolled steel plate with a minimum yield strength of 36,000 psi.
- Two-piece square base cover is optional.

Anchor Bolts
- Poles are furnished with anchor bolts featuring zinc-plated double nuts and washers. Galvanized anchor bolts are optional.
- Anchor Bolts conform to ASTM F 1554-07a Grade 55 with a minimum yield strength of 55,000 PSI.

Ground Lug
- Ground lug is standard.

Duplex Receptacle
- Weatherproof duplex receptacle is optional.

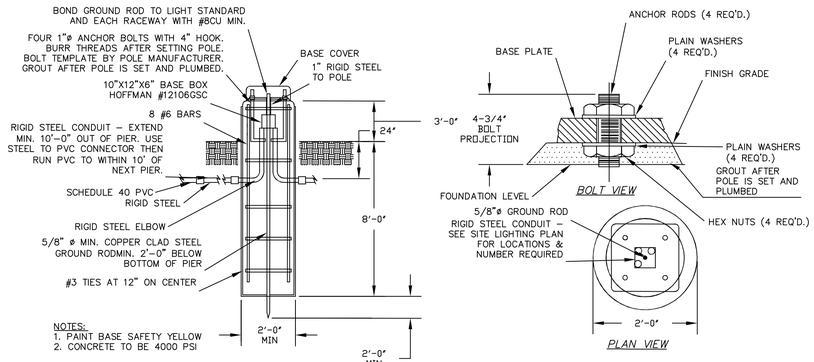
Ground Fault Circuit Interrupter
- Self-testing Ground fault circuit interrupter is optional.

Finishes
- Every pole is provided with the DuraGrip Protection System and a 5-year limited warranty.
- When the top-of-the line DuraGrip Plus Protection System is selected, in addition to the DuraGrip Protection System, a non-porous, automotive-grade corrosion coating is applied to the lower portion of the pole interior sealing and further protecting it from corrosion. This option extends the limited warranty to 7 years.

Determining The Luminaire/Pole Combination For Your Application:
- Select luminaire from luminaire ordering information.
- Select bracket configuration if required
- Determine EPA value from luminaire/bracket EPA chart
- Select Pole Height
- Select MPH to match wind speed in the application area (See windspeed maps).
- Confirm pole EPA equal to or exceeding value of luminaire/bracket EPA
- Consult factory for special wind load requirements and banner brackets.

Pole Vibration Damper
- A pole vibration damper is recommended in open terrain areas of the country where low steady state winds are common.
- Non-tapered poles and lightly loaded poles are more susceptible to destructive vibration if a damper is not installed.

Listings
- UL Listed
- BAA/TAA Compliant



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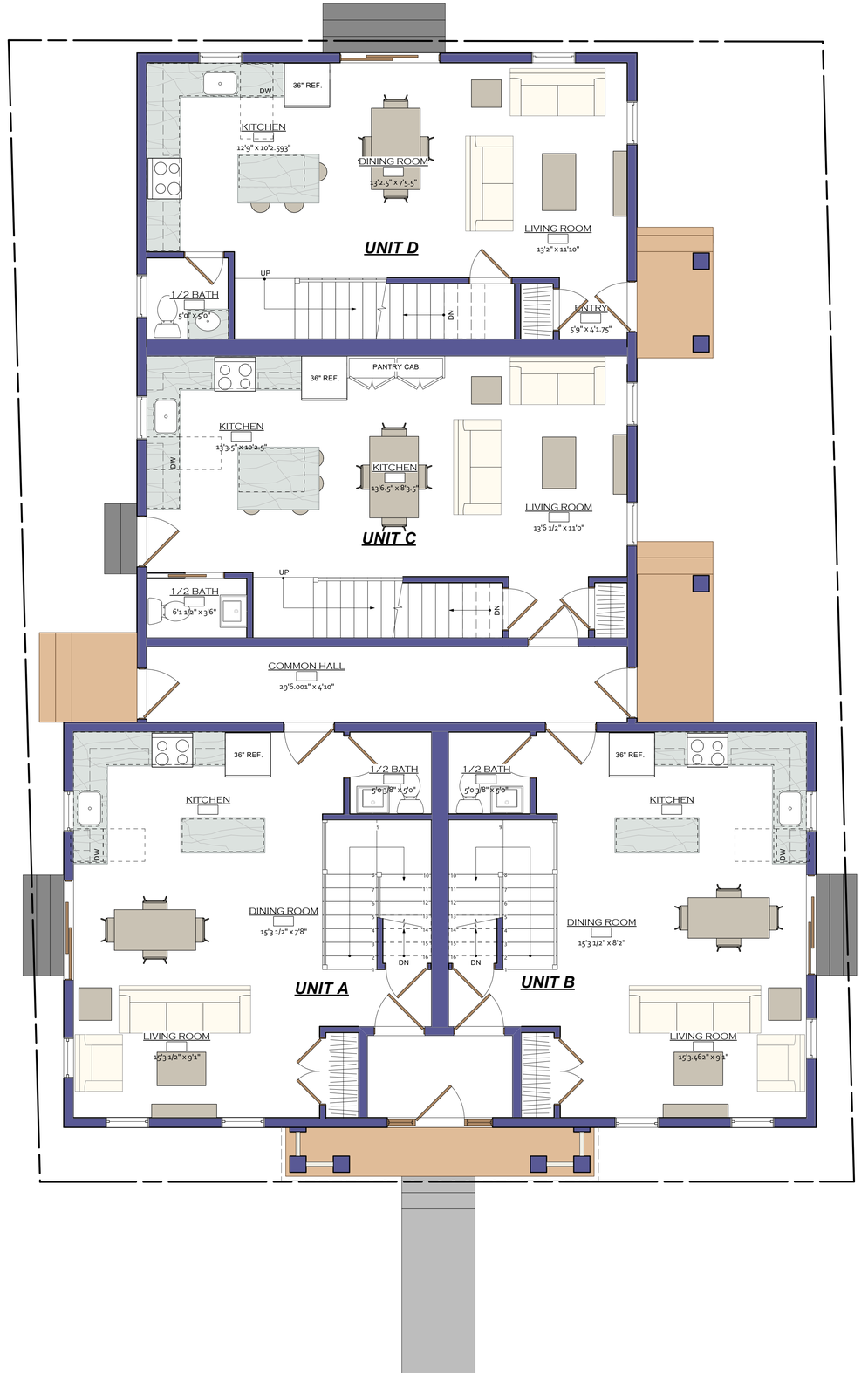
17



1 PROPOSED FIRST FLOOR PLAN
Scale: 1/4" = 1'-0"

SQUARE FOOTAGE OPTION 2	
UNIT A	
1st FLOOR GROSS SQ.FT.	567 SQ.FT.
2nd FLOOR GROSS SQ.FT.	581 SQ.FT.
ATTIC GROSS SQ.FT.	499 SQ.FT.
UNIT A - PROPOSED FINISHED SPACE TOTAL	**1647 SQ.FT.**
UNIT B	
1st FLOOR GROSS SQ.FT.	567 SQ.FT.
2nd FLOOR GROSS SQ.FT.	581 SQ.FT.
ATTIC GROSS SQ.FT.	479 SQ.FT.
UNIT B - PROPOSED FINISHED SPACE TOTAL	**1626 SQ.FT.**
UNIT C	
1st FLOOR GROSS SQ.FT.	552 SQ.FT.
2nd FLOOR GROSS SQ.FT.	704 SQ.FT.
ATTIC GROSS SQ.FT.	591 SQ.FT.
UNIT C - PROPOSED FINISHED SPACE TOTAL	**1847 SQ.FT.**
UNIT D	
1st FLOOR GROSS SQ.FT.	550 SQ.FT.
2nd FLOOR GROSS SQ.FT.	550 SQ.FT.
ATTIC GROSS SQ.FT.	466 SQ.FT.
UNIT D - PROPOSED FINISHED SPACE TOTAL	**1565 SQ.FT.**
COMMON CORRIDOR	126 SQ.FT.

DD BY

DISTINCTION
BY DESIGN

REVISION & REISSUE NOTES

No.	Date	Notes

4 UNITS APARTMENT BUILDING

135 LOCUST ST., DOVER, NH 03820

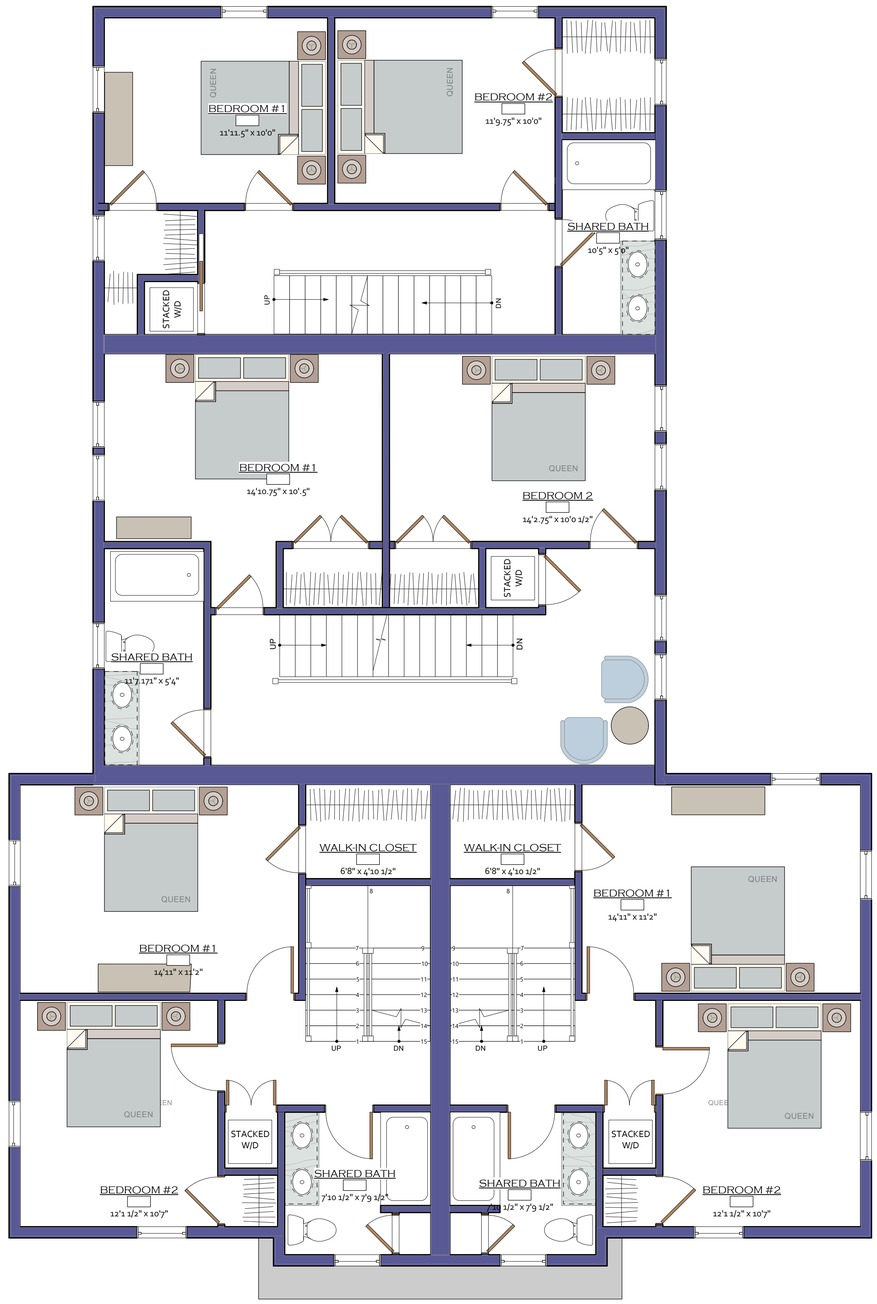
Project Manager	Project #	Date
ST	2022-02	05-13-2022

Scale: AS NOTED

FIRST FLOOR PLAN

A1.1

CAD File Name
Summer street SD -3.vwx



1 PROPOSED SECOND FLOOR PLAN
Scale: 1/4" = 1'-0"

SQUARE FOOTAGE OPTION 2	
UNIT A	
1st FLOOR GROSS SQ.FT.	567 SQ.FT.
2nd FLOOR GROSS SQ.FT.	581 SQ.FT.
ATTIC GROSS SQ.FT.	499 SQ.FT.
UNIT A - PROPOSED FINISHED SPACE TOTAL	**1647 SQ.FT.**
UNIT B	
1st FLOOR GROSS SQ.FT.	567 SQ.FT.
2nd FLOOR GROSS SQ.FT.	581 SQ.FT.
ATTIC GROSS SQ.FT.	479 SQ.FT.
UNIT B - PROPOSED FINISHED SPACE TOTAL	**1626 SQ.FT.**
UNIT C	
1st FLOOR GROSS SQ.FT.	552 SQ.FT.
2nd FLOOR GROSS SQ.FT.	704 SQ.FT.
ATTIC GROSS SQ.FT.	591 SQ.FT.
UNIT C - PROPOSED FINISHED SPACE TOTAL	**1847 SQ.FT.**
UNIT D	
1st FLOOR GROSS SQ.FT.	550 SQ.FT.
2nd FLOOR GROSS SQ.FT.	550 SQ.FT.
ATTIC GROSS SQ.FT.	466 SQ.FT.
UNIT D - PROPOSED FINISHED SPACE TOTAL	**1565 SQ.FT.**
COMMON CORRIDOR	126 SQ.FT.

DD BY

DISTINCTION
BY DESIGN

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4 UNITS APARTMENT BUILDING

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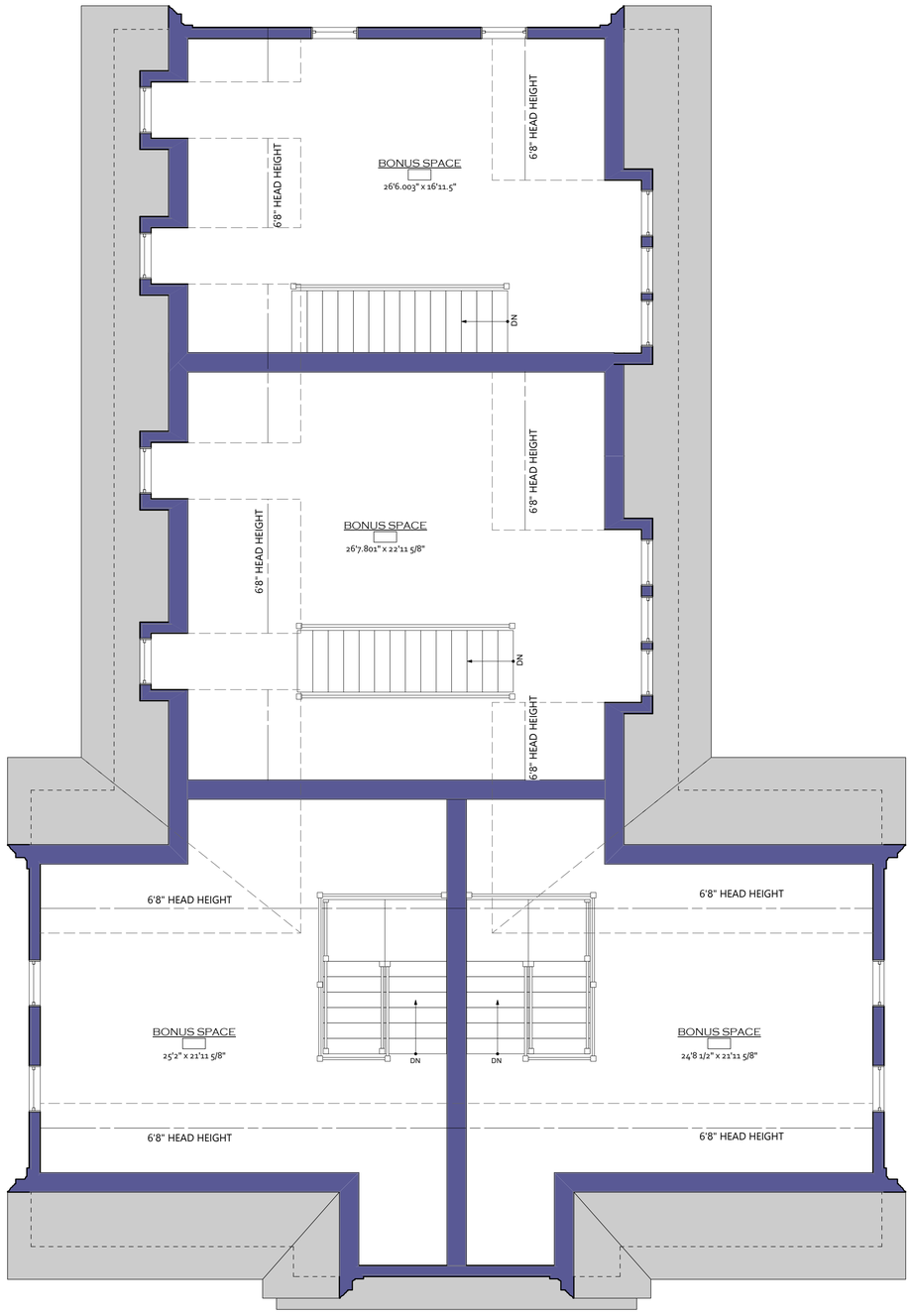
ST	2022-02	05-13-2022

Scale: AS NOTED

SECOND FLOOR PLAN

A1.2

CAD File Name
Summer street SD -3.vwx



1 PROPOSED ATTIC PLAN
Scale: 1/4" = 1'-0"

SQUARE FOOTAGE OPTION 2	
UNIT A	
1st FLOOR GROSS SQ.FT.	567 SQ.FT.
2nd FLOOR GROSS SQ.FT.	581 SQ.FT.
ATTIC GROSS SQ.FT.	499 SQ.FT.
UNIT A - PROPOSED FINISHED SPACE TOTAL	**1647 SQ.FT.**
UNIT B	
1st FLOOR GROSS SQ.FT.	567 SQ.FT.
2nd FLOOR GROSS SQ.FT.	581 SQ.FT.
ATTIC GROSS SQ.FT.	479 SQ.FT.
UNIT B - PROPOSED FINISHED SPACE TOTAL	**1626 SQ.FT.**
UNIT C	
1st FLOOR GROSS SQ.FT.	552 SQ.FT.
2nd FLOOR GROSS SQ.FT.	704 SQ.FT.
ATTIC GROSS SQ.FT.	591 SQ.FT.
UNIT C - PROPOSED FINISHED SPACE TOTAL	**1847 SQ.FT.**
UNIT D	
1st FLOOR GROSS SQ.FT.	550 SQ.FT.
2nd FLOOR GROSS SQ.FT.	550 SQ.FT.
ATTIC GROSS SQ.FT.	466 SQ.FT.
UNIT D - PROPOSED FINISHED SPACE TOTAL	**1565 SQ.FT.**
COMMON CORRIDOR	126 SQ.FT.

DD BY

DISTINCTION
BY DESIGN

REVISION & REISSUE NOTES

No.	Date	Notes

4 UNITS APARTMENT BUILDING

135 LOCUST ST., DOVER, NH 03820

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ST	2022-02	05-13-2022

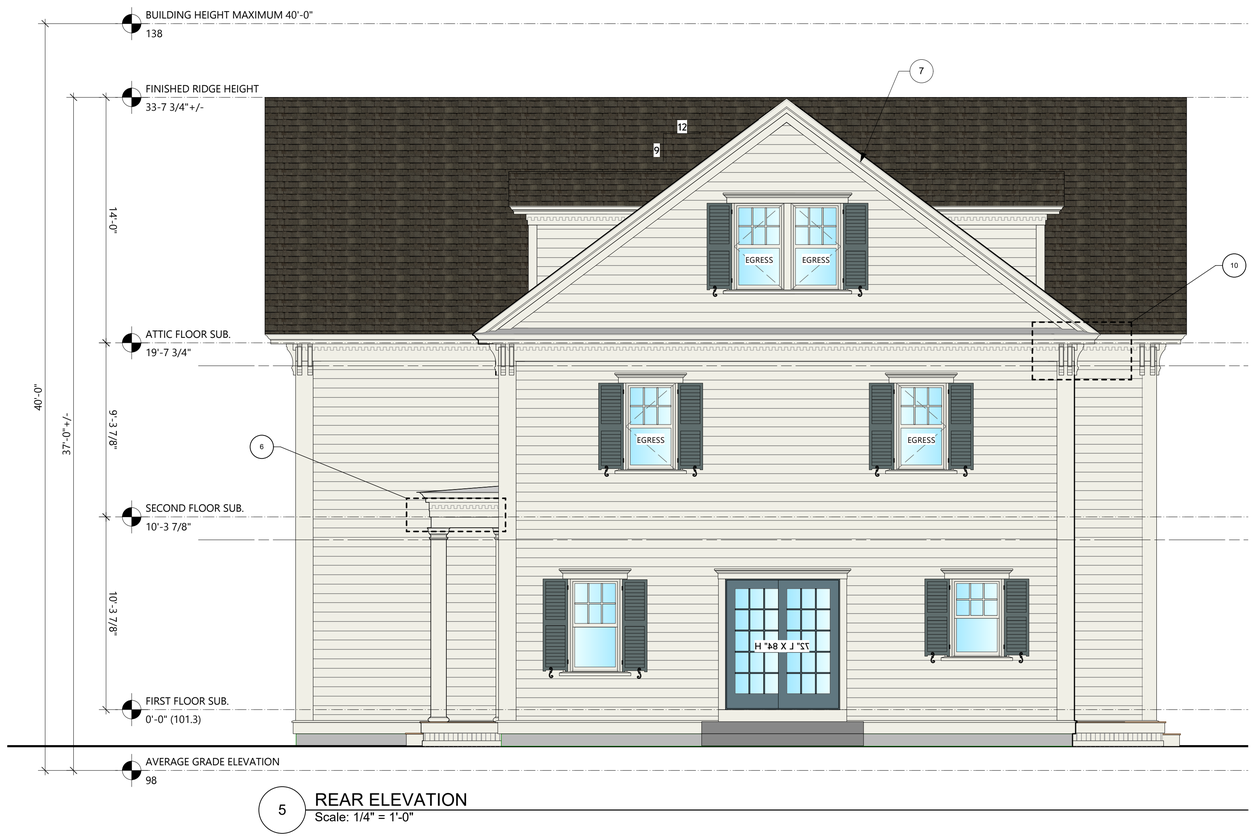
Scale: AS NOTED

ATTIC PLAN

A1.3

CAD File Name
Summer street SD - 3.vwx

2 LOCUST STREET ELEVATION
Scale: 1/4" = 1'-0"



5 REAR ELEVATION
Scale: 1/4" = 1'-0"

HERITAGE DISTRICT
ARCHITECTURAL DESIGN ELEMENTS

1	CLAPBOARD SIDING
2	STEEP ROOF PITCH
3	DENTILS AT FRIEZE BOARD
4	TUSCAN COLUMNS
5	DORMERS
6	ENTABLATURE
7	GABLES
8	TRANSOM
9	PORTICO
10	DEEP EAVE OVERHANG
11	DOMINANT FRONT GABLE CANTELIVER ABOVE FLOOR BELOW
12	BALLUSTRADE

DISTINCTION BY DESIGN

REVISION & REISSUE NOTES

No.	Date	Notes

4 UNITS APARTMENT BUILDING

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Scale: AS NOTED

EXTERIOR ELEVATIONS

A2.0

CAD File Name
Summer street SD -3.vwx

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

2 LEFT ELEVATION
Scale: 1/4" = 1'-0"

HERITAGE DISTRICT
ARCHITECTURAL DESIGN ELEMENTS

1	CLAPBOARD SIDING
2	STEEP ROOF PITCH
3	DENTILS AT FRIEZE BOARD
4	TUSCAN COLUMNS
5	DORMERS
6	ENTABLATURE
7	GABLES
8	TRANSOM
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11	DOMINANT FRONT GABLE CANTELIVER ABOVE FLOOR BELOW
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CAD File Name
Summer street SD -3.vwx

DISTINCTION BY DESIGN

REVISION & REISSUE NOTES

No.	Date	Notes

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135 LOCUST ST., DOVER, NH 03820

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ST	2022-02	05-13-2022

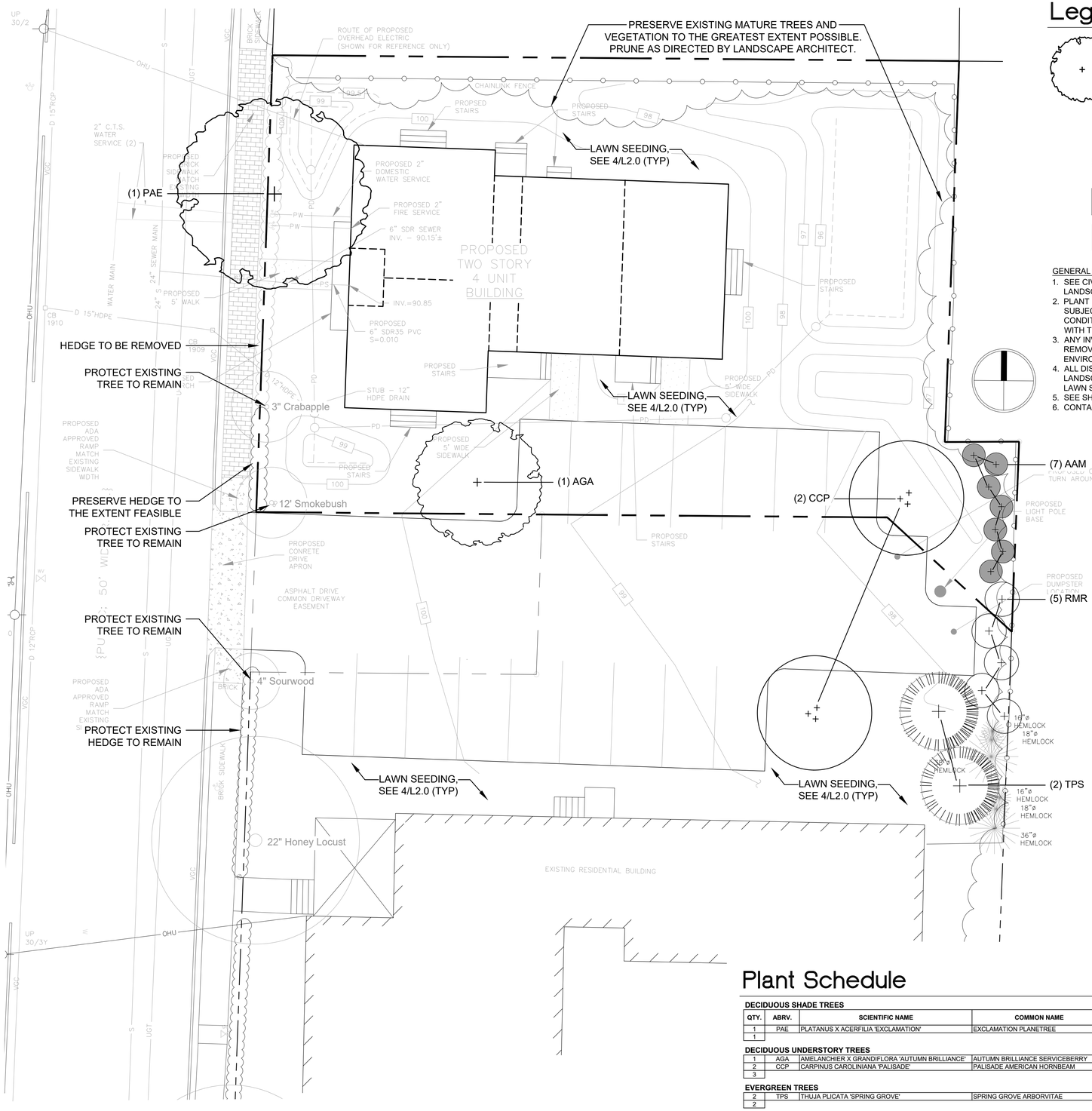
Scale: AS NOTED

EXTERIOR ELEVATIONS

A2.1

PLANTING NOTES:

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



Legend

- DECIDUOUS TREE PLANTING, SEE 1/L2.0
- DECIDUOUS MULTI-STEMMED TREE PLANTING, SEE 5/L2.0
- EVERGREEN TREE PLANTING, SEE 2/L2.0
- SHRUB PLANTING, SEE 3/L2.0
- LAWN — LOAM AND LAWN SEEDING, SEE 4/L2.0

GENERAL NOTES:

1. SEE CIVIL DRAWINGS FOR INFORMATION NOT DEPICTED ON THE LANDSCAPE DRAWINGS.
2. PLANT LOCATIONS SHOWN ON THE PLANTING PLAN ARE SUBJECT TO FIELD MODIFICATION TO ACCOMMODATE EXISTING CONDITIONS. FIELD ADJUSTMENTS SHALL BE COORDINATED WITH THE LANDSCAPE ARCHITECT.
3. ANY INVASIVE PLANT SPECIES ENCOUNTERED SHALL BE REMOVED FOLLOWING NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT BEST MANAGEMENT PRACTICES.
4. ALL DISTURBED AREAS NOT IDENTIFIED FOR A SPECIFIC LANDSCAPE TREATMENT, SHALL BE LOAMED AND SEEDED WITH LAWN SEED MIX, SEE 4/L2.0.
5. SEE SHEET L2.0 FOR LANDSCAPE DETAILS.
6. CONTACT DIGSAFE PRIOR TO BEGINNING WORK.

Plant Schedule

DECIDUOUS SHADE TREES

QTY.	ABRV.	SCIENTIFIC NAME	COMMON NAME	SIZE	APPROX. SIZE AT MATURITY	REMARKS
1	PAE	PLATANUS X ACERFILIA 'EXCLAMATION'	EXCLAMATION PLANETREE	3"-3 1/2" CAL	40' HT x 30' SPD	B&B
1						

DECIDUOUS UNDERSTORY TREES

1	AGA	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE SERVICEBERRY	2 1/2"-3" CAL	20' HT x 20' SPD	B&B, SINGLE
2	CCP	CARPINUS CAROLINIANA 'PALISADE'	PALISADE AMERICAN HORNBEAM	10'-12' HT	20' HT x 15' SPD	B&B, MULTI-STEMMED
3						

EVERGREEN TREES

2	TPS	THUJA PLICATA 'SPRING GROVE'	SPRING GROVE ARBORVITAE	7'-8' HT	20' HT x 15' SPD	B&B
2						

SHRUBS

7	AAM	ARONIA MELANOCARPA 'AUTUMN MAGIC'	AUTUMN MAGIC CHOKEBERRY	#5	6' HT x 4' SPD	CONTAINER
5	RMR	RHODODENDRON MAXIMUM 'ROSEUM'	ROSEBAY RHODODENDRON	#5	6' HT x 6' SPD	CONTAINER
12						

DRAWING SUBMITTED FOR CITY REVIEW

Ironwood
Landscape Architecture • Planning
Exeter, New Hampshire | 603.772.0590 | www.FeWood.com

LOCUST STREET RESIDENTIAL DEVELOPMENT
Dover, NH 03820
17-19 Summer Street Properties, LLC
71 Lafayette Road
Hampton Falls, NH 03844

SHEET TITLE
LANDSCAPE PLAN

REVISION LOG

REV#	DATE	DESCRIPTION

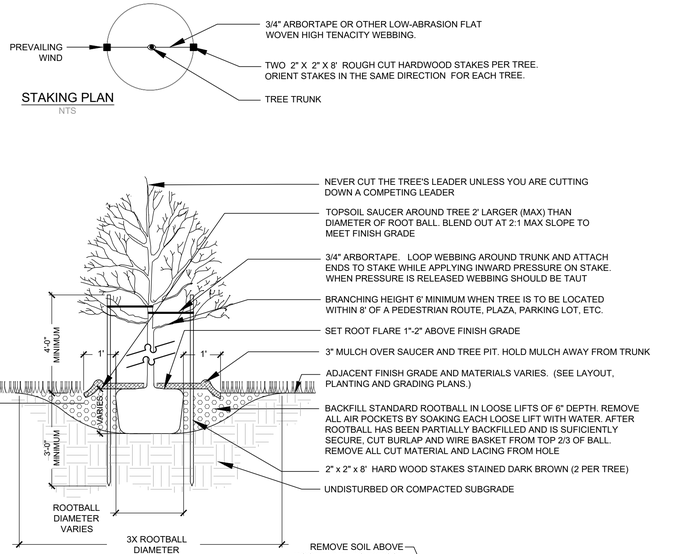
PROJECT NO.	23050.0
DESIGN BY	J. HYLAND
DRAWN BY	S. WRIGHT
CHECKED BY	D.JENSEN / J. HYLAND
DATE	JANUARY 4, 2024
SCALE	0' 10' 20' SCALE: 1" = 10-0"

SEAL
NEW HAMPSHIRE LANDSCAPE ARCHITECT — JEFFREY R. HYLAND — 026 — STATE OF NEW HAMPSHIRE

L1.0

© 2024 Ironwood Design Group, LLC

S:\23050.0 - Locust Street Residential Development\Drawings\LP_240102.dwg, JRH 1/4/2024 11:14:27 AM

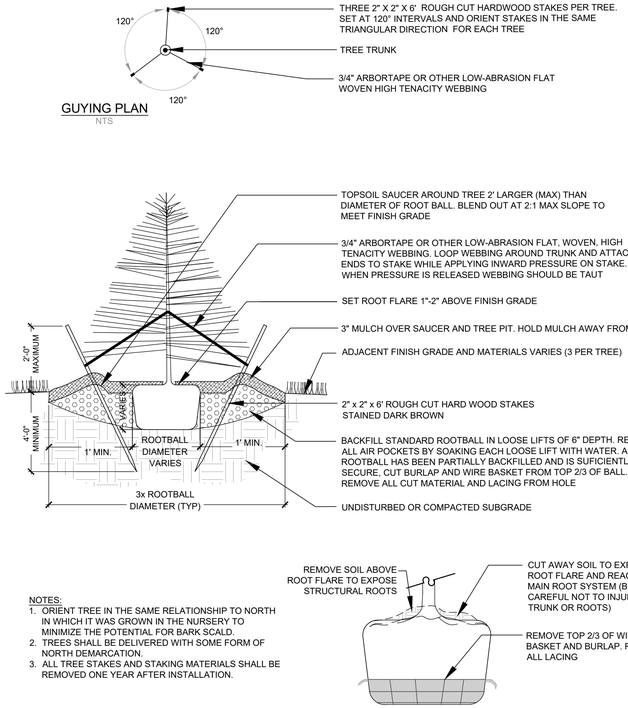


Deciduous Tree Planting

Not to Scale

©IRONWOOD 2024

1 L2.0

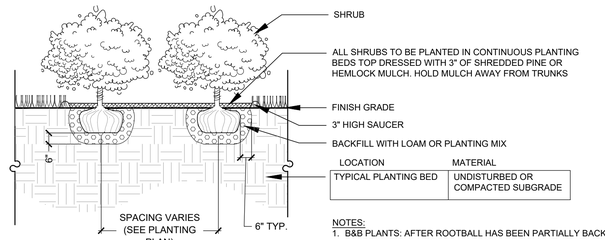


Evergreen Tree Planting

Not to Scale

©IRONWOOD 2024

2 L2.0

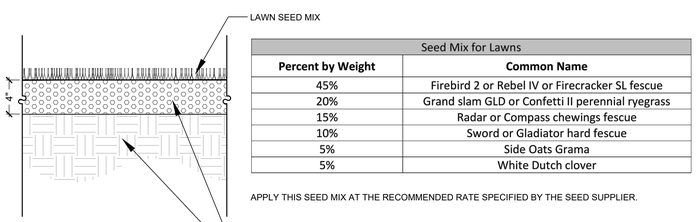


Shrub Planting

Not to Scale

©IRONWOOD 2024

3 L2.0

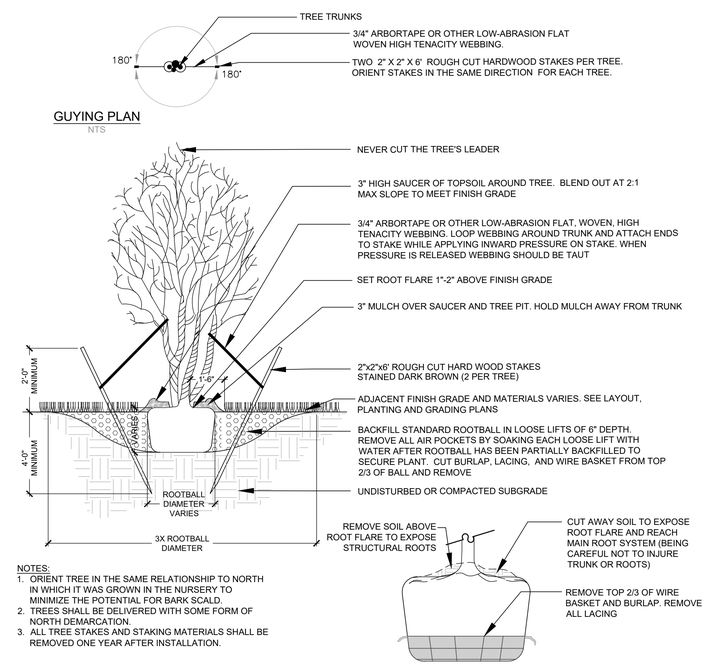


Loam and Lawn Seeding

Not to Scale

©IRONWOOD 2024

4 L2.0



Deciduous Multi-Stemmed Tree Planting

Not to Scale

©IRONWOOD 2024

5 L2.0

DRAWING SUBMITTED FOR CITY REVIEW

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LOCUST STREET RESIDENTIAL DEVELOPMENT
Dover, NH 03820
17-19 Summer Street Properties, LLC
71 Lafayette Road
Hampton Falls, NH 03844

SHEET TITLE

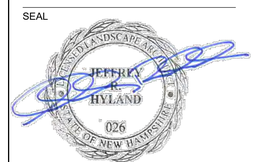
LANDSCAPE DETAILS

REVISION LOG

REV#	DATE	DESCRIPTION
-	-	-

PROJECT NO.	23050.0
DESIGN BY	J. HYLAND
DRAWN BY	S. WRIGHT
CHECKED BY	D.JENSEN / J. HYLAND
DATE	JANUARY 4, 2024
SCALE	AS NOTED

SEAL



L2.0

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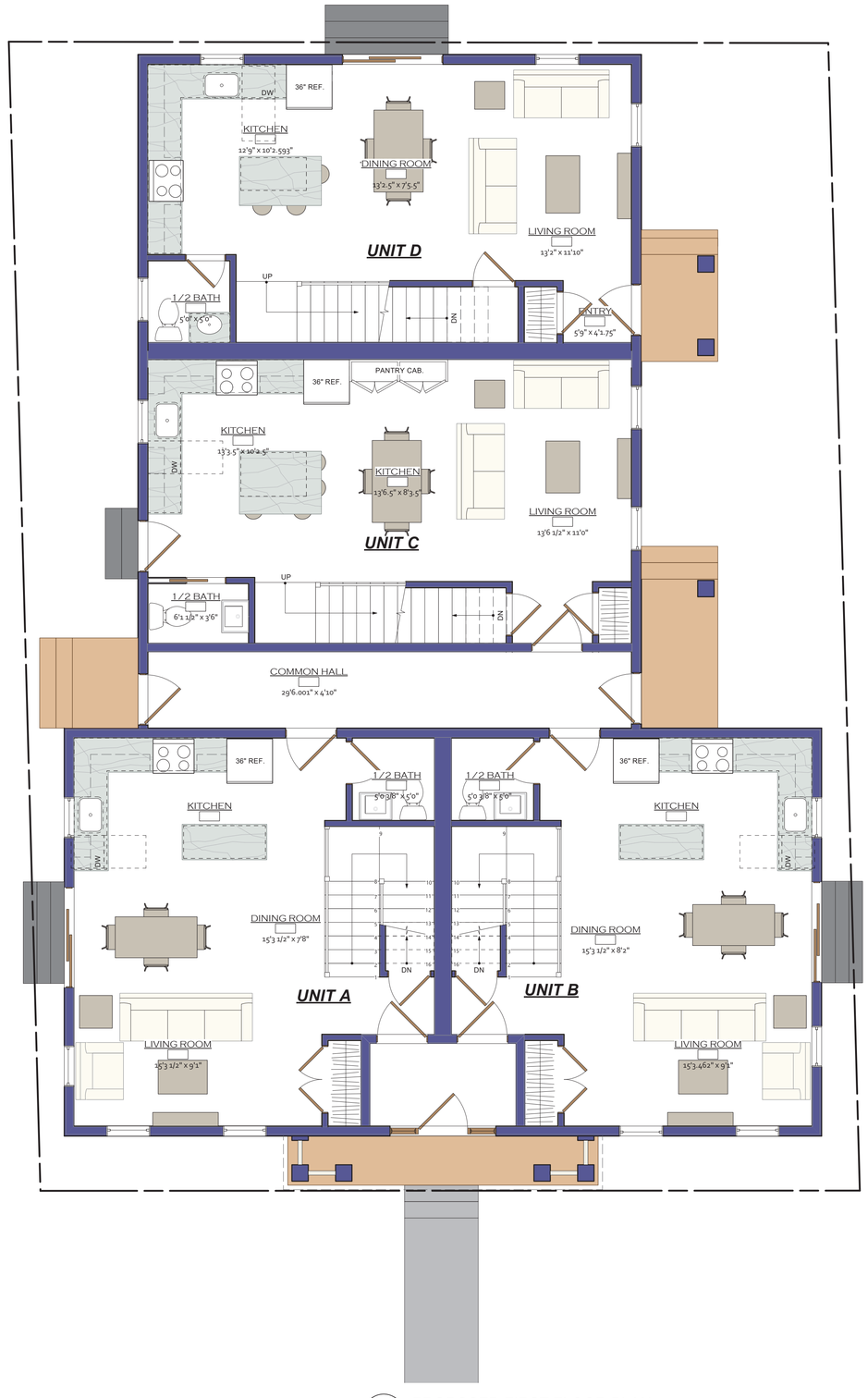
S:\23050.0 - Locust Street Residential Development\Drawings\LP_240102.dwg, JRH 1/3/2024 8:39:22 PM



1 PROPOSED FIRST FLOOR PLAN
Scale: 1/4" = 1'-0"

SQUARE FOOTAGE OPTION 2	
UNIT A	
1st FLOOR GROSS SQ.FT.	567 SQ.FT.
2nd FLOOR GROSS SQ.FT.	581 SQ.FT.
ATTIC GROSS SQ.FT.	499 SQ.FT.
UNIT A - PROPOSED FINISHED SPACE TOTAL	**1647 SQ.FT.**
UNIT B	
1st FLOOR GROSS SQ.FT.	567 SQ.FT.
2nd FLOOR GROSS SQ.FT.	581 SQ.FT.
ATTIC GROSS SQ.FT.	479 SQ.FT.
UNIT B - PROPOSED FINISHED SPACE TOTAL	**1626 SQ.FT.**
UNIT C	
1st FLOOR GROSS SQ.FT.	552 SQ.FT.
2nd FLOOR GROSS SQ.FT.	704 SQ.FT.
ATTIC GROSS SQ.FT.	591 SQ.FT.
UNIT C - PROPOSED FINISHED SPACE TOTAL	**1847 SQ.FT.**
UNIT D	
1st FLOOR GROSS SQ.FT.	550 SQ.FT.
2nd FLOOR GROSS SQ.FT.	550 SQ.FT.
ATTIC GROSS SQ.FT.	466 SQ.FT.
UNIT D - PROPOSED FINISHED SPACE TOTAL	**1565 SQ.FT.**
COMMON CORRIDOR	126 SQ.FT.

DD BY

DISTINCTION
BY DESIGN

REVISION & REISSUE NOTES

No.	Date	Notes

4 UNITS APARTMENT BUILDING

135 LOCUST ST., DOVER, NH 03820

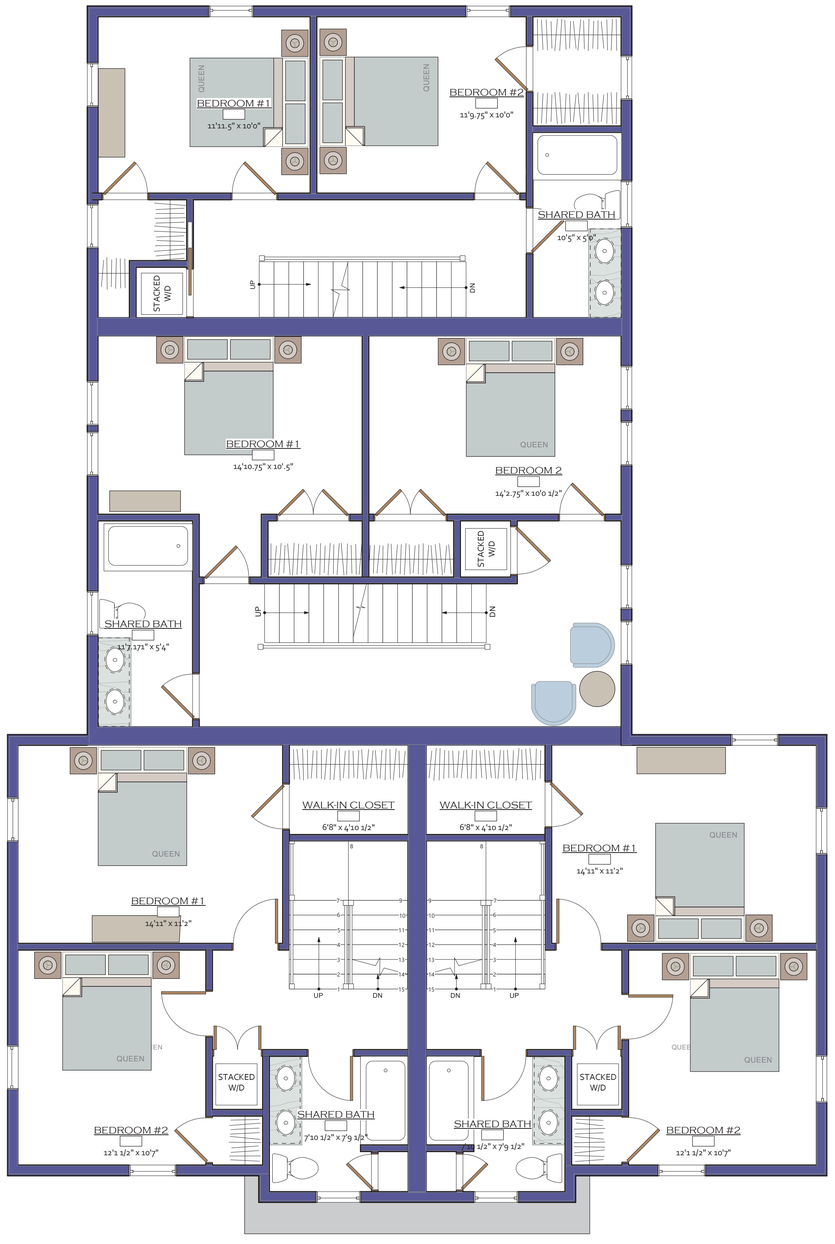
Project Manager	Project #	Date
ST	2022-02	05-13-2022

Scale: AS NOTED

FIRST FLOOR PLAN

A1.1

CAD File Name
Summer street SD -3.vwx



1 PROPOSED SECOND FLOOR PLAN
Scale: 1/4" = 1'-0"

SQUARE FOOTAGE OPTION 2	
UNIT A	
1st FLOOR GROSS SQ.FT.	567 SQ.FT.
2nd FLOOR GROSS SQ.FT.	581 SQ.FT.
ATTIC GROSS SQ.FT.	499 SQ.FT.
UNIT A - PROPOSED FINISHED SPACE TOTAL	**1647 SQ.FT.**
UNIT B	
1st FLOOR GROSS SQ.FT.	567 SQ.FT.
2nd FLOOR GROSS SQ.FT.	581 SQ.FT.
ATTIC GROSS SQ.FT.	479 SQ.FT.
UNIT B - PROPOSED FINISHED SPACE TOTAL	**1626 SQ.FT.**
UNIT C	
1st FLOOR GROSS SQ.FT.	552 SQ.FT.
2nd FLOOR GROSS SQ.FT.	704 SQ.FT.
ATTIC GROSS SQ.FT.	591 SQ.FT.
UNIT C - PROPOSED FINISHED SPACE TOTAL	**1847 SQ.FT.**
UNIT D	
1st FLOOR GROSS SQ.FT.	550 SQ.FT.
2nd FLOOR GROSS SQ.FT.	550 SQ.FT.
ATTIC GROSS SQ.FT.	466 SQ.FT.
UNIT D - PROPOSED FINISHED SPACE TOTAL	**1565 SQ.FT.**
COMMON CORRIDOR	126 SQ.FT.

DD BY

DISTINCTION
BY DESIGN

REVISION & REISSUE NOTES		
No.	Date	Notes

4 UNITS APARTMENT BUILDING

135 LOCUST ST., DOVER, NH 03820

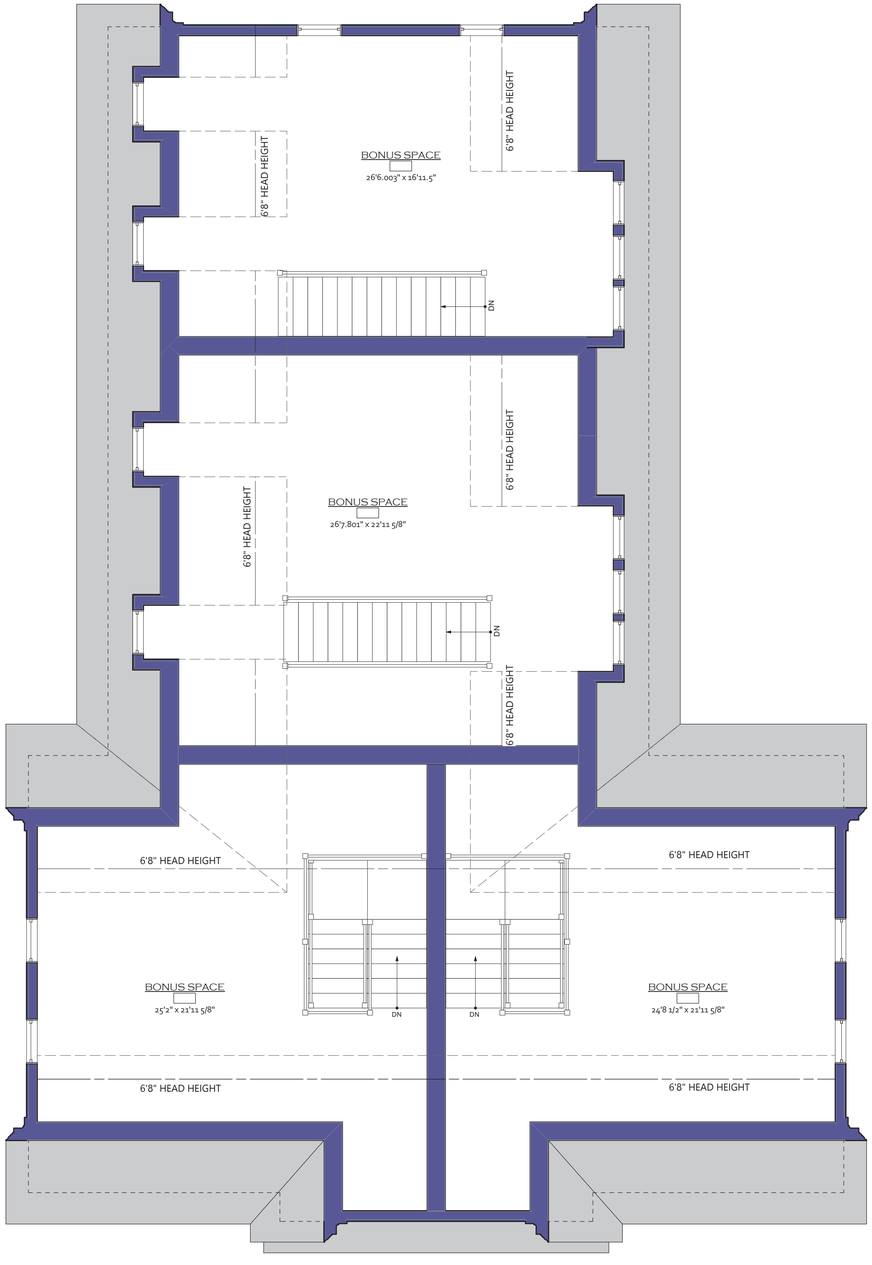
Project Manager	Project #	Date
ST	2022-02	05-13-2022

Scale: AS NOTED

SECOND FLOOR PLAN

A1.2

CAD File Name
Summer street SD -3.vwx



1 PROPOSED ATTIC PLAN
Scale: 1/4" = 1'-0"

SQUARE FOOTAGE OPTION 2	
UNIT A	
1st FLOOR GROSS SQ.FT.	567 SQ.FT.
2nd FLOOR GROSS SQ.FT.	581 SQ.FT.
ATTIC GROSS SQ.FT.	499 SQ.FT.
UNIT A - PROPOSED FINISHED SPACE TOTAL	**1647 SQ.FT.**
UNIT B	
1st FLOOR GROSS SQ.FT.	567 SQ.FT.
2nd FLOOR GROSS SQ.FT.	581 SQ.FT.
ATTIC GROSS SQ.FT.	479 SQ.FT.
UNIT B - PROPOSED FINISHED SPACE TOTAL	**1626 SQ.FT.**
UNIT C	
1st FLOOR GROSS SQ.FT.	552 SQ.FT.
2nd FLOOR GROSS SQ.FT.	704 SQ.FT.
ATTIC GROSS SQ.FT.	591 SQ.FT.
UNIT C - PROPOSED FINISHED SPACE TOTAL	**1847 SQ.FT.**
UNIT D	
1st FLOOR GROSS SQ.FT.	550 SQ.FT.
2nd FLOOR GROSS SQ.FT.	550 SQ.FT.
ATTIC GROSS SQ.FT.	466 SQ.FT.
UNIT D - PROPOSED FINISHED SPACE TOTAL	**1565 SQ.FT.**
COMMON CORRIDOR	126 SQ.FT.

DD BY

DISTINCTION
BY DESIGN

REVISION & REISSUE NOTES		
No.	Date	Notes

4 UNITS APARTMENT BUILDING

135 LOCUST ST., DOVER, NH 03820

Project Manager	Project #	Date
ST	2022-02	05-13-2022

Scale: AS NOTED

ATTIC PLAN

A1.3

CAD File Name
Summer street SD 3.vwx

2 LOCUST STREET ELEVATION
Scale: 1/4" = 1'-0"

5 REAR ELEVATION
Scale: 1/4" = 1'-0"

HERITAGE DISTRICT
ARCHITECTURAL DESIGN ELEMENTS

1	CLAPBOARD SIDING
2	STEEP ROOF PITCH
3	DENTILS AT FRIEZE BOARD
4	TUSCAN COLUMNS
5	DORMERS
6	ENTABLATURE
7	GABLES
8	TRANSOM
9	PORTICO
10	DEEP EAVE OVERHANG
11	DOMINANT FRONT GABLE CANTELIVER ABOVE FLOOR BELOW
12	BALLUSTRADE

DISTINCTION
BY DESIGN

REVISION & REISSUE NOTES

No.	Date	Notes

4 UNITS APARTMENT BUILDING

135 LOCUST ST., DOVER, NH 03820

Project Manager	Project #	Date
ST	2022-02	05-13-2022

Scale: AS NOTED

EXTERIOR ELEVATIONS

A2.0

CAD File Name
Summer street SD -3.vwx

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

2 LEFT ELEVATION
Scale: 1/4" = 1'-0"

HERITAGE DISTRICT
ARCHITECTURAL DESIGN ELEMENTS

1	CLAPBOARD SIDING
2	STEEP ROOF PITCH
3	DENTILS AT FRIEZE BOARD
4	TUSCAN COLUMNS
5	DORMERS
6	ENTABLATURE
7	GABLES
8	TRANSOM
9	PORTICO
10	DEEP EAVE OVERHANG
11	DOMINANT FRONT GABLE CANTELIVER ABOVE FLOOR BELOW
12	BALLUSTRADE

CAD File Name
Summer street SD -3.vwx

DISTINCTION
BY DESIGN

REVISION & REISSUE NOTES

No.	Date	Notes

4 UNITS APARTMENT BUILDING

135 LOCUST ST., DOVER, NH 03820

Project Manager	Project #	Date
ST	2022-02	05-13-2022

Scale: AS NOTED

EXTERIOR ELEVATIONS

A2.1

PLAN SNAPSHOT REPORT WAIV-2024-0004
FOR CITY OF DOVER, N.H.

Plan Type:	Waiver / Extension / Amendment	**Project:**		**App Date:**	03/07/2024
Work Class:	Plan	**District:**	None	**Exp Date:**	05/11/2024
Status:	In Review	**Square Feet:**	0.00	**Completed:**	NOT COMPLETED
Valuation:	$0.00	**Assigned To:**	Blonigen, Rachel	**Approval Expire Date:**	

Description: Amendment to Site Plan, increase number of units, revise parking layout, relocate internal staircase

Parcel: 04005-000000 Main	**Address:** 14 Broadway Dover, 03820 14 Broadway Main Dover, NH	**Zone:** CBD-G(Central Business District - Genera

Project Manager
Chris Raymond
Home: (603) 918-7266
Business: (603) 601-8154
Mobile: (603) 918-7266

Applicant
Matthew Perry
169 Ocean Boulevard PO Box 249 PO Box 249
Hampton, NH 03842
Home: (603) 793-1911
Business: (603) 601-8154
Mobile: (603) 793-1911

Owner
Ken Regan
Home: (914) 693-6613

Plan Custom Fields

Project Location	14 Broadway, Dover, NH 03820	Waiver Request Type	Amendment	Project Name	14 Broadway Development
Owner Phone	9146936613	Owner Name	Ken Regan	Original Plan Approval Date	Dec 15 2021 12:00AM
Owner Address	1055 Saw Mill River Road #204, Ardsley, NY 10502	Owner EMail	ken@regandevelopment.com	Plan ID Number	
Plan Type	Site Plan	Extension Request Detail		Condition / Portion of Plan to be Amended	Number of building units and parking count
Amendment Request Detail	The project is proposing to increase the number of units to 38 in the apartment building, leasing 6 parking spaces from the abutting lot (Map 4, Lot 3) and 10 spaces from the Dover Housing Authority (10 Chapel Street), revising the layout of the covered parking beneath the building, and relocating an internal staircase eliminating the need for a sidewalk on the northeast side of the building.	Site / Subdivision Portion of Plan to be Waived		Waiver Request Detail	

Attachment File Name	Added On	Added By	Attachment Group	Notes
Signature_Matthew_Perry_3/7/2024.jpg	03/07/2024 17:18	Perry, Matthew		Uploaded via CSS

Invoice No.	Fee	Fee Amount	Amount Paid
INV-00007020	Planning Waiver / Extension /Amend Application Fee	$200.00	$200.00
	Total for Invoice INV-00007020	$200.00	$200.00
	Grand Total for Plan	**$200.00**	**$200.00**

PLAN SNAPSHOT REPORT (WAIV-2024-0004)

Submittal Name	Status	Received Date	Due Date	Complete Date	Resubmit	Completed
Land Use Plan Technical Review v.1	In Review	03/13/2024	04/10/2024		No	No

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Business Development	Business Development	Burdin, James	In Review	03/13/2024	04/10/2024	
City Engineer	Community Services - Engineering	Mavrogeorge, Kenneth	In Review	03/13/2024	04/10/2024	
IS Building Official	Fire / Inspection Services	Maxfield, Jim	In Review	03/13/2024	04/10/2024	
Planning	Planning	Benton, Donna	In Review	03/13/2024	04/10/2024	
Zoning Administrator	Planning	Crouser, Paul	In Review	03/13/2024	04/10/2024	
Traffic Bureau	Police	Speidel, Marn	In Review	03/13/2024	04/10/2024	

Workflow Step / Action Name	Action Type	Start Date	End Date
Review v.1		03/08/2024 9:42	
Confirm application complete v.1	Generic Action		03/08/2024 9:42
Technical Review Committee Meeting Agenda v.1	Task	03/08/2024 9:42	03/13/2024 12:54
Land Use Plan Technical Review v.1	Receive Submittal	03/13/2024 0:00	
Technical Review Committee Meeting v.1	Hold Meeting		
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		

169 Ocean Boulevard/PO Box 249
Hampton, NH 03842
603.601.8154
TheEngineeringCorp.com
Create | Design | Innovate

Ms. Donna Benton, AICP
Director of Planning and Community Development
City of Dover Planning and Community Development
288 Central Ave
Dover, NH 03820

March 7, 2024

Ref. N1440

Re: Technical Review Committee Narrative
Proposed Residential Development at 14 Broadway

Dear Mr. Parker:

On behalf of Regan Development Corporation, The Owner and Applicant ("Applicant"), TEC, Inc. respectfully submits this letter to supplement the enclosed application with supporting documents for review by the Technical Review Committee (TRC) for the Proposed Residential Development at 14 Broadway in Dover, NH. This project proposes to redevelop the existing 1-story warehouse and gravel area located at 14 Broadway, Dover, NH (Assessors Map 4, Lot 5) and the bituminous concrete parking area of 12 Broadway (Assessors Map 4, Lot 3). The proposed improvements include demolishing the existing warehouse and constructing a 4-story, 38-unit residential building with commercial use space on the first floor, parking areas totaling 66 spaces between Lot 4-3, Lot 4-5, and Broadway, and landscaped areas to beautify the site. On December 14, 2021, the project the Dover Planning Board voted to conditionally approve the site plan. The Applicant is proposing to amend the site plan by increasing the number of units in the apartment building from 24 to 38, leasing 6 parking spaces from the abutting lot (Map 4, Lot 3) and 10 spaces from the Dover Parking Authority located at 18 Chapel Street, revising the layout of the covered parking beneath the building, and relocating an internal staircase eliminating the need for a sidewalk on the northeast side of the building. The project does not propose any changes to the previously approved conditions relating to stormwater management. Therefore, the previously approved Drainage Report is applicable to the amended site plans which can be found attached to this letter.

The purpose of the project is to rejuvenate an existing abandoned lot located in the heart of the City with a modern residential building with space for commercial uses along Broadway. This project will have a positive impact on the immediate area and the City in general by providing a source of housing in a fast-growing area. The project aims to increase the amount of greenspace on site, treat all stormwater runoff, provide sufficient off-street parking, and utilize municipal utilities along Broadway.

Enclosed please find the following documents as part of the Application to the Technical Review Committee:

- Completed and Signed *"Application for Extension Of / Amendment to or Waiver for Plan/Driveway"* (3 copies)
- Completed "*Site Review Checkoff List" (3 copies)*
- Site Plans (3 copies)
- Photographs of Site (3 copies)
- Check for Fee Amount

Please do not hesitate to contact me directly if you have any questions concerning our Application for TRC Review at (603) 601-8154.Thank you for your consideration.

Sincerely,
TEC, Inc.
*"**T**he **E**ngineering **C**orporation"*

Christopher Raymond, PE
Civil Engineer – Senior Project Manager

CITY OF DOVER, NEW HAMPSHIRE
PLANNING APPLICATION OWNER AUTHORIZATION

OWNER AUTHORIZATION

I/We hereby submit this application to the City of Dover / 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.

Property Owner Name: Ken Regan as Applicant

Signature(s) of Property Owner(s): _____ Date: _____

Signature of Applicant: _____ Date: 3/7/24
if different from owner

AUTHORIZATION TO ENTER SUBJECT PROPERTY

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..

Property Owner Name: Ken Regan as Applicant

Signature(s) of Property Owner(s): _____ Date: _____

Signature of Applicant: _____ Date: 3/7/24
if different from owner

IF SIGN PERMIT, SIGN PERMIT APPLICATION INFORMATION

If the sign permit applicant is not the property owner, this form must be completed and included as part of application submission.

I have read this application and state that, to the best of my knowledge, the information provided is true and that the proposed sign(s) will comply with all applicable regulations in Section 170-32 of the Zoning Ordinance of the City of Dover and shall conform to the submitted materials and designs. Furthermore, after 90 days, any application still waiting information will be denied.

Address of Sign Location: _____

Sign Permit Application Type:
(check one)

- ☐ Permanent Sign
- ☐ Temporary Sign
- ☐ Community Sign

Proposed Residential Development

Site Plans

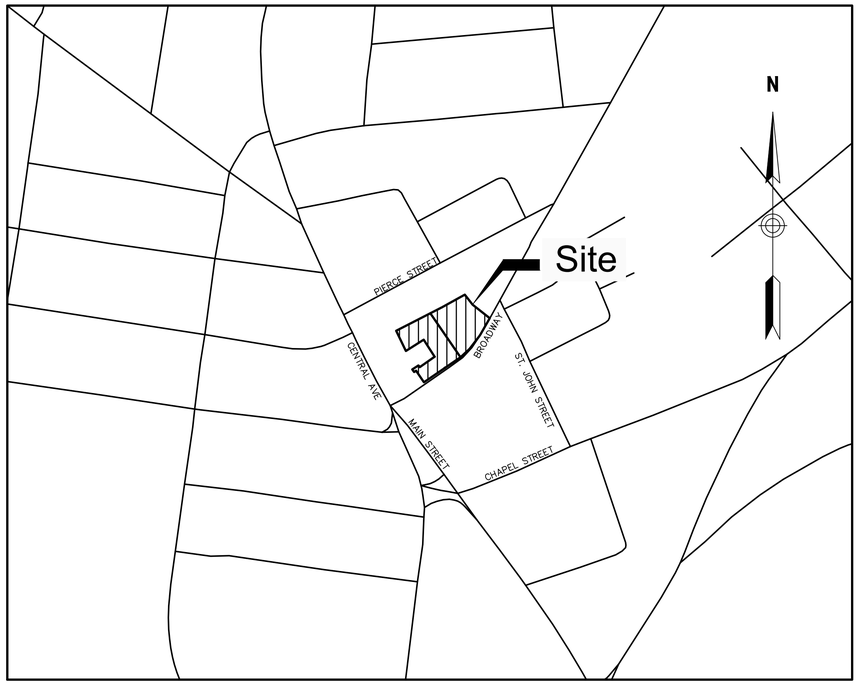
14 Broadway
Dover, NH 03820

Site Plans Index

No.	Drawing Title	Latest Issue
C-1	Title & Index Sheet	March 7, 2024
C-2	Legend & General Notes	March 7, 2024
C-3	Neighborhood Plan	March 7, 2024
C-4	Demolition Plan	March 7, 2024
C-5	Layout & Materials Plan	March 7, 2024
C-6	Grading & Drainage Plan	March 7, 2024
C-7	Utility Plan	March 7, 2024
C-8	Erosion & Sediment Control Plan	March 7, 2024
C-9	Construction Details	March 7, 2024
C-10	Construction Details	March 7, 2024
C-11	Construction Details	March 7, 2024
C-12	Construction Details	March 7, 2024

Reference Plans Index

No.	Drawing Title	Latest Issue
1	Existing Condition Plan (Hancock Associates)	February 19, 2021
2	Lot Line Adjustment Plan (Hancock Associates)	June 30, 2022
3	Architectural Plans (Lassel Architects)	February 29, 2024
4	Lighting Plan (SK & Associates)	August 26, 2021
5	Landscape Plan (Terra Firma)	November 24, 2021



LOCATION MAP

250 0 250 500

SCALE IN FEET

ORIGINAL PLANNING BOARD FILE #: P21-29
NEW PLANNING BOARD FILE #:

TEC
The Engineering Corp
TEC, Inc.
282 Merrimack St, 2nd Floor
Lawrence, MA 01843
(978) 794-1792
169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154
www.TheEngineeringCorp.com

DESIGNED BY	CPR
DRAWN BY	MWP
CHECKED BY	CPR
DATE	3/7/2024
SCALE	AS NOTED

OWNER/APPLICANT

Regan Development Corporation
1055 Saw Mill River Road #204
Ardsley, NY 10502

REVISIONS

ISSUED FOR
Permitting

PROJECT TITLE
Proposed Residential Development at 14 Broadway

PROJECT LOCATION
14 Broadway
Dover, NH 03820

DRAWING TITLE
Title & General Notes

STATE OF NEW HAMPSHIRE
CHRISTOPHER P. RAYMOND No. 16305
LICENSED PROFESSIONAL ENGINEER

PROJECT NO. N1440
TEC CAD FILE N1440_COV
DRAWING NO. C-1
SHEET 1 OF 12

GENERAL NOTES

1. CONTRACTOR SHALL NOTIFY DIG-SAFE (1-888-344-7233) AND THE LOCAL MUNICIPAL WATER & SEWER DEPT. AT LEAST 72 HOURS BEFORE EXCAVATING.
2. PRIOR TO THE COMMENCEMENT OF GENERAL CONSTRUCTION, THE CONTRACTOR MUST INSTALL SOIL EROSION CONTROL AND ANY STORMWATER POLLUTION PREVENTION PLAN (SWPPP) MEASURES NECESSARY, AS INDICATED ON THE APPROVED SOIL EROSION AND SEDIMENT CONTROL PLAN AND IN ACCORDANCE WITH APPLICABLE AND/OR APPROPRIATE AGENCIES' GUIDELINES TO PREVENT SEDIMENT AND/OR LOOSE DEBRIS FROM WASHING ONTO ADJACENT PROPERTIES OR THE RIGHT OF WAY.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS. A 6-FOOT TEMPORARY CHAINLINK FENCE SHALL BE PROVIDED AROUND ALL CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL LEAVE NO UNSECURED OPEN EXCAVATIONS.
4. HANDICAP ACCESSIBLE ROUTES, PARKING SPACES, RAMPS, SIDEWALKS AND WALKWAYS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE FEDERAL AMERICANS WITH DISABILITIES ACT/ARCHITECTURAL ACCESS BOARD (ADA/AAB), AND WITH STATE AND LOCAL LAWS AND REGULATIONS (WHICHEVER ARE MORE STRINGENT).
5. WORK WITHIN THE RIGHT-OF-WAY MUST BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE REQUIREMENTS AND STANDARDS OF THE DEPARTMENT OF PUBLIC WORKS, ENGINEERING DEPARTMENT, HIGHWAY DIVISION, AND/OR STATE DOT HIGHWAY DEPARTMENT.
6. UPON AWARD OF CONTRACT, CONTRACTOR SHALL MAKE NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN NECESSARY PERMITS, PAY FEES, AND POST BONDS ASSOCIATED WITH THE WORK INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS, AND IN THE CONTRACT DOCUMENTS. DO NOT CLOSE OR OBSTRUCT ROADWAYS, SIDEWALK, AND FIRE HYDRANTS, WITHOUT APPROPRIATE PERMITS.
7. WHEN APPLICABLE, OWNER/ OPERATOR MUST FILE THE NOI FOR NPDES PERMITS AT APPROPRIATE AND/OR REQUIRED TIMEFRAMES BASED UPON THE DESIRED START OF CONSTRUCTION. LAND DISTURBING ACTIVITIES MUST NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED FROM GOVERNING AUTHORITIES (INCLUDING STORMWATER POLLUTION PREVENTION PLAN). THE CONTRACTOR MUST STRICTLY ADHERE TO THE APPROVED SWPPP PLAN DURING CONSTRUCTION OPERATIONS (IF PROVIDED).
8. TRAFFIC SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
9. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
10. IN THE EVENT THAT SUSPECTED CONTAMINATED SOIL, GROUNDWATER, AND OTHER MEDIA ARE ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION ACTIVITIES BASED ON VISUAL, OLFACTORY, OR OTHER EVIDENCE, THE CONTRACTOR SHALL STOP WORK IN THE VICINITY OF THE SUSPECT MATERIAL TO AVOID FURTHER SPREADING OF THE MATERIAL, AND SHALL NOTIFY THE OWNER IMMEDIATELY SO THAT THE APPROPRIATE TESTING AND SUBSEQUENT ACTION CAN BE TAKEN.
11. CONTRACTOR SHALL PREVENT DUST, SEDIMENT, AND DEBRIS FROM EXITING THE SITE AND SHALL BE RESPONSIBLE FOR CLEANUP, REPAIRS AND CORRECTIVE ACTION IF SUCH OCCURS.
12. CONTRACTOR SHALL CONTROL STORMWATER RUNOFF DURING CONSTRUCTION TO PREVENT ADVERSE IMPACTS TO OFF-SITE AREAS, AND SHALL BE RESPONSIBLE TO REPAIR RESULTING DAMAGES, IF ANY, AT NO COST TO THE OWNER.
13. THE CONTRACTOR MUST FIELD VERIFY ALL EXISTING CONDITIONS AND IMMEDIATELY NOTIFY TEC, IN WRITING, IF ANY ACTUAL SITE CONDITIONS DIFFER FROM THOSE SHOWN ON THESE PLANS, OR IF THE PROPOSED WORK CONFLICTS WITH ANY OTHER SITE FEATURES.
14. THE CONTRACTOR MUST STRICTLY COMPLY WITH THESE NOTES AND ALL SPECIFICATIONS/REPORTS CONTAINED HEREIN. THE CONTRACTOR MUST ENSURE THAT ALL SUBCONTRACTORS FULLY AND COMPLETELY CONFORM TO AND COMPLY WITH THESE REQUIREMENTS, THESE NOTES, AND THE REQUIREMENTS ARTICULATED IN THE NOTES CONTAINED IN ALL THE OTHER DRAWINGS THAT COMPRISE THE PLAN SET OF DRAWINGS. ADDITIONAL NOTES AND SPECIFIC PLAN NOTES MAY BE FOUND ON THE INDIVIDUAL PLANS. THESE GENERAL NOTES APPLY TO THIS ENTIRE DOCUMENT PACKAGE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW ALL CONSTRUCTION CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO, ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE, PRIOR TO THE INITIATION AND COMMENCEMENT OF CONSTRUCTION.
15. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR MUST CONFIRM WITH THE PROFESSIONAL OF RECORD AND TEC THAT THE LATEST EDITION OF THE DOCUMENTS AND/OR REPORTS REFERENCED WITHIN THE PLAN REFERENCES ARE BEING USED FOR CONSTRUCTION. THIS IS THE CONTRACTOR'S SOLE AND COMPLETE RESPONSIBILITY.
16. THE CONTRACTOR MUST ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS/REPORTS AND CONDITIONS OF APPROVAL, AND ALL APPLICABLE REQUIREMENTS, RULES, REGULATIONS, STATUTORY REQUIREMENTS, CODES, LAWS AND STANDARDS OF ALL GOVERNMENTAL ENTITIES WITH JURISDICTION OVER THIS PROJECT, AND ALL PROVISIONS IN AND CONDITIONS OF THE CONSTRUCTION CONTRACT WITH THE OWNER/DEVELOPER INCLUDING ALL EXHIBITS, ATTACHMENTS AND ADDENDA TO SAME.
17. CONTRACTOR MUST REFER TO AND ENSURE COMPLIANCE WITH THE APPROVED ARCHITECTURAL/BUILDING PLANS OF RECORD FOR EXACT LOCATIONS AND DIMENSIONS OF ENTRY/EXIT POINTS, ELEVATIONS, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY LOCATIONS.
18. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THESE PLANS, PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE PROFESSIONAL OF RECORD AND TEC, IN WRITING, IF ANY CONFLICTS, DISCREPANCIES, OR AMBIGUITIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION. NO EXTRA COMPENSATION WILL BE PAID TO THE CONTRACTOR FOR WORK WHICH HAS TO BE RE-DONE OR REPAIRED DUE TO DIMENSIONS, MEASUREMENTS OR GRADES SHOWN INCORRECTLY ON THESE PLANS PRIOR TO BOTH (A) THE CONTRACTOR GIVING THE PROFESSIONAL OF RECORD AND TEC WRITTEN NOTIFICATION OF SAME AND (B) PROFESSIONAL OF RECORD AND TEC, THEREAFTER, PROVIDING THE CONTRACTOR WITH WRITTEN AUTHORIZATION TO PROCEED WITH SUCH ADDITIONAL WORK.
19. ALL DIMENSIONS SHOWN ARE TO BOTTOM FACE OF CURB, EDGE OF PAVEMENT, OR EDGE OF BUILDING, EXCEPT WHEN DIMENSION IS TO A PROPERTY LINE, STAKE OUT OF LOCATIONS OF INLETS, LIGHT POLES, ETC. MUST BE PERFORMED IN STRICT ACCORDANCE WITH THE DETAILS, UNLESS NOTED CLEARLY OTHERWISE.
20. THE CONTRACTOR MUST EXERCISE EXTREME CAUTION WHEN PERFORMING ANY WORK ACTIVITIES ADJACENT TO PAVEMENT, STRUCTURES, ETC. WHICH ARE TO REMAIN EITHER FOR AN INITIAL PHASE OF THE PROJECT OR AS PART OF THE FINAL CONDITION. THE CONTRACTOR IS RESPONSIBLE FOR TAKING ALL APPROPRIATE MEASURES REQUIRED TO ENSURE THE STRUCTURAL STABILITY OF SIDEWALKS AND PAVEMENT, UTILITIES, BUILDINGS, AND INFRASTRUCTURE WHICH ARE TO REMAIN, AND TO PROVIDE A SAFE WORK AREA FOR THIRD PARTIES, PEDESTRIANS AND ANYONE INVOLVED WITH THE PROJECT.
21. WHERE RETAINING WALLS ARE IDENTIFIED ON THE PLANS, TOP AND BOTTOM OF WALL WIDTHS DO NOT REPRESENT THE ACTUAL WIDTH OF THE PROPOSED WALL, RATHER THEY ARE AN ASSUMPTION BASED ON WALL TYPE AND WALL HEIGHT. WALL FOOTINGS AND /OR FOUNDATIONS ARE NOT IDENTIFIED HEREIN AND ARE TO BE SET/DETERMINED BY THE CONTRACTOR OR WALL DESIGNER, AND MUST BE SET BASED UPON FINAL STRUCTURAL DESIGN SHOP DRAWINGS PREPARED BY THE APPROPRIATE PROFESSIONAL LICENSED IN THE STATE WHERE THE CONSTRUCTION OCCURS. THE CONTRACTOR MUST ENSURE THAT AN APPROPRIATELY LICENSED PROFESSIONAL DESIGNS ALL WALLS SHOWN HEREON AND PRIOR TO CONSTRUCTION. REFER TO GRADING NOTES REGARDING RETAINING WALL DESIGN.
22. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO MAINTAIN RECORDS TO DEMONSTRATE PROPER AND FULLY COMPLIANT DISPOSAL ACTIVITIES, TO BE PROMPTLY PROVIDED TO THE OWNER UPON REQUEST.
23. THE CONTRACTOR MUST REPAIR, AT THE CONTRACTOR'S SOLE COST, ALL DAMAGE DONE TO ANY NEW OR EXISTING CONSTRUCTION OR PROPERTY DURING THE COURSE OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. AND MUST BEAR ALL COSTS ASSOCIATED WITH THE SAME TO INCLUDE, BUT NOT BE LIMITED TO, REDESIGN, RE-SURVEY, RE-PERMITTING AND CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR AND MUST REPLACE ALL SIGNAL INTERCONNECTION CABLE, WIRING CONDUITS, AND ANY UNDERGROUND ACCESSORY EQUIPMENT DAMAGED DURING CONSTRUCTION AND MUST BEAR ALL COSTS ASSOCIATED WITH SAME. THE REPAIR OF ANY SUCH NEW OR EXISTING CONSTRUCTION OR PROPERTY MUST RESTORE SUCH CONSTRUCTION OR PROPERTY TO A CONDITION EQUIVALENT TO OR BETTER THAN THE CONDITIONS PRIOR TO COMMENCEMENT OF THE CONSTRUCTION, AND IN CONFORMANCE WITH ALL APPLICABLE CODES, LAWS, RULES, REGULATIONS, STATUTORY REQUIREMENTS AND STATUTES. THE CONTRACTOR MUST BEAR ALL COSTS ASSOCIATED WITH SAME. THE CONTRACTOR MUST, PROMPTLY, DOCUMENT ALL EXISTING DAMAGE AND NOTIFY, IN WRITING, THE OWNER AND THE CONSTRUCTION MANAGER PRIOR TO THE START OF CONSTRUCTION.
24. WHEN IT IS CLEARLY AND SPECIFICALLY WITHIN TEC'S SCOPE OF SERVICES CONTRACT WITH THE OWNER/DEVELOPER, TEC WILL REVIEW OR TAKE OTHER APPROPRIATE ACTION ON THE CONTRACTOR SUBMITTALS, SUCH AS SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND OTHER DATA, WHICH THE CONTRACTOR IS REQUIRED TO SUBMIT, BUT ONLY FOR THE LIMITED PURPOSE OF EVALUATING CONFORMANCE WITH THE DESIGN INTENT AND THE INFORMATION SHOWN IN THE CONSTRUCTION CONTRACT DOCUMENTS. CONSTRUCTION MEANS AND METHODS AND/OR TECHNIQUES OR PROCEDURES, COORDINATION OF THE WORK WITH OTHER TRADES, AND CONSTRUCTION SAFETY PRECAUTIONS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND TEC HAS NO RESPONSIBILITY OR LIABILITY FOR SAME. TEC WILL PERFORM ITS SHOP DRAWING REVIEW WITH REASONABLE PROMPTNESS, AS CONDITIONS ANY DOCUMENT, DOCUMENTING TEC'S REVIEW OF A SPECIFIC ITEM OR LIMITED SCOPE, MUST NOT INDICATE THAT TEC HAS REVIEWED THE ENTIRE ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. TEC IS NOT RESPONSIBLE FOR ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR MUST, IN WRITING, PROMPTLY AND IMMEDIATELY BRING TO THE CONSTRUCTION DOCUMENTS TO TEC'S ATTENTION. TEC IS NOT REQUIRED TO REVIEW PARTIAL SUBMISSIONS OR THOSE FOR WHICH SUBMISSIONS OF CORRELATED ITEMS HAVE NOT BEEN RECEIVED.
25. IF THE CONTRACTOR DEVIATES FROM THESE PLANS AND/OR SPECIFICATIONS, INCLUDING THE NOTES CONTAINED HEREIN, WITHOUT FIRST OBTAINING THE PRIOR WRITTEN AUTHORIZATION OF THE PROFESSIONAL OF RECORD AND TEC FOR ALL DEVIATIONS WITHIN THE PROFESSIONAL OF RECORD'S AND TEC SCOPE, THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PAYMENT OF ALL COSTS INCURRED IN CORRECTING ANY WORK PERFORMED WHICH DEVIATES FROM THE PLANS, ALL FINES AND/OR PENALTIES ASSESSED WITH RESPECT THERETO AND ALL COMPENSATORY OR PUNITIVE DAMAGES RESULTING THEREFROM AND, FURTHER, MUST DEFEND, INDEMNIFY, PROTECT, AND HOLD HARMLESS THE PROFESSIONAL OF RECORD AND TEC PARTIES TO THE FULLEST EXTENT PERMITTED UNDER THE LAW, FOR AND FROM ALL FEES, ATTORNEYS' FEES, DAMAGES, COSTS, JUDGMENTS, CLAIMS, INJURIES, PENALTIES AND THE LIKE RELATED TO SAME.
26. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND PROTECTING THE TRAFFIC CONTROL PLAN AND ELEMENTS IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REQUIREMENTS FOR ALL WORK THAT AFFECTS PUBLIC TRAVEL EITHER IN THE RIGHT OF WAY OR ON SITE. THE COST FOR THIS ITEM MUST BE INCLUDED IN THE CONTRACTOR'S PRICE AND IS THE CONTRACTOR'S SOLE RESPONSIBILITY.
27. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION ACTIVITIES AND MATERIALS COMPLY WITH AND CONFORM TO APPLICABLE FEDERAL, STATE AND LOCAL RULES AND REGULATIONS, LAWS, ORDINANCES, AND CODES, AND ALL APPLICABLE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, (29 U.S.C. 651 ET SEQ.) AS AMENDED, AND ANY MODIFICATIONS, AMENDMENTS OR REVISIONS TO SAME.
28. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN AN ON-SITE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN COMPLIANCE WITH THE ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIREMENTS OR LOCAL GOVERNING AGENCY FOR SITES WHERE ONE (1) ACRE OR MORE IS DISTURBED BY CONSTRUCTION ACTIVITIES (UNLESS THE LOCAL JURISDICTION REQUIRES A DIFFERENT THRESHOLD). THE CONTRACTOR MUST ENSURE THAT ALL ACTIVITIES, INCLUDING THOSE OF ALL SUBCONTRACTORS, ARE IN COMPLIANCE WITH THE SWPPP, INCLUDING BUT NOT LIMITED TO LOGGING ACTIVITIES (MINIMUM ONCE PER WEEK AND AFTER RAINFALL EVENTS) AND CORRECTIVE MEASURES, AS APPROPRIATE AND FURTHER, THE CONTRACTOR IS SOLELY AND COMPLETELY RESPONSIBLE FOR FAILING TO DO SO.
29. 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.
30. SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY THROUGH FRIDAY BETWEEN 7 AM AND 6 PM, SATURDAY AND SUNDAY BETWEEN 9 AM AND 4 PM. HOURS OF CONSTRUCTION MUST BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. SAID SIGNAGE MUST BE LOCATED AND APPROVED BY THE CITY ENGINEER OR ASSISTANT CITY MANAGER.
31. 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 SPECIFICATIONS FOR CONSTRUCTION. THE MORE STRINGENT SPECIFICATIONS SHALL APPLY.
32. ANY RETAINING WALL TALLER THAN FOUR FEET (4') REQUIRES ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
33. ANY FENCE TALLER THAN SEVEN FEET (7') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
34. 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.
35. NO FEDERAL AND STATE PERMITS ARE REQUIRED FOR THE SUBJECT PROPERTY.
36. COMMERCIAL VEHICLE ROUTE DURING CONSTRUCTION SHALL CONFORM TO DOVER CITY CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR.
37. APPLICANT SHALL COMPLETE LAND USE DEVELOPMENT TRACKING FORM, MOST RECENTLY REVISED VERSION, UTILIZING THE ONLINE POLLUTION TRACKING AND ACCOUNTING PILOT PROJECT (PTAPP) PORTAL. HTTP://WWW.UNH.EDU/UNHSC/PTAPP
38. THE OWNER OF RECORD SHALL RECORD AT THE REGISTRY OF DEEDS DOCUMENTATION SUFFICIENT TO PROVIDE NOTICE TO ALL PERSE/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 PURCHASES TO THE REQUIREMENTS FOR MAINTENANCE AND REPORTING.
39. TOPOGRAPHIC SURVEY PERFORMED BY HANCOCK ASSOCIATES ON 4/18/2020.
40. ELEVATIONS ARE BASED ON U.S.G.S. NVD 1988 DATUM.
41. A SECURITY SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 45, ARTICLE I, SECTION 45-2 OF THE CODE OF THE CITY OF DOVER.
42. APPROVED BACKFLOW PREVENTERS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.
43. THE 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.
44. THE SITE LAYOUT IS DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS. THE PROPOSED STRUCTURE WILL BE DESIGNED IN ACCORDANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS.
45. BUILDING ADDRESSES SHALL BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.

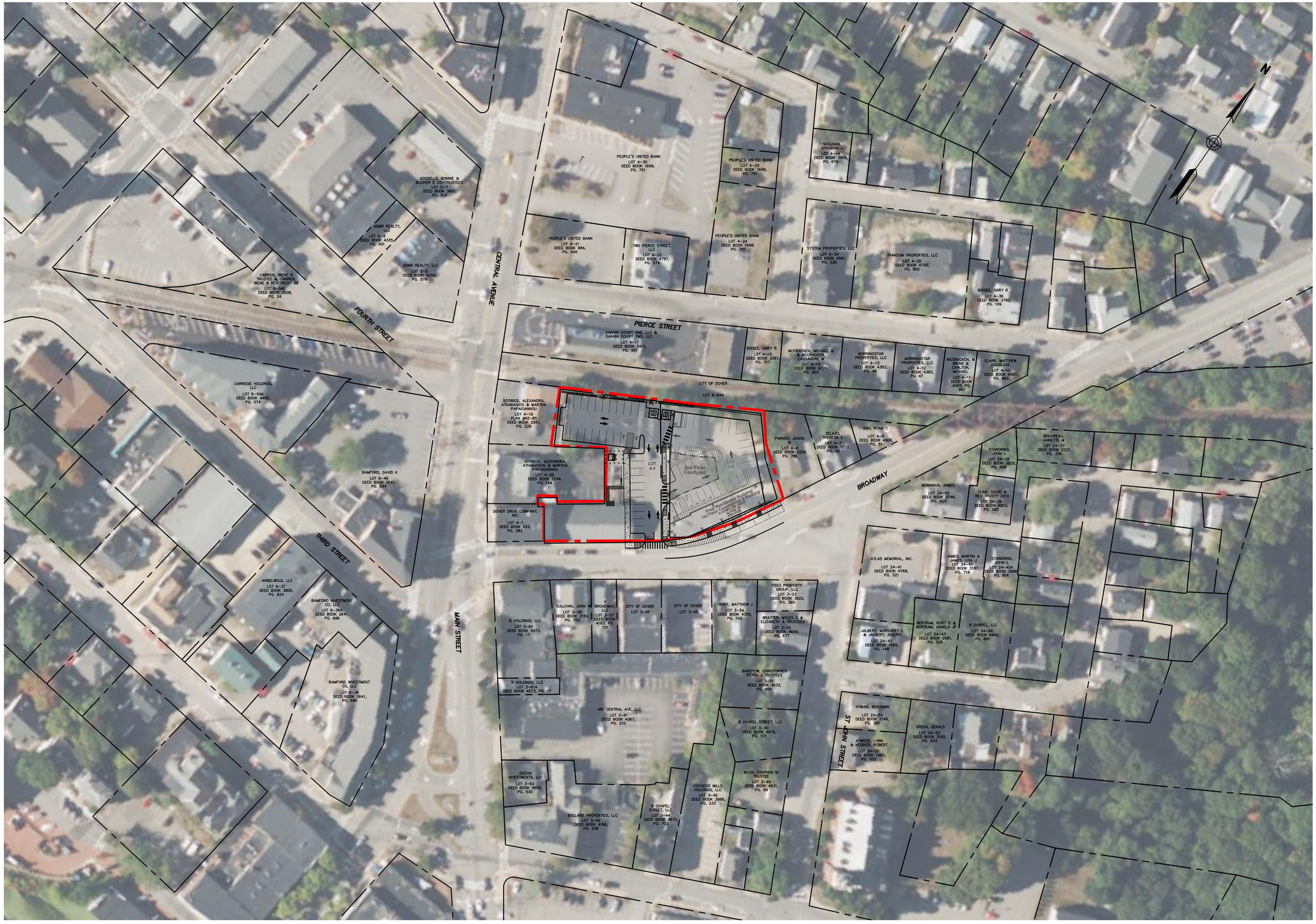
GENERAL DRAINAGE & UTILITY NOTES

1. THE LOCATIONS, SIZES, AND TYPES OF EXISTING UNDERGROUND UTILITIES ARE SHOWN AS AN APPROXIMATE REPRESENTATION ONLY. THE OWNER OR ITS REPRESENTATIVE(S) HAVE NOT INDEPENDENTLY VERIFIED THIS INFORMATION AS SHOWN ON THE PLANS. THE UTILITY INFORMATION SHOWN DOES NOT GUARANTEE THE ACTUAL EXISTENCE, SERVICEABILITY, OR OTHER DATA CONCERNING THE UTILITIES, NOR DOES IT GUARANTEE AGAINST THE POSSIBILITY THAT ADDITIONAL UTILITIES MAY BE PRESENT THAT ARE NOT SHOWN ON THE PLANS. PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION THE CONTRACTOR SHALL VERIFY AND DETERMINE THE EXACT LOCATION, SIZE, AND ELEVATION OF EXISTING UTILITIES.
2. THE CONTRACTOR MUST FIELD VERIFY THE PROPOSED INTERFACE POINTS (CROSSINGS) WITH EXISTING UNDERGROUND UTILITIES BY USING A TEST PIT TO CONFIRM EXACT DEPTH, PRIOR TO COMMENCEMENT OF CONSTRUCTION.
3. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, OR EXISTING CONDITIONS DIFFER FROM THOSE SHOWN SUCH THAT THE WORK CANNOT BE COMPLETED AS INTENDED, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED IN WRITING TO THE OWNER'S REPRESENTATIVE FOR THE RESOLUTION OF THE CONFLICT. FAILURE TO PROVIDE OR PERFORM THE ABOVE PRIOR TO PERFORMING ANY WORK SHALL NOT BE GROUNDS FOR EXTRA PAYMENTS TO THE CONTRACTOR.
4. AT ALL LOCATIONS WHERE EXISTING CURBING OR PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING CURB OR PAVEMENT SHALL BE SAW CUT TO A CLEAN, SMOOTH EDGE. BLEND NEW PAVEMENT, CURBS, AND EARTHWORK SMOOTHLY INTO EXISTING BY MATCHING LINES, GRADES, AND JOINTS.
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, AS REQUIRED.
6. UTILITY COVERS, GRATES, ETC. SHALL BE ADJUSTED TO BE FLUSH WITH THE PAVEMENT FINISH GRADE UNLESS OTHERWISE NOTED.
7. INSTALL ALL UTILITIES (INCLUDING CONCRETE PADS) PER UTILITY COMPANY, DPW, AND STATE STANDARDS.
8. ALL FILL, COMPACTION, AND BACKFILL MATERIALS REQUIRED FOR UTILITY INSTALLATION MUST BE EXACTLY AS PER THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT AND THE CONTRACTOR MUST COORDINATE SAME WITH THE APPLICABLE UTILITY COMPANY SPECIFICATIONS. WHEN THE PROJECT DOES NOT HAVE GEOTECHNICAL RECOMMENDATIONS, FILL AND COMPACTION MUST COMPLY WITH APPLICABLE REQUIREMENTS AND SPECIFICATIONS. THE PROFESSIONAL OF RECORD AND TEC ARE NOT RESPONSIBLE FOR DESIGN OF TRENCH BACKFILL OR FOR COMPACTION REQUIREMENTS.
9. EXISTING TREES AND SHRUBS OUTSIDE THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON PRIOR APPROVAL OF THE OWNER.
10. DURING THE INSTALLATION OF SANITARY, STORM, AND ALL UTILITIES, THE CONTRACTOR MUST MAINTAIN A CONTEMPORANEOUS AND THOROUGH RECORD OF CONSTRUCTION TO IDENTIFY THE AS-INSTALLED LOCATIONS OF ALL UNDERGROUND INFRASTRUCTURE. THE CONTRACTOR MUST CAREFULLY NOTE ANY INSTALLATIONS THAT DEVIATE, IN ANY RESPECT, FROM THE INFORMATION CONTAINED IN THESE PLANS. THIS RECORD MUST BE KEPT ON A CLEAN COPY OF THE APPROPRIATE PLAN(S), WHICH THE CONTRACTOR MUST PROMPTLY PROVIDE TO THE OWNER IMMEDIATELY UPON THE COMPLETION OF WORK.
11. THE CONTRACTOR MUST ENSURE THAT ALL UTILITY TRENCHES LOCATED IN EXISTING PAVED ROADWAYS INCLUDING SANITARY, WATER AND STORM SYSTEMS, ARE REPAIRED IN ACCORDANCE WITH REFERENCED MUNICIPAL, COUNTY AND OR STATE DOT DETAILS AS APPLICABLE. THE CONTRACTOR MUST COORDINATE INSPECTION AND APPROVAL OF COMPLETED WORK WITH THE AGENCY WITH JURISDICTION OVER SAME.
12. ALL WORK ASSOCIATED WITH UTILITY POLES, OVERHEAD WIRES AND ANY/ALL APPURTENANCES SHALL BE COORDINATED BY THE GC WITH THE LOCAL UTILITY COMPANIES PRIOR TO THE ORDERING OF ANY MATERIALS. THIS MAY INCLUDE BUT IS NOT LIMITED TO THE REMOVAL, INSTALLATION, RELOCATION OR PROTECTION OF ANY BRACING, GUY WIRES, OVERHEAD WIRES, ETC. AS MAY BE REQUIRED TO ACCOMMODATE THE PROJECT.
13. ALL SANITARY SEWER PIPE SHALL BE SDR-35 PVC UNLESS OTHERWISE NOTED.
14. INSULATE SANITARY PIP.ES WHERE INVERT DEPTH IS LESS THAN FIVE (5) FEET BELOW FINISHED GRADE.
15. CONTRACTOR SHALL PROTECT ALL UNDERGROUND DRAINAGE, SEWER AND UTILITY FACILITIES FROM EXCESSIVE VEHICULAR LOADS DURING CONSTRUCTION. ANY DAMAGE TO THESE FACILITIES RESULTING FROM CONSTRUCTION LOADS WILL BE RESTORED TO ORIGINAL CONDITION (AT NO ADDITIONAL COST TO THE OWNER) BY THE CONTRACTOR.
16. STORM AND SANITARY PIPE LENGTHS INDICATED ARE NOMINAL AND ARE MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE UNLESS INDICATED ON THE PLANS OTHERWISE.
17. ALL WATER AND SEWER UTILITY WORK SHALL CONFORM TO LOCAL DPW, WATER DIVISION SPECIFICATIONS, DETAILS, RULES AND REGULATIONS AND HAVE FIVE (5) FEET OF MINIMUM COVER. GAS, ELECTRIC, AND TELEPHONE LOCATIONS AND ROUTING ARE SUBJECT TO REVIEW AND APPROVAL BY THE APPROPRIATE UTILITY COMPANIES.
18. UNLESS INDICATED OTHERWISE, ALL NEW UTILITIES/SERVICES, INCLUDING ELECTRIC, TELEPHONE, CABLE TV, ETC., MUST BE INSTALLED UNDERGROUND. ALL NEW UTILITY SERVICES MUST BE INSTALLED IN ACCORDANCE WITH THE UTILITY SERVICE PROVIDER INSTALLATION SPECIFICATIONS AND STANDARDS.
19. STORMWATER ROOF DRAIN LOCATIONS ARE BASED ON ARCHITECTURAL PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATIONS OF SAME BASED UPON FINAL ARCHITECTURAL PLANS.
20. FIRE ALARM CONNECTION LOCATIONS AND ROUTING ARE SUBJECT TO REVIEW AND APPROVAL BY THE FIRE DEPARTMENT OR BUILDING INSPECTOR.
21. THE CONTRACTOR SHALL REMOVE ALL EROSION CONTROL BARRIERS AFTER REVEGETATION OF DISTURBED AREAS AND AFTER APPROVAL BY THE LOCAL APPROVING AUTHORITY.
22. EXCAVATION REQUIRED IN THE PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER.
23. THE CONTRACTOR SHALL SCHEDULE THEIR WORK TO ALLOW THE FINISHED SUBGRADE ELEVATIONS TO DRAIN PROPERLY WITHOUT PUDDLING. SPECIFICALLY, ALLOW WATER TO ESCAPE WHERE PROPOSED CURB MAY RETAIN RUNOFF PRIOR TO APPLICATION OF THE FINISH SURFACE AND/OR SURFACE PAVING.
24. WATER MAIN PIPING MUST BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE LOCAL WATER COMPANY. IN THE ABSENCE OF SUCH REQUIREMENTS, WATER MAIN PIPING MUST BE CEMENT-LINED DUCTILE IRON (DIP) MINIMUM CLASS 52 THICKNESS. ALL PIPE AND APPURTENANCES MUST COMPLY WITH THE APPLICABLE AWWA STANDARDS IN EFFECT AT THE TIME OF APPLICATION.
25. GAS METERS MUST BE PROTECTED AS REQUIRED BY THE JURISDICTIONAL GAS PROVIDER.
26. THE LIMITS OF CONSTRUCTION DISTURBANCE THAT ARE LOCATED IN OR WITHIN THE 50 FT OF CONSERVATION AND WETLAND DISTRICTS SHALL BE STAKED, FLAGGED AND CLEARLY IDENTIFIED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS.
27. ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS.
28. 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.
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. APPROVED BACKFLOW PREVENTERS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.
31. THE 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.
32. SPRINKLER CONNECTIONS MUST BE FLUSHED IN ACCORDANCE WITH NFPA 24 AND A CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING FORM MUST BE COMPLETED AND APPROVED BY INSPECTION SERVICES PRIOR TO CONNECTION OF THE BACKFLOW DEVICE.
33. FIRE DEPARTMENT CONNECTIONS SHALL BE LOCATED ON THE STREET SIDE OF THE BUILDING PER NPFA 13. ACCESS TO THE FDC SHALL MAINTAIN A CLEAR AND UNOBSTRUCTED PATH AT ALL TIMES.

ABBREVIATIONS

GENERAL

ABAN	ABANDON
AC	ACRES
ADJ	ADJUST
APPROX	APPROXIMATE
BCB	BITUMINOUS CONCRETE BERM
BIT	BITUMINOUS
BLDG	BUILDING
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BS	BOTTOM OF STAIRS
BR	BOTTOM OF RAMP
CC	CONCRETE CURB
CCB	CEMENT CONCRETE BERM
CEM	CEMENT
CI	CURB INLET
CLF	CHAIN LINK FENCE
CIT	CHANGE IN TYPE
CONC	CONCRETE
CW	CROSSWALK
DIA	DIAMETER
ELEV	ELEVATION
EOP	EDGE OF PAVEMENT
EX	EXISTING
FFE	FIRST FLOOR ELEVATION
FND	FOUNDATION
FDC	FIRE DEPT. CONNECTION
GC	GRAN



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DATE	3/7/2024
SCALE	AS NOTED

OWNER/APPLICANT

Regan Development Corporation
1055 Saw Mill River Road #204
Ardsley, NY 10502

REVISIONS

ISSUED FOR
Permitting

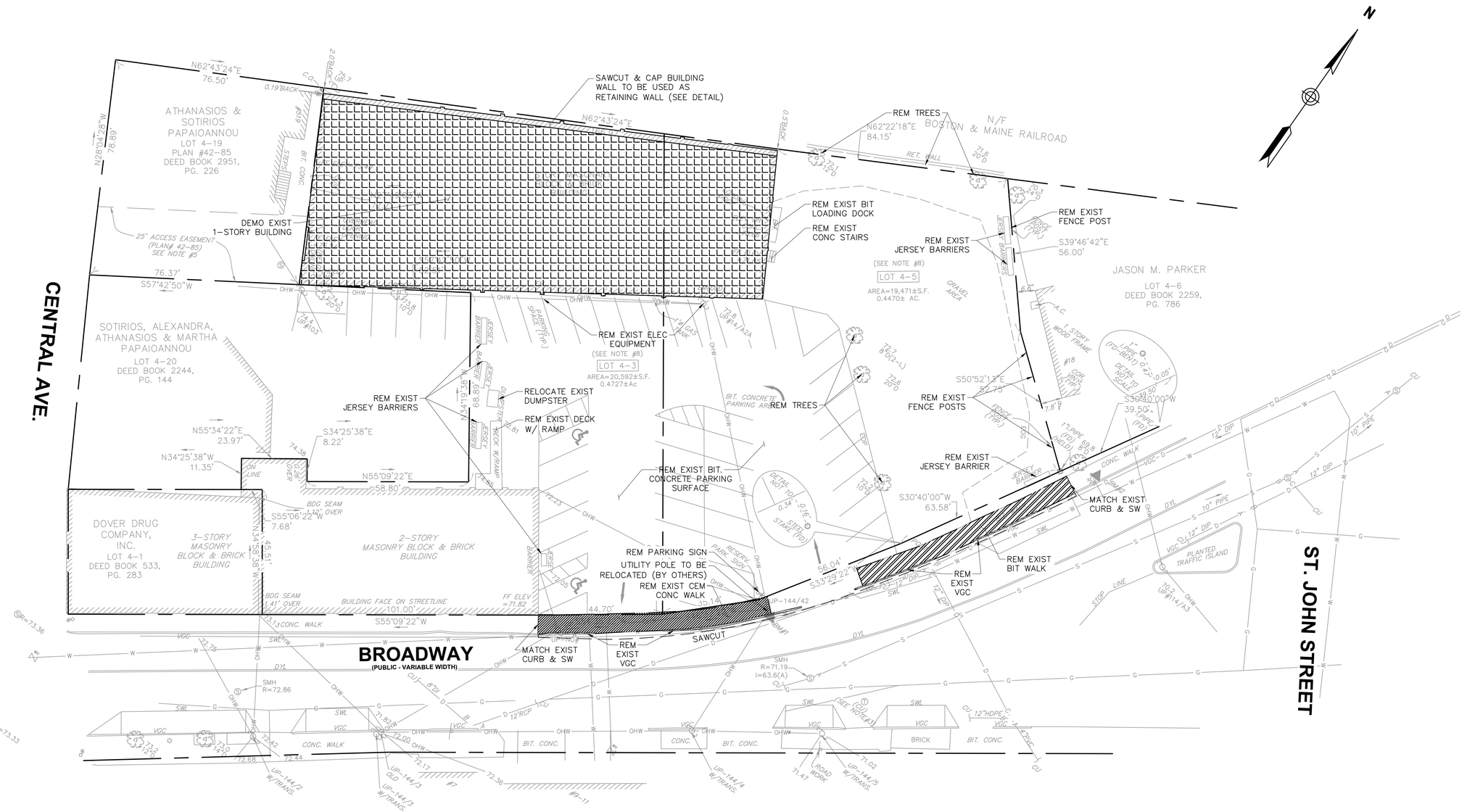
PROJECT TITLE
Proposed Residential Development at 14 Broadway

PROJECT LOCATION
14 Broadway
Dover, NH 03820

DRAWING TITLE
Neighborhood Plan

STATE OF NEW HAMPSHIRE
CHRISTOPHER P. RAYMOND
No. 16305
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO. N1440
TEC CAD FILE N1440_NBHD
DRAWING NO. C-3
SHEET 3 OF 12



NOTES:

1. ALL UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND ELEVATIONS OF EACH UTILITY PRIOR TO REMOVING OR RELOCATING. CONTRACTOR SHALL NOTIFY DIG–SAFE (1–888–344–7233) AND THE LOCAL MUNICIPAL WATER & SEWER DEPT. AT LEAST 72 HOURS BEFORE EXCAVATING.
2. THE CONTRACTOR SHALL DISCONNECT ALL UTILITIES FROM THE BUILDING PRIOR TO DEMOLITION.
3. THE CONTRACTOR IS TO REMOVE AND TO DISPOSE OF EXISTING MANMADE SURFACE FEATURES WITHIN THE LIMITS OF WORK INCLUDING BUILDINGS, STRUCTURES, PAVEMENTS, SLABS, CURBING, FENCES, UTILITY POLES, SIGNS, ETC. UNLESS INDICATED OTHERWISE ON THE DRAWINGS. REMOVE AND DISPOSE OF EXISTING UTILITIES, FOUNDATIONS, AND UNSUITABLE MATERIAL WITHIN THE PROPOSED BUILDING FOOTPRINT, TEN FEET BEYOND AND BENEATH PROPOSED EXTERIOR COLUMNS, AND CONFLICTING WITH ANY PROPOSED SITE WORK, PER DRAWINGS AND SPECIFICATIONS.
4. EXISTING UTILITIES SHALL BE TERMINATED, UNLESS OTHERWISE NOTED, IN CONFORMANCE WITH LOCAL, STATE, AND INDIVIDUAL UTILITY COMPANIES' STANDARD SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE DISCONNECTS WITH THE UTILITY REPRESENTATIVES.
5. THE CONTRACTOR SHALL DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES, AND STATUTES.
6. ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED AND APPROVED PRIOR TO DEMOLITION.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS. A 6–FOOT TEMPORARY CHAIN LINK FENCE SHALL BE PROVIDED AROUND ALL CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL LEAVE NO UNSECURED OPEN EXCAVATIONS.
8. ALL EXISTING DRAINAGE STRUCTURES SHALL REMAIN IN PLACE AND FUNCTIONAL UNTIL THE PROPOSED DRAINAGE SYSTEM IS OPERATIONAL, UNLESS OTHERWISE NOTED BY THE ENGINEER.
9. THE CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST 72 HOURS PRIOR TO BEGINNING ANY DEMOLITION.
10. THE LOCATION OF THE EXISTING SEWER SERVICE IS APPROXIMATE. THE EXISTING SERVICE SHALL BE REMOVED IN CONFORMANCE WITH STATE AND LOCAL REGULATIONS.
11. IN THE EVENT THAT SUSPECTED CONTAMINATED SOIL, GROUNDWATER, AND OTHER MEDIA ARE ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION ACTIVITIES BASED ON VISUAL, OLFACTORY, OR OTHER EVIDENCE, THE CONTRACTOR SHALL STOP WORK IN THE VICINITY OF THE SUSPECT MATERIAL TO AVOID FURTHER SPREADING OF THE MATERIAL, AND SHALL NOTIFY THE OWNER IMMEDIATELY SO THAT THE APPROPRIATE TESTING AND SUBSEQUENT ACTION CAN BE TAKEN.
12. A PEST MANAGEMENT PLAN HAS BEEN RECOMMENDED BY A LICENSED PEST CONTROL SPECIALIST AND WILL BE IMPLEMENTED PRIOR TO CONSTRUCTION.

LEGEND:

- BUILDING TO BE DEMOLISHED
- VGC TO BE REMOVED
- BIT WALK TO BE REMOVED
- CEM CONC WALK TO BE REMOVED

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OWNER/APPLICANT

Regan Development Corporation
1055 Saw Mill River Road #204
Ardsley, NY 10502

REVISIONS

ISSUED FOR

Permitting

PROJECT TITLE

Proposed Residential Development at 14 Broadway

PROJECT LOCATION

14 Broadway
Dover, NH 03820

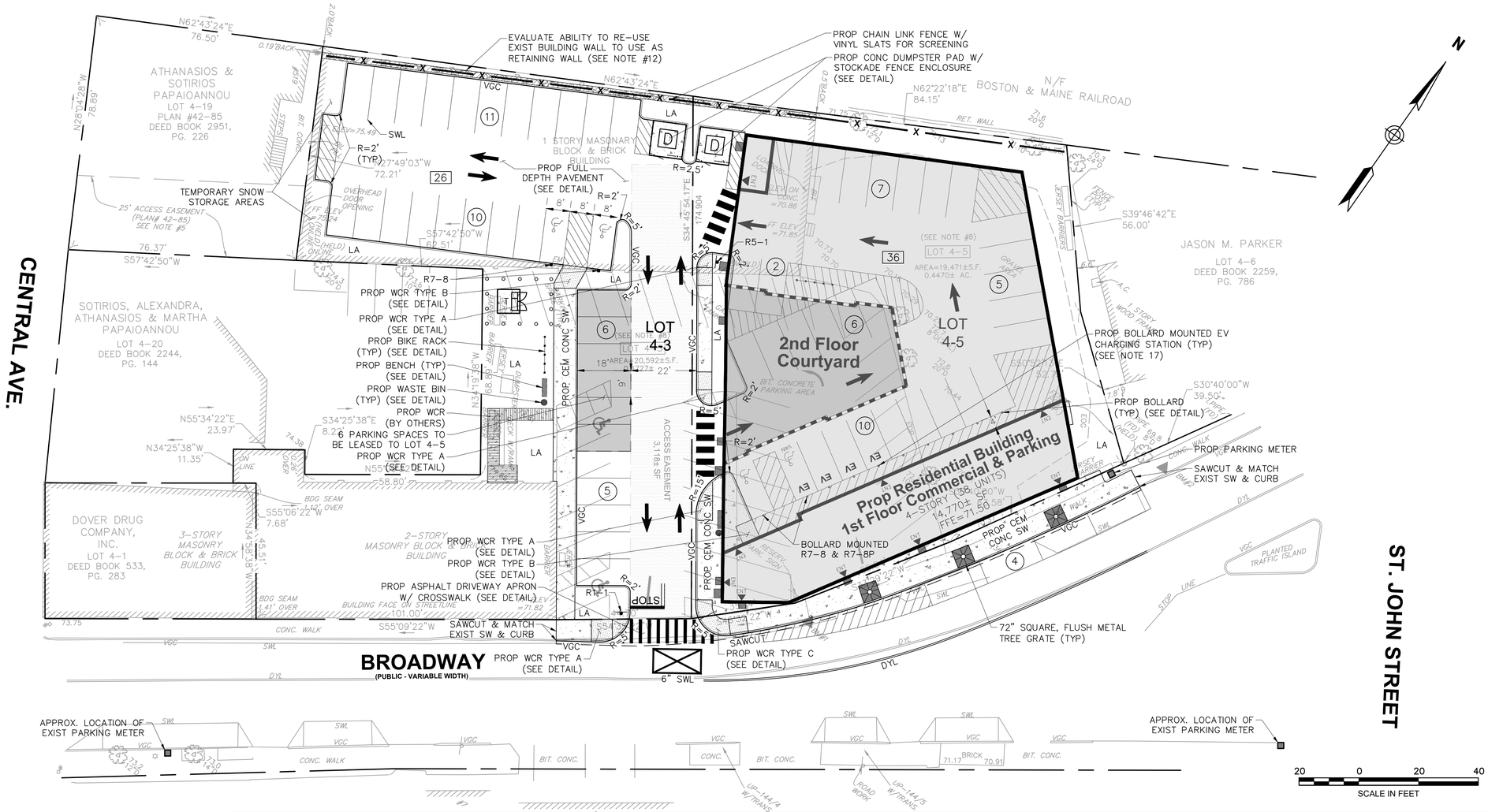
DRAWING TITLE

Demolition Plan

STATE OF NEW HAMPSHIRE – CHRISTOPHER P. RAYMOND No.16305 – PROFESSIONAL ENGINEER – LICENSED

PROJECT NO.	N1440
TEC CAD FILE	N1440_DEMO
DRAWING NO.	C-4

SHEET 4 OF 12



NOTES:

1. THE INTENT OF THIS PLAN IS TO CONSTRUCT A 14,770± SF RESIDENTIAL BUILDING WITH FIRST FLOOR COMMERCIAL AND PARKING ON LOT 4-5, AND REDEVELOP THE EXISTING PARKING AREA ON LOT 4-3.
2. THE PARCELS ARE SHOWN AS LOT NO. 3 & 5, MAP 4 OF THE CITY OF DOVER TAX ASSESSOR'S MAPS.
3. TITLE REFERENCE FOR THE PROJECT PARCEL IS THE STRAFFORD COUNTY REGISTRY OF DEEDS, BOOK NO. 4719, PAGE NO. 976.
6. CONDITIONAL USE PERMIT GRANTED ON 12/15/2021 TO ALLOW FOR LESS THAN 20% REQUIRED AREA TO BE NON-RESIDENTIAL. THE SITE PROPOSES 6% OF NON-RESIDENTIAL USES.
7. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY HANCOCK ASSOCIATES ON 4/18/2020 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.
8. BUILDING ADDRESSES (INCLUDING APT/UNIT NUMBERS IF APPLICABLE) SHALL BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.
9. SNOW TO BE TEMPORARILY STORED AT WEST EDGE OF LOT BEFORE BEING TRUCKED OFF SITE.
10. 25' ACCESS EASEMENT (PLAN #42-85) TO EXPIRE.
11. FINAL LOCATION OF BENCHES, BIKE RACKS, AND WASTE BINS TO BE COORDINATED PRIOR TO OCCUPANCY.
12. IF EXISTING WALL CAN BE REUSED, IT SHOULD BE SAWCUT AND CAPPED, SEE DETAIL. IF DETERMINED TO BE UNSUITABLE FOR REUSE, A NEW CONCRETE BLOCK RETAINING WALL SHALL BE INSTALLED, SEE DETAIL.
13. ALL BUILDING & PARKING SIGNAGE TO BE COORDINATED WITH BUILDING DEPARTMENT PRIOR TO OCCUPANCY.
14. FINAL LOCATION OF NECESSARY ACCESS, PARKING & UTILITY EASEMENTS WILL BE COORDINATED, DOCUMENTED & RECORDED PRIOR TO OCCUPANCY.
15. ALL DETAILS FOR PROPOSED LANDSCAPING CAN BE SEEN ON THE ATTACHED LANDSCAPING PLANS (SHEETS L1-L3).
16. DUMPSTER AND ENCLOSURE SHALL COMPLY WITH ALL APPLICABLE ADA STANDARDS.
17. 4 EV PARKING SPACES ARE PROVIDED WITH INFRASTRUCTURE IN PLACE FOR FUTURE EXPANSION OF TOTAL EV PARKING SPACES.

ZONING TABLE

ZONING DISTRICT	CBD GENERAL SUB-DISTRICT	
PROPOSED USES	1ST FLOOR: 3,176 SF COMMERCIAL & 11,684 SF PARKING 2ND FLOOR: 12,103 SF (12 UNITS) RESIDENTIAL & 2,757 SF COURTYARD 3RD FLOOR: 12,103 SF (12 UNITS) RESIDENTIAL 4TH FLOOR: 12,103 SF (12 UNITS) RESIDENTIAL	
PROPOSED USE ALLOWABLE BY	BY RIGHT	
DIMENSIONAL REQUIREMENTS	**REQUIRED**	**PROVIDED**
LOT SIZE	N/A	19,471 SF
MINIMUM LOT COVERAGE	75%	76.4%
MINIMUM FRONTAGE BUILD-OUT	70%	83%
FRONT PRIMARY BUILD TO LINE	6.7 FT*	1 FT
FRONT SECONDARY BUILD TO LINE	N/A	N/A
SIDE SETBACK	0 FT (MIN), 24 FT (MAX)	10 FT
REAR SETBACK	10 FT (MIN)	10 FT
BUILDING HEIGHT	5-STORY (MAX), 2-STORY (MIN)	4-STORY

* AVERAGE OF ALL FRONT SETBACKS OF 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.

PARKING TABLE

EXISTING PARKING	LOT 4-3: 40 SPACES	
REQUIRED (MAX) & RECOMMENDED (REC) PARKING	LOT 4-1: 7 RESIDENTIAL UNITS & 3,241 SF RETAIL=21 SPACES (MAX)*, 16 SPACES (REC)** LOT 4-3: 4,692 SF OFFICE=16 SPACES (MAX)*, 11 SPACES (REC)** LOT 4-5: 38 RESIDENTIAL UNITS & 1,140± SF COMMERCIAL & 725± SF OFFICE=71 SPACES (MAX)*, 46 SPACES (REC)** TOTAL REQUIRED PARKING (MAX)=108 SPACES* TOTAL RECOMMENDED PARKING=73 SPACES**	
PROPOSED PARKING	LOT 4-1 & 4-3: 26 SPACES LOT 4-5: 36 SPACES (INCL. 6 SPACES FROM LOT 4-3)*** BROADWAY: 4 SPACES DOVER HOUSING AUTHORITY (18 CHAPEL STREET): 10 SPACES*** TOTAL PROPOSED PARKING (LOT 4-5)=50 SPACES (1 SPACE/UNIT, 5 GUEST SPACES, 5 COMMERCIAL SPACES & 2 RETAIL SPACES) TOTAL PROPOSED PARKING=76 SPACES	
PARKING REQUIREMENTS	**REQUIRED**	**PROVIDED**
HANDICAP ACCESSIBLE SPACES	4	4
AISLE WIDTH	22 FT	22 FT
STALL WIDTH	9 FT	9 FT
LENGTH OF SPACE	18 FT	18 FT

* MAX REQUIRED PARKING SPACES WERE CALCULATED USING THE CITY OF DOVER MAXIMUM PARKING NUMBERS.
** RECOMMENDED PARKING SPACES WERE CONSERVATIVELY CALCULATED USING ITE PARKING GENERATION NUMBERS FOR THE EXISTING AND PROPOSED USES.
*** 6 PARKING SPACES TO BE LEASED FROM LOT 4-3 TO LOT 4-5, AND 10 PARKING SPACES TO BE LEASED FROM DOVER HOUSING AUTHORITY (18 CHAPEL STREET) TO LOT 4-5.

TRAFFIC SIGN SUMMARY

ID NUMBER	SIZE OF SIGN (in)			TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	NUMBER OF POSTS REQUIRED
	WIDTH	HEIGHT	LEGEND	LETTER HEIGHT	VERTICAL SPACING	ROUTE MARKER		
R1-1	30	30	STOP	SEE MUTCD SIGN STANDARDS			1	1
R7-8	12	24	RESERVED PARKING				4	4
R5-1	30	30	DO NOT ENTER				1	1

* HANDICAP PARKING SIGNS SHALL BE IN ACCORDANCE WITH CITY OF DOVER STANDARDS, AND ADA REGULATIONS
** VAN SIGNS SHALL BE LOCATED AT ALL ADA SPACES. PER ADA ACCESSIBILITY GUIDELINES (AMENDED 2010) ANY SPACE WITH A VAN SIGN IS NOT INTENDED TO BE RESTRICTED ONLY TO VANS

PLANNING BOARD FILE #:

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1055 Saw Mill River Road #204
Ardsley, NY 10502

REVISIONS

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Permitting

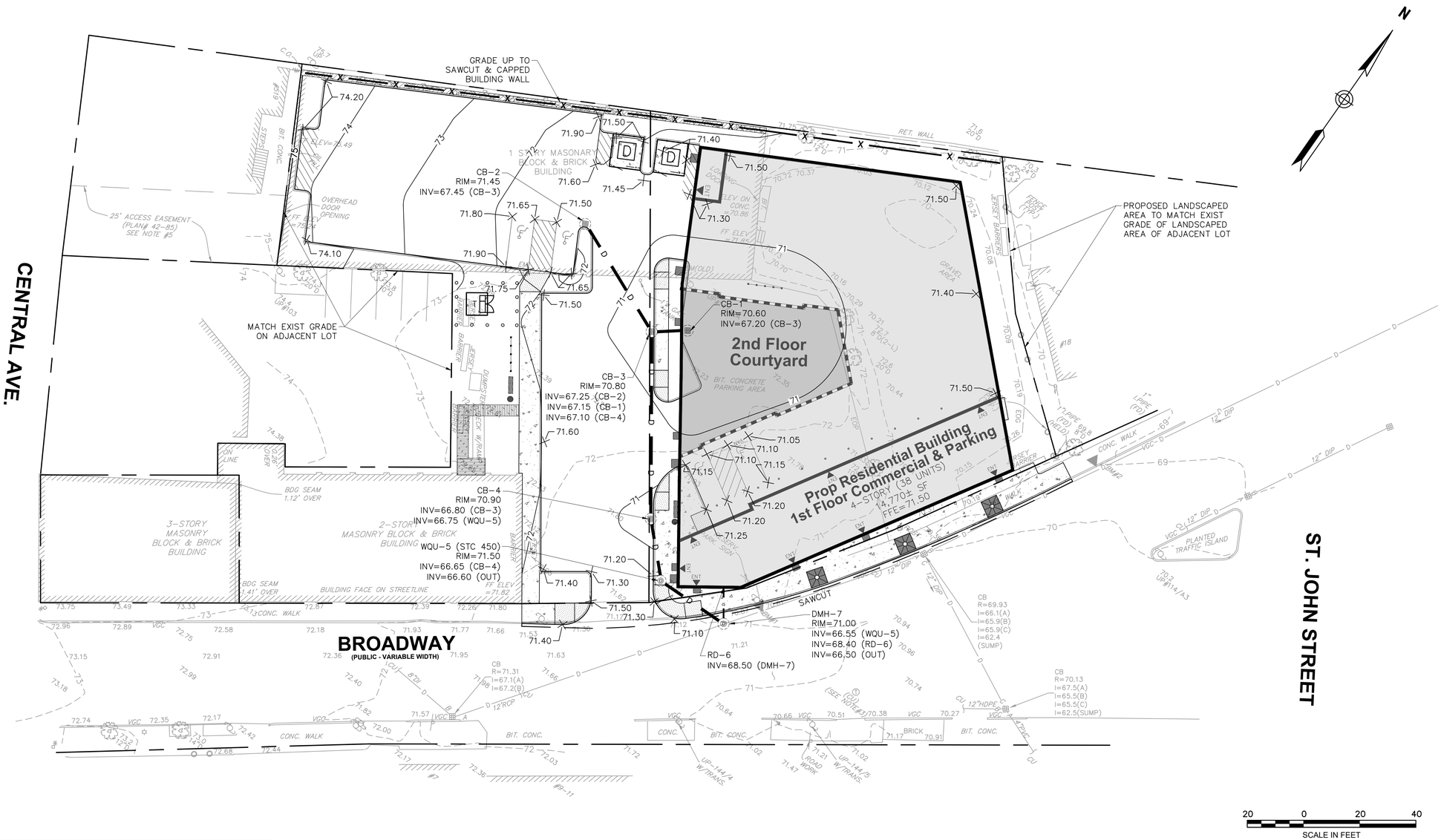
PROJECT TITLE
Proposed Residential Development at 14 Broadway

PROJECT LOCATION
14 Broadway
Dover, NH 03820

DRAWING TITLE
Layout & Materials Plan

STATE OF NEW HAMPSHIRE
CHRISTOPHER P. RAYMOND No.16305 LICENSED PROFESSIONAL ENGINEER

PROJECT NO. N1440
TEC CAD FILE N1440_LM
DRAWING NO. C-5
SHEET 5 OF 12



LOT COVERAGE TABLE		
EXISTING USE	10,417 SF WAREHOUSE W/ PARKING AREA	
PROPOSED USE	14,900± SF RESIDENTIAL BUILDING W/ FIRST FLOOR COMMERCIAL USE SPACE AND PARKING	
LOT COVERAGE	EXISTING	PROPOSED
BUILDING	10,753 SF (30.7%)	14,778 SF (42.2%)
GRAVEL	6,761 SF (19.2%)	N/A (0.0%)
PAVEMENT	14,744 SF (42.2%)	11,940 SF (34.1%)
SIDEWALK	N/A (0.0%)	2,500 SF (7.1%)
TOTAL IMPERVIOUS AREA	**32,2581 SF (92.1%)**	**29,218 SF (83.4%)**
LANDSCAPING	2,774 SF (7.9%)	5,814 SF (16.6%)
TOTAL PERVIOUS AREA	**2,774 SF (7.9%)**	**5,814 SF (16.6%)**
TOTAL AREA	**35,032 (100%)**	**35,032 (100%)**

* LOT COVERAGE CALCULATIONS BASED ON TOTAL AREAS OF BOTH LOTS 4-3 AND 4-5.

NOTES:

1. SUBJECT PARCEL IS NOT LOCATED WITHIN A FEDERALLY DESIGNATED FLOOD HAZARD AREA, COMMUNITY PANEL NUMBER 33017C0330E, EFFECTIVE DATE: SEPTEMBER 30, 2015.
2. ALL PROPOSED DRAINAGE PIPE TO BE 12" HDPE UNLESS OTHERWISE NOTED.
3. ALL CATCH BASINS SHALL BE DEEP SUMP AND HOODED.

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Ardsley, NY 10502

REVISIONS

ISSUED FOR

Permitting

PROJECT TITLE

Proposed Residential Development at 14 Broadway

PROJECT LOCATION

14 Broadway
Dover, NH 03820

DRAWING TITLE

Grading & Drainage Plan

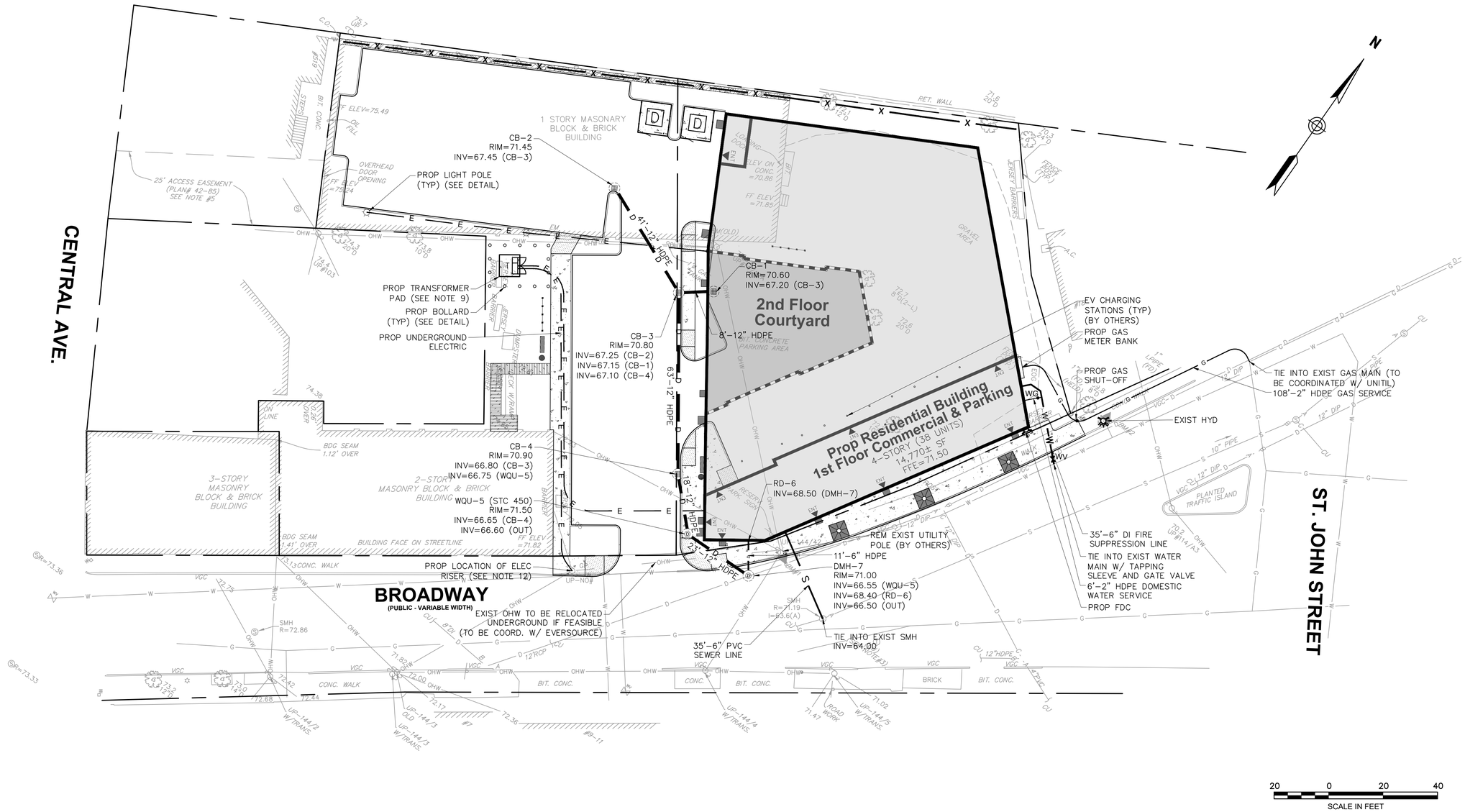
STATE OF NEW HAMPSHIRE
CHRISTOPHER P. RAYMOND No.16305
LICENSED PROFESSIONAL ENGINEER

PROJECT NO. N1440

TEC CAD FILE N1440_GD

DRAWING NO. C-6

SHEET 6 OF 12


CENTRAL AVE.
BROADWAY
(PUBLIC - VARIABLE WIDTH)
ST. JOHN STREET
1 STORY MASONARY BLOCK & BRICK BUILDING
3-STORY MASONRY BLOCK & BRICK BUILDING
2-STORY MASONRY BLOCK & BRICK BUILDING
2nd Floor Courtyard
Prop Residential Building
1st Floor Commercial & Parking
4-STORY (38 UNITS)
14,770± SF
FFE=71.50
CB-1
RIM=70.60
INV=67.20 (CB-3)
CB-2
RIM=71.45
INV=67.45 (CB-3)
CB-3
RIM=70.80
INV=67.25 (CB-2)
INV=67.15 (CB-1)
INV=67.10 (CB-4)
CB-4
RIM=70.90
INV=66.80 (CB-3)
INV=66.75 (WQU-5)
WQU-5 (STC 450)
RIM=71.50
INV=66.65 (CB-4)
INV=66.60 (OUT)
RD-6
INV=68.50 (DMH-7)
DMH-7
RIM=71.00
INV=66.55 (WQU-5)
INV=68.40 (RD-6)
INV=66.50 (OUT)
SMH
R=71.19
I=93.6(A)
TIE INTO EXIST SMH
INV=64.00
35'-6" PVC SEWER LINE
PROP LIGHT POLE (TYP) (SEE DETAIL)
PROP TRANSFORMER PAD (SEE NOTE 9)
PROP BOLLARD (TYP) (SEE DETAIL)
PROP UNDERGROUND ELECTRIC
PROP LOCATION OF ELEC RISER (SEE NOTE 12)
EXIST OHW TO BE RELOCATED UNDERGROUND IF FEASIBLE (TO BE COORD. W/ EVERSOURCE)
REM EXIST UTILITY POLE (BY OTHERS)
11'-6" HDPE
EV CHARGING STATIONS (TYP) (BY OTHERS)
PROP GAS METER BANK
PROP GAS SHUT-OFF
EXIST HYD
TIE INTO EXIST GAS MAIN (TO BE COORDINATED W/ UNITIL)
108'-2" HDPE GAS SERVICE
35'-6" DI FIRE SUPPRESSION LINE
TIE INTO EXIST WATER MAIN W/ TAPPING SLEEVE AND GATE VALVE
6'-2" HDPE DOMESTIC WATER SERVICE
PROP FDC
8'-12" HDPE
63'-12" HDPE
41'-12" HDPE
18'-12" HDPE
23'-12" HDPE
25' ACCESS EASEMENT (PLAN# 42-85) SEE NOTE #5
OVERHEAD DOOR OPENING
FF ELEV=75.49
FF ELEV=75.24
FF ELEV=71.85
FF ELEV=71.82
RET. WALL
GRAVEL AREA
CONC. WALK
BIT. CONC.
BRICK
BDG SEAM 1.41' OVER
BDG SEAM 1.12' OVER
BUILDING FACE ON STREETLINE
PLANTED TRAFFIC ISLAND
ROAD WORK
UP-144/1
UP-144/2 W/TRANS.
UP-144/3 OLD W/TRANS.
UP-144/4 W/TRANS.
UP-144/5 W/TRANS.
UP-NO#
SMH R=72.86
SMH R=72.43
SMH R=72.00
SMH R=72.44
SMH R=72.68
SMH R=72.17
SMH R=72.36
SMH R=71.47
SMH R=71.02
SMH R=72.73
SMH R=73.10
SMH R=73.13
SMH R=73.36
SMH R=73.33
SMH R=72.75
SMH R=71.83
SMH R=72.32
SMH R=72.70
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SMH R=73.03
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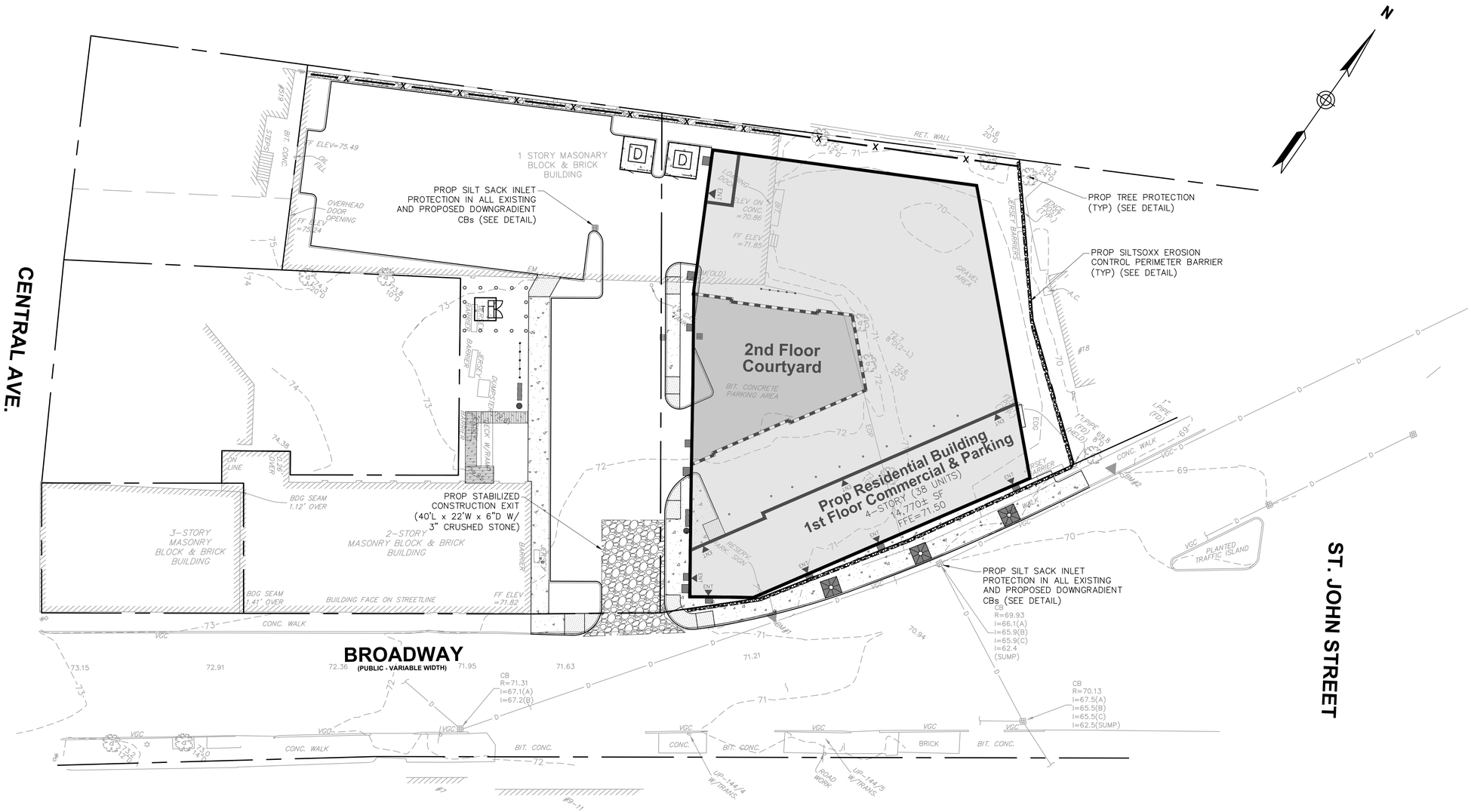

NOTES:

1. THE CONDITION OF EROSION CONTROLS MUST BE CHECKED AFTER EVERY STORM EVENT. REPAIRS AND MAINTENANCE MUST BE PERFORMED WITHIN 24 HOURS AFTER A STORM EVENT.
2. THE SITE AND SURROUNDING AREA SHALL BE SWEPT REGULARLY TO CONTROL DUST AND DEBRIS.
3. LIMIT OF WORK IS THE PROPERTY LINES OF LOTS 4-3 & 4-5.
4. CONSTRUCTION FENCE TO BE ISNTALLED AROUND PERIMETER OR SITE PRIOR TO THE START OF CONSTRUCTION.

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REVISIONS

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Permitting

PROJECT TITLE

Proposed Residential Development at 14 Broadway

PROJECT LOCATION

14 Broadway
Dover, NH 03820

DRAWING TITLE

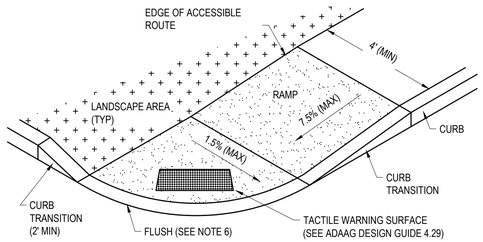
Erosion & Sediment Control Plan

STATE OF NEW HAMPSHIRE - CHRISTOPHER P. RAYMOND No.16305 LICENSED PROFESSIONAL ENGINEER

PROJECT NO. N1440

TEC CAD FILE N1440_ER

DRAWING NO. C-8

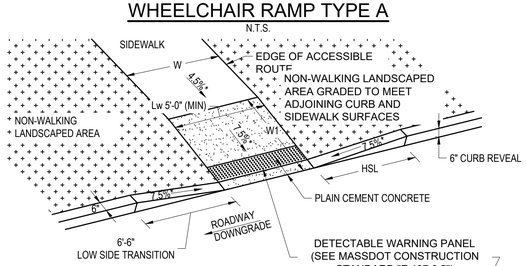


NOTES:

1. MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5% (7.5% FOR CURB RAMPS)
2. A MINIMUM OF 3 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (I.E., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
3. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
4. RAMP, CURB AND ADJACENT PAVEMENTS SHALL BE GRADED TO PREVENT PONDING.
5. WHERE ACCESSIBLE ROUTES ARE LESS THAN 5' IN WIDTH (EXCLUDING CURBING) A 5' x 5' PASSING AREA SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 200 FEET.
6. ELIMINATE CURBING AT RAMP WHERE IT ABUTS ROADWAY, EXCEPT WHERE VERTICAL CURBING IS INDICATED ON THE DRAWINGS TO BE INSTALLED AND SET FLUSH.

WHEELCHAIR RAMP TYPE A

N.T.S.

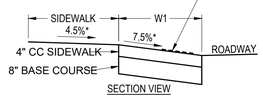


LEGEND:

HSL	=	HIGH SIDE TRANSITION LENGTH (SEE MASSDOT CONSTRUCTION STANDARD "E 107.9.0")
W	=	SIDEWALK WIDTH
W1	=	PERPENDICULAR RAMP LENGTH
CC	=	CEMENT CONCRETE
*	=	TOLERANCE FOR CONSTRUCTION ±0.5%

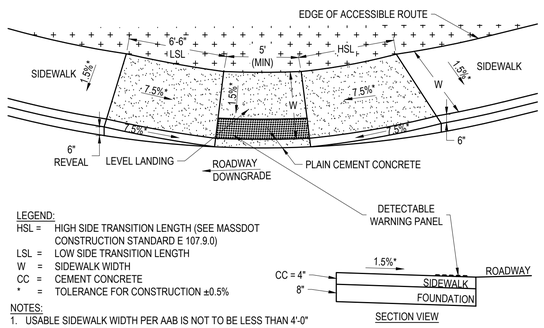
NOTES:

1. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
2. ROADWAY GUTTER SLOPE MEASURED IN UPSTATION DIRECTION
3. SEE MASSDOT CONSTRUCTION STANDARD "E 107.6.5" FOR DETECTABLE WARNING PANEL DETAILS



WHEELCHAIR RAMP TYPE B

N.T.S.

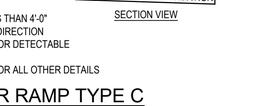


LEGEND:

HSL	=	HIGH SIDE TRANSITION LENGTH (SEE MASSDOT CONSTRUCTION STANDARD E 107.9.0)
LSL	=	LOW SIDE TRANSITION LENGTH
W	=	SIDEWALK WIDTH
CC	=	CEMENT CONCRETE
*	=	TOLERANCE FOR CONSTRUCTION ±0.5%

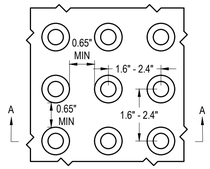
NOTES:

1. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
2. ROADWAY GUTTER SLOPE MEASURED IN UPSTATION DIRECTION
3. SEE MASSDOT CONSTRUCTION STANDARD E 107.6.5 FOR DETECTABLE WARNING PANEL DETAILS
4. SEE MASSDOT CONSTRUCTION STANDARD E 107.2.1 FOR ALL OTHER DETAILS



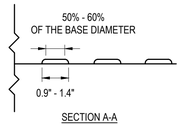
WHEELCHAIR RAMP TYPE C

N.T.S.



NOTES:

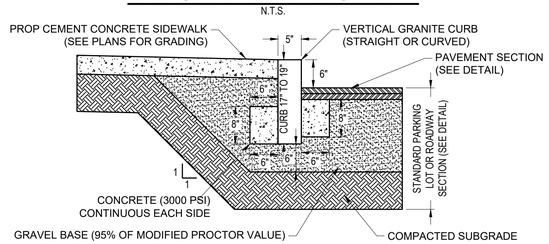
1. PANELS MAY BE CONCRETE PRECAST OR CAST IN PLACE OR OTHER SUITABLE MATERIAL PERMANENTLY APPLIED TO THE RAMP.
2. DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH ADJACENT WALKING SURFACES EITHER LIGHT ON DARK, OR DARK ON LIGHT.



SECTION A-A

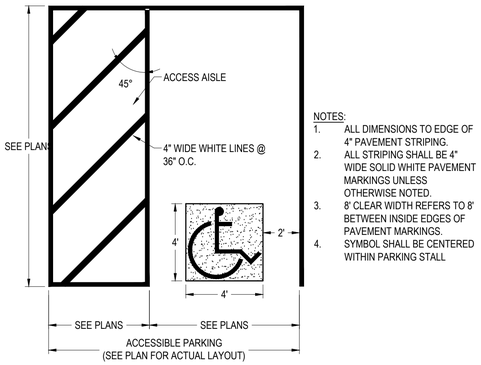
DETECTABLE WARNING PANEL

N.T.S.



VERTICAL GRANITE CURB (VGC)

N.T.S.

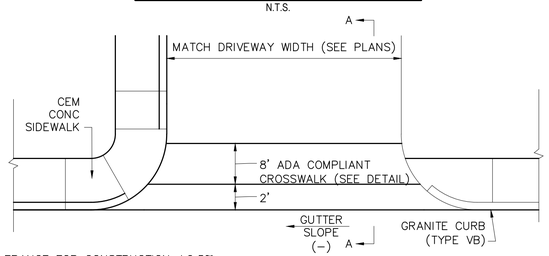


NOTES:

1. ALL DIMENSIONS TO EDGE OF 4" PAVEMENT STRIPING.
2. ALL STRIPING SHALL BE 4" WIDE SOLID WHITE PAVEMENT MARKINGS UNLESS OTHERWISE NOTED.
3. 8' CLEAR WIDTH REFERS TO 8' BETWEEN INSIDE EDGES OF PAVEMENT MARKINGS.
4. SYMBOL SHALL BE CENTERED WITHIN PARKING STALL

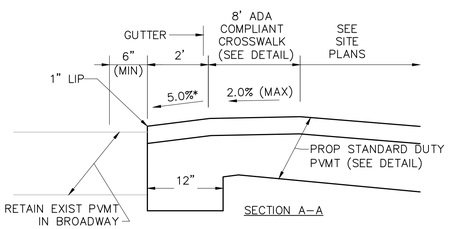
ACCESSIBLE PARKING SPACE

N.T.S.



*TOLERANCE FOR CONSTRUCTION ±0.5%

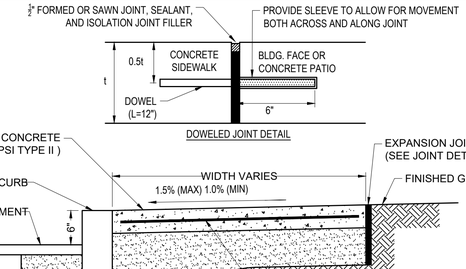
PLAN



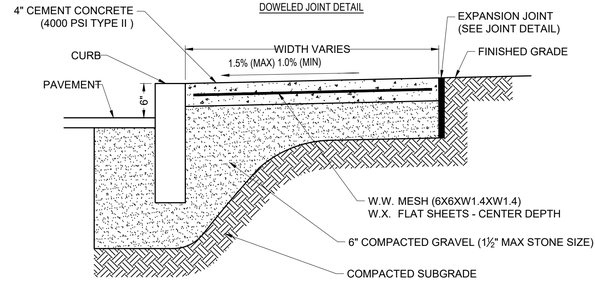
SECTION A–A

ASPHALT DRIVEWAY W/ CROSSWALK DETAIL

N.T.S.



DOWELED JOINT DETAIL

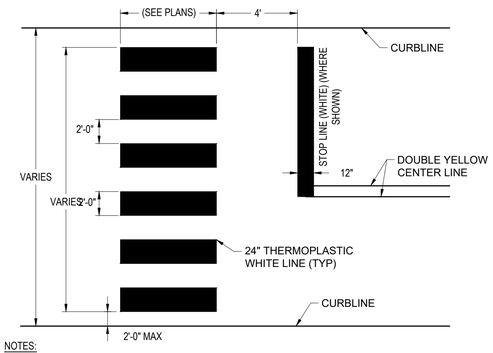


NOTES:

1. PROVIDE A DOWELED CONSTRUCTION JOINT AT ALL DOORWAY LOCATIONS

CEMENT CONCRETE SIDEWALK

N.T.S.

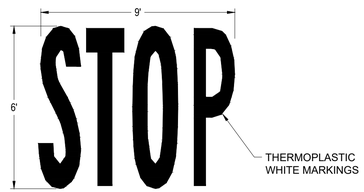


NOTES:

1. ALL 12" LINES SHALL BE APPLIED IN ONE APPLICATION, NO COMBINATION OF LINES (TWO - 6" LINES) WILL BE ACCEPTED. ALL 24" LINES MAY BE EITHER ONE 24" LINE OR A COMBINATION OF TWO - 12" LINES.
2. LAYOUT OF CROSSWALKS SHALL BE APPROVED BY THE ENGINEER PRIOR TO APPLICATION.
3. CROSSWALK BARS SHALL BE PLACED OUTSIDE THE VEHICULAR WHEEL PATH WHEREVER POSSIBLE.

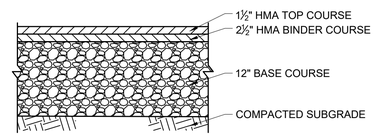
CROSSWALK PAVEMENT MARKING

N.T.S.



STOP PAVEMENT MARKING

N.T.S.



FULL DEPTH PAVEMENT

N.T.S.

TEC, Inc.

282 Merrimack St, 2nd Floor
Lawrence, MA 01843
(978) 794-1792

169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154

www.TheEngineeringCorp.com

DESIGNED BY	CPR
DRAWN BY	MWP
CHECKED BY	CPR
DATE	3/7/2024
SCALE	AS NOTED

OWNER/APPLICANT

Regan Development Corporation
1055 Saw Mill River Road #204
Ardsley, NY 10502

REVISIONS

ISSUED FOR

Permitting

PROJECT TITLE

Proposed Residential Development at 14 Broadway

PROJECT LOCATION

14 Broadway
Dover, NH 03820

DRAWING TITLE

Construction Details

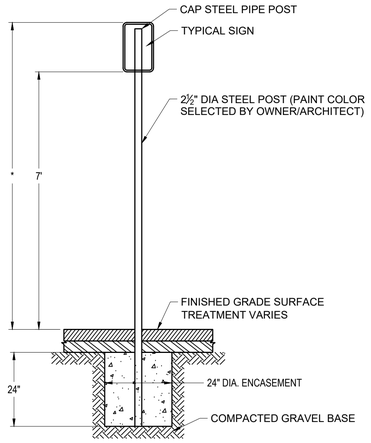
STATE OF NEW HAMPSHIRE — CHRISTOPHER P. RAYMOND No.16305 — LICENSED PROFESSIONAL ENGINEER

PROJECT NO. N1440

TEC CAD FILE N1440_DET

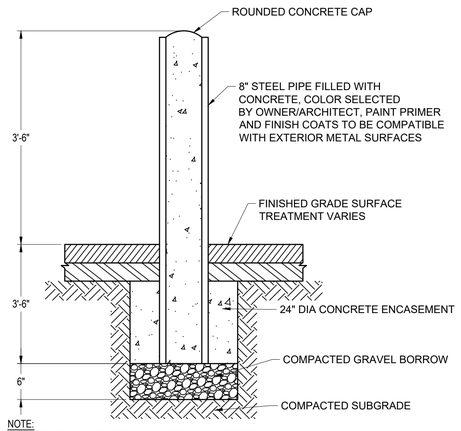
DRAWING NO. C-9

SHEET 9 OF 12



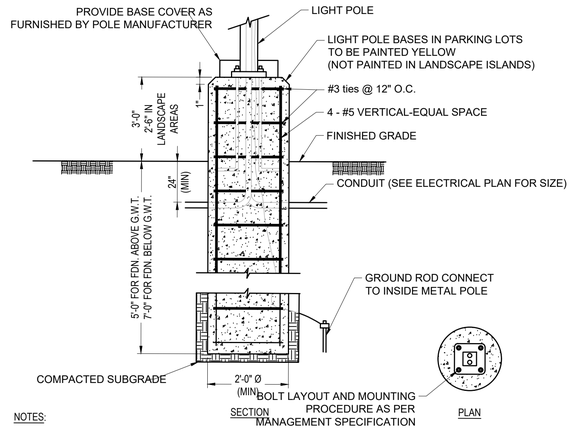
*THIS DIMENSION SHALL BE A MINIMUM OF 5' AND A MAXIMUM OF 8' FOR ACCESSIBLE SIGNAGE IN THE COMMONWEALTH OF MASSACHUSETTS.

SIGN POST
N.T.S.



NOTE:
BOLLARDS SHALL BE PLACED IN ACCORDANCE WITH THE ADA ACCESSABILITY GUIDELINES. A MINIMUM CLEAR WIDTH OF 36" SHALL BE PROVIDED TO MAINTAIN AN ACCESSIBLE PATH.

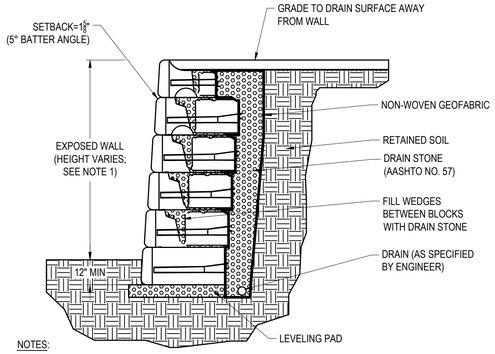
BOLLARD
N.T.S.



NOTES:
1. LIGHT POLE FOUNDATION DESIGN IS SUBJECT TO CHANGE BASED ON FINAL POLE AND FIXTURE SELECTION AND GEOTECHNICAL SITE INVESTIGATION.

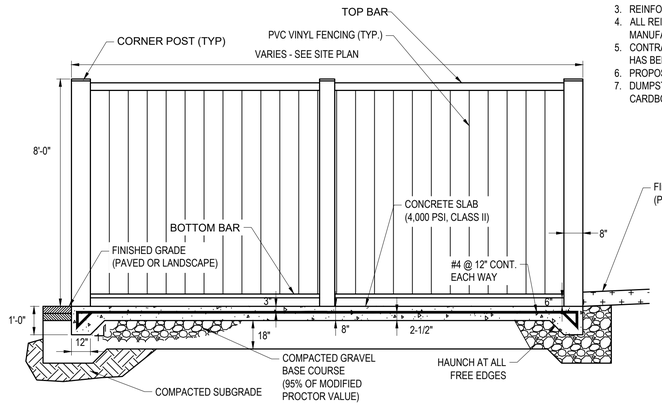
LIGHT POLE BASE
N.T.S.

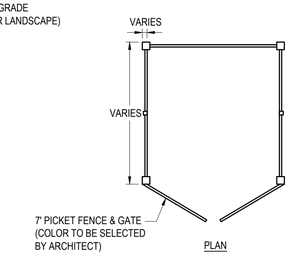
NOTES:
1. CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
2. MAX. ALLOWABLE SLUMP SHALL NOT EXCEED 4" AND MAX. W/C RATIO SHALL NOT EXCEED 0.45.
3. REINFORCING STEEL SHALL BE ASTM A615 GR 60 DEFORMED BARS (UNCOATED).
4. ALL REINFORCING STEEL SHALL BE SECURED IN A PROPER POSITION ON CHAIRS AS MANUFACTURED BY RICHMOND OR APPROVED EQUAL.
5. CONTRACTOR TO CONSULT THE PROJECTS SOILS ENGINEER TO ENSURE THAT THE BASE COURSE HAS BEEN PREPARED PROPERLY PRIOR TO CONCRETE PLACEMENT.
6. PROPOSED SLAB TO BE CONSTRUCTED TO DRAIN TO MATCH PROPOSED PAVEMENT GRADING.
7. DUMPSTER ENCLOSURE SHALL CONTAIN ONE 8 CUBIC YARD RECEPTACLE FOR TRASH AND CARDBOARD (6'x6' OR GREATER).



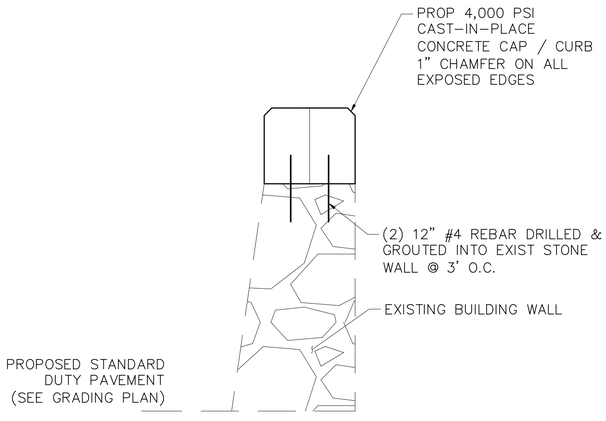
NOTES:
1. WALL HEIGHTS OVER 4 FEET WILL REQUIRE A FINAL WALL DESIGN STAMPED BY A STRUCTURAL ENGINEER.
2. FINAL WALL DESIGN TO BE SUBJECT TO THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER INCLUDING DESIGN ON LATERAL EARTH PRESSURES, GLOBAL STABILITY, FILL MATERIALS ADJACENT TO THE WALLS AND REQUIRED GEOGRID REINFORCEMENT.

SEGMENTAL BLOCK RETAINING WALL
N.T.S.

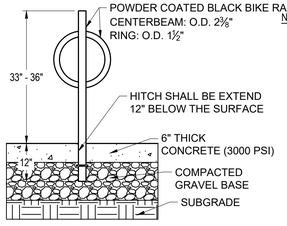




ENCLOSED DUMPSTER PAD
N.T.S.

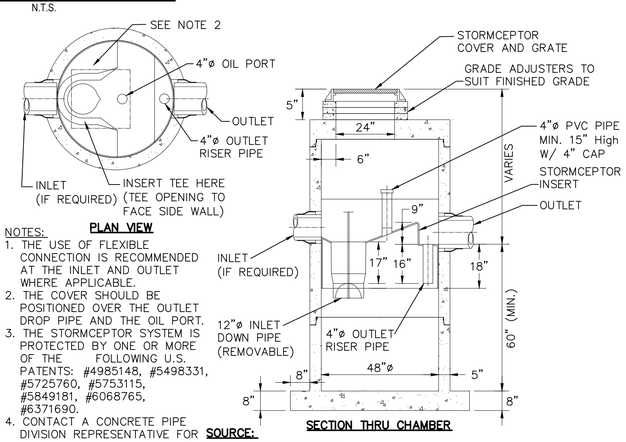


BUILDING WALL CAP
N.T.S.



NOTE:
1. PRIOR TO PLACING RACK INTO CONCRETE, SET POLE IN GROUND AND BRACE IN PLUMB POSITION
2. RACK UNITS ALIGNED SIDE BY SIDE SHALL BE SET A LEAST THREE FEET APART.
3. RACK UNITS ALIGNED END TO END SHALL BE SET AT LEAST EIGHT FEET APART (MEASURED FROM CENTERLINE OF RACK).

BIKE RACK
N.T.S.



NOTES:
1. THE USE OF FLEXIBLE CONNECTION IS RECOMMENDED AT THE INLET AND OUTLET WHERE APPLICABLE.
2. THE COVER SHOULD BE POSITIONED OVER THE OUTLET DROP PIPE AND THE OIL PORT.
3. THE STORMCEPTOR SYSTEM IS PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: #4985148, #5498331, #5725760, #5753115, #5849181, #6068765, #6371690.
4. CONTACT A CONCRETE PIPE DIVISION REPRESENTATIVE FOR FURTHER DETAILS NOT LISTED ON THE DRAWING.

SOURCE: WWW.STORMCEPTOR.COM

WATER QUALITY UNIT
STC 450 PRECAST CONCRETE INLET STORMCEPTOR®
(450 U.S. GALLON CAPACITY)
N.T.S.

TEC, Inc.
282 Merrimack St, 2nd Floor
Lawrence, MA 01843
(978) 794-1792
169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154
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DESIGNED BY	CPR
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OWNER/APPLICANT

Regan Development Corporation
1055 Saw Mill River Road #204
Ardsley, NY 10502

REVISIONS

ISSUED FOR
Permitting

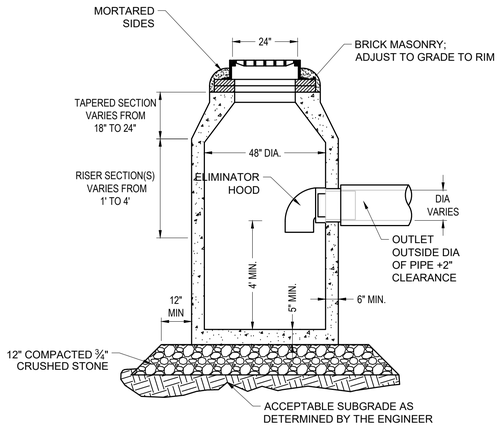
PROJECT TITLE
Proposed Residential Development at 14 Broadway

PROJECT LOCATION
14 Broadway
Dover, NH 03820

DRAWING TITLE
Construction Details

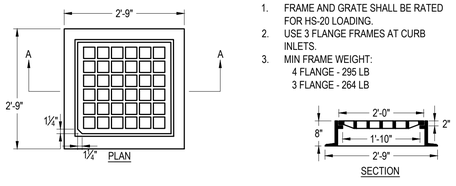
STATE OF NEW HAMPSHIRE – CHRISTOPHER P. RAYMOND No.16305 – LICENSED PROFESSIONAL ENGINEER –

PROJECT NO. N1440
TEC CAD FILE N1440_DET
DRAWING NO. C-10
SHEET 10OF 12



DEEP SUMP CATCH BASIN WITH HOOD

N.T.S.

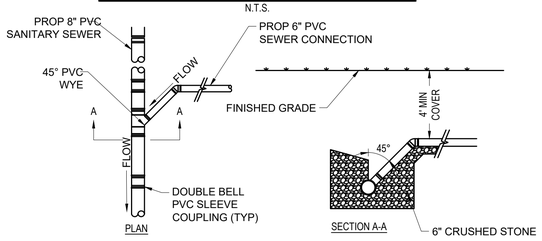


NOTES:

1. FRAME AND GRATE SHALL BE RATED FOR HS-20 LOADING.
2. USE 3 FLANGE FRAMES AT CURB INLETS.
3. MIN FRAME WEIGHT:
   4 FLANGE - 295 LB
   3 FLANGE - 264 LB

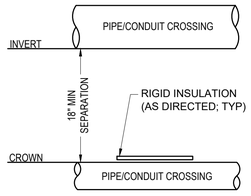
CATCH BASIN FRAME AND GRATE

N.T.S.



TYPICAL SEWER SERVICE CONNECTION

N.T.S.

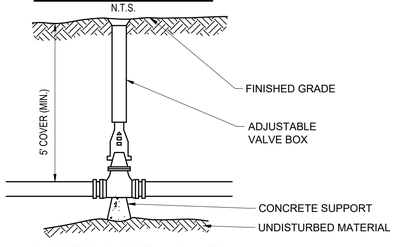


NOTE:

1. IF 18" MIN. SEPARATION CANNOT BE MET, USE RIGID INSULATION AS DIRECTED BY ENGINEER.
2. DEPTH OF UTILITY BURIAL SHOULD MATCH DESIGN PLAN(S) ELEVATIONS.
3. WHERE DEPTH IS UNSPECIFIED, UTILITY LINES SHALL BE BURIED WITHIN MANUFACTOR ACCEPTED PARAMETERS FOR THE GIVEN DESIGN LOCATION.
4. ALL BURIAL LOCATIONS/DEPTHS SHALL CONFORM TO ALL LOCAL, STATE, AND FEDERAL REGULATIONS/GUIDELINES.

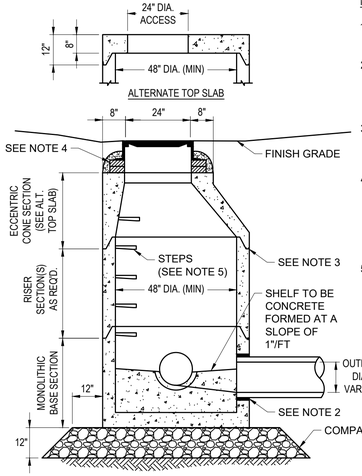
UTILITY CROSSING

N.T.S.



WATER GATE VALVE

N.T.S.

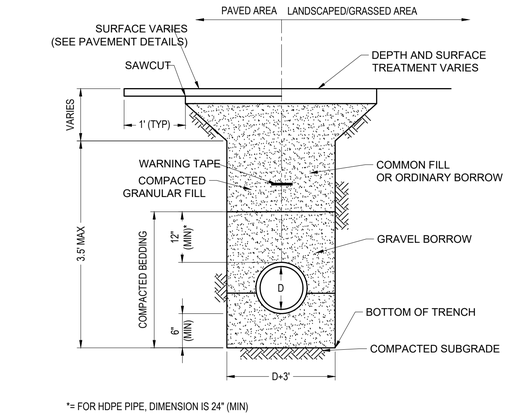


DRAINAGE MANHOLE

N.T.S.

NOTES:

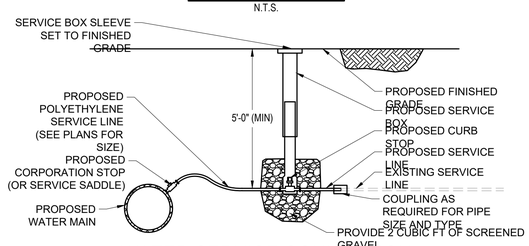
1. ALL SECTIONS SHALL BE DESIGNED FOR HL-93 LOADING.
2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR. (2 COURSES TYP 5 COURSES MAX)
5. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.



*= FOR HDPE PIPE, DIMENSION IS 24" (MIN)

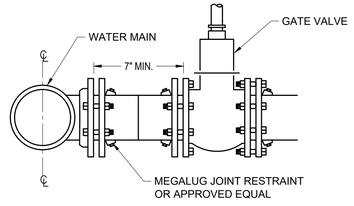
UTILITY TRENCH

N.T.S.



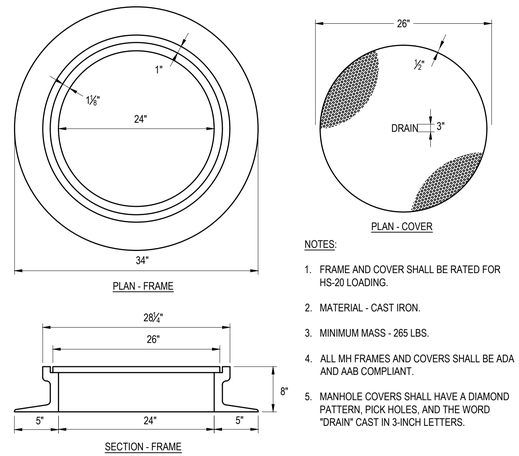
WATER SERVICE CONNECTION

N.T.S.



MECHANICAL JOINT RESTRAINT

N.T.S.

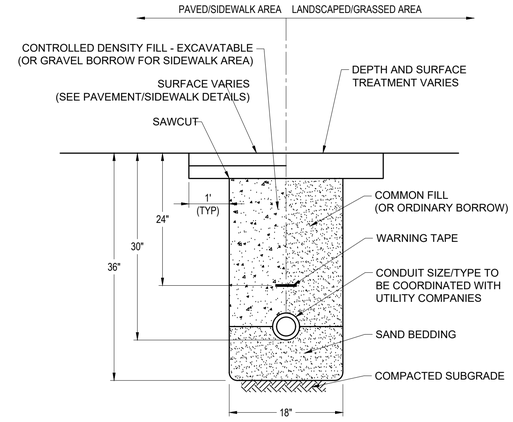


NOTES:

1. FRAME AND COVER SHALL BE RATED FOR HS-20 LOADING.
2. MATERIAL - CAST IRON.
3. MINIMUM MASS - 265 LBS.
4. ALL MH FRAMES AND COVERS SHALL BE ADA AND AAB COMPLIANT.
5. MANHOLE COVERS SHALL HAVE A DIAMOND PATTERN, PICK HOLES, AND THE WORD "DRAIN" CAST IN 3-INCH LETTERS.

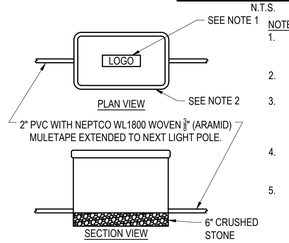
MANHOLE FRAME AND COVER

N.T.S.



CONDUIT TRENCH

N.T.S.



NOTES

1. COVERS SHALL BE LABELED "ELECTRICAL", "COMMUNICATION", "CATV", OR "TELECOM" AS REQUIRED.
2. HANDHOLE SIZE PER NATIONAL ELECTRIC CODE UNLESS OTHERWISE NOTED.
3. LOADING REQUIREMENTS SHALL BE BASED ON APPLICATION TYPE. MINIMUM RATINGS SHALL BE TIER 15. PROVIDE TRAFFIC RATED HANDHOLES WHERE REQUIRED.
4. THE ELECTRICAL SUBCONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING PRE-CAST HANDHOLES.
5. PROVIDE IN-LINE, WATERPROOF FUSE HOLDER-BUSS "TRON" TYPE HEB OR HEX, AS REQUIRED.

TYPICAL HANDHOLE

N.T.S.

TEC, Inc.

282 Merrimack St, 2nd Floor
Lawrence, MA 01843
(978) 794-1792

169 Ocean Boulevard
Unit 101, PO Box 249
Hampton, NH 03842
(603) 601-8154

www.TheEngineeringCorp.com

DESIGNED BY	CPR
DRAWN BY	MWP
CHECKED BY	CPR
DATE	3/7/2024
SCALE	AS NOTED

OWNER/APPLICANT

Regan Development Corporation
1055 Saw Mill River Road #204
Ardsley, NY 10502

REVISIONS

ISSUED FOR

Permitting

PROJECT TITLE

Proposed Residential Development at 14 Broadway

PROJECT LOCATION

14 Broadway
Dover, NH 03820

DRAWING TITLE

Construction Details

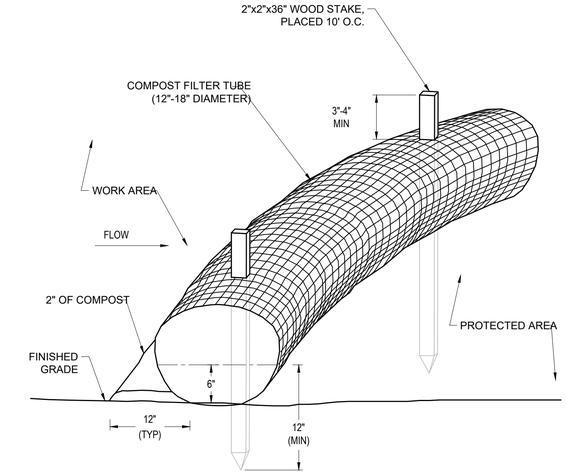
STATE OF NEW HAMPSHIRE – CHRISTOPHER P. RAYMOND No. 16305 – LICENSED PROFESSIONAL ENGINEER

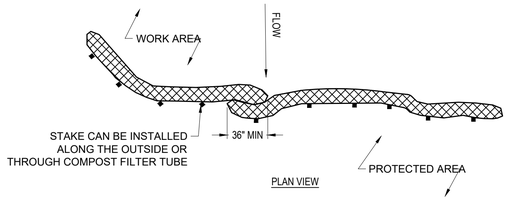
PROJECT NO. N1440

TEC CAD FILE N1440_DET

DRAWING NO. C-11

SHEET 11 OF 12





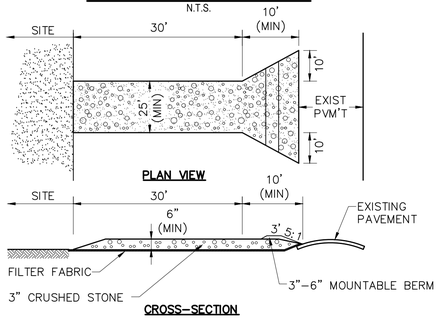
PLAN VIEW

NOTES:

1. CONFIGURE TUBES AROUND EXISTING FEATURES TO MINIMIZE SITE DISTURBANCE AND MAXIMIZE CAPTURE AREA OF STORMWATER RUN-OFF. TUBES SHALL BE PLACED PERPENDICULARLY TO STORMWATER FLOW WHERE POSSIBLE.
2. TUBES FOR COMPOST FILTERS SHALL BE JUTE MESH OR APPROVED BIODEGRADABLE MATERIAL. ADDITIONAL TUBES SHALL BE USED AT THE DIRECTION OF THE ENGINEER.
3. TUBES MAY BE SLEEVED OR PROVIDED A 3 FEET MINIMUM OVERLAP AT THE ENDS OF THE TUBE FOR A CONTINUOUS BARRIER.
4. TAMP TUBES IN PLACE TO ENSURE GOOD CONTACT WITH SOIL SURFACE. IT IS NOT NECESSARY TO TRENCH TUBES INTO EXISTING GRADE.
5. WHEN STAKING IS NOT POSSIBLE, SUCH AS WHEN TUBES MUST BE PLACED ON PAVEMENT, HEAVY CONCRETE OR CINDER BLOCKS CAN BE USED BEHIND TUBES UP TO 5 FT. APART OR AS REQUIRED TO SECURE TUBES IN PLACE. DO NOT PUNCTURE TUBES WITH STAKES.
6. TUBES CAN BE PLACED DIRECTLY ON EXISTING PAVEMENT WHEN NECESSARY.
7. UPON COMPLETION OF PROJECT, ALL TUBES USED FOR EROSION CONTROL SHALL BE REMOVED FROM PROJECT LIMITS, OR DETERMINED BY THE ENGINEER, CAN BE DISPERSED ON SITE.

COMPOST FILTER TUBE

N.T.S.

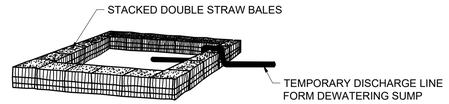


CROSS-SECTION

1. ENTRANCE WIDTH SHALL BE A TWENTY-FIVE (25) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL 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 OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY. BERM SHALL BE PERMITTED. PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED AS NEEDED.
3. STABILIZED CONSTRUCTION EXIT SHALL BE REMOVED PRIOR TO FINAL FINISH MATERIALS BEING INSTALLED.

STABILIZED CONSTRUCTION EXIT

N.T.S.

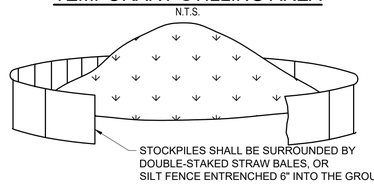


NOTES:

DISCHARGE TO SEDIMENTATION BASIN (AS SHOWN) OR TO SILTATION/DEWATERING BAG SUCH AS FLOGARD DEWATERING BAG MODEL SC-DW1215Z, OR EQUAL APPROVED BY CONSERVATION COMMISSION. ALL DISCHARGE LOCATIONS SHALL BE A MINIMUM OF 50' FROM EXISTING BVW.

TEMPORARY STILLING AREA

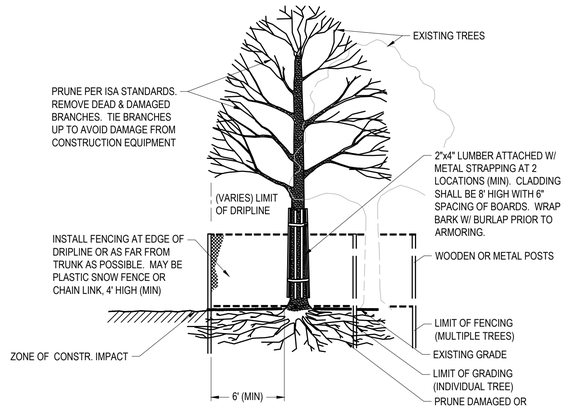
N.T.S.



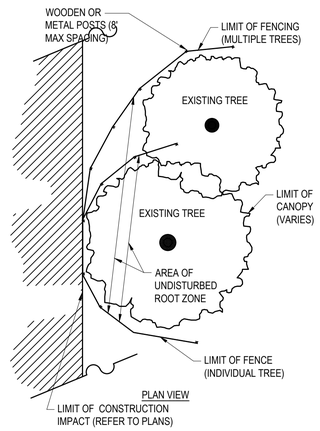
NOTES:
SOIL STOCKPILES SHALL BE COVERED WITH ANCHORED TARPS AND THE END OF EACH WORK DAY.

SOIL STOCKPILE

N.T.S.



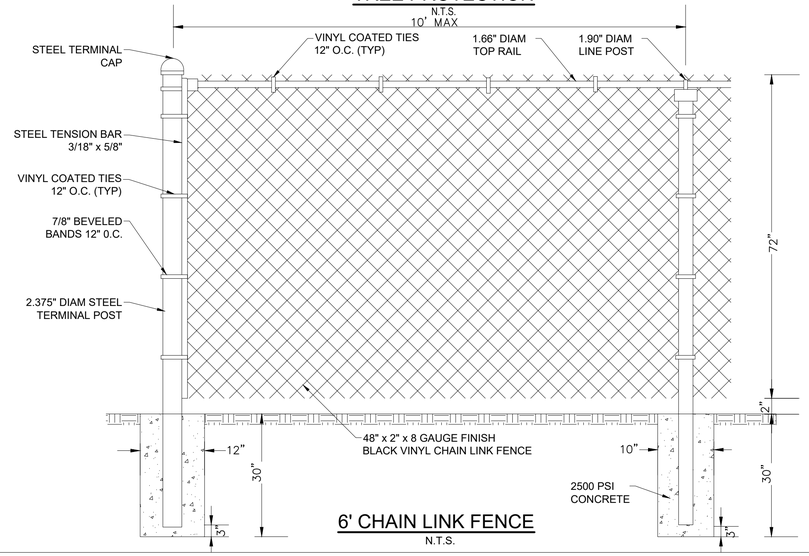
NOTE:
NO STORAGE OF EQUIPMENT OR STOCKPILING OF MATERIALS WITHIN DRIPLINE IS ALLOWED.



PLAN VIEW

TREE PROTECTION

N.T.S.

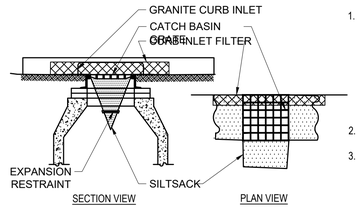


6' CHAIN LINK FENCE

N.T.S.

NOTES:

1. INSTALL SILT SACK IN EXISTING CATCH BASINS BEFORE COMMENCING WORK, AND IN NEW CATCH BASINS IMMEDIATELY AFTER INSTALLATION OF STRUCTURE. MAINTAIN UNTIL BINDER COURSE PAVING IS COMPLETE OR A PERMANENT STAND OF GRASS HAS BEEN ESTABLISHED.
2. GRATE TO BE PLACED OVER SILT SACK.
3. SILT SACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.



CATCH BASIN INLET PROTECTION

N.T.S.

TEC, Inc.

282 Merrimack St, 2nd Floor
Lawrence, MA 01843
(978) 794-1792

169 Ocean Boulevard
Unit 101, PO Box 249
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DRAWING TITLE

Construction Details

STATE OF NEW HAMPSHIRE – CHRISTOPHER P. RAYMOND No. 16305 – LICENSED PROFESSIONAL ENGINEER

PROJECT NO. N1440

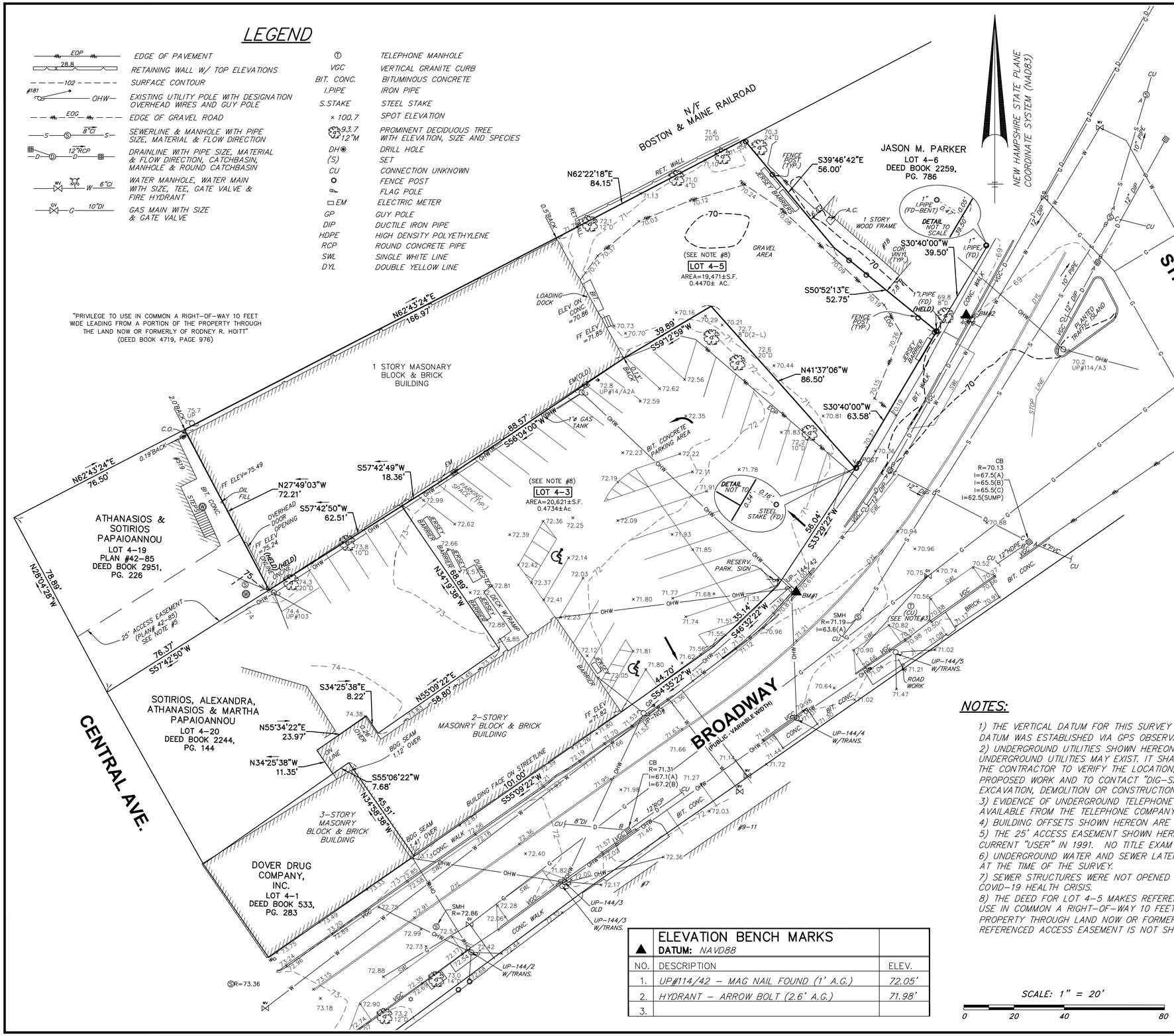
TEC CAD FILE N1440_DET

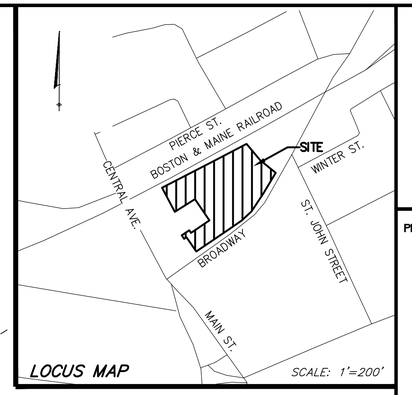
DRAWING NO. C-12

SHEET 12OF 12

LEGEND

EOP	EDGE OF PAVEMENT
28.8	RETAINING WALL W/ TOP ELEVATIONS
102	SURFACE CONTOUR
#181 OHW	EXISTING UTILITY POLE WITH DESIGNATION OVERHEAD WIRES AND GUY POLE
EOG	EDGE OF GRAVEL ROAD
S 8"CI S	SEWERLINE & MANHOLE WITH PIPE SIZE, MATERIAL & FLOW DIRECTION
D 12"RCP D	DRAINLINE WITH PIPE SIZE, MATERIAL & FLOW DIRECTION, CATCHBASIN, MANHOLE & ROUND CATCHBASIN
WV W 6"CI	WATER MANHOLE, WATER MAIN WITH SIZE, TEE, GATE VALVE & FIRE HYDRANT
GV G 10"DI	GAS MAIN WITH SIZE & GATE VALVE
T	TELEPHONE MANHOLE
VGC	VERTICAL GRANITE CURB
BIT. CONC.	BITUMINOUS CONCRETE
I.PIPE	IRON PIPE
S.STAKE	STEEL STAKE
× 100.7	SPOT ELEVATION
93.7 12"M	PROMINENT DECIDUOUS TREE WITH ELEVATION, SIZE AND SPECIES
DH	DRILL HOLE
(S)	SET
CU	CONNECTION UNKNOWN
	FENCE POST
	FLAG POLE
EM	ELECTRIC METER
GP	GUY POLE
DIP	DUCTILE IRON PIPE
HDPE	HIGH DENSITY POLYETHYLENE
RCP	ROUND CONCRETE PIPE
SWL	SINGLE WHITE LINE
DYL	DOUBLE YELLOW LINE





NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM (NAD83)

ASSESSORS:

MAP 4, LOT 3 (RANDALL)
MAP 4, LOT 5 (DOWNTOWN DOVER)

ZONING:

MIXED USE – CBD (CENTRAL BUSINESS DISTRICT)

REFERENCES:

DEED BOOK 4719 PAGE 976 (LOT 4-5)
DEED BOOK 2555 PAGE 323 (LOT 4-3)
PLAN #42-85
PLAN IN POCKET #3, FOLDER #2, PLAN #55

RECORD OWNER:

CLAYTON F. RANDALL LIVING REVOCABLE TRUST OF 2002
131 CLEMENT ROAD
ROLLINSFORD, NH 03869

DOWNTOWN DOVER STORAGE, LLC
42 L DOVER POINT ROAD
DOVER, NH 03820

NOTES:

1) THE VERTICAL DATUM FOR THIS SURVEY IS THE NORTH AMERICAN VERTICAL DATUM (NAVD88). SAID DATUM WAS ESTABLISHED VIA GPS OBSERVATIONS UTILIZING REALIZATION NAD83(2011) AND GEOID 12A.
2) UNDERGROUND UTILITIES SHOWN HEREON ARE FROM FIELD LOCATIONS OF STRUCTURES. OTHER UNDERGROUND UTILITIES MAY EXIST. IT SHALL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER AND THE CONTRACTOR TO VERIFY THE LOCATION, SIZE & ELEVATION OF ALL UTILITIES WITHIN THE AREA OF PROPOSED WORK AND TO CONTACT "DIG-SAFE" AT 811 AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION, DEMOLITION OR CONSTRUCTION.
3) EVIDENCE OF UNDERGROUND TELEPHONE EXISTS WITHIN BROADWAY. NO INFORMATION WAS AVAILABLE FROM THE TELEPHONE COMPANY AT THE TIME OF THE SURVEY.
4) BUILDING OFFSETS SHOWN HEREON ARE TO CORNER CONCRETE BLOCK UNLESS OTHERWISE NOTED.
5) THE 25' ACCESS EASEMENT SHOWN HEREON MAY OR MAY NOT EXIST, AS IT WAS FOR THE CURRENT "USER" IN 1991. NO TITLE EXAM HAS BEEN CONDUCTED TO IDENTIFY CURRENT STATUS.
6) UNDERGROUND WATER AND SEWER LATERAL CONNECTIONS TO THE BUILDINGS WERE NOT AVAILABLE AT THE TIME OF THE SURVEY.
7) SEWER STRUCTURES WERE NOT OPENED AT THE TIME OF THE SURVEY DUE TO THE ONGOING COVID-19 HEALTH CRISIS.
8) THE DEED FOR LOT 4-5 MAKES REFERENCE TO A CONVEYANCE WHICH INCLUDES A PRIVILEGE TO USE IN COMMON A RIGHT-OF-WAY 10 FEET WIDE LEADING FROM A PORTION OF THE DESCRIBED PROPERTY THROUGH LAND NOW OR FORMERLY OF RODNEY R. HOITT (LOT 4-3) TO BROADWAY. THE REFERENCED ACCESS EASEMENT IS NOT SHOWN ON THE SURVEY.

▲ ELEVATION BENCH MARKS
DATUM: NAVD88

NO.	DESCRIPTION	ELEV.
1.	UP#114/42 – MAG NAIL FOUND (1' A.G.)	72.05'
2.	HYDRANT – ARROW BOLT (2.6' A.G.)	71.98'
3.		

SCALE: 1" = 20'
0 20 40 80

14 BROADWAY

Dover, New Hampshire 03820

PREPARED FOR:

NEW SPACE REAL ESTATE, LLC

42 Dover Road, Unit L
Dover, New Hampshire 03820

HANCOCK ASSOCIATES

Civil Engineers
Land Surveyors
Landscape Architects
Wetland Scientists

185 CENTRE STREET, DANVERS, MA 01923
VOICE (978) 777-3050, FAX (978) 774-7816
WWW.HANCOCKASSOCIATES.COM

NO.	BY	APP	DATE	ISSUE/REVISION DESCRIPTION
1.	JML	JAE	2/19/21	UPDATED TOPO/BOUNDARY

DATE: 4/18/20 | DRAWN BY: JAE/JAH
SCALE: 1"=20' | CHECK BY: WCJ

EXISTING CONDITIONS PLAN OF LAND IN DOVER, NH

PLOT DATE: Feb 19, 2021 3:53 pm
PATH: O:\Civil 3D Projects\24569 - Cyr - Dover, NH\Surv\DWG\

DWG: 24569ec.dwg
LAYOUT: EC
SHEET: 1 OF 1
PROJECT NO.: 24569

Plan# 12769 09/27/2022 03:32:18 PM
Page 1 of 1
Register of Deeds, Strafford County
LCHIP STA202209 25.00

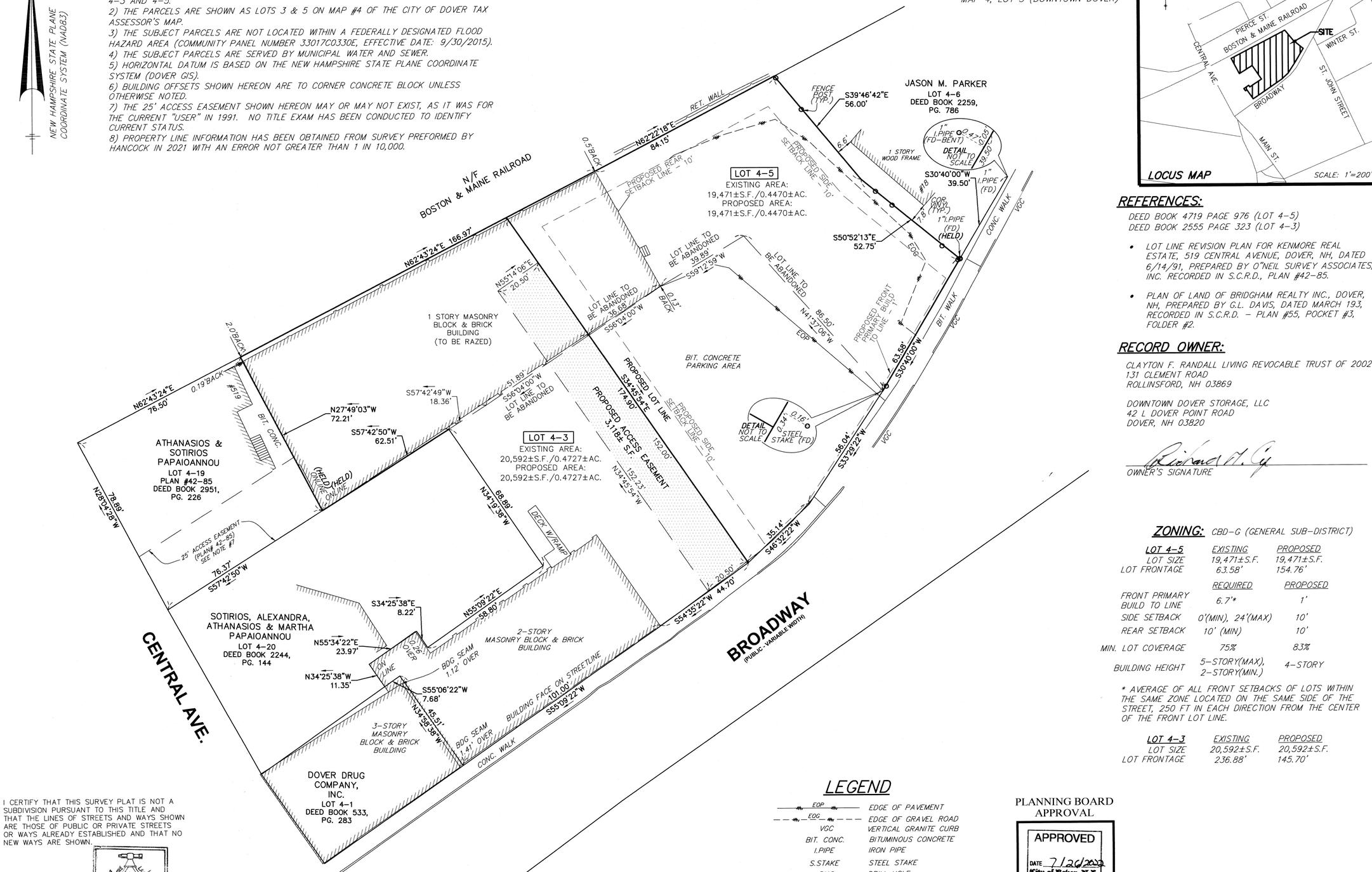
NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM (NAD83)

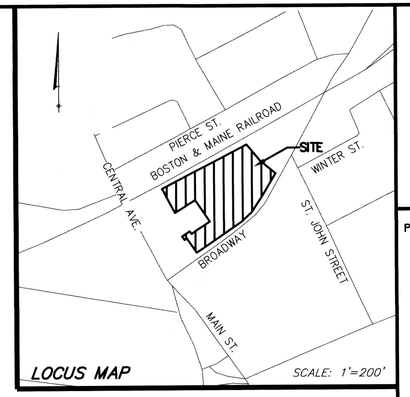
NOTES:

1) THE PURPOSE OF THIS PLAN IS TO PERFORM A LOT LINE ADJUSTMENT BETWEEN LOTS 4-3 AND 4-5.
2) THE PARCELS ARE SHOWN AS LOTS 3 & 5 ON MAP #4 OF THE CITY OF DOVER TAX ASSESSOR'S MAP.
3) THE SUBJECT PARCELS ARE NOT LOCATED WITHIN A FEDERALLY DESIGNATED FLOOD HAZARD AREA (COMMUNITY PANEL NUMBER 33017C0330E, EFFECTIVE DATE: 9/30/2015).
4) THE SUBJECT PARCELS ARE SERVED BY MUNICIPAL WATER AND SEWER.
5) HORIZONTAL DATUM IS BASED ON THE NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM (DOVER GIS).
6) BUILDING OFFSETS SHOWN HEREON ARE TO CORNER CONCRETE BLOCK UNLESS OTHERWISE NOTED.
7) THE 25' ACCESS EASEMENT SHOWN HEREON MAY OR MAY NOT EXIST, AS IT WAS FOR THE CURRENT "USER" IN 1991. NO TITLE EXAM HAS BEEN CONDUCTED TO IDENTIFY CURRENT STATUS.
8) PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM SURVEY PREFORMED BY HANCOCK IN 2021 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.

ASSESSORS:

MAP 4, LOT 3 (RANDALL)
MAP 4, LOT 5 (DOWNTOWN DOVER)





REFERENCES:

DEED BOOK 4719 PAGE 976 (LOT 4-5)
DEED BOOK 2555 PAGE 323 (LOT 4-3)

- LOT LINE REVISION PLAN FOR KENMORE REAL ESTATE, 519 CENTRAL AVENUE, DOVER, NH, DATED 6/14/91, PREPARED BY O'NEIL SURVEY ASSOCIATES, INC. RECORDED IN S.C.R.D., PLAN #42-85.
- PLAN OF LAND OF BRIDGHAM REALTY INC., DOVER, NH, PREPARED BY G.L. DAVIS, DATED MARCH 193, RECORDED IN S.C.R.D. - PLAN #55, POCKET #3, FOLDER #2.

RECORD OWNER:

CLAYTON F. RANDALL LIVING REVOCABLE TRUST OF 2002
131 CLEMENT ROAD
ROLLINSFORD, NH 03869

DOWNTOWN DOVER STORAGE, LLC
42 L DOVER POINT ROAD
DOVER, NH 03820

OWNER'S SIGNATURE

ZONING: CBD-G (GENERAL SUB-DISTRICT)

LOT 4-5	EXISTING	PROPOSED
LOT SIZE	19,471±S.F.	19,471±S.F.
LOT FRONTAGE	63.58'	154.76'
	REQUIRED	PROPOSED
FRONT PRIMARY BUILD TO LINE	6.7'*	1'
SIDE SETBACK	0'(MIN), 24'(MAX)	10'
REAR SETBACK	10' (MIN)	10'
MIN. LOT COVERAGE	75%	83%
BUILDING HEIGHT	5-STORY(MAX), 2-STORY(MIN.)	4-STORY

* AVERAGE OF ALL FRONT SETBACKS OF 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.

LOT 4-3	EXISTING	PROPOSED
LOT SIZE	20,592±S.F.	20,592±S.F.
LOT FRONTAGE	236.88'	145.70'

LEGEND

EOP	EDGE OF PAVEMENT
EOG	EDGE OF GRAVEL ROAD
VGC	VERTICAL GRANITE CURB
BIT. CONC.	BITUMINOUS CONCRETE
I.PIPE	IRON PIPE
S.STAKE	STEEL STAKE
DH ◉	DRILL HOLE
(S)	SET
(FD)	FOUND
o	FENCE POST

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

7/5/22
DATE

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 861 WAYNE C. JALBERT

LICENSED LAND SURVEYOR

PLANNING BOARD APPROVAL

APPROVED
DATE 7/26/2022
City of Dover, N.H.
PLANNING BOARD
CHAIRMAN/DIRECTOR

SCALE: 1" = 20'
0 20 40 80

14 BROADWAY

Dover, New Hampshire 03820

Planning Board File #21-52

PREPARED FOR:

DOWNTOWN DOVER STORAGE, LLC

42 Dover Road, Unit L
Dover, New Hampshire 03820

HANCOCK ASSOCIATES

Civil Engineers

Land Surveyors

Wetland Scientists

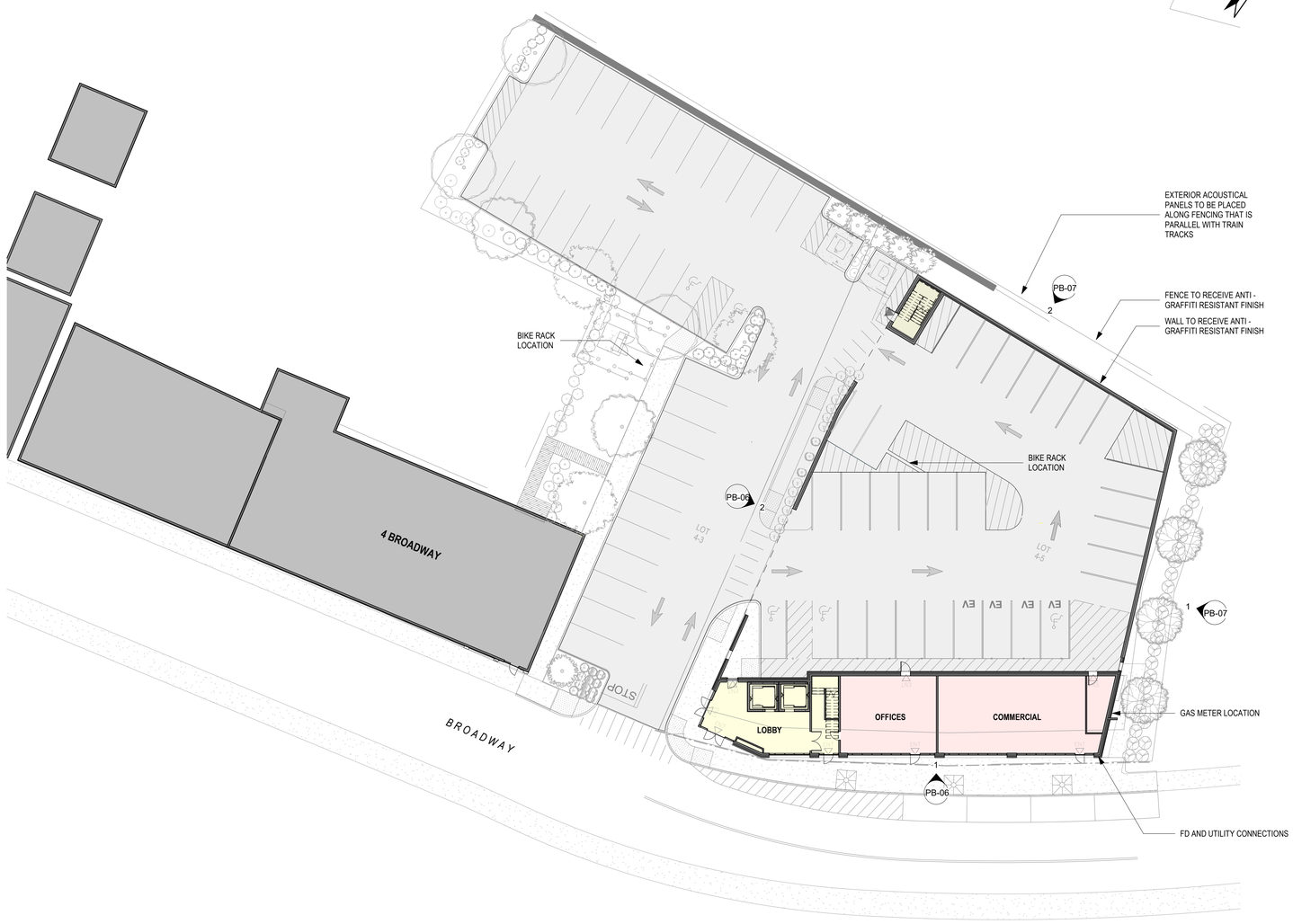
185 CENTRE STREET, DANVERS, MA 01923
VOICE (978) 777-3050, FAX (978) 774-7816
WWW.HANCOCKASSOCIATES.COM

NO.	BY	APP	DATE	ISSUE/REVISION DESCRIPTION
2.	JAE	WCJ	6/30/22	PLANNING BOARD COMMENTS
1.	JAE	WCJ	1/18/22	PLANNING BOARD COMMENTS

DATE: 9/25/21 DRAWN BY: JAE/JAH
SCALE: 1"=20' CHECK BY: WCJ

LOT LINE ADJUSTMENT PLAN OF LAND IN DOVER, NH (STRAFFORD COUNTY)

DWG: 24569a1.dwg
LAYOUT: LLA
SHEET: 1 OF 1
PROJECT NO.: 24569



1 SITE PLAN
1" = 20'-0"

N

GENERAL PLAN NOTES:

- PUBLIC ACCESSIBLE ENTRANCES TO HAVE ADA DOOR OPERATOR AND PUSH BUTTON
- ALL STAIRWELLS TO BE 2 HOUR FIRE RATED
- ALL EGRESS DOORS TO HAVE PANIC HARDWARE
- BUILDING WILL HAVE NFPA 13 SPRINKLER SYSTEM
- BUILDING TO MEET ALL APPLICABLE BUILDING CODES AT TIME OF CONSTRUCTION

ZONING REGULATIONS:

- MINIMUM YARD SETBACKS
  FRONT: 0' - 10'
  SIDE: 0' - 24'
  REAR: 10' MIN.

EGRESS AND SEPARATION REGULATIONS:

- MINIMUM NUMBER OF EXITS FROM EACH STORY: 2
- MAX TRAVEL DISTANCE: 125'
- DEAD END CORRIDOR DISTANCE: 20'
- FIRE SEPARATION BETWEEN OCCUPANCY GROUPS TO MEET IBC AND NFPA REQUIREMENTS

GRAPHIC SCALE
0 20 40 60 80

P21 -P29

LASSEL ARCHITECTS
370 MAIN STREET
SOUTH BERWICK, ME 03908
207 384 2049
lasselarchitects.com

LICENSED ARCHITECT
SARAH E HOUGHANE
No. 04574
THE STATE OF NEW HAMPSHIRE

PROJECT:
14 BROADWAY

ADDRESS:
14 BROADWAY
DOVER, NH

CLIENT:
REGAN DEVELOPMENT
1055 SAW MILL RIVER RD, ARDSLEY, NY

REV: DATE: NOTES:

PROJECT NUMBER: 21.12
NORTH:
DATE: 2/29/24
SCALE: AS NOTED
REVISION:

DRAWING NAME:
SITE PLAN

DRAWING NUMBER:
PB-01

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3/6/2024 8:55:02 PM P:\FILES CURRENT\23.35 14 Broadway Dover\6. DRAWINGS\6.2 REVIT\Cyr Dover Apt - PB - 2.29.24.rvt

1 FLOOR PLAN - LEVEL 1
1/8" = 1'-0"

GRAPHIC SCALE
0' 4' 8' 16' 32'

N

GENERAL PLAN NOTES:

- PUBLIC ACCESSIBLE ENTRANCES TO HAVE ADA DOOR OPERATOR AND PUSH BUTTON
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- ALL EGRESS DOORS TO HAVE PANIC HARDWARE
- BUILDING WILL HAVE NFPA 13 SPRINKLER SYSTEM
- BUILDING TO MEET ALL APPLICABLE BUILDING CODES AT TIME OF CONSTRUCTION

ZONING REGULATIONS:

- MINIMUM YARD SETBACKS
  FRONT: 0' - 10'
  SIDE: 0' - 24'
  REAR: 10' MIN.

EGRESS AND SEPARATION REGULATIONS:

- MINIMUM NUMBER OF EXITS FROM EACH STORY: 2
- MAX TRAVEL DISTANCE: 125'
- DEAD END CORRIDOR DISTANCE: 20'
- FIRE SEPARATION BETWEEN OCCUPANCY GROUPS TO MEET IBC AND NFPA REQUIREMENTS

LASSEL ARCHITECTS
370 MAIN STREET
SOUTH BERWICK, ME 03908
207 384 2049
lasselarchitects.com

LICENSED ARCHITECT
SARAH E HOUGHANE
No. 04574
THE STATE OF NEW HAMPSHIRE

PROJECT:
14 BROADWAY

ADDRESS:
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DOVER, NH

CLIENT:
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1055 SAW MILL RIVER RD, ARDSLEY, NY

REV: DATE: NOTES:

PROJECT NUMBER: 21.12
NORTH:
DATE: 2/29/24
SCALE: AS NOTED
REVISION:

DRAWING NAME:
FLOOR PLAN - LEVEL 1

DRAWING NUMBER:
PB-02

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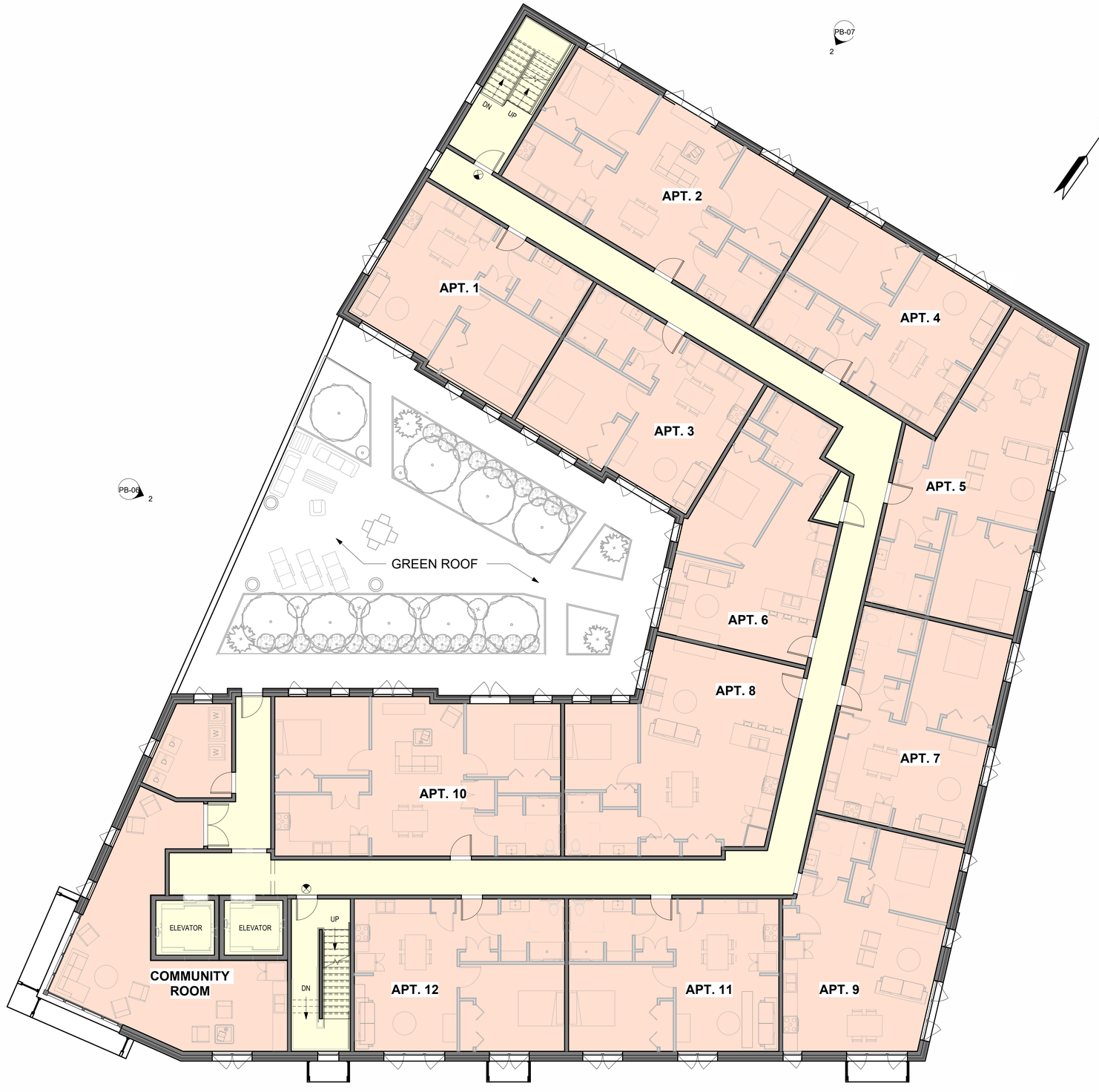
P21 -P29

3/6/2024 8:55:28 PM P:\FILES CURRENT\03.35 14 Broadway Dover\8. DRAWINGS\8.2 REVIT\cyr Dover Apt - PB - 2.29.24.rvt



1 FLOOR PLAN - LEVEL 2
1/8" = 1'-0"

1
PB-06

GRAPHIC SCALE
0' 4' 8' 16' 32'

P21 -P29

GENERAL PLAN NOTES:

- PUBLIC ACCESSIBLE ENTRANCES TO HAVE ADA DOOR OPERATOR AND PUSH BUTTON
- ALL STAIRWELLS TO BE 2 HOUR FIRE RATED
- ALL EGRESS DOORS TO HAVE PANIC HARDWARE
- BUILDING WILL HAVE NFPA 13 SPRINKLER SYSTEM
- BUILDING TO MEET ALL APPLICABLE BUILDING CODES AT TIME OF CONSTRUCTION

ZONING REGULATIONS:

- MINIMUM YARD SETBACKS
  FRONT: 0' - 10'
  SIDE: 0' - 24'
  REAR: 10' MIN.

EGRESS AND SEPARATION REGULATIONS:

- MINIMUM NUMBER OF EXITS FROM EACH STORY: 2
- MAX TRAVEL DISTANCE: 125'
- DEAD END CORRIDOR DISTANCE: 20'
- FIRE SEPARATION BETWEEN OCCUPANCY GROUPS TO MEET IBC AND NFPA REQUIREMENTS

LASSEL ARCHITECTS
370 MAIN STREET
SOUTH BERWICK, ME 03908
207 384 2049
lasselarchitects.com

LICENSED ARCHITECT
SARAH E HOUGHANE
No. 04574
THE STATE OF NEW HAMPSHIRE

PROJECT:
14 BROADWAY

ADDRESS:
14 BROADWAY
DOVER, NH

CLIENT:
REGAN DEVELOPMENT
1055 SAW MILL RIVER RD, ARDSLEY, NY

REV: DATE: NOTES:

PROJECT NUMBER: 21.12
NORTH:
DATE: 2/29/24
SCALE: AS NOTED
REVISION:

DRAWING NAME:
FLOOR PLAN - LEVEL 2

DRAWING NUMBER:
PB-03

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1 FLOOR PLAN - LEVEL 3 & 4
1/8" = 1'-0"

APARTMENTS 25 - 38 ON FOURTH FLOOR

GRAPHIC SCALE
0' 4' 8' 16' 32'

P21 -P29

GENERAL PLAN NOTES:

- PUBLIC ACCESSIBLE ENTRANCES TO HAVE ADA DOOR OPERATOR AND PUSH BUTTON
- ALL STAIRWELLS TO BE 2 HOUR FIRE RATED
- ALL EGRESS DOORS TO HAVE PANIC HARDWARE
- BUILDING WILL HAVE NFPA 13 SPRINKLER SYSTEM
- BUILDING TO MEET ALL APPLICABLE BUILDING CODES AT TIME OF CONSTRUCTION

ZONING REGULATIONS:

- MINIMUM YARD SETBACKS
  FRONT: 0' - 10'
  SIDE: 0' - 24'
  REAR: 10' MIN.

EGRESS AND SEPARATION REGULATIONS:

- MINIMUM NUMBER OF EXITS FROM EACH STORY: 2
- MAX TRAVEL DISTANCE: 125'
- DEAD END CORRIDOR DISTANCE: 20'
- FIRE SEPARATION BETWEEN OCCUPANCY GROUPS TO MEET IBC AND NFPA REQUIREMENTS

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No. 04574
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14 BROADWAY

ADDRESS:
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DOVER, NH

CLIENT:
REGAN DEVELOPMENT
1055 SAW MILL RIVER RD, ARDSLEY, NY

REV: DATE: NOTES:

PROJECT NUMBER: 21.12
NORTH:
DATE: 2/29/24
SCALE: AS NOTED
REVISION:

DRAWING NAME:
FLOOR PLAN - LEVEL 3 & 4

DRAWING NUMBER:
PB-04

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1 ROOF PLAN
1/8" = 1'-0"

GENERAL PLAN NOTES:

- PUBLIC ACCESSIBLE ENTRANCES TO HAVE ADA DOOR OPERATOR AND PUSH BUTTON
- ALL STAIRWELLS TO BE 2 HOUR FIRE RATED
- ALL EGRESS DOORS TO HAVE PANIC HARDWARE
- BUILDING WILL HAVE NFPA 13 SPRINKLER SYSTEM
- BUILDING TO MEET ALL APPLICABLE BUILDING CODES AT TIME OF CONSTRUCTION

ZONING REGULATIONS:

- MINIMUM YARD SETBACKS
  FRONT: 0' - 10'
  SIDE: 0' - 24'
  REAR: 10' MIN.

EGRESS AND SEPARATION REGULATIONS:

- MINIMUM NUMBER OF EXITS FROM EACH STORY: 2
- MAX TRAVEL DISTANCE: 125'
- DEAD END CORRIDOR DISTANCE: 20'
- FIRE SEPARATION BETWEEN OCCUPANCY GROUPS TO MEET IBC AND NFPA REQUIREMENTS

GRAPHIC SCALE
0' 4' 8' 16' 32'

P21 -P29

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LICENSED ARCHITECT
SARAH E HOUGHANE
No. 04574
THE STATE OF NEW HAMPSHIRE

PROJECT:
14 BROADWAY

ADDRESS:
14 BROADWAY
DOVER, NH

CLIENT:
REGAN DEVELOPMENT
1055 SAW MILL RIVER RD, ARDSLEY, NY

REV: DATE: NOTES:

PROJECT NUMBER: 21.12
DATE: 2/29/24
SCALE: AS NOTED
REVISION:

NORTH:

DRAWING NAME:
ROOF PLAN

DRAWING NUMBER:
PB-05

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Architectural Amenities Include:

- Human scale building forms and details at street level
- Street trees along Broadway
- Building has been brought to lot line on Broadway Street to encourage vibrancy and pedestrian engagement.
- Bicycle racks have been provided on site
- Green roof
- Electric Charging stations
- Roof is PV ready
- 80% windows/doors of the first-floor façade along Broadway.
- Brick base and tower to reinforce relationship to building context and to celebrate Dover 's history in brick making
- Tower form at corner of building points to downtown to create a prominent vista along the street and to create an architectural expression and interest at the corner.
- Building edge has been brought to property line to define street edge.
- A public art wall has been incorporated on East corner of building to provide visual interest upon entering the downtown core from further up Broadway. This will also be visible at the St.John 's intersection.
- Trees along the edge of the East property line help screen utilities and parking garage edge from adjacent lot.
- Recessed brick banding at base of building to provide visual interest with pattern and depth. Brick banding around the building and change of material helps to break up the building massing.
- Exterior building lighting at ground floor will wash walls and light up entry canopies. Lighting will be warm and ambient while providing a level of security. All lighting will be LED.
- Dumpsters will be screened.
- Acoustical panels have been added to the fence along the train tracks to mitigate train sound on site.
- Colors will be a rich blend of clay brick that is native to downtown Dover, black window frames, and taupe cement board panels. This color palette is harmonious with existing buildings in downtown Dover.
- As part of an effort to deter graffiti, we are proposing use of rich, darker color brick that will not show graffiti as prominently as lighter colors would. Where applicable, anti-graffiti coatings will be applied. Illuminating the building at the night will further prevent opportunities for graffiti.

1 BROADWAY STREET ELEVATION
1/8" = 1'-0"

2 VIEW FROM 12 BROADWAY, LOT 4-3
1/8" = 1'-0"

GRAPHIC SCALE
0' 4' 8' 16' 32'

P21 -P29

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LICENSED ARCHITECT
SARAH E HOUJ-HANE
No. 04574
THE STATE OF NEW HAMPSHIRE

PROJECT:
14 BROADWAY

ADDRESS:
14 BROADWAY
DOVER, NH

CLIENT:
REGAN DEVELOPMENT
1055 SAW MILL RIVER RD, ARDSLEY, NY

REV: DATE: NOTES:

PROJECT NUMBER: 21.12
NORTH:
DATE: 2/29/24
SCALE: AS NOTED
REVISION:

DRAWING NAME:
ELEVATIONS - SOUTH-EAST & SOUTH-WEST

DRAWING NUMBER:
PB-06

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Architectural Amenities Include:

- Human scale building forms and details at street level
- Street trees along Broadway
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- Bicycle racks have been provided on site
- Green roof
- Electric Charging stations
- Roof is PV ready
- 80% windows/doors of the first-floor façade along Broadway.
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- As part of an effort to deter graffiti, we are proposing use of rich, darker color brick that will not show graffiti as prominently as lighter colors would. Where applicable, anti-graffiti coatings will be applied. Illuminating the building at the night will further prevent opportunities for graffiti.

1 VIEW FROM INTERSECTION OF BROADWAY AND ST JOHN
1/8" = 1'-0"

2 VIEW FROM ABUTTERS ON PIERCE STREET AND RAILROAD
1/8" = 1'-0"

GRAPHIC SCALE
0' 4' 8' 16' 32'

P21 -P29

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LICENSED ARCHITECT
SARAH E HOUJ-HANE
No. 04574
THE STATE OF NEW HAMPSHIRE

PROJECT:
14 BROADWAY

ADDRESS:
14 BROADWAY
DOVER, NH

CLIENT:
REGAN DEVELOPMENT
1055 SAW MILL RIVER RD, ARDSLEY, NY

REV: DATE: NOTES:

PROJECT NUMBER: 21.12
NORTH:
DATE: 2/29/24
SCALE: AS NOTED
REVISION:

DRAWING NAME:
ELEVATIONS - EAST & NORTH

DRAWING NUMBER:
PB-07

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THE STATE OF NEW HAMPSHIRE

VIEW FROM BROADWAY LOOKING NORTH

VIEW FROM BROADWAY LOOKING SOUTH

PROJECT:
14 BROADWAY

ADDRESS:
14 BROADWAY
DOVER, NH

CLIENT:
REGAN DEVELOPMENT
1055 SAW MILL RIVER RD, ARDSLEY, NY

REV: DATE: NOTES:

PROJECT NUMBER: 21.12
NORTH:
DATE: 2/29/24
SCALE: AS NOTED
REVISION:

DRAWING NAME:
STREETSCAPE RENDERING

DRAWING NUMBER:
PB-08

P21 -P29

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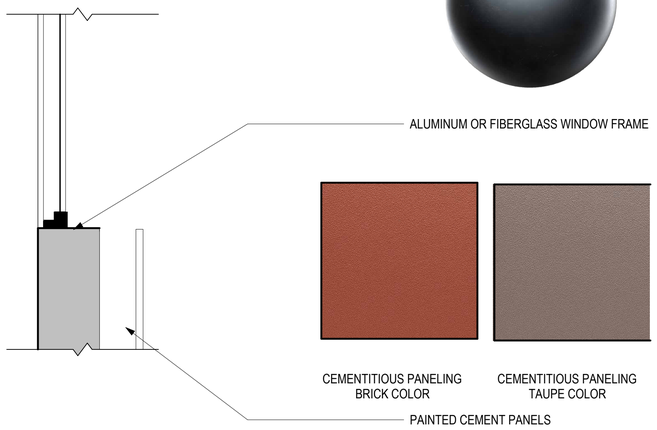
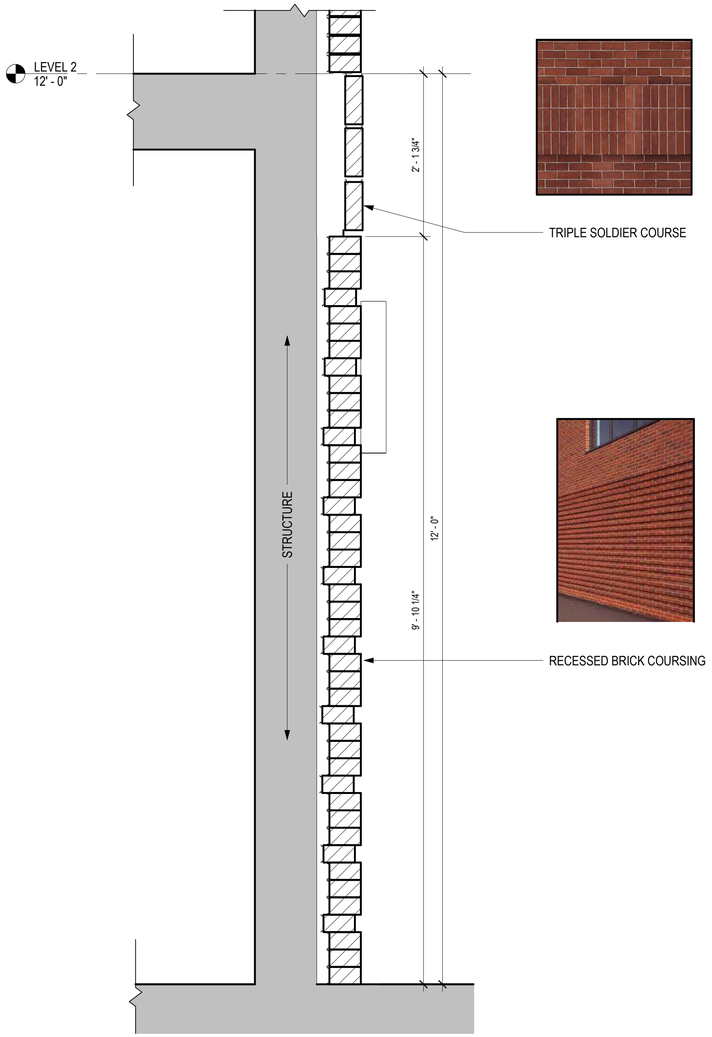
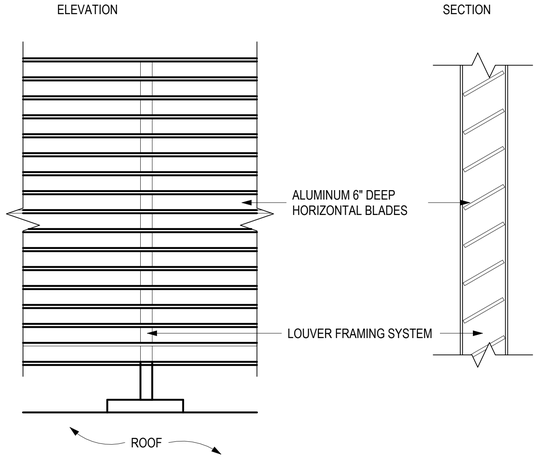
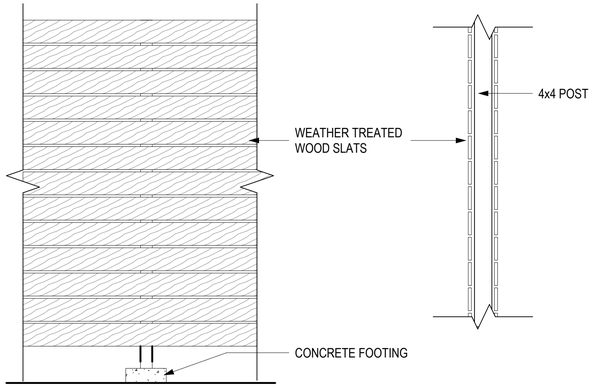




1 MATERIAL SECTION
1" = 1'-0"



2 ROOF SCREEN DETAIL
1/2" = 1'-0"



3 GAS METER SCREEN
1/2" = 1'-0"

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LICENSED ARCHITECT
SARAH E HOUGHANE
No. 04574
THE STATE OF NEW HAMPSHIRE

PROJECT:
14 BROADWAY

ADDRESS:
14 BROADWAY
DOVER, NH

CLIENT:
REGAN DEVELOPMENT
1055 SAW MILL RIVER RD, ARDSLEY, NY

REV: DATE: NOTES:

PROJECT NUMBER: 21.12
NORTH:
DATE: 2/29/24
SCALE: AS NOTED
REVISION:

DRAWING NAME:
ARCHITECTURAL DETAILS

DRAWING NUMBER:
PB-09

P21 -P29

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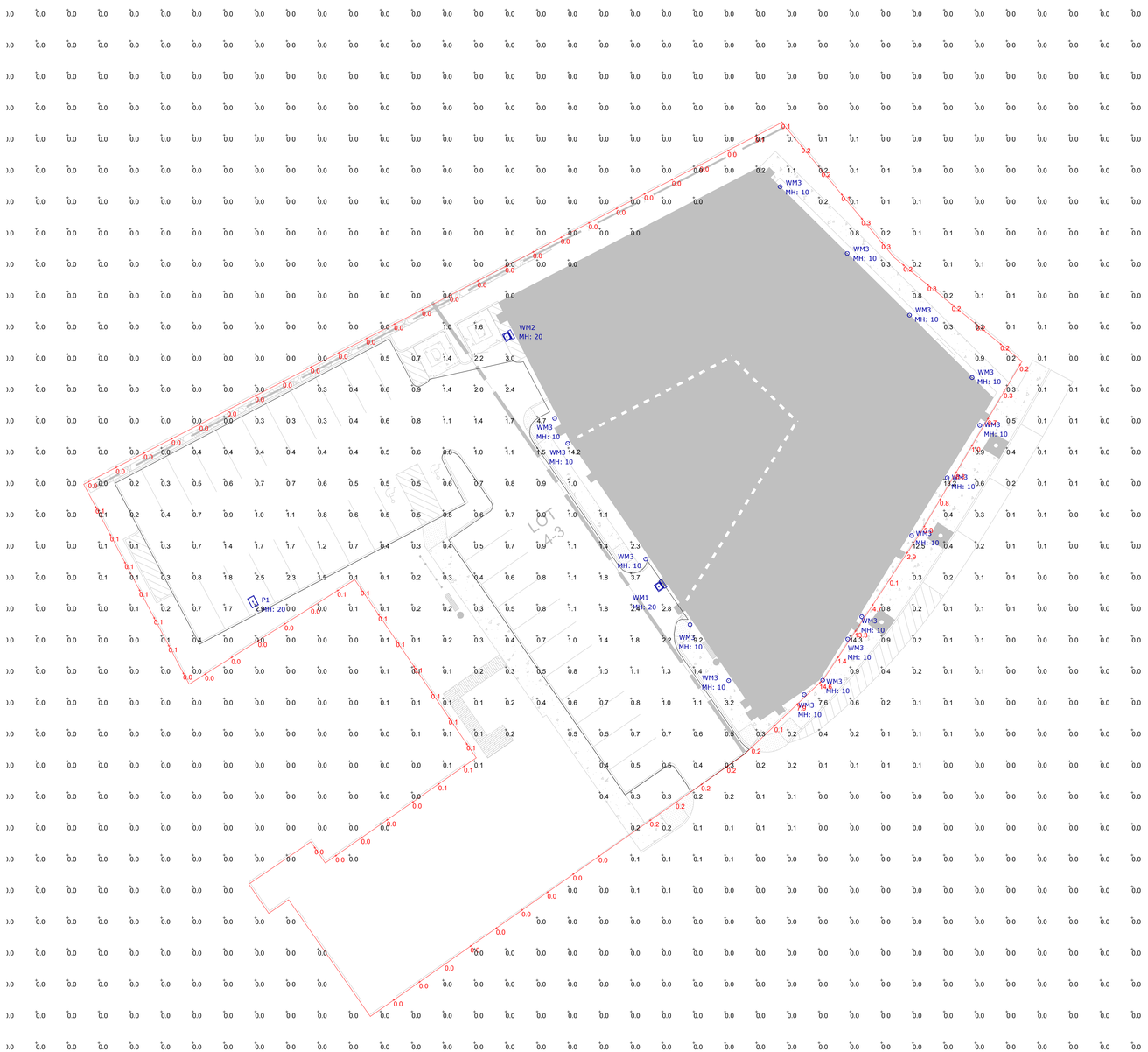
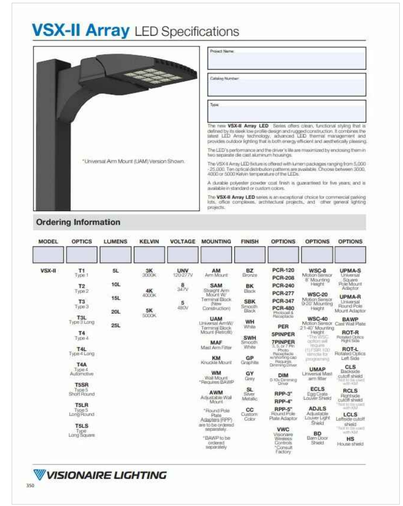


1 Photometric Layout and Calculations

SCALE: 1:20

20' 0 10' 20' 40'



VSX-II Array LED Specifications

"Universal Arm Mount (UAM) Version Shown.

Project Name:

Catalog Number:

Type:

The new **VSX-II Array LED** Series offers clean, functional styling that is defined by its sleek, low-profile design and rugged construction. It combines an advanced LED thermal management technology with precision optics and provides outdoor lighting that is both energy efficient and aesthetically pleasing.

The LED's performance and the driver's life are maximized by enclosing them in two separate die cast aluminum housings.

The VSX-II Array LED fixture is offered with lumen packages ranging from 5,000 - 25,000. Two optical distributions patterns are available. Choose between 3000, 4000 or 5000 Kelvin temperature of the LEDs.

A durable polyester powder coat finish is guaranteed for five years, and is available in standard or custom colors.

The **VSX-II Array LED** series is an exceptional choice for commercial parking lots, office complexes, architectural projects, and other general lighting projects.

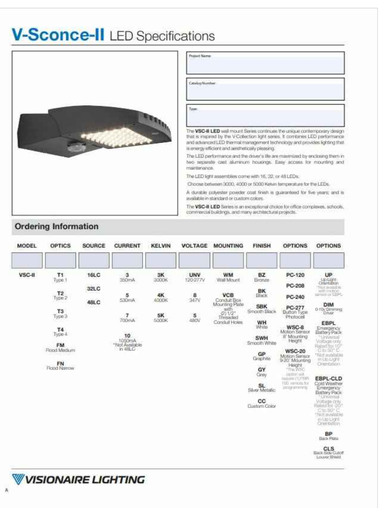
Ordering Information

MODEL	OPTICS	LUMENS	KELVIN	VOLTAGE	MOUNTING	FINISH	OPTIONS	OPTIONS	OPTIONS
VSX-II	T1 Type I T2 Type II T3 Type III T3L Type III Long T4 Type 4 T4L Type 4 Long T4A Type 4 Automotive T5SR Type V Short Round T5LR Type V Long Round T5LS Type V Long Square	5L 10L 15L 20L 25L	3K 3000K 4K 4000K 5K 5000K	UNV 120/277V 8 347V 5 480V	AM Arm Mount SAM Square Arm Mount w/ Terminal Block Mount Construction UAM Universal Arm/Pole Terminal Block Mount Assembly MAF Mast Arm Fitter KM Knuckle Mount WM Wall Mount Bracket AWM Adjustable Wall Mount *Round Has Plate Adapters (FPP) are to be ordered separately *SMAFP to be ordered separately	BZ Bronze BK Black SBK Smooth Black WH White SWH Smooth White GP Graphite GY Grey SL Silver Metallic CC Custom Color VWC Visionaire Wireless Lighting Controls Ordered at the Factory	PCR-120 PCR-208 PCR-240 PCR-277 PCR-347 PCR-480 Photocell Receptacle WSC-40 Motion Sensor 31-40' Mounting Height PER SPINPER TPINPER Pendant Mounting (specify color) SPA Square Pole Arm Mounting (specify color) UHAP Universal Mast Arm Rear ECLS Easy Latch Louvre Shield ADJLS Adjustable Louvre Shield BD Barn Door Shield HS House-side Shield	WSC-8 Motion Sensor 8' Mounting Height WSC-20 Motion Sensor 20' Mounting Height UNAP Universal Arm Rear RCLS Round Louvre Shield LCLS Linear Louvre Shield HS House-side Shield	UPMA-S Universal Arm Mount Adaptor UPMA-R Universal Arm Mount Adaptor BAWP Cast Wall Plate ROT-R Rotated Cross Arm ROT-L Rotated Cross Arm Left Side CLS Clamshell On/Off shield RCLS Round Louvre Shield LCLS Linear Louvre Shield

VISIONAIRE LIGHTING

350

2 Visionaire Type VSX II Specifications



V-Sconce-II LED Specifications

Project Name:

Catalog Number:

Type:

The **VSC-II LED** wall mount Series continues the unique contemporary design of the VSX-II LED Series. It combines an advanced LED thermal management and advanced LED thermal management technology and provides lighting that is energy efficient and aesthetically pleasing.

The LED performance and the driver's life are maximized by enclosing them in two separate cast aluminum housings. Easy access for mounting and maintenance.

The LED light assemblies come with 16, 32, or 48 LEDs.

Choose between 3000, 4000 or 5000 Kelvin temperature for the LEDs.

A durable polyester powder coat finish is guaranteed for five years and is available in standard or custom colors.

The **VSC-II LED** Series is an exceptional choice for office complexes, schools, commercial buildings, and many architectural projects.

Ordering Information

MODEL	OPTICS	SOURCE	CURRENT	KELVIN	VOLTAGE	MOUNTING	FINISH	OPTIONS	OPTIONS
VSC-II	T1 Type I T2 Type II T3 Type III T4 Type 4 FM Flood Medium FN Flood Narrow	16LC 32LC 48LC	3 350mA 5 530mA 7 700mA 10 1000mA *Not Available in 48LC	3K 3000K 4K 4000K 5K 5000K	UNV 100/277V VCB Conduit Box Mounting Plate (Universal Pattern Included) Conduit Holes WH White SWH Smooth White GP Graphite GY Grey SL Silver Metallic CC Custom Color	WM Wall Mount BK Black SBK Smooth Black WH White SWH Smooth White GP Graphite GY Grey SL Silver Metallic CC Custom Color	PC-120 PC-208 PC-240 PC-277 Button Type Photocell WSC-8 Motion Sensor 8' Mounting Height WSC-20 Motion Sensor 20' Mounting Height EBPL-CLD Cold Weather Emergency Battery Pack BP Barn Door CLS Black Side Cutoff Louvre Shield	UP DIM 0-10V Dimming Driver EBPL Emergency Battery Pack EBPL-CLD Cold Weather Emergency Battery Pack

VISIONAIRE LIGHTING

3 Visionaire Type VSC II Specifications

Type: Job / Ref:

Peachtree LIGHTING

C6BLRUD

6" LED Up & Down Cylinder
4" Aperture Up and 5" Aperture Down

1000 & 1400 Lumens (down)

PRODUCT SPECIFICATION DATA

MECHANICAL
- Powder Coated Extruded .003 Aluminum Cylinder
- Finish exceeds 1000 hr. ASTM salt spray
- Swivel canopy and stem (3/8" ips) for pendant mount matches cylinder color

ELECTRICAL
- Serviceable and upgradeable light engine
- Power supply is overload and short circuit protected
- Single driver supplies power to both LED's
- 0-10V dimming to 1%

OPTICAL
- Self-flanged lower reflector
- 45° cutoff to source
- Medium distribution

PERFORMANCE
- CCT: 3000K, 3500K, 4000K @ 80+ CRI
- 70% lumen maintenance at 60,000 hours based on IESNA LM-79-2008.

LISTINGS
- ANSI/UL 1598 and CAN/CSA C22.2 No. 250.0-08
- Suitable for damp location covered ceilings
- For wet location see -WL option

5 Year limited warranty.

LED

Passive Cooling

0-10v Dimming Standard

Dimensions and specifications in this literature are subject to change.

ORDERING LUMENS @ 3K	DIMMING	COLOR TEMP.	CRI	REFLECTOR	REFLECTOR OPTIONS	FIXTURE FINISH	MOUNTING	OPTIONS	VOLTAGE
C6BLRUD									
4" LED Round Up & Down Cylinder -14 1400 Up, 1400 Down -10 1000 Up, 1000 Down	-DIMLEV 0-10v Dim -TRI Triac *Standard	-3K 3000 K -35K 3500 K -4K 4000 K	-80 80+ -90 90+	-SK Soft Haze -W White -B Black * Powder Coat Paint	-RC Reg. Clear Temp. -RF Reg. Frosted -RCS Reg. Clear Sunb Lens -RFS Reg. Prismatic Temp. Glass Lens -RPS Reg. Prismatic Temp. Glass -TRW Trim Reg White -TRB Trim Reg Black Specify cut-out if Black or W White. Regressed trims baffles retrofits available under one standard	-WH Matte White -BK Matte Black -AB Antique Bronze -AZ Bronze -RAL# ____ Powdercoat Painted	-WALL Wall, Vertical, 8" Offset -WALS Wall, Vertical, 8" Offset adjustable 0° to 10° -CAB-UD-10 Cable w/ straight connector Specify cut-out if Black or W White.	-F Fusing -SL Surge Limiter -WL Wet Location (select lens)	-120/277

Made in the USA

Peachtree LIGHTING

C6BLRUD

4 Peachtree C6BLRUD Speifications

Luminaire Schedule						
Symbol	Label	Qty	Description	LLF	Lum. Watts	Lum. Lumens
	P1	1	Visionaire # VSX-II-T4L-10L-4K-UNV-AM-TBD-DIM-BD	0.900	70	6463
	WM1	1	Visionaire # VSX-II-T4L-10L-4K-UNV-WM-TBD	0.900	70	8888
	WM2	1	Visionaire # VSX-II-T4L-10L-4K-UNV-WM-TBD-DIM-RCLS	0.900	70	6463
	WM3	16	Peachtree # C6BLRUD-10-40K-80-W-RCA-TBD-WAL2-WL-120/277	0.900	17	2042

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
PROPERTY LINE	Illuminance	Fc	0.82	14.6	0.0	N.A.	N.A.
SITE CALC PTS	Illuminance	Fc	0.10	14.3	0.0	N.A.	N.A.
LOT 4-3	Illuminance	Fc	0.97	4.7	0.2	4.85	23.50

NOTES:

A. A LIGHT LOSS FACTOR OF 0.900 HAS BEEN APPLIED TO FIXTURES UNLESS OTHERWISE NOTED. REFER TO LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR AND LUMEN INFORMATION.

B. SEE "MH" ON LIGHTING FIXTURE TAG LOCATED ON PLAN FOR MOUNTING HEIGHT INFORMATION.

C. CALCULATION POINTS ARE TAKEN AT GRADE.

D. CALCULATION RESULTS ARE BASED ON IES STANDARDS UNLESS OTHERWISE REQUESTED.

SK & Associates
Experience the light™
20/22 Carver Circle
Canton, MA 02021
JACK 8 SKWATT APPROVED
T - 781-821-1700
www.skandassociates.com

TEC The Engineering Corp
146 Dascomb Rd
Andover, MA 01810

14 Broadway Site

Photometric Layout Calaculations Schedules and Specifications

DATE: 8/26/2021	
PROJECT NUMBER: 211114	
DRAWN BY: AM	
CHECKED BY:AD	
APPROVED BY:AD	
SCALE: AS NOTED	

REVISIONS	DESCRIPTION	DATE
1	Site Lighting & Plan Revisions	10/28/2021
2	Review Comments	12/7/2021
3		
4		
5		
6		
7		

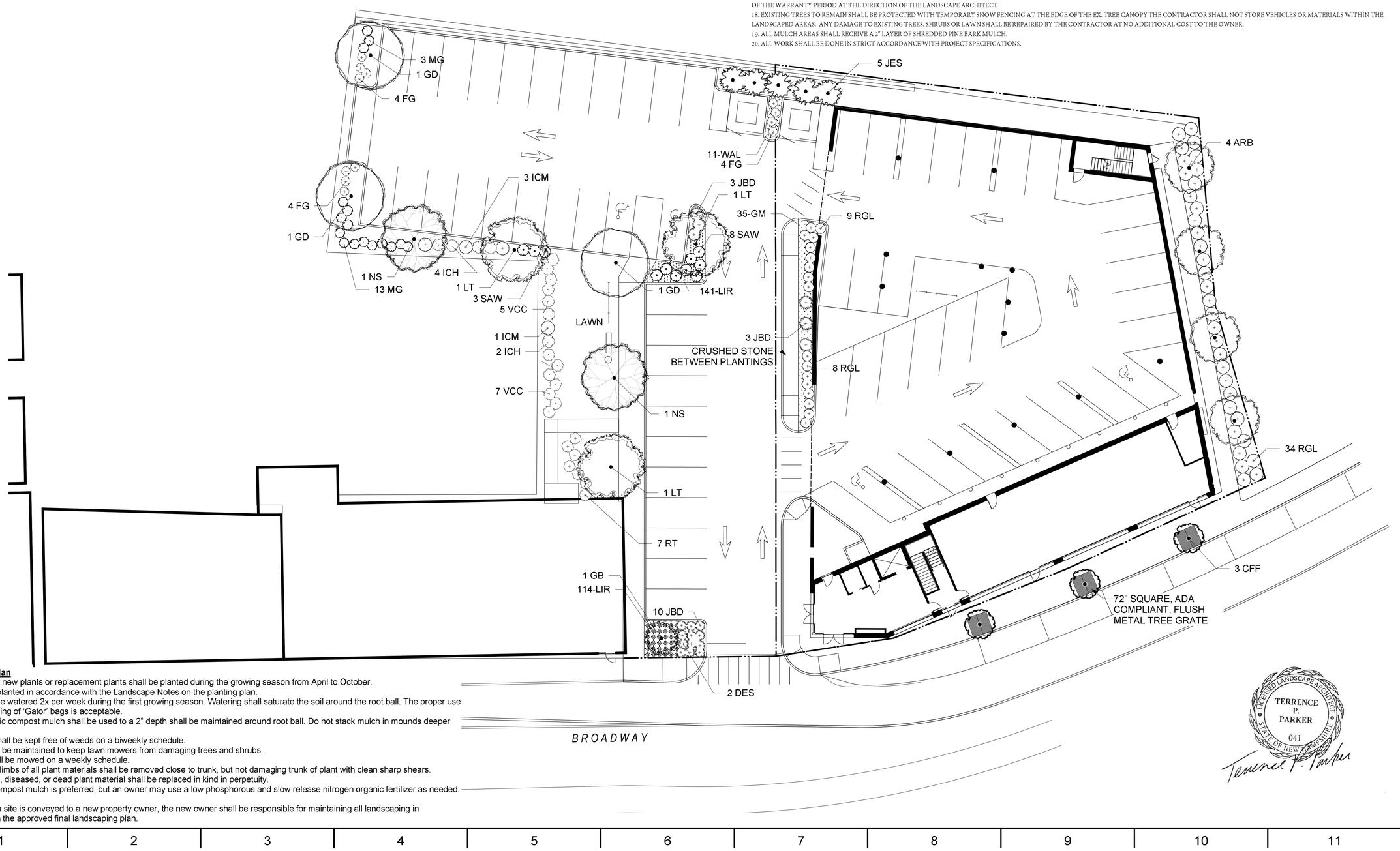
SL1

Plant List - Trees and Shrubs				
ID	Qty	Latin Name	Common Name	Scheduled Size
ARB	4	Acer rubrum 'Bowhall'	Bowhall Maple	3 1/2" Cal.
CFF	3	Carpinus betulus 'Frans Fontaine'	Frans Fontaine Hornbeam	2 1/2" Cal.
FG	12	Fothergilla gardenii	Dwarf Fothergilla	24" HT.
GB	1	Ginkgo biloba 'Spring Grove'	Spring Grove Maidenhair Tree	3 1/2" Cal.
GD	3	Gymnocladus dioicus	Kentucky Coffeetree	3 1/2" Cal.
ICH	6	Ilex crenata 'Hetzii'	Japanese Holly	24" HT.
ICM	4	Ilex crenata 'Hoogendorn'	Hoogendorn Japanese Holly (Male)	24" HT.
JBD	16	Juniperus communis depressa 'AmiDak'	Blueberry Delight Juniper	5 Gal.
JES	5	Juniperus virginiana 'Emerald Sentinel'	Emerald Sentinel Red Cedar	8-10' HT.
LT	3	Liriodendron tulipifera	Tulip Tree	3 1/2" Cal.
MG	16	Myrica gale	Sweetgale	24" HT.
NS	2	Nyssa sylvetica	Black Tupelo	3 1/2" Cal.
RGL	51	Rhus aromatica 'Gro Low'	Gro Low Sumac	24" HT.
RT	7	Rhododendron 'Towhead'	Towhead Rhododendron	24" HT.
SAW	11	Spiraea x bumalda 'Anthony Waterer'	Anthony Waterer Spirea	5 Gal.
VCC	12	Viburnum carlesii 'Compacta'	Compact Mayflower Viburnum	2' HT

Plant List - Perennials				
ID	Qty	Latin Name	Common Name	Scheduled Size
DES	2	Deschampsia cespitosa	Tussock Grass	2 QT
GM	35	Geranium macrorrhizum 'Bevan's'	Cranesbill	2 QT
LIR	255	Liriope spicata	Lily turf	2 QT
WAL	11	Waldsteinia ternata	Siberian Barren Strawberry	2 QT

LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO STARTING WORK.
2. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS.
3. ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. ALL PLANT SUBSTITUTIONS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT.
5. ALL PLANT MATERIALS SHALL BE EXACTLY AS SPECIFIED BY THE LANDSCAPE ARCHITECT. IF PLANT SPECIES CULTIVARS ARE FOUND TO VARY FROM THAT SPECIFIED AT ANY TIME DURING THE GUARANTEE PERIOD, THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO HAVE THE CONTRACTOR REPLACE THAT PLANT MATERIAL. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANT DELIVERED TO THE SITE FOR AESTHETIC REASONS BEFORE PLANTING. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR THE QUALITY FOR ALL THE PLANTS.
6. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH, UPON DELIVERY OR AT THE JOB SITE WHILE WORK IS ON-GOING TO CONFORMITY TO SPECIFIED QUALITY, SIZE AND VARIETY.
7. 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.
8. NO PLANT SHALL BE PUT IN THE GROUND BEFORE GRADING HAS BEEN FINISHED AND APPROVED BY THE LANDSCAPE ARCHITECT.
9. ALL PLANTS SHALL BE INSTALLED AND DETAILED PER PROJECT SPECIFICATIONS.
10. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN IF NECESSARY, DURING THE FIRST GROWING SEASON.
11. ALL PLANTS SHALL BE GUARANTEED BY THE CONTRACTOR FOR NOT LESS THAN ONE FULL YEAR FROM THE TIME OF PROVISIONAL ACCEPTANCE. 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 LANDSCAPE ARCHITECT IN WRITING OR OTHERWISE FORFEIT HIS CLAIM. LANDSCAPE CONTRACTOR SHALL PRUNE PLANTINGS OF DEAD LIMBS OR TWIGS DURING THE FIRST YEAR OF GROWTH.
12. FINAL ACCEPTANCE BY THE LANDSCAPE ARCHITECT WILL BE MADE UPON THE CONTRACTOR'S REQUEST AFTER ALL CORRECTIVE WORK HAS BEEN COMPLETED.
13. LANDSCAPE CONTRACTOR SHOULD REPLACE DEAD PLANTINGS IMMEDIATELY UPON OWNER DIRECTION WITHIN THE WARRANTY PERIOD AND AGAIN AT THE END OF THE GUARANTEE PERIOD, THE CONTRACTOR SHALL HAVE REPLACED ANY PLANT MATERIAL THAT IS MISSING, NOT TRUE TO SIZE AS SPECIFIED, THAT HAVE DIED, THAT HAVE LOST THEIR NATURAL SHAPE DUE TO DEAD BRANCHES, EXCESSIVE PRUNING OR INADEQUATE OR IMPROPER CARE, OR THAT ARE, IN THE OPINION OF THE LANDSCAPE ARCHITECT, IN UNHEALTHY OR UNSIGHTLY CONDITION.
14. ALL LANDSCAPE AREAS TO BE GRASS COMMON TO REGION EXCEPT FOR INTERIOR LANDSCAPED ISLANDS OR WHERE OTHER PLANT MATERIAL IS CALLED FOR.
15. ALL TREES AND SHRUBS TO BE PLANTED IN MULCH BEDS WITH DEFINED AND CUT EDGES TO SEPARATE TURF GRASS AREAS.
16. FOR ANY LANDSCAPE AREA SO DESIGNATED TO REMAIN, WHETHER ON OR OFF-SITE, REMOVE WEEDS, ROCKS, CONSTRUCTION ITEMS, ETC., THEN APPLY GRASS SEED OR PINE BARK MULCH AS DEPICTED ON PLANS.
17. LANDSCAPE CONTRACTOR SHALL FEED AND PRUNE EX. TREES, ON OR JUST OFF SITE, THAT HAVE EXPERIENCED ROOT BASE INTRUSION OR DAMAGE DURING CONSTRUCTION IMMEDIATELY AND FOR THE DURATION OF THE WARRANTY PERIOD AT THE DIRECTION OF THE LANDSCAPE ARCHITECT.
18. EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY SNOW FENCING AT THE EDGE OF THE EX. TREE CANOPY THE CONTRACTOR SHALL NOT STORE VEHICLES OR MATERIALS WITHIN THE LANDSCAPED AREAS. ANY DAMAGE TO EXISTING TREES, SHRUBS OR LAWN SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
19. ALL MULCH AREAS SHALL RECEIVE A 2" LAYER OF SHREDDED PINE BARK MULCH.
20. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.



Maintenance Plan

Installation of all new plants or replacement plants shall be planted during the growing season from April to October.
Plants shall be planted in accordance with the Landscape Notes on the planting plan.
All plants shall be watered 2x per week during the first growing season. Watering shall saturate the soil around the root ball. The proper use and regular refilling of 'Gator' bags is acceptable.
Aged and organic compost mulch shall be used to a 2" depth shall be maintained around root ball. Do not stack mulch in mounds deeper than 2".
Planting beds shall be kept free of weeds on a biweekly schedule.
Bed edges shall be maintained to keep lawn mowers from damaging trees and shrubs.
Lawn areas shall be mowed on a weekly schedule.
Broken or dead limbs of all plant materials shall be removed close to trunk, but not damaging trunk of plant with clean sharp shears.
Severely injured, diseased, or dead plant material shall be replaced in kind in perpetuity.
Aged organic compost mulch is preferred, but an owner may use a low phosphorous and slow release nitrogen organic fertilizer as needed.

If ownership of a site is conveyed to a new property owner, the new owner shall be responsible for maintaining all landscaping in accordance with the approved final landscaping plan.

terra firma
landscape architecture
163.a court street portsmouth, nh 03801
office 603.430.8588 | terrence@terrafirmalandarch.com

No.	Date	Issue Notes
A	11/24/21	TRC RE-SUBMITAL

Date	10/26/21
Revision	Revision
Project ID	14 BROADWAY
Drawing Code	Drawing Code
CAD Filename	14broadway92221
Plot Date	00/00/00
Designed By	TP
Drawn By	TC
Checked By	TP
Reviewed By	TP
Submitted By	TP
Project Manager	

Design Firm: terra firma landscape architecture
163.a Court Street
Portsmouth, NH

Consultant:

Project Title: 14 BROADWAY
DOVER, NH

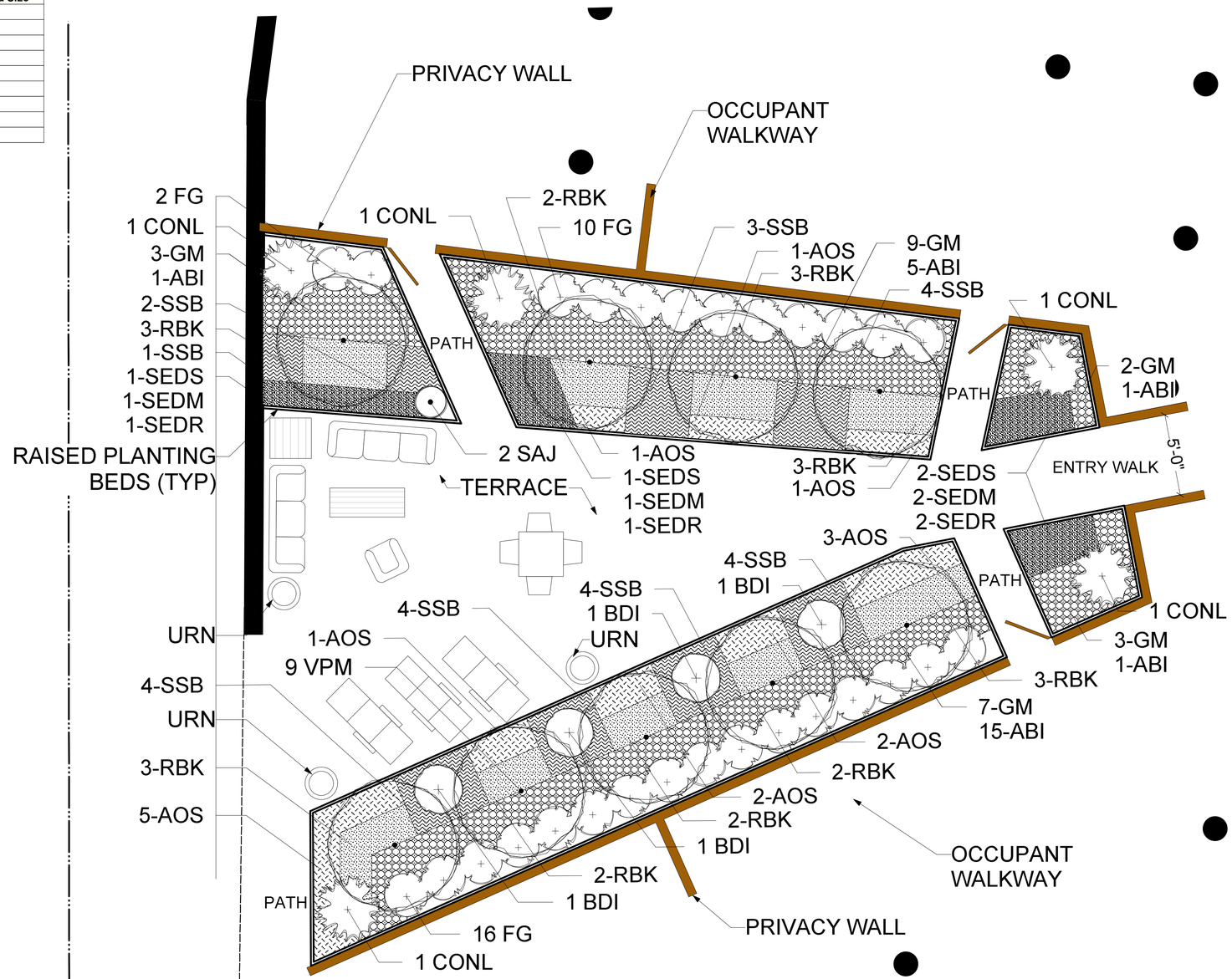
Sheet Title: Landscape Plan

Scale: 1"=15'-0"

Sheet No.: L-1
of
1

Plant List - Courtyard Trees				
ID	Qty	Latin Name	Common Name	Scheduled Size
BDI	4	Buddlea 'Davidii'	Butterfly Bush	4-5'
CONL	5	Chamaecyparis obtusa 'Nana Lutea'	Compacvt Golden Hinoki False Cyp	5-6'
FG	28	Fothergilla gardenii	Dwarf Fothergilla	5 Gal.
VPM	9	Viburnum plicatum tom. 'Mariesii	Doublefile Viburnum	4'

Plant List - Courtyard Perennials				
ID	Qty	Latin Name	Common Name	Scheduled Size
ABI	23	Amsonia 'Blue Ice'	Blue Star Flower	2 QT
AOS	16	Aster oblongifolius 'October Skies'	Aromatic Aster	2 QT
GM	24	Geranium macrorrhizum 'Bevan's'	Cranesbill	2 QT
RBK	23	Rudbeckia fulgida 'Goldsturm'	Black-Eyed Susan	2 QT
SAJ	2	Sedum 'Autumn Joy'	Stonecrop	2 QT
SEDM	4	Sedum 'Matrona'	Matrona Stonecrop	2 QT
SEDR	4	Sedum reflexum 'Angelina'	Stonecrop	2 QT
SEDS	4	Sedum sexangulare	Stonecrop	2 QT
SSB	26	Schizachyrium scoparium 'The Blues'	The Blues Little Bluestem	2 QT



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No.	Date	Issue Notes
A	11/24/21	TRC RE-SUBMITAL

Date 10/22/21
Revision Revision
Project ID 14 BROADWAY
Drawing Code Drawing Code
CAD Pathname 14broadway92221
Plot Date 00/00/00

Designed By	TP
Drawn By	TC
Checked By	TP
Reviewed By	TP
Submitted By	TP
Project Manager	

Design Firm: terra firma landscape architecture, 163.a Court Street, Portsmouth, NH
Consultant:

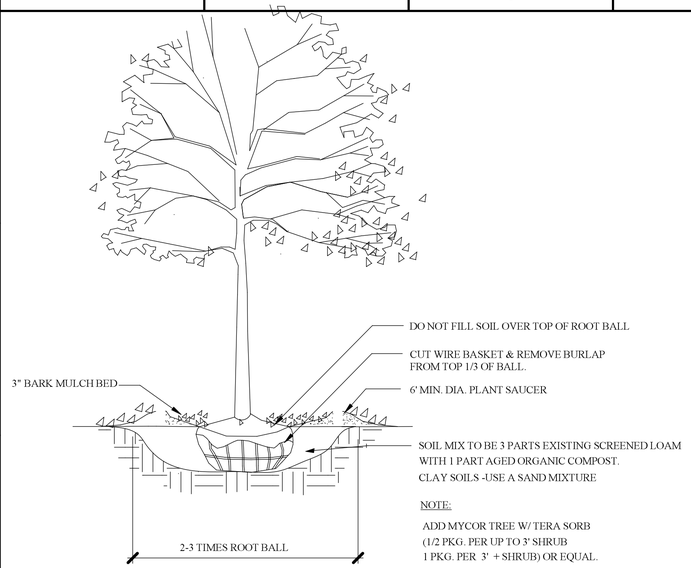
Project Title: 14 BROADWAY, DOVER, NH
Sheet Title: Landscape Plan COURTYARD

Scale: 1"=15'-0"

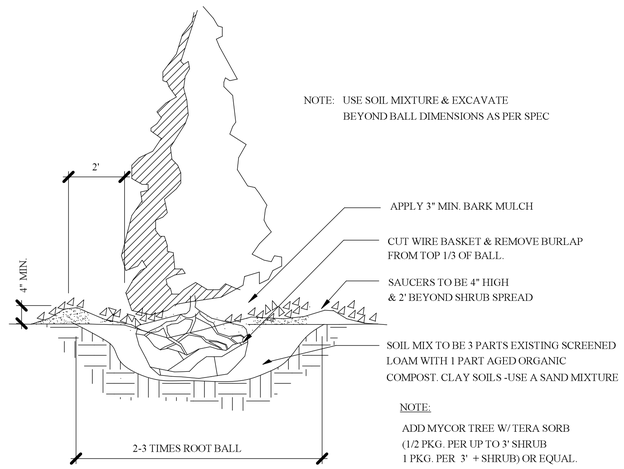
Sheet No.: L-2 of 1

LICENSED LANDSCAPE ARCHITECT · TERRENCE P. PARKER · 041 · STATE OF NEW HAMPSHIRE

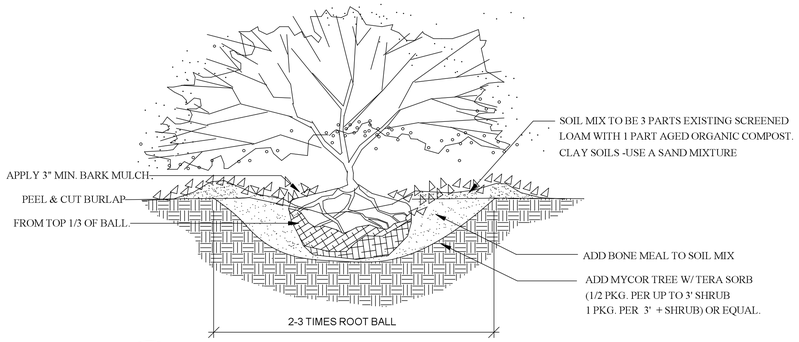
Terrence P. Parker



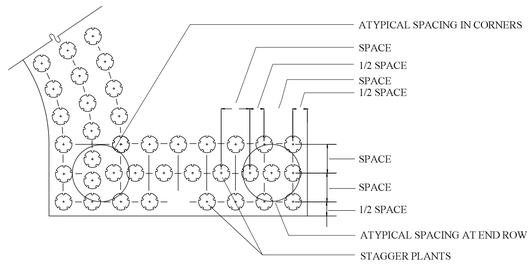
1 L-3 TREE PLANTING - 2"+ CAL.
SCALE: NTS



2 L-3 PYRAMIDAL EVERGREEN TREE PLANTING
SCALE: NTS



3 L-3 B&B SHRUB PLANTING
SCALE: NTS

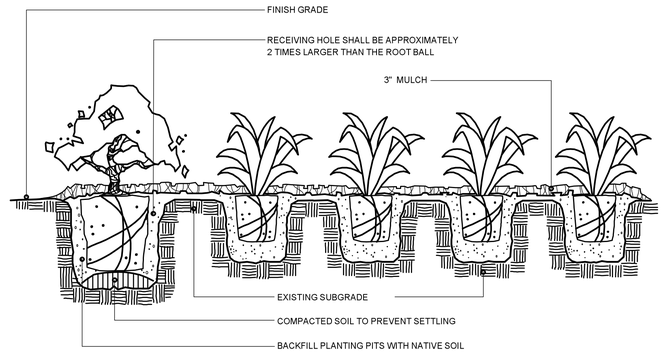


NOTES:

1. PLACE PLANTS IN BED AS SHOWN, SPACING AS SPECIFIED IN PLANT SCHEDULE.
2. GROUNDCOVER SHALL BE TRIANGULAR SPACED IN ROWS PARALLEL TO STRAIGHT EDGES AND SHALL BE EVENLY SPACED IN ROWS PARALLEL TO CURVE EDGES.

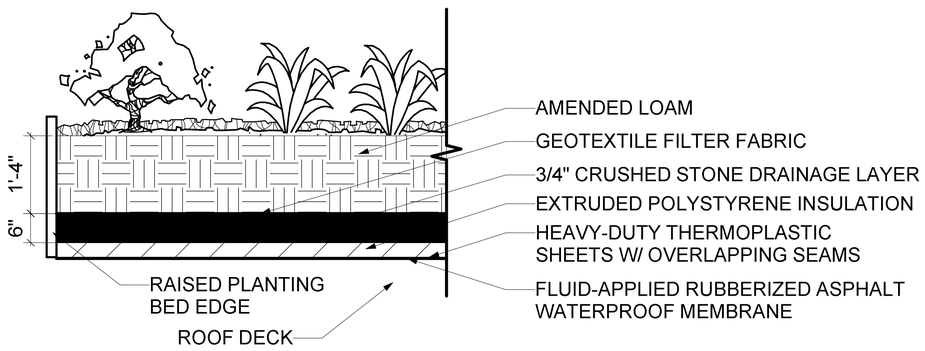
4 L-3 GROUND COVER SPACING DETAIL
SCALE: NTS

6 L-3 COURTYARD WOOD PRIVACY HALF-WALL
SCALE: NTS



NOTE: SHRUBS SHALL BE PLANTED A MINIMUM OF 1" & NO MORE THAN 2" ABOVE FINISH GRADE, DEPENDING UPON SITE CONDITIONS.

5 L-3 SHRUB/GROUND COVER PLANTING DETAIL
SCALE: NTS



7 L-3 ROOF GARDEN RAISED BED DETAIL
SCALE: 3/4"= 1'-0"

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No.	Date	Issue Notes
A	11/24/21	TRC RE-SUBMITAL

Date 9/28/21
Revision Revision
Project ID 14 BROADWAY
Drawing Code Drawing Code
CAD Filename 14broadway92221
Plot Date 00/00/00

Designed By TP
Drawn By TC
Checked By TP
Reviewed By TP
Submitted By TP
Project Manager

Design Firm terra firma landscape architecture
163 a Court Street
Portsmouth, NH

Consultant

Project Title 14 BROADWAY
DOVER, NH

Sheet Title Landscape Details

Scale SEE DETAILS

Sheet No. L-3 of 1

PLAN SNAPSHOT REPORT SITE-2023-0011
FOR CITY OF DOVER, N.H.

Plan Type:	Site Plan - Major	**Project:**		**App Date:**	08/10/2023
Work Class:	New Construction	**District:**	None	**Exp Date:**	NOT AVAILABLE
Status:	In Review	**Square Feet:**	0.00	**Completed:**	NOT COMPLETED
Valuation:	$0.00	**Assigned To:**		**Approval Expire Date:**	
Description:	Proposed 3,300 sq ft - Bank with Drive-Up ATM				

Parcel:	38015-A00000	Main	**Address:** 1-3 Webb Pl Dover, NH	Main	**Zone:** C(Non-Residential - Commercial)

Architect
Jose Sanchez
Home: (314) 270-5085
Business: (314) 270-5085
Mobile: (314) 270-5085

Applicant
Todd Samms
Home: (614) 580-2613
Business: (614) 580-2613
Mobile: (614) 580-2613

Applicant
Joshua Kline
120 Washington Street Suite 201 Suite 201
Salem, MA 01970
Business: (617) 203-2076
Mobile: (607) 624-0415

Owner
Samantha Burgner
Home: (413) 464-2267
Mobile: (413) 464-2267

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 (+/-)	-17	Water Service	Municipal
Recording Number		Sewer Service	Municipal	Total Acres (GIS)	0.99
Deed Book		Total SQFT	43124.4	Deed Page	
Deed Date		Proposed Property Use	Bank with Drive-Up ATM	Area of Parcel to be Developed (SQFT)	43125
Number of Parking Spaces Existing	45	Number of Parking Spaces Proposed	28	Number of Employees Total	12
Number of Employees in Max Shift	6	Distance to City Water	75	Distance to City Sewer	150
Type of Building to be Built	Bank	Estimated Construction Value	2800000.00	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		

Attachment File Name	Added On	Added By	Attachment Group	Notes
Signature_Joshua_Kline_8/10/2023.jpg	08/10/2023 12:02	Kline, Joshua		Uploaded via CSS
2023.11.02_PlanningTechnicalReviewCommittee.Agenda.pdf	10/19/2023 10:33	Blonigen, Rachel		
2023.08.31_PlanningTechnicalReviewCommittee.WebbPlace_SITE-2023-0011.pdf	02/15/2024 14:40	Blonigen, Rachel		Approved TRC Minutes

2023.11.02_PlanningTechnicalReviewCommittee.Webb Place_SITE-2023-0011.pdf	02/15/2024 14:41	Blonigen, Rachel	Approved TRC Minutes
2024.03.07_PlanningTechnicalReviewCommittee.Webb Place_SITE-2023-0011.pdf	03/08/2024 11:46	Blonigen, Rachel	Draft TRC Minutes

Invoice No.	Fee	Fee Amount	Amount Paid
INV-00004629	Planning General Application Fee	$200.00	$200.00
	Total for Invoice INV-00004629	$200.00	$200.00
	Grand Total for Plan	**$200.00**	**$200.00**

Meeting Type	Location	Scheduled Date	Subject
Technical Review Committee Meeting v.1	City Hall, Second Floor Conference Room	08/31/2023	Technical Review Committee Meeting

Submittal Name	Status	Received Date	Due Date	Complete Date	Resubmit	Completed
Land Use Plan Technical Review v.1	Requires Re-submit	08/30/2023	09/27/2023	12/05/2023	Yes	Yes

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Business Development	Business Development	Burdin, James	Requires Re-submit	08/30/2023	09/27/2023	10/16/2023

Submittal Name	Status	Received Date	Due Date	Complete Date	Resubmit	Completed
Land Use Plan Technical Review v.1	Requires Re-submit	10/16/2023	11/13/2023	01/16/2024	Yes	Yes

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Business Development	Business Development	Burdin, James	Requires Re-submit	10/16/2023	11/13/2023	01/16/2024

Submittal Name	Status	Received Date	Due Date	Complete Date	Resubmit	Completed
Land Use Plan Technical Review v.1	Requires Re-submit	08/30/2023	09/27/2023	12/05/2023	Yes	Yes

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
City Engineer	Community Services - Engineering	Mavrogeorge, Kenneth	Requires Re-submit	08/30/2023	09/27/2023	10/16/2023

Comments: Project: SITE-2023-0011: Proposed Bank (1-3 Webb Place)
TRC Meeting: August 31, 2023
Reviewer: Ken Mavrogeorge, PE – City Engineer
Checked by: Engineering Staff
Comments:
Reviewer should group comments be plan sheet if possible and if the comment applies to multiple sheets then it should be noted as a General Comment.
- General Comment:
o Applicant and Contractor shall review the Dover Construction Guidelines prior to scheduling a Preconstruction meeting with City staff. The guidelines can be found on the City of Dover Website on the Engineering page. https://www.dover.nh.gov/Assets/government/city-operations/1form/community-services/engineering/engineering-documents/Construction%20Guidelines.pdf
o Survey plans show additional right of way lines and NHDOT easements from a formal lot configuration prior to NHDOT work in the area (circa 1997-99). Applicant to coordinate with NHDOT and City to confirm ROW transfer is finalized and that NHDOT does not have ownership of portions of the subject property or have jurisdiction over the number of access points to Webb Place.
o Coordinate with Community Services (Engineering Department) for latest version of the City's Standard Details. It is not the intent for the applicant to copy the details onto the set but to use them as a minimum standard to meet.
o Add note that Design Engineer shall provide signed letter to City Engineer certifying that the stormwater management system has been installed in accordance with approved plans.
o Recommend providing 1 sf of snow storage per 10 sf of pavement to be cleared. Verify snow storage meets or exceeds this recommendation or provide note to remove excess snow when storage areas are filled.
o Provide detail for Construction Sign that conforms to the City of Dover standard details and as noted in the Dover standard notes.
o Applicant shall review the section 153-14 of the Dover Code and clarify how the design meets the City's requirements. In particular the applicant should address stormwater standards.
o Work within the City right of way and roadways will required excavation permit. Note that Central Ave was paved in 2021 and the City has pavement damage escalation costs for roads paved within 5 years.
o Applicant should upgrade existing sidewalks along the northern and eastern property lines especially if they are disturbed to removed curbing (northern sidewalk) and construct utilities (eastern). If northern sidewalk is reconstructed it should be located within the City ROW to avoid encroachment.
o Change "Township" references to "City" throughout documents.
o Please provide a test pit in the proposed infiltration basin location and include the depth of ESHWT.
o Engineering requests a letter certifying the tie in locations or discharge points for all sump pumps and roof leaders for existing and proposed structures on the property.
o Provide drainage analysis that complies with requirements of Dover Code 153-14.
- ALTA Survey (Sheet 1 of 2):
o Plan shows internal property lines that cross into the City's right of way. Please clarify why these are crossing over and if they are proposed to be abandoned or modified.
o Existing NHDOT easements are shown. Applicant to clarify if these will be modified or discontinued. If so, applicant to provided updated deed showing easements are removed/modified.
o There is a note about asphalt encroachment from the sidewalk on the northeast side of the property. It appears that this sidewalk is located in a City right of way but the linetypes make it hard to decipher.
- Sheet C-4:
o Provide ADA access to electric vehicle charging.
o Provide vehicle turning exhibits showing fire and trash vehicles maneuvering around the site.
o Move stop bars near intersections closer to travel way.
o Dumpster pad seems like it could be difficult to access by a vehicle if the dumpsters and totes are not wheeled out into the aisle.
o Remove depressed concrete curb from the right of way. If you wish to use the depressed curb elsewhere, provide detail.
o Off-street Parking Table mentions a maximum of 12 spaces which contradicts the narrative.
o Clarify how traffic will flow at the southern entrance. There are no stop signs for any of the three legs and conflicts could be an issue.
o Will location of southern entrance cause vehicles to stack into the public right of way?
o Recommend making the southern entrance perpendicular to Webb Place.
o Where will delivery vehicles load and unload?
o Provide sidewalk on southern edge of Webb Place to connect to the signalized intersection.
o Adding crosswalk on northeast corner connecting adjacent property to the proposed bank and new sidewalk along Webb Place.
- Sheet C-5:
o Provide pretreatment for stormwater basin. Recommend offline catch basins with deep sumps and oil separator hoods.
o Provide a minimum 3 feet of cover on all storm drainage pipe.
o Grades of driveways exceed 13% in some areas. Recommend keeping grades below 3% within 75 feet of intersections.
o Drop off from parking area is over 5 feet. Clarify if guardrail is required.
o Provide calculations and details for rip rap apron in stormwater basin.
o Show existing structure labels that align with City GIS labels (coordinate with GI department).
- Sheet C-6:
o Water is shown at 1.5" type K copper. See standard City details about types of services and sizes.
o Water meter is to be installed inside the building not externally as called out.
o Is the building to be sprinkled? If so, a fire line should be run directly into the building with a domestic line stubbed off of the fire service. Separate shut offs should be provided for domestic and fire.
o Gate valves should be located at the anchor tees.

o Electric services appears to be coming off an existing pole. If required to install a standalone transformer, where would one be located?
o External cleanouts are not permitted. Applicant should speak as to why the sanitary service cannot run directly into the northern side of the building.
o Applicant should inspect existing sewer lateral and provide report and video on existing condition. Applicant is reminded that they own from the building to the sewer main.
o Existing sewer runs across adjacent property. Applicant should engage with abutter to discuss a sewer easement if one does not exist.
o Sewer in adjacent parking lot has two conflicting sizes noted (6" unk and 12" steel). Applicant should clarify how this data was determined and which is correct.
o 4-inch sewer should have a minimum 2% slope for sewer not 1.08% as noted on the plan.
- Sheet C-7:
o Lighting is spilling across the property lines. Please provide light shields.
- Sheet C-8:
o Two stabilized construction entrances are called out but only one is shown. Please clarify.
- Sheet C-12:
o Detail 14 should be revised to show a minimum 1.5" milled asphalt key per City standard details.
o Provide a minimum of 12-inch slab for dumpster pad.
o Curb ramps in City right of way should comply with City standard details (no flush curb between pavement and ramp and minimum 4 inches of concrete around the ADA detectable warning panel).
o Clear distance below signage should be 7 feet.
o Remove references to Massachusetts on Accessible Parking Signage. Is this additional penalty to be enforced by the bank?
o Curbing in City right of way shall be granite.
- Sheet C-13:
o Provide minimum frost depth on detail no. 8.
o Provide details on foundation for clearance bar. Notes appear to be scanned and are not legible.
- Sheet C-14:
o All valves and hydrants shall open left (counterclockwise)
o Locate water services to eliminate the need for insulation and bends in water line.
o Minimum of 5' of cover is required for water lines.
o Sewer and drainage manhole covers shall be Liftmate R-1743-LM or approved equal with 90 deg hinge
o Storm Drain Utility Trench Section – crushed stone shall extend 12" above top of pipe. See City standard for minimums.
o Utility Trench Section
 Crushed stone shall extend 12" above top of sewer pipe.
 Sand shall extend 12" above top of water pipe.
 See City standard for minimums and required materials.
o Sewer minimum cover shall be 4 feet below non paved areas and 6 feet under pavement unless insulation is provided.
o Water Service Connection: curb box shall be Erie-style
o Water Service Connection: tapping sleeve shall be stainless steel if required.
o Type B Catch basin inlet grate is the City standard.
o Drain Manhole should have 30 inch clear opening. Catch basins may have 24 inch diameter opening.
o Storm basin detail should show ESHWT to ensure it complies with NHDES recommendations.
o Infiltration rates for designing groundwater recharge practices shall be determined in accordance with Section Env-Wq 1504.14 and summarized in a drainage report.
o Where is detail 9 (Curb break and rip rap detail) to be used?
o Detail 10: How will crushed stone be placed in gap below concrete outlet

Submittal Name	Status	Received Date	Due Date	Complete Date	Resubmit	Completed
Land Use Plan Technical Review v.1	Requires Re-submit	10/16/2023	11/13/2023	01/16/2024	Yes	Yes

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
City Engineer	Community Services - Engineering	Mavrogeorge, Kenneth	Requires Re-submit	10/16/2023	11/13/2023	01/16/2024

Submittal Name	Status	Received Date	Due Date	Complete Date	Resubmit	Completed
Land Use Plan Technical Review v.1	Requires Re-submit	08/30/2023	09/27/2023	12/05/2023	Yes	Yes

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
IS Building Official	Fire / Inspection Services	Maxfield, Jim	Requires Re-submit	08/30/2023	09/27/2023	10/16/2023

Submittal Name	Status	Received Date	Due Date	Complete Date	Resubmit	Completed
Land Use Plan Technical Review v.1	Requires Re-submit	10/16/2023	11/13/2023	01/16/2024	Yes	Yes

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
IS Building Official	Fire / Inspection Services	Maxfield, Jim	Requires Re-submit	10/16/2023	11/13/2023	11/02/2023

Comments: Discuss turning template for T-1 .Applicant note testimony will be provided with respect to drive thru lane.
There does not appear to be information provided to support the need for the second entry off Webb Place- Please provide.
Sheet 4 Revise ADA notes title to Accessibility notes
Sheet 4 EV charger locations and accessible route across parking lot. Relocate for compliance
Provide a site specific street color rendering of the proposed structure. Revised architectural plan was not received.
Confirm design complies with architectural requirements.

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Planning	Planning	Benton, Donna	Requires Re-submit	10/16/2023	11/13/2023	01/16/2024

Submittal Name	Status	Received Date	Due Date	Complete Date	Resubmit	Completed
Land Use Plan Technical Review v.1	Requires Re-submit	08/30/2023	09/27/2023	12/05/2023	Yes	Yes

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Planning	Planning	Kaspari, Jackson	Requires Re-submit	08/30/2023	09/27/2023	10/16/2023

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Zoning Administrator	Planning		Requires Re-submit	08/30/2023	09/27/2023	10/16/2023

Submittal Name	Status	Received Date	Due Date	Complete Date	Resubmit	Completed
Land Use Plan Technical Review v.1	Requires Re-submit	10/16/2023	11/13/2023	01/16/2024	Yes	Yes

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Zoning Administrator	Planning	Benton, Donna	Requires Re-submit	10/16/2023	11/13/2023	01/16/2024

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Traffic Bureau	Police	Speidel, Marn	Requires Re-submit	10/16/2023	11/13/2023	01/16/2024

Submittal Name	Status	Received Date	Due Date	Complete Date	Resubmit	Completed
Land Use Plan Technical Review v.1	Requires Re-submit	08/30/2023	09/27/2023	12/05/2023	Yes	Yes

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Traffic Bureau	Police	Speidel, Marn	Requires Re-submit	08/30/2023	09/27/2023	10/16/2023

Submittal Name	Status	Received Date	Due Date	Complete Date	Resubmit	Completed
Land Use Plan Technical Review v.2	Requires Re-submit	01/16/2024	01/29/2024	03/08/2024	Yes	Yes

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Business Development	Business Development	Burdin, James	Requires Re-submit	01/16/2024	02/13/2024	03/08/2024

Comments: • Demolition plan notes the existing sidewalk will remain – suggest adding that note to sheet C-4 as well or noting that proposed sidewalk will connect to existing
- The revised Parking Operations Memorandum is acknowledged and appreciated. The revisions provide much better support for the requested parking total.
- The reduction in proposed parking from 26 to 20 is noted and appreciated.
- Re: the 5 proposed “land-banked parking”
  - Monitoring demand before adding spaces seems reasonable and is preferred over installing 25 spaces immediately.
  - How will you evaluate whether more spaces are needed?
  - Please clarify whether the current CUP request would permit 20 spaces or 25 (i.e. would expansion require another CUP?).
  - Please confirm whether those spaces are accounted for in stormwater calculations, impervious surface totals, etc.

PLAN SNAPSHOT REPORT (SITE-2023-0011)

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
City Engineer	Community Services - Engineering	Mavrogeorge, Kenneth	Requires Re-submit	01/16/2024	01/29/2024	03/08/2024

Comments: Project: SITE-2023-0011: Proposed Bank (1-3 Webb Place)
TRC Meeting: March 7, 2024 (Meeting #3)
Reviewer: Ken Mavrogeorge, PE – City Engineer
Checked by: Engineering Staff
Comments:

- General Comment:
  - Previous Comment: Survey plans show additional right of way lines and NHDOT easements from a formal lot configuration prior to NHDOT work in the area (circa 1997-99). Applicant to coordinate with NHDOT and City to confirm ROW transfer is finalized and that NHDOT does not have ownership of portions of the subject property or have jurisdiction over the number of access points to Webb Place. Recommend this be a condition of approval prior to issuing a CO.
  - Previous Comment: Design Details still do not meet City of Dover Standards for utilities. Coordinate with Community Services (Engineering Department) for latest version of the City's Standard Details. It is not the intent for the applicant to copy the details onto the set but to use them as a minimum standard to meet. New Comment: Reach out to Community Services (City Engineer) for CAD File for standard details.
  - Previous Comment: Please provide a test pit in the proposed infiltration basin location and include the depth of ESHWT. New Comment: Show the location of test pits
  - Proposed Condition of approval prior to issuing CO: Engineering requests a letter certifying the tie in locations or discharge points for all sump pumps and roof leaders for existing and proposed structures on the property.
- ALTA Survey (Sheet 1 of 2):
  - Previous Comment: Existing NHDOT easements are shown. Applicant to clarify if these will be modified or discontinued. If so, applicant to provided updated deed showing easements are removed/modified. Proposed Condition of Approval prior to obtaining CO.
- Sheet C-4:
  - If banked spaces are constructed, vehicles would be parked beyond the stop bar. Is there a better spot for two of the banked spaces?
  - Is the ADA EV space accessible?
- Sheet C-6:
  - Proposed Condition of Approval prior to PB signing: Applicant to locate the sewer lateral and provide final connection detail to City Engineering office to approve.
  - If the water service is relocated to come from a source other than Central Ave, then the existing water service should be terminated at the main in Central Ave and abandoned per CS requirements. If the existing sidewalk is disturbed it will need to be reconstructed.
  - The proposed connection should be made into a finished water/Potable line not the raw water line in Webb Place.
  - The new curb stop should be located on the edge of the right of way in the non-paved surface.
  - Water meter should be inside the building not external.
  - Is the proposed 2-inch service for fire and domestic water?
  - Proposed Condition of Approval prior to obtaining CO: Applicant should engage with abutter to discuss and secure a sewer easement if one does not exist.
- Sheet C-12:
  - Sign posts should meet Dover standards if they are within the right of way.
  - Crosswalks should meet the NHDOT standard PM-15 (https://www.dot.nh.gov/sites/g/files/ehbemt811/files/inline-documents/02222021-pm-15-std.pdf)
- Sheet C-13:
  - Detail 1, 2, and 3 do not meet Dover Standards. See comments from prior TRC
- Sheet C-14:
  - Previous Comment: Provide details on foundation for clearance bar. Notes appear to be scanned and are not legible. New Comment: Provide detail with dimensions for bury depth, reinforcement, and diameter of clearance bar base.
  - Detail 2:
    - Sewer structures must meet NHDES Env Wq 700 requirements (more specifically Env Wq 704.12). Brick shelfs are required for new SMHs.
    - Manhole steps should be plastic. Detail is referenced but not provided
  - Detail 3:
    - Manhole steps should be plastic. Detail referenced but not provided
  - Detail 5:
    - Detail does not meet water and sewer standard Dover trench details.
  - Detail 6:
    - 6 ft of cover over sewer is required below pavement and 4 feet of cover below unpaved areas. If minimum cover is not attainable, 2-inch rigid foam insulation is required.
    - External cleanouts are not permitted.
  - Detail 7:
    - Incorrect Grate is shown. Type B NHDOT grate is the prefer grate.
    - Steps are not required for CB.
    - Please show the sump more accurately.
    - Oil Separator hood is required on CB outlet pipe. Please show.
- Sheet C-15:
  - Detail 2:
    - Does not meet City standard trench detail for water.
  - Detail 3:
    - Typical Trench Detail does not meet standard City detail for storm drain trench.
  - Previous Utility Trench Section
    - Crushed stone shall extend 12" above top of sewer pipe.

- Sand shall extend 12” above top of water pipe.
- See City standard for minimums and required materials.
- Previous Comment: Storm basin detail should show ESHWT to ensure it complies with NHDES recommendations.

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
IS Building Official	Fire / Inspection Services	Maxfield, Jim	Requires Re-submit	01/16/2024	01/29/2024	01/26/2024

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Planning	Planning	Kaspari, Jackson	Requires Re-submit	01/16/2024	02/13/2024	03/08/2024

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Zoning Administrator	Planning	Benton, Donna	Requires Re-submit	01/16/2024	01/29/2024	03/08/2024

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Traffic Bureau	Police	Speidel, Marn	Requires Re-submit	01/16/2024	01/29/2024	03/08/2024

Submittal Name	Status	Received Date	Due Date	Complete Date	Resubmit	Completed
Land Use Plan Technical Review v.3	In Review	03/15/2024	03/28/2024		No	No

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Business Development	Business Development	Burdin, James	In Review	03/15/2024	04/12/2024	

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
City Engineer	Community Services - Engineering	Mavrogeorge, Kenneth	In Review	03/15/2024	03/28/2024	

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
IS Building Official	Fire / Inspection Services	Maxfield, Jim	In Review	03/15/2024	03/28/2024	

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Planning	Planning	Benton, Donna	In Review	03/15/2024	04/12/2024	

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Zoning Administrator	Planning	Crouser, Paul	In Review	03/15/2024	03/28/2024	

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Traffic Bureau	Police	Speidel, Marn	In Review	03/15/2024	03/28/2024	

Workflow Step / Action Name	Action Type	Start Date	End Date
Review v.1		08/11/2023 11:16	01/16/2024 10:28
Confirm application complete v.1	Generic Action		08/10/2023 13:16
Confirm application complete v.1	Generic Action		10/16/2023 10:44
Technical Review Committee Meeting Agenda v.1	Task	10/16/2023 10:44	10/16/2023 11:57
Technical Review Committee Meeting Agenda v.1	Task	08/11/2023 11:16	08/11/2023 11:16
Land Use Plan Technical Review v.1	Receive Submittal	08/30/2023 0:00	12/05/2023 12:55
Land Use Plan Technical Review v.1	Receive Submittal	10/16/2023 0:00	01/16/2024 10:31
Land Use Plan Technical Review v.2	Receive Submittal	01/16/2024 0:00	03/08/2024 11:54
Land Use Plan Technical Review v.3	Receive Submittal	03/15/2024 0:00	
Technical Review Committee Meeting v.1	Hold Meeting	10/17/2023 10:49	01/16/2024 10:31
Technical Review Committee Meeting v.1	Hold Meeting	08/11/2023 11:16	10/16/2023 10:43
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 Final Review v.1	Receive Submittal
Land Use Plan Stamped and Signed v.1	Generic Action
Plans uploaded to Treeno v.1	Generic Action
Recording v.1	Task
Property Info Group 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 Complex v.1	Create Sub Permit
Create / Link to Permit - Site Work, Construction v.1	Create Sub Permit

STONEFIELD

March 14, 2024

Attn.: Technical Review Committee (TRC)
City of Dover
288 Central Avenue
Dover, NH 03820

RE: Site Review Application (SITE-2023-0011)
Proposed Chase Bank with Drive-Thru ATM
Map: 38, Lots 15A & 15B
1-3 Webb Place
City of Dover, Strafford County, New Hampshire

Our office is submitting documents on behalf of the Applicant to address the comments received at the latest Technical Review Committee (TRC) Meeting. Please see below highlights of the plans updates included in the resubmission, a full itemized response has been enclosed as well.

- *Permeable Parking Spaces – the additional parking spaces included as part of the CUP consist of permeable materials, the plans were updated to include eight (8) porous asphalt parking spaces.*
- *Stormwater Management Updates – the stormwater management design was updated to include the porous asphalt system and incorporate the latest soil test pits. It should be noted the Applicant is proposing to retain and infiltrate the entire 10-year storm event on-site.*
- *EV Charging Accessibility – the EV Layout has been modified to ensure ADA compliance in accordance with the latest recommendations from the Access Board.*

Please find the following items enclosed:

ITEM DESCRIPTION	DATED	COPIES	PREPARED BY
Project Narrative	03-14-2024	1	--
Waiver Justification Memorandum	03-14-2024	1	--
Site Plan (24" x 36")	03-14-2024	3	Stonefield Engineering & Design
Site Plan (11" x 17")	03-14-2024	5	Stonefield Engineering & Design
Stormwater Report	03-14-2024	1	Stonefield Engineering & Design
Operations & Maintenance Manual	03-14-2024	1	Stonefield Engineering & Design
Traffic Assessment Report	03-14-2024	1	Stonefield Engineering & Design
Parking Operations Memorandum	03-14-2024	1	Stonefield Engineering & Design
Will Serve Package	--	1	Consolidated Communications &

Should you have any questions regarding the submission items or responses above please do not hesitate to contact our office.

Regards,

Joshua H. Kline, PE
Stonefield Engineering and Design, LLC

Giovanni Cesar
Stonefield Engineering and Design, LLC

Via FedEx

CITY OF DOVER

TECHNICAL REVIEW COMMITTEE MINUTES – SITE-2023-0011

Application Type:	Site Review
Applicant(s):	Stonefield Engineering & Design
Owner(s):	Dover Retail Management, LLC & R W Realty Inc.
Location:	1-3 Webb Place (Map 38, Lots 15-A and 15-B)
Date:	March 7, 2024

INTENT: Proposal is for demolition of current building and constructing a 3,300-sf bank with a drive through ATM, (20) twenty parking spaces. One (1) related CUP application would also appear before the PB (COND-2023-0054). *[This item was previously heard by the Planning Technical Review Committee on August 31, 2023 and November 2, 2023]*

UNITS PROPOSED: N/A- One Bank proposed

AGENDA ITEM #: 1

ACREAGE: Total = 0.98± ac. / 42,879± sq. ft.
Parcel A = 26,376± sq. ft.
Parcel B = 16,503± sq. ft.

ZONING DISTRICT: C

EXISTING LAND USE: Multi-tenant Comm. Bldg

PROPOSED LAND USE: Commercial (Bank)

SURROUNDING LAND USE: Commercial, Residential, City of Dover land

ZBA ACTION:
- Z94-17, Variance granted for signage
- Z99-05A, Appeal of Admin. Det. for signage

PERMITS REQUIRED:
- CUP for §153-14.(D)(5), Off-Street Parking & Loading (proposed parking exceeds maximum)

WAIVERS REQUESTED:
- §153-14.(E)(2)(b), Parking area lighting, Uniformity Ratio
- §153-14.(E)(2)(b), Parking area lighting, Minimum Illumination Level

ATTENDANCE:
Donna Benton, Planning
Paul Crouser, Zoning
Marn Speidel, Police
Jim Maxfield, Fire/Inspection Services
Ken Mavrogeorge, Engineering
James Burdin, Business Development
Tom Clark, Planning Board
Others:
Josh Kline, Stonefield Engineering & Design
Giovanni Cesar, Stonefield Engineering & Design
Erin Bassegio, Planning
Abigail Gilbert, Business Development

Approval of minutes from February 22, 2024:
J. Burdin moved to approve the February 22, 2024 minutes. Seconded by M. Speidel. Vote: U/A.

PLAN REVIEW:
Planning:
- *Reminder: Impact fees, Water & Sewer investment fees*
- *Lot Merger for Parcels A and B*
- To permit multiple site access points, include a note for the 400-foot, all-season sight distance. Reference §157-50C(1)
- Provide waiver justification to Planning Board
- Additional parking requested must meet the CUP criteria including use of pervious materials. Reference §153-14D(5)(a)[4].
- Planning staff will review regulations pertaining to the Secondary Groundwater Protection District.
- *Revise plans:*
  - *Reduce lighting and meet lighting standards. Current plan is too bright and extends beyond property boundary.* Thank you for explanation of ATM security lighting. Please submit written permission from abutting property for lighting that extends beyond property boundary.
  - *Reduce parking. Remove more parking or request a phased approach.* Are the land-banked spaces intended to be part of a phased approach for increased parking? An additional CUP will be required for use of those spots, can be submitted with this application or in the future if spots are needed. Ensure CUP criteria have been met.
  - Remove signage as that's an administrative decision (directional signs OK to stay on plan)

Engineering:
- General Comment:
  - *Previous Comment: Survey plans show additional right of way lines and NHDOT easements from a formal lot configuration prior to NHDOT work in the area (circa 1997-99). Applicant to*

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coordinate with NHDOT and City to confirm ROW transfer is finalized and that NHDOT does not have ownership of portions of the subject property or have jurisdiction over the number of access points to Webb Place. **Recommend this be a condition of approval prior to issuing a CO.**
    - *Previous Comment: Design Details still do not meet City of Dover Standards for utilities. Coordinate with Community Services (Engineering Department) for latest version of the City's Standard Details. It is not the intent for the applicant to copy the details onto the set but to use them as a minimum standard to meet.* **New Comment: Reach out to Community Services (City Engineer) for CAD File for standard details.**
    - *Previous Comment: Please provide a test pit in the proposed infiltration basin location and include the depth of ESHWT.* **New Comment: Show the location of test pits**
    - ***Proposed Condition of approval prior to issuing CO: Engineering requests a letter certifying the tie in locations or discharge points for all sump pumps and roof leaders for existing and proposed structures on the property.***
- ALTA Survey (Sheet 1 of 2):
    - *Previous Comment: Existing NHDOT easements are shown. Applicant to clarify if these will be modified or discontinued. If so, applicant to provided updated deed showing easements are removed/modified.* ***Proposed Condition of Approval prior to obtaining CO.***
- Sheet C-4:
    - If banked spaces are constructed, vehicles would be parked beyond the stop bar. Is there a better spot for two of the banked spaces?
    - Is the ADA EV space accessible?
- Sheet C-6:
    - ***Proposed Condition of Approval prior to PB signing: Applicant to locate the sewer lateral and provide final connection detail to City Engineering office to approve.***
    - If the water service is relocated to come from a source other than Central Ave, then the existing water service should be terminated at the main in Central Ave and abandoned per CS requirements. If the existing sidewalk is disturbed it will need to be reconstructed.
    - The proposed connection should be made into a finished water/Potable line not the raw water line in Webb Place.
    - The new curb stop should be located on the edge of the right of way in the non-paved surface.
    - Water meter should be inside the building not external.
    - Is the proposed 2-inch service for fire and domestic water?
    - ***Proposed Condition of Approval prior to obtaining CO: Applicant should engage with abutter to discuss and secure a sewer easement if one does not exist.***
- Sheet C-12:
    - Sign posts should meet Dover standards if they are within the right of way.
    - Crosswalks should meet the NHDOT standard PM-15 (https://www.dot.nh.gov/sites/g/files/ehbemt811/files/inline-documents/02222021-pm-15-std.pdf)
- Sheet C-13:
    - Detail 1, 2, and 3 do not meet Dover Standards. See comments from prior TRC
- Sheet C-14:
    - *Previous Comment: Provide details on foundation for clearance bar. Notes appear to be scanned and are not legible.* **New Comment: Provide detail with dimensions for bury depth, reinforcement, and diameter of clearance bar base.**
    - Detail 2:
        - Sewer structures must meet NHDES Env Wq 700 requirements (more specifically Env Wq 704.12). Brick shelfs are required for new SMHs.
        - Manhole steps should be plastic. Detail is referenced but not provided
    - Detail 3:

DRAFT

- Manhole steps should be plastic. Detail referenced but not provided
- Detail 5:
  - Detail does not meet water and sewer standard Dover trench details.
- Detail 6:
  - 6 ft of cover over sewer is required below pavement and 4 feet of cover below unpaved areas. If minimum cover is not attainable, 2-inch rigid foam insulation is required.
  - External cleanouts are not permitted.
- Detail 7:
  - Incorrect Grate is shown. Type B NHDOT grate is the prefer grate.
  - Steps are not required for CB.
  - Please show the sump more accurately.
  - Oil Separator hood is required on CB outlet pipe. Please show.

- Sheet C-15:
  - Detail 2:
    - Does not meet City standard trench detail for water.
  - Detail 3:
    - Typical Trench Detail does not meet standard City detail for storm drain trench.
  - Previous Utility Trench Section
    - Crushed stone shall extend 12" above top of sewer pipe.
    - Sand shall extend 12" above top of water pipe.
    - See City standard for minimums and required materials.
  - *Previous Comment: Storm basin detail should show ESHWT to ensure it complies with NHDES recommendations.*

Police:

- All previous comments addressed.

Fire/Inspection Services:

- Provide turning template for T-1
- Electrical Equipment appears to project greater than 4" into the accessible rout e to the structure.
- Provide accessible sign detail for EV charging station within plan set.
- Discuss EV charger locations and dimensional requirements.
- Discuss overall architectural renderings

Business Development:

- Demolition plan notes the existing sidewalk will remain – suggest adding that note to sheet C-4 as well or noting that proposed sidewalk will connect to existing
- The revised Parking Operations Memorandum is acknowledged and appreciated. The revisions provide much better support for the requested parking total.
- The reduction in proposed parking from 26 to 20 is noted and appreciated.
- Re: the 5 proposed "land-banked parking"
  - Monitoring demand before adding spaces seems reasonable and is preferred over installing 25 spaces immediately.
  - How will you evaluate whether more spaces are needed?
  - Please clarify whether the current CUP request would permit 20 spaces or 25 (i.e. would expansion require another CUP?).
  - Please confirm whether those spaces are accounted for in stormwater calculations, impervious surface totals, etc.
  - Updated floor plans required.

Planning Board:

- None.

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Next Steps: Revise plans to add items mentioned in comments. Resubmit for fourth TRC review.

Adjournment:
P. Crouser moved to adjourn at 11:15 a.m. Seconded by: K. Mavrogeorge. Vote: U/A.

DRAFT

The following is an itemized response to the comments contained within the City of Dover Technical Review Committee Review Letter dated March 7, 2024. For the sake of brevity, any comments that are statements of fact or have been previously addressed are not included in the response below:

Planning:

1. *Reminder: Impact fees, Water & Sewer investment fees*

   Acknowledged.

2. *Lot Merger for Parcels A and B*

   Acknowledged.

3. *To permit multiple site access points, include a note for the 400-foot, all-season sight distance. Reference §157-50C(1)*

   Based on a review of Chapter 157 'Land Subdivision Regulations' these regulations would not be applicable to this application as the applicant is not proposing any subdivision of land. The second driveway proposed is limited to a right-in only driveway. We feel proper and safe sight distance is being provided.

4. *Provide waiver justification to Planning Board*

   The Waiver Justification Summary has been separated from the Project Narrative and included in the resubmission package.

5. *Additional parking requested must meet the CUP criteria including use of pervious materials. Reference §153-14D(5)(a)[4].*

   The submission documents have been updated to include eight (8) permeable parking spaces consisting of porous asphalt.

6. *Planning staff will review regulations pertaining to the Secondary Groundwater Protection District.*

   Acknowledged.

7. *Revise plans:*

   - *Reduce lighting and meet lighting standards. Current plan is too bright and extends beyond property boundary. Thank you for explanation of ATM security lighting. Please submit written permission from abutting property for lighting that extends beyond property boundary.*

     The Applicant will agree to engage with the abutting property owner to discuss the light trespass and provide documentation to the City as deemed necessary by the Board. Alternatively, if the neighboring property is not willing corporate the Applicant would propose a solid fence to prevent spillage. It should be noted the adjacent property owner has area lights adjacent to the subject property which currently spillover on the site.

   - *Reduce parking. Remove more parking or request a phased approach. Are the land-banked spaces intended to be part of a phased approach for increased parking? An additional CUP will be required for use of those spots, can be submitted with this application or in the future if spots are needed. Ensure CUP criteria have been met.*

The land-banked parking has been removed as part of this application. Further consideration for land-banked parking shall be provided in a separate conditional use permit application in the future.

- *Remove signage as that's an administrative decision (directional signs OK to stay on plan)*

  The submission materials have been revised to remove proposed signage excluding directional signage for circulation purposes.

Engineering:

General Comment:

1. *Previous Comment: Survey plans show additional right of way lines and NHDOT easements from a formal lot configuration prior to NHDOT work in the area (circa 1997-99). Applicant to coordinate with NHDOT and City to confirm ROW transfer is finalized and that NHDOT does not have ownership of portions of the subject property or have jurisdiction over the number of access points to Webb Place.*

   Recommend this be a condition of approval prior to issuing a CO.

   No objection.

2. *Previous Comment: Design Details still do not meet City of Dover Standards for utilities. Coordinate with Community Services (Engineering Department) for latest version of the City's Standard Details. It is not the intent for the applicant to copy the details onto the set but to use them as a minimum standard to meet.*

   New Comment: Reach out to Community Services (City Engineer) for CAD File for standard details.

   The Construction Details have been revised to include the City of Dover Standard Construction Details.

3. *Previous Comment: Please provide a test pit in the proposed infiltration basin location and include the depth of ESHWT.*

   New Comment: Show the location of test pits

   The Site Plans have been revised to include the locations of the three (3) test pits performed.

4. *Proposed Condition of approval prior to issuing CO: Engineering requests a letter certifying the tie in locations or discharge points for all sump pumps and roof leaders for existing and proposed structures on the property.*

   No objection.

ALTA Survey (Sheet 1 of 2):

1. *Previous Comment: Existing NHDOT easements are shown. Applicant to clarify if these will be modified or discontinued. If so, applicant to provided updated deed showing easements are removed/modified.*

   Proposed Condition of Approval prior to obtaining CO.

   No objection.

Sheet C-4:

1. *If banked spaces are constructed, vehicles would be parked beyond the stop bar. Is there a better spot for two of the banked spaces?*

   The land-banked parking has been removed as part of this application.

2. *Is the ADA EV space accessible?*

   The Site Plan (Sheet C-4) has been revised to propose ADA EV parking spaces in accordance with federal accessibility requirements.

Sheet C-6:

1. *Proposed Condition of Approval prior to PB signing: Applicant to locate the sewer lateral and provide final connection detail to City Engineering office to approve.*

   No objection.

2. *If the water service is relocated to come from a source other than Central Ave, then the existing water service should be terminated at the main in Central Ave and abandoned per CS requirements. If the existing sidewalk is disturbed it will need to be reconstructed.*

   The Utility Plan (Sheet C-6) has been revised to propose a domestic water service connection to an existing stub within the property limits that taps off of Central Avenue.

3. *The proposed connection should be made into a finished water/Potable line not the raw water line in Webb Place.*

   The Utility Plan (Sheet C-6) has been revised to propose a domestic water service connection to an existing stub within the property limits that taps off of Central Avenue.

4. *The new curb stop should be located on the edge of the right of way in the non-paved surface.*

   The Utility Plan (Sheet C-6) has been revised to propose a domestic water service connection to an existing stub within the property limits that taps off of Central Avenue.

5. *Water meter should be inside the building not external.*

   The Utility Plan (Sheet C-6) has been revised to remove the external remote read water meter. The water meter shall be internal to the building.

6. *Is the proposed 2-inch service for fire and domestic water?*

   The proposed 2-inch service is for domestic water only.

7. *Proposed Condition of Approval prior to obtaining CO: Applicant should engage with abutter to discuss and secure a sewer easement if one does not exist.*

   No objection.

Sheet C-12:

1. *Sign posts should meet Dover standards if they are within the right of way.*

   The sign post detail has been revised in accordance with the City of Dover construction standards.

2. *Crosswalks should meet the NHDOT standard PM-15 (https://www.dot.nh.gov/sites/g/files/ehbemt811/files/inline-documents/02222021-pm-15-std.pdf)*

   The Site Plan (Sheet C-4) has been revised to propose crosswalks in accordance with NHDOT standards. The Construction Details have been revised to include the NHDOT pavement marking standard.

Sheet C-13:

1. *Detail 1, 2, and 3 do not meet Dover Standards. See comments from prior TRC*

   The Construction Details have been revised to include the City of Dover Standard manhole and catch basin details, propose the Type 'B' inlet grate and frame, and the R-1743-LM.

Sheet C-14:

1. *Previous Comment: Provide details on foundation for clearance bar. Notes appear to be scanned and are not legible.*

   New Comment: Provide detail with dimensions for bury depth, reinforcement, and diameter of clearance bar base.

   The Sign Post Detail has been revised to meet City of Dover construction standards.

2. *Detail 2:*

   - *Sewer structures must meet NHDES Env Wq 700 requirements (more specifically Env Wq 704.12). Brick shelfs are required for new SMHs.*

     The Construction Details have been revised to remove the sanitary sewer detail.

   - *Manhole steps should be plastic. Detail is referenced but not provided*

     The Construction Details have been revised to remove the sanitary sewer detail.

3. *Detail 3:*

   - *Manhole steps should be plastic. Detail referenced but not provided*

     The Construction Details have been revised to propose plastic rungs for the manhole ladder.

4. *Detail 5:*

   - *Detail does not meet water and sewer standard Dover trench details.*

     The Construction Details have been revised to include the Standard Dover trench details.

5. *Detail 6:*

- *6 ft of cover over sewer is required below pavement and 4 feet of cover below unpaved areas. If minimum cover is not attainable, 2-inch rigid foam insulation is required.*

  The Construction Details have been revised to include the Standard Dover trench details and denote 2" rigid insulation required where minimum cover is not met.

- *External cleanouts are not permitted.*

  The Construction Details have been revised to remove the external cleanout from the Sewer Service Connection Detail.

6. *Detail 7:*

   - *Incorrect Grate is shown. Type B NHDOT grate is the prefer grate.*

     The Construction Details have been revised to include the Standard Dover catch basin detail.

   - *Steps are not required for CB.*

     The Construction Details have been revised to include the Standard Dover catch basin detail.

   - *Please show the sump more accurately.*

     The Construction Details have been revised to include the Standard Dover catch basin detail.

   - *Oil Separator hood is required on CB outlet pipe. Please show.*

     The Construction Details have been revised to include the Standard Dover catch basin detail.

<u>Sheet C-15:</u>

1. *Detail 2:*

   - *Does not meet City standard trench detail for water.*

     The Construction Details have been revised to include the Standard Dover water trench detail.

2. *Detail 3:*

   - *Typical Trench Detail does not meet standard City detail for storm drain trench.*

     The Construction Details have been revised to include the Standard Dover storm trench detail.

3. *Previous Utility Trench Section*

- *Crushed stone shall extend 12" above top of sewer pipe.*

  The Construction Details have been revised to include the Standard Dover utility trench detail.

- *Sand shall extend 12" above top of water pipe.*

  The Construction Details have been revised to include the Standard Dover water trench detail.

- *See City standard for minimums and required materials.*

  - *Previous Comment: Storm basin detail should show ESHWT to ensure it complies with NHDES recommendations.*

    A Supplemental Stormwater Management Area Evaluation was performed by Whitestone Associates Inc. in which 3 test pits were performed and concluded that groundwater was not encountered during the investigations.

Fire/Inspection Services:

1. *Provide turning template for T-1*

   The Truck Turning template has been included in the resubmission package.

2. *Electrical Equipment appears to project greater than 4" into the accessible route to the structure.*

   The EV Spaces have been updated to conform with applicable ADA requirements.

3. *Provide accessible sign detail for EV charging station within plan set.*

   The accessible EV space has been noted to provide compliant signage. The signage is supplied by the sign vendor for the project.

4. *Discuss EV charger locations and dimensional requirements.*

   See response #2 above.

5. *Discuss overall architectural renderings*

   The feedback was received at the meeting and appreciated by the Project Team, the Applicant wishes to continue the process forward with the Board. The proposed architecture is a significant enhancement to the corridor and will be a significant improvement based on the existing and surrounding architecture such as the Chilis and Verizon Store across the street, and the adjacent strip mall (Convenient MD, T-Mobile, etc.).

Business Development:

1. *Demolition plan notes the existing sidewalk will remain – suggest adding that note to sheet C-4 as well or noting that proposed sidewalk will connect to existing*

The Site Plan (Sheet C-4) has been revised to provide the corresponding note for the protection of the existing sidewalk.

2. *The revised Parking Operations Memorandum is acknowledged and appreciated. The revisions provide much better support for the requested parking total.*

   Acknowledged.

3. *The reduction in proposed parking from 26 to 20 is noted and appreciated.*

   Acknowledged.

4. *Re: the 5 proposed "land-banked parking"*

   - *Monitoring demand before adding spaces seems reasonable and is preferred over installing 25 spaces immediately.*
   - *How will you evaluate whether more spaces are needed?*
   - *Please clarify whether the current CUP request would permit 20 spaces or 25 (i.e. would expansion require another CUP?).*
   - *Please confirm whether those spaces are accounted for in stormwater calculations, impervious surface totals, etc.*

     The land-banked parking has been removed as part of this application.

   - *Updated floor plans required.*

     Updated floor plans have been included as part of the resubmission package.

STONEFIELD

March 14, 2024

Project Narrative
Site Review Application (SITE-2023-0011)
Condition Use Permit (CUP)
Proposed Chase Bank with Drive-Up ATM
Map: 38, Lots 15A & 15B
1-3 Webb Place
City of Dover, Strafford, New Hampshire

On behalf the Applicant, Stonefield Engineering and Design, has prepared the following Project Narrative to outline the proposed project and provide support for the application. The subject property is located at the northwesterly quadrant of the intersection of Central Avenue (NH Route 9) and Webb Place in the City of Dover, Strafford County, New Hampshire. The subject property is designated as Map 38, Lots 15A and 15B as depicted on the City of Dover Tax Map. The site has approximately 160 feet of frontage along Central Avenue and approximately 390 feet of frontage along Webb Place. The existing site contains a multi-level building operating with various office and personal service uses with existing access via one (1) full-movement driveway on Webb Place. The Applicant has filed a Site Plan Review Application and requires a Condition Use Permit (CUP) for Section 153-14(D)(5) Off-Street Parking & Loading.

The proposed project consists of demolishing the existing structure and razing the site for a proposed 3,300 SF Chase Bank with drive-thru ATM and 20 parking spaces (with 5 additional land-banked parking spaces). The access consists of the existing full-movement driveway on Webb Place being maintained and improved upon and one (1) additional right-ingress only driveway on Webb Place along the southerly property extent.

The application consists of a Conditional Use Permit (CUP) for Section 153-14(D)(5) Off-Street Parking & Loading to allow the project to exceed the maximum parking requirement (12 required and 20 spaces proposed). The proposed Chase Bank is a financial institution providing traditional modern banking services as well as financial planning and advisement services. Parking for Chase's employees and customers is essential for its operation and to allow the business to operate safely. Safety and convenience is essential for Chase and providing adequate and available parking on-site is a key for their success. There is no available off-street parking within the vicinity of the project and it is essential for Chase's customers to have adequate and safe parking on-site. A Parking Operations Memorandum has been submitted providing justification for the proposed Conditional Use Permit and parking sought with the application. The project complies with the conditional use requirements by providing additional EV Charging Spaces including an accessible EV Charging space and eight (8) porous asphalt parking spaces. There will be no detrimental effects on the surrounding properties as a result of the approval. The project will reduce impervious surfaces by almost 10,000 SF and the proposed building is almost half the size of the existing building.

In conclusion the granting of the Site Plan Review Application, Condition Use Permit (CUP) and associated design waivers(s) will not have any detrimental impact on the surrounding properties, community, and/or City of Dover. The proposed redevelopment project provides a great opportunity to redevelop a compromised site located at a highly visible and desirable intersection within the City.

STONEFIELD

March 14, 2024

Waiver Request Summary
Site Review Application (SITE-2023-0011)
Condition Use Permit (CUP)
Proposed Chase Bank with Drive-Up ATM
Map: 38, Lots 15A & 15B
1-3 Webb Place
City of Dover, Strafford, New Hampshire

On behalf the Applicant, Stonefield Engineering and Design, has prepared the following Waiver Justification Summary in accordance with Chapter 153, Section 21 of the 'Site Review Regulations' to outline the waivers associated with the application and provide support for the granting of the waivers.

Please see below for a summary of the waivers associated with the application and associated justification. The granting of the associated waivers complies with City of Dover Site Review Regulations and the granting of the requested waivers would not create any detrimental effects to the surrounding properties, the community, and/or the City. It should be noted the Applicant has worked with the Technical Review Committee as well as the design team professionals to minimize waivers associated with the application (previous submission included five waivers for reference).

1. ***Section 153-14(E)(2)(b) Parking Area Lighting – Uniformity Ratio shall not be greater than 6:1***
   The Applicant is seeking a waiver to permit a uniformity ration of 11.2:1 whereas 6:1 is the requirement. The waiver is being requested by having to maintain security light-level standards within 50-feet of the drive-up ATM and ATM vestibule, and accessible path in order to ensure compliance with Chase's security standards and industry requirements to ensure safety on-site. The intent of the uniformity ratio is to minimize the hot spot effect on standard parking lot applications, however as this is a banking use it is critical to provide areas of enhanced lighting for safety and security purposes.

   Strict conformance with this standard creates an unnecessary hardship for the Applicant and would be counterintuitive to the intent of the requirement as it would result in an unnecessarily bright parking lot. The proposed lighting design meets the intent of the requirement overall and will not have an adverse impact on the neighboring properties and/or the community. It should also be noted the project is surrounded by commercial uses and no impact to residents would result in the granting of the waiver.

2. ***Section 153-14(E)(2)(b) Parking Area Lighting – Minimum Illumination Level***
   The Applicant is seeking a waiver to permit a minimum illumination level of 1.0 FC within the darkest spot of parking spaces whereas 0.3 FC to 0.5 FC is required. The waiver is being requested by having to maintain security light-level standards for the drive-up ATM and ATM Vestibule, and the accessible path in order to ensure compliance with Chase's security standards and industry requirements to ensure safety on-site. The intent of the requirement is set a minimum illumination for various uses

parking lots, however as noted above given this is a banking use it is critical to provide adequate lighting for security and safety purposes.

Strict conformance with this standard creates an unnecessary hardship for the Applicant and would be counterintuitive to the intent of the requirement as it would result in the Applicant forcing a parking space to be inadequately lit and would further intensify the relief associated with the uniformity ratio. The proposed lighting design meets the intent by having parking areas on-site not unnecessarily lit and will not have an adverse impact on the neighboring properties and/or the community.

In support of the lighting waivers highlighted above please refer to the enclosed table which outlines the minimum illumination standards provided by Illuminating Engineering Society of North America (IESNA) resources in comparison to the Chase Banks Physical Security Illumination Standards along with the proposed light levels. This is an important reference to highlight the design intent of the lighting and to showcase the standards we are seeking a waiver from do align with industry standards and state laws for financial institutions and ATMs.

It also includes a summary of ATM lighting standards from states across the country who regulate Automated Teller Machine (ATM) and Financial Institution (Bank) security lighting to ensure proper security lighting and public safety is met on-site. It can be seen the Chase's Physical Security Illumination Standards and the proposed lighting associated with the project align with Illuminating Engineering Society of North America (IESNA) recommendations as well as security lighting standards across the country.

Additionally based on the Illuminating Engineering Society of North America (IESNA) 'Lighting for Parking Facilities' it is recommended for all parking lots for any activity level (not for security purposes) have maintained minimum illuminance of 2 FC with a uniformity ratio of 15:1. The proposed light levels being requested seem higher when isolated on paper as the pedestrian areas, parking lots, and driveway illumination levels are increased by the necessary security lighting requirements. The proposed lighting on-site is consistent with industry standards and state regulations across the country and is necessary to ensure proper safety across the site.

In conclusion the granting of the associated design waivers(s) will not have any detrimental impact on the surrounding properties, the community, and/or the City of Dover. The proposed redevelopment project provides a great opportunity to redevelop a compromised site located at a highly visible and desirable intersection within the City.

Table 1: Summary of ATM Lighting Standards

Security Zone (From ATM or Vestibule Entrance)	5 FT RADIUS	30 FT RADIUS	50 FT RADIUS	60 FT RADIUS	Pedestrian Path and Parking Ares
	Min. Illuminance (FC) Measured Height	*Min. Illuminance (FC) Measured Height*	*Min. Illuminance (FC) Measured Height*	*Min. Illuminance (FC) Measured Height*	*Min. Illuminance (FC) Measured Height*
The Lighting Handbook (IESNA 10th Edition)	20 FC (ATM) 4 FC (Door) At 3 FT	--	--	--	4 FC At 3 FT
Guide For Security Lighting for People, Property, and Critical Infrastructure (IESNA Latest)	10 FC At 5 FT	--	--	3 FC At Grade	3 FC (Parking) 2 FC (Pedestrian) At 3 FT
Chase Security Standards	10 FC At 3 FT	--	2 FC At 3 FT	--	2 FC At 3 FT
Regulated States (*) • *New York* • *California* • *District of Columbia* • *Florida* • *Georgia* • *Illinois* • *Louisiana* • *Maryland* • *Nevada,* • *New Jersey* • *New York* • *Oregon* • *Texas* • *Washington* • *Alabama* • *Connecticut* • *Kansas* • *Kentucky* • *Massachusetts* • *Montana* • *Missouri* • *Rhode Island* • *Virginia*	10 FC At 3 FT	2 FC At 3 FT	2 FC At 3 FT	2 FC (Parking) At 3 FT	--

(*) Laws or regulation may vary state to state, the following table is a compilation of most common standards. For reference New York State takes measurements at 5-feet (more conservative).

STONEFIELD

STORMWATER MANAGEMENT REPORT

PROPOSED BANK WITH DRIVE-THRU ATM
TAX MAP 38, LOTS 15A & 15B
1 – 3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

PREPARED FOR:
CORE STATES GROUP

PREPARED BY:
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REPORT DATE: **JULY 31, 2023**
LAST ISSUED: **MARCH 14, 2024**

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1.0 PROJECT DESCRIPTION

Core States Group is proposing to redevelop Tax Map 38, Lots 15A & 15B, commonly known as 1 – 3 Webb Place, located at the corner of Webb Place and Central Avenue (herein referred to as the "project site") for construction of a proposed Chase Bank with drive-up ATM. Please refer to the Project Narrative submitted with the application for a summary of the proposed improvements.

The property is located within Zone C (Commercial District). The proposed development is bounded by other existing commercial uses to all sides, including retail, restaurants, a bank and hotels. Refer to **APPENDIX A** for project maps of the project site.

The project site is 42,879 SF (0.98 acres) and the extent of land disturbance is 45,473 SF (1.04 acres). The existing site consists of 31,923 SF of impervious surfaces, the proposed development will consist of 22,508 SF of impervious surfaces, resulting in a net decrease of 9,512 SF of impervious surfaces within the site.

In accordance with the City of Dover Site Plan Review Regulations the project is defined as a Redevelopment Project and has been designed in compliance with the Redevelopment Stormwater Standards. The project disturbs over 20,000 SF (overall reduces impervious surfaces) of a previously developed commercial property.

This Report has been prepared to analyze the potential stormwater runoff impacts of the proposed project site and outline proposed measures to conform to the stormwater management regulations set forth by the City of Dover and the New Hampshire Department of Environmental Services (NHDES).

2.0 EXISTING CONDITIONS

EXISTING SITE DEVELOPMENT

The project site has frontage on Webb Place to the south and west, and Central Avenue (Route 9) to the northeast. The existing development on site currently has a 6,444 SF commercial building and an appurtenant parking lot. These features are to be removed as part of the proposed redevelopment. An Aerial Map depicting the existing site conditions can be found in **APPENDIX A**.

EXISTING TOPOGRAPHY

The high point of the project site is at the northern corner of the lot along the Central Avenue frontage. On-site topography slopes generally to the south and west, toward Webb Place. Grades on site generally range from 2% to 10% within the previously developed areas. Stormwater runoff from the site drains overland to the existing storm inlets and conveyance system within Webb Place.

PROJECT SITE SOILS

Soil mapping was obtained from the National Resource Conservation Service (NRCS) for the project site and immediate area. Generally, the project site is underlain with soils from the Hinckley group, a loamy sand. The soils are considered excessively drained per NRCS, and runoff flows overland to the southwest of the site and the Webb Place frontage. The table below provides a summary of soils for the project site:

TABLE 1: NRCS SOIL MAPPING RESULTS

Soil Unit Code	Soil Description	Approximate Project Coverage	Drainage Class	Hydrologic Soil Group
HaB	Hinckley Loamey Sand 3% to 8% Slopes	59.0%	Excessively drained	A
HbE	Hinckley Loamey Sand 15% to 60% Slopes	41.0%	Excessively drained	A

Additional information regarding the NRCS soil mapping can be found in **APPENDIX B**.

A report entitled "Report of Geotechnical Investigation" was performed by Whitestone Associates, Inc., dated 3/21/2023. Seven borings were performed as part of the investigation. The soils onsite primarily consisted of silty sand and gravel fill associated with prior development ranging from depths of 3.5 to 10.5 feet below grade. Beneath the surface and fill materials, the native soils generally consisted of silt, sand and gravel to a depth of 12.0 to 22.0 feet below grade. Groundwater was not noted in any of the borings performed. A copy of the investigation can be found in **APPENDIX B**.

EXISTING ENVIRONMENTAL INVENTORY

Based on the effective FEMA flood insurance rate mapping (FEMA Map #33017C0310E issued 09/30/2015), the entirety of the site is not located within the 100-year flood plain. The FEMA Map can be found in **APPENDIX A** of this Report.

There are no federal (US Army Corps of Engineers) or state (NHDES) regulated freshwater wetlands within 100 feet of the project site. Impacts to nearby freshwater wetlands are not anticipated with the proposed development. No records of endangered or threatened species sightings / suitable habitats are located within the vicinity of the proposed improvements.

3.0 PROPOSED CONDITIONS

PROPOSED SITE DEVELOPMENT

The proposed redevelopment will consist of demolishing the existing structure and razing the existing site for the construction of a bank with drive-thru associated site improvements. Please refer to the Site Plans prepared by our office for the full scope of site improvements associated with the project.

PROPOSED TOPOGRAPHY

Project site topography and drainage patterns will generally remain similar to existing conditions; however, due to the need for more commercially friendly, ADA compliant grades, regrading of the parking areas and sidewalks will be implemented through the project to change grades in the improved areas. The general drainage patterns will be maintained as part of the proposed redevelopment.

ANTICIPATED ENVIRONMENTAL INVENTORY IMPACTS

The proposed redevelopment will not disturb land within environmentally regulated areas. All proposed improvements are located within areas of previous development and/or existing disturbed areas. The project does not trigger and/or require any NHDES permitting.

4.0 STORMWATER MANAGEMENT METHODOLOGY & PARAMETERS

HYDROLOGIC METHODOLOGY

The analysis program "HydroCAD" Version 10.20 by HydroCAD Software Solutions was utilized to calculate and plot the runoff hydrographs. The program incorporates the time of concentration, C values, rainfall data, and project drainage areas to calculate the runoff characteristics. The existing and proposed drainage areas have been analyzed utilizing the rainfall data for New Hampshire as provided in Appendix A of the New Hampshire Stormwater Manual for the project area**.** Additional key variables utilized in the analysis include:

TABLE 2: HYDROCAD DESIGN VARIABLES

Variable	**Input**	**Variable**	**Input**
Runoff Calculation Method	SCS TR-20	NRCS Rainfall Frequency Data Set	Dover
Pervious/Impervious CN Calculations	Separate	Storm Intervals (Year Events)	2, 10, 25, 50
Stage-Storage Relationship	Dynamic	Storm Duration	24 Hours
Minimum time of concentration	6 minutes	Storm Curve	Type III

Additional information regarding the hydrologic calculations can be found in **APPENDIX C**.

HYDRAULIC METHODOLOGY

The analysis program "HydraFlow Storm Sewers" Version 2020 by Autodesk was utilized to generate hydraulic grade lines through the proposed conveyance system model based on various pipe / junction losses and the runoff tributary to each inlet or discharge structure. Additional key variables utilized in the analysis include:

TABLE 3: HYDRAFLOW DESIGN VARIABLES

Variable	**Input**	**Variable**	**Input**
Runoff Calculation Method	Rational	Pipe Conveyance Method	Std. Step
C-value for impervious surfaces	0.95	Initial Hydraulic Grade Line	Normalized
C-value for pervious surfaces	0.35	Inlet Drainage Area Delineation	Surveyed
Minimum time of concentration	6 minutes	Inlet Geometry & Capacity	NHDOT Std.

Additional information regarding the hydrologic calculations can be found in **APPENDIX C**.

5.0 STORMWATER ANALYSIS

EXISTING DRAINAGE AREAS

Under current conditions, the project consists of one (1) drainage area and point of interest (POI) located along the property frontage on Webb Place. The exiting stormwater runoff from the site flows overland to the south and west to Webb Place, where it is collected by a series of catch basins within the right-of-way. See below for a short summary:

TABLE 4: SUMMARY OF EXISTING DRAINAGE AREAS

Drainage Area	Description	Area Extents	Impervious Area	Time of Concentration
E-1	Existing Overland Drainage to Webb Place	42,879 SF	32,020 SF	6.0 Minutes

***The minimum time of concentration was utilized due to the high level of impervious coverage and proximity to the corresponding point of interest.**

The existing drainage area was delineated based on field surveying data. Hydrologic calculations and parameters for each drainage area can be found in **APPENDIX C**; specific drainage area delineations and land cover can be found in **APPENDIX D.**

PROPOSED DRAINAGE AREAS

Under proposed conditions, the general drainage pattern and ultimate point of interest will be maintained. The intent behind the proposed delineations is to reduce the amount of direct runoff to the Stormwater Conveyance system within Webb Place. The on-site impervious surfaces will be collected by a new conveyance system within the proposed parking area directed to a proposed Aboveground Infiltration Basin (B-1) as well as a Pervious Pavement System (PV-1). See below for a short summary of each area:

TABLE 5: SUMMARY OF PROPOSED DRAINAGE AREAS

Drainage Area	Description	Area Extents	Impervious Area	Time of Concentration
P-1A	Proposed Drainage to Aboveground Infiltration Basin	33,098 SF	18,087 SF	6.0 Minutes*
P-1B	Proposed Bypass Drainage to Municipal Conveyance System	5,162 SF	0 SF	6.0 Minutes*
P-1C	Proposed Drainage to Pervious Pavement System	4,619 SF	4,421 SF	6.0 Minutes*
POI (P-1)	Ultimate Point of Interest: Municipal Conveyance System	**42,879 SF**	**22,508 SF**	N/A

***The minimum time of concentration was utilized due to the high level of impervious coverage / land disturbance and proximity to existing and proposed stormwater pipe conveyance systems.**

All proposed drainage areas were delineated based on the proposed grading design overlain on field survey data. Hydrologic calculations and parameters for each drainage area can be found in **APPENDIX C**; specific drainage area delineations and land cover can be found in **APPENDIX D.**

STORMWATER MANAGEMENT DESIGN PARAMETERS

In accordance with the City of Dover Site Review Regulations the project is defined as a redevelopment project and is subject to the Redevelopment Standards. The project has been designed in compliance with Section 149-14 Site Development Design Criteria, and the following section highlights compliance with Section A 'Stormwater Management, Erosion Control, and Flood Hazards.

The project incorporates Low Impact Design (LID) Measures including minimizing impervious surfaces on-site and incorporating Best Management Practices (BMPs) including aboveground infiltration areas to provide enhanced eater quality treatment.

See below for a summary of each design parameter and compliance requirements:

TABLE 6: STORMWATER DESIGN STANDARDS SUMMARY

Design Criteria	Design Target for Compliance
Stormwater Runoff Quality	**City of Dover Redevelopment Standard –** In accordance with Section 149-14(A)(3)(c)(ii) the project is required to Implement measures onsite that result in mitigation and treatment of at least thirty percent (30%) of the existing impervious cover as well as fifty percent (50%) of the additional proposed impervious surfaces and pavement areas through the application of LID; or Implement other LID techniques onsite to the MEP to provide mitigation and treatment for at least fifty percent (50%) of the entire site area.
Groundwater Recharge	**City of Dover Requirement –** No City of Dover Redevelopment Standard. **Design Intent –** Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measure maintain 100% of the average annual pre-construction groundwater recharge volume for the site.
Channel Protection	**City of Dover Requirement –** No City of Dover Redevelopment Standard. **Design Intent –** Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, the post-construction peak runoff rate for the 2-year storm event does not exceed the pre-construction peak runoff rate.
Peak Runoff Control	**City of Dover Requirement –** No City of Dover Redevelopment Standard. **Design Intent –** Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction peak runoff rates for the 10-, 25- 50-year storm events do not exceed the pre-construction peak runoff rates for the same storm events.

STORMWATER RUNOFF QUALITY

In accordance with Section 149-14(A)(3)(c)(ii) the project is required to Implement measures onsite that result in mitigation and treatment of at least thirty percent (30%) of the existing impervious cover as well as fifty percent (50%) of the additional proposed impervious surfaces and pavement areas through the application of LID; or Implement other LID techniques onsite to the MEP to provide mitigation and treatment for at least fifty percent (50%) of the entire site area. The project implements an aboveground infiltration system in order to provide the necessary water quality treatment (TSS removal). It should be noted that project significantly reduces impervious surfaces in comparison to existing condition following Low Impact Development (LID) techniques including minimizing on-site impervious surfaces.

The project proposes to capture all on-site impervious surfaces whereas only 50% of the entire site is required to be treated. The on-site impervious area will then be discharged to the proposed aboveground infiltration basin in order to provide the necessary water quality treatment. The aboveground infiltration basin has been expanded in order to provide additional treatment on-site and the outlet control has been designed to ensure it can safely convey larger stormwater events to the public conveyance system within Webb Place. Please see below tables summarizing compliance with the water quality requirements and a summary of the infiltration basin design parameters. Detailed calculations can be found in **APPENDIX C**.

TABLE 7: Water Quality Treatment Summary

Required Water Quality Surface Area to be Treated	11,254 SF
Proposed Water Quality Surface Area to be Treated	**22,508 SF**
Required Water Quality Volume Treated	1,867 CF
Proposed Water Quality Volume Treated	**1,986 CF**

TABLE 8: SUMMARY OF INFILTRATION SYSTEM

WQ Storage Volume	1,986 CF
WQ Storage Elevation	193.30 FT
Peak Storage Volume	6,212 CF
Peak Storage Elevation	195.00 FT

GROUNDWATER RECHARGE

Through the implementation of Low Impact Design (LID) techniques to minimize impervious surfaces on-site and the implementation of best management practices (BMP) including an aboveground infiltration system and pervious pavement system the project naturally maintains the groundwater recharge design criteria by maintaining the pre-development groundwater recharge volumes.

CHANNEL PROTECTION

Stormwater runoff is controlled by the implementation of deep sump catch basins, roof leaders, pervious pavement and infiltration systems which ultimately discharge to the municipal stormwater conveyance system within Webb Place. The proposed reduction in the overall impervious surfaces on-site will naturally reduce runoff the peak flow and runoff volume for the site. The two-year storm event peak flow rate and runoff volume discharges are summarized in the below tables.

PEAK RUNOFF CONTROL

Through the implementation of Low Impact Design (LID) techniques to minimize impervious surfaces on-site and the implementation of best management practices (BMP) including an aboveground infiltration system and pervious pavement system the project reduces the peak flow rates and runoff volumes for all design storms. The tables below summarize the flow rates and runoff volumes for all regulatory storm events. The proposed stormwater management design ensures no adverse impacts are anticipated downstream of the project site. Detailed hydrologic calculations for each drainage area can be found in **APPENDIX C**.

TABLE 9: STORMWATER RUNOFF VOLUME SUMMARY TABLE (POI-1)

Rainfall Event	Existing Runoff Volume	Proposed Runoff Volume	Proposed % Reduction
2-Year Storm	7,387 CF	0.00 CF	100.0%
10-Year Storm	10,919 CF	35 CF	99.7%
25-Year Storm	13,462 CF	456 CF	96.6%
50-Year Storm	14,904 CF	1,043 CF	93.0%

TABLE 10: STORMWATER RUNOFF PEAK FLOW SUMMARY TABLE (POI-1)

Rainfall Event	Existing Flow Rate	Proposed Flow Rate	Proposed % Reduction
2-Year Storm	1.97 CFS	0.00 CFS	100.0%
10-Year Storm	2.85 CFS	0.00 CFS	100.0%
25-Year Storm	3.45 CFS	0.13 CFS	96.2%
50-Year Storm	3.79 CFS	0.36 CFS	90.5%

NPDES Construction General Permit (CGP) Coverage:

As the project proposes over one (1) acre of land disturbance the project will be required to submit a Notice of Intent (NOI) to the EPA via the NPDES eReporting Portal prior to construction for coverage under the Construction General Permit (CGP). Prior to construction a copy of the Stormwater Pollution Prevention Plan (SWPPP) and the Notice of Intent (NOI) will be provided.

The project does not require any additional local, state, and/or federal permits from a stormwater management and environmental constraints perspective.

6.0 EROSION, SEDIMENTATION, AND POLLUTION PREVENTION

The following section provides a summary of the Erosion Control Standards proposed for the project which include practices to be implemented during construction. The project has been designed in accordance with the City of Dover Standards and the Best Management Practices (BMP) of the New Hampshire Department of Environmental Services (NHDES). The contractor shall be responsible for following the Soil Erosion & Sediment Control Plans included with the final approved plan-set, the Stormwater Pollution Prevention Plan (SWPPP) to be issued prior to construction, the City of Dover Site Plan Review Requirements, and the Best Management Practices set forth within the New Hampshire Stormwater Management Manual Volume 3 prepared by the New Hampshire Department of Environmental Services (NHDES).

The following includes a summary of all erosion and sediment controls proposed for this project:

Construction Entrance – To provide a stable entrance and exit from a construction site and keep mud and sediment off public roads, a temporary stone-stabilized pad located at points of vehicular ingress and egress on a construction site. If the action of the vehicle traveling over the gravel pad is not sufficient to remove the majority of the mud, then the tires must be washed before the vehicle enters a public road. If washing is used, provisions must be made to intercept the wash water and trap sediment before it is carried off-site.

Dust Control – To reduce surface and air movement of dust from exposed soil surfaces during land disturbing, demolition, and construction activities, preventative measures must be taken. Sprinkling or other approved methods must be used to reduce dust generated on the site. Dust control shall be provided by the general contractor to a degree acceptable to the owner/operator, and in compliance with the applicable local and state dust control requirements.

Inlet Protection – A sediment filter or an excavated impounding area around a storm drain, drop inlet, or curb inlet must be used to prevent sediment from entering storm drainage systems prior to permanent stabilization of the disturbed area. During construction, the inlet protection measures shall be replaced as needed to ensure proper function of the structure.

Preserving Natural Vegetation – Natural vegetation should be preserved whenever possible, but especially on steep slopes, near perennial and intermittent watercourses or swales, and on building sites in wooded areas. Clearly flag or mark areas around trees that are to be saved. It is preferable to keep ground disturbance away from the trees at least as far out as the dripline. If possible, place a barrier/fencing around the trees. Inspect flagged areas regularly to make sure flagging has not been removed. If tree roots have been exposed or injured, re-cover and/or seal them.

Sediment Fence – A temporary sediment barrier consisting of a filter fabric stretched across and attached to supporting posts and entrenched must be established along the perimeter of areas to be disturbed before initiation of and during construction. The sediment fence is constructed of stakes and synthetic filter fabric with a rigid wire fence backing where necessary for support. Sediment fence can be purchased with pockets pre-sewn to accept use of steel

fence posts. Silt fences should be inspected immediately after each rainfall and at least daily during prolonged rainfall. Repair as necessary. If the fabric tears, decomposes, or in any way becomes ineffective, replace it immediately.

Temporary Soil Stockpile – Locate the topsoil stockpile so that it does not interfere with work on the site. Side slopes of the stockpile should not exceed 2:1. Surround all topsoil stockpiles with an interceptor dike with gravel outlet and silt fence. Maintain protective cover on stockpiles until needed.

Riprap – A permanent, erosion-resistant ground cover of large, loose, angular stone must be installed in accordance with the accompanying plans to protect slopes, streambanks, channels, or areas subject to erosion by wave action. Riprap should be checked at least annually and after every major storm for displaced stones, slumping, and erosion at edges, especially downstream or downslope. If the riprap has been damaged, it should be repaired immediately before further damage can take place.

Slope Stabilization Matting – A permanent, slope stabilization matting is proposed in areas where slope exceeds 3:1 and shall be installed in accordance with the accompanying.

7.0 CONCLUSIONS

As demonstrated in this Report, the increase in runoff flow rate and volume generated by the proposed redevelopment will be satisfactorily mitigated by the introduction of an aboveground infiltration basin, pervious pavement system and on-site stormwater conveyance system. Runoff water quality will be impacted by the decrease in impervious surfaces and the aboveground infiltration basin will provide treatment to remove total suspended solids to a satisfactory regulatory level. Groundwater recharge also will be impacted due to the loss of impervious surfaces, low impact design and aboveground infiltration system will provide groundwater recharge equal to or greater than recharge under existing conditions.

The proposed project complies with all applicable stormwater management regulations and standards. As such, the project is not anticipated to have any adverse drainage impacts on neighboring properties, downstream watercourses, or adjoining conveyance systems.

APPENDIX A
PROJECT FIGURES

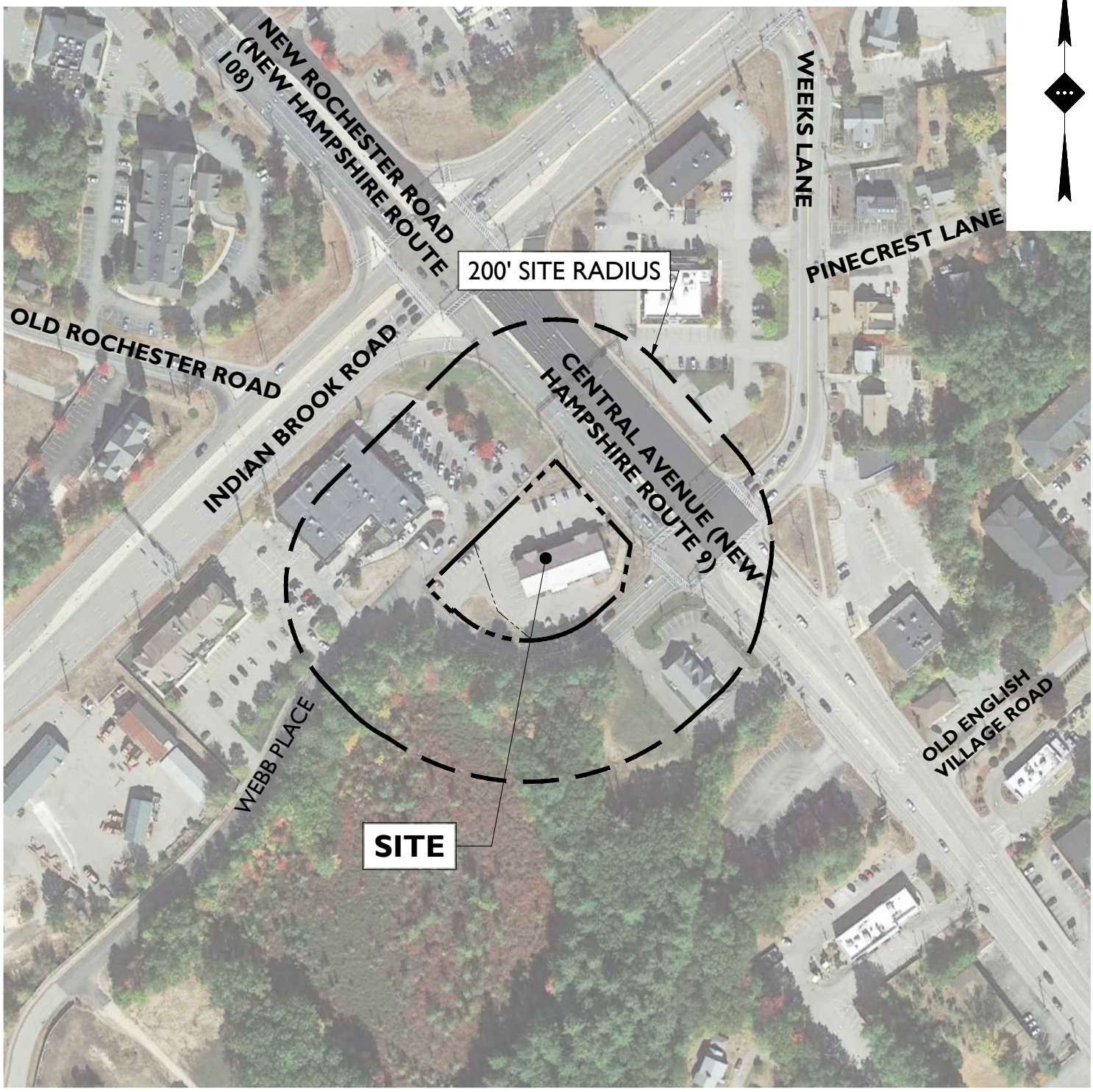
INVENTORY

FIGURE 1: USGS LOCATION MAP

FIGURE 2: AERIAL MAP

FIGURE 3: TAX & ZONING MAP

FIGURE 4: FEMA MAP



AERIAL MAP

200' 0' 200' 400'

GRAPHIC SCALE IN FEET

1"= 200'

SOURCE: GOOGLE EARTH PRO. IMAGE DATED 07/22/2022

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY. NEW HAMPSHIRE

DRAWN BY:	LMR
CHECKED BY:	MM
DATE:	06/08/2023
SCALE:	1"=200'
PROJECT ID:	BOS-220137

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Phone 617.203.2076

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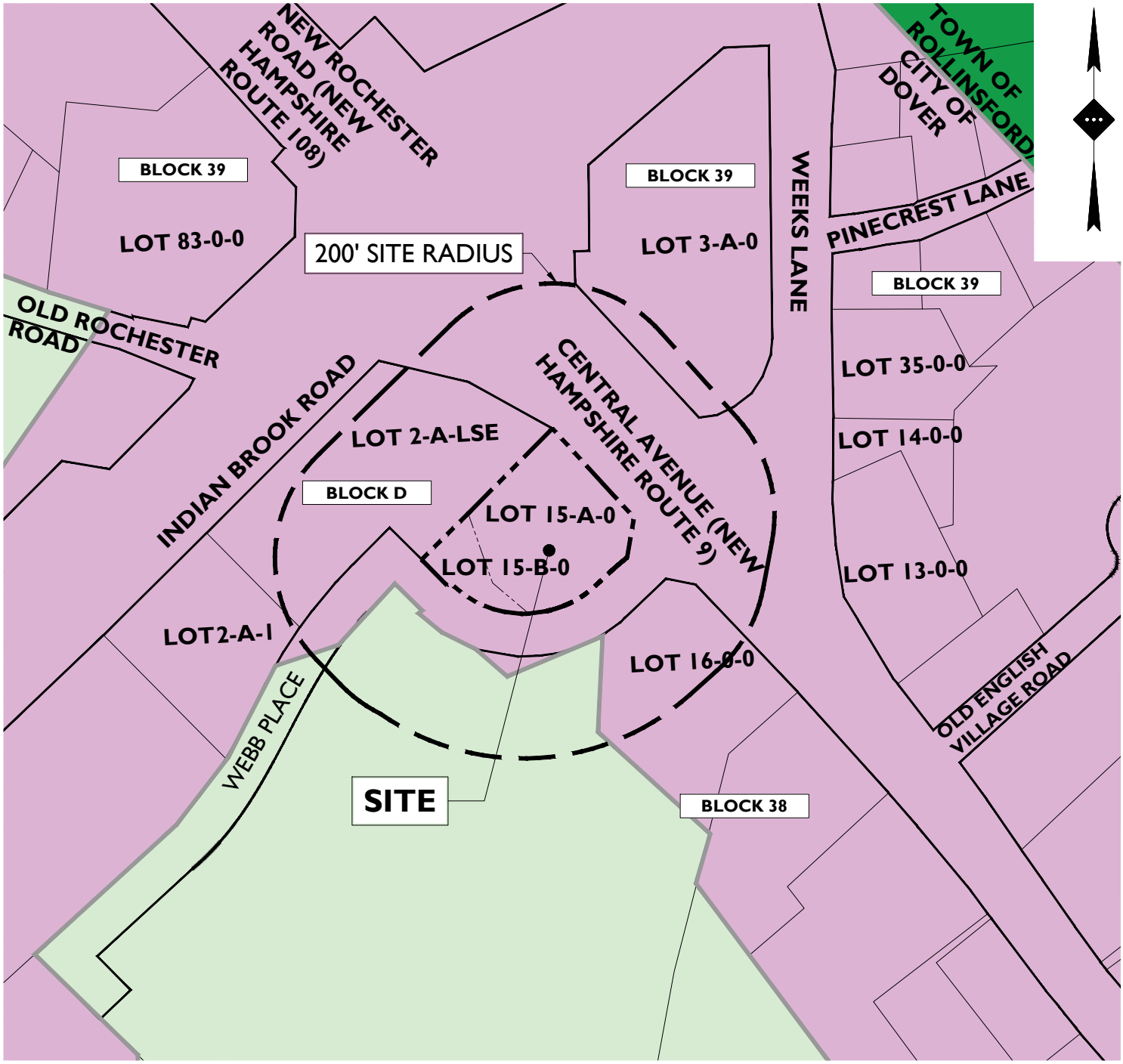

ZONING LEGEND

DOVER: ZONE C COMERCIAL | ZONE R-12 MEDIUM-DENSITY RESIDENTIAL | ROLLINSFORD: ZONE U/R URBAN RESIDENTIAL

TAX & ZONING MAP

200' 0' 200' 400'

GRAPHIC SCALE IN FEET

1"= 200'

SOURCE: TOWN OF ROLLINSFORD TAX MAP DATED 4/1/2021 AND TOWN OF ROLLINSFORD ZONING MAP DATED 11/24/2021, CITY OF DOVER ZONING MAP DATED 11/24/2021 AND CITY OF DOVER INDEX MAP DATED 3/21/2018, CITY OF SOMERSWORTH ZONING MAP DATED 12/1/2021 AND CITY OF SOMERSWORTH TAX PARCELS MAP DATED 9/1/2022

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

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1-3 WEBB PLACE
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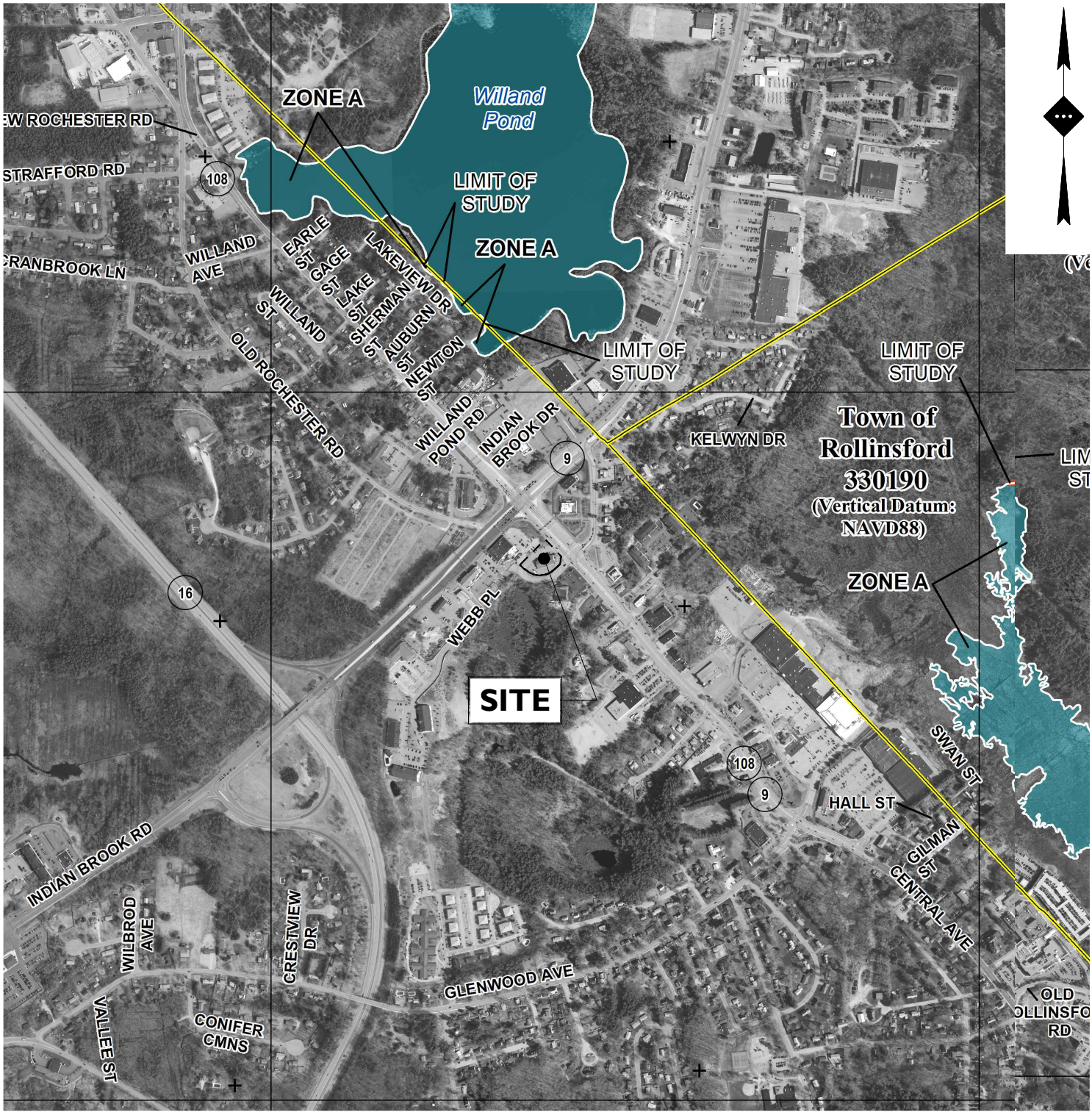

FEMA EFFECTIVE MAP

1000' 0' 1000' 2000'

GRAPHIC SCALE IN FEET

1"= 1000'

SOURCE: FLOOD INSURANCE RATE MAP, TOWN OF ROLLINSFORD AND CITY OF DOVER, NEW HAMPSHIRE, 33017C0310E & 33017C0330E, DATED 9/30/2015

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

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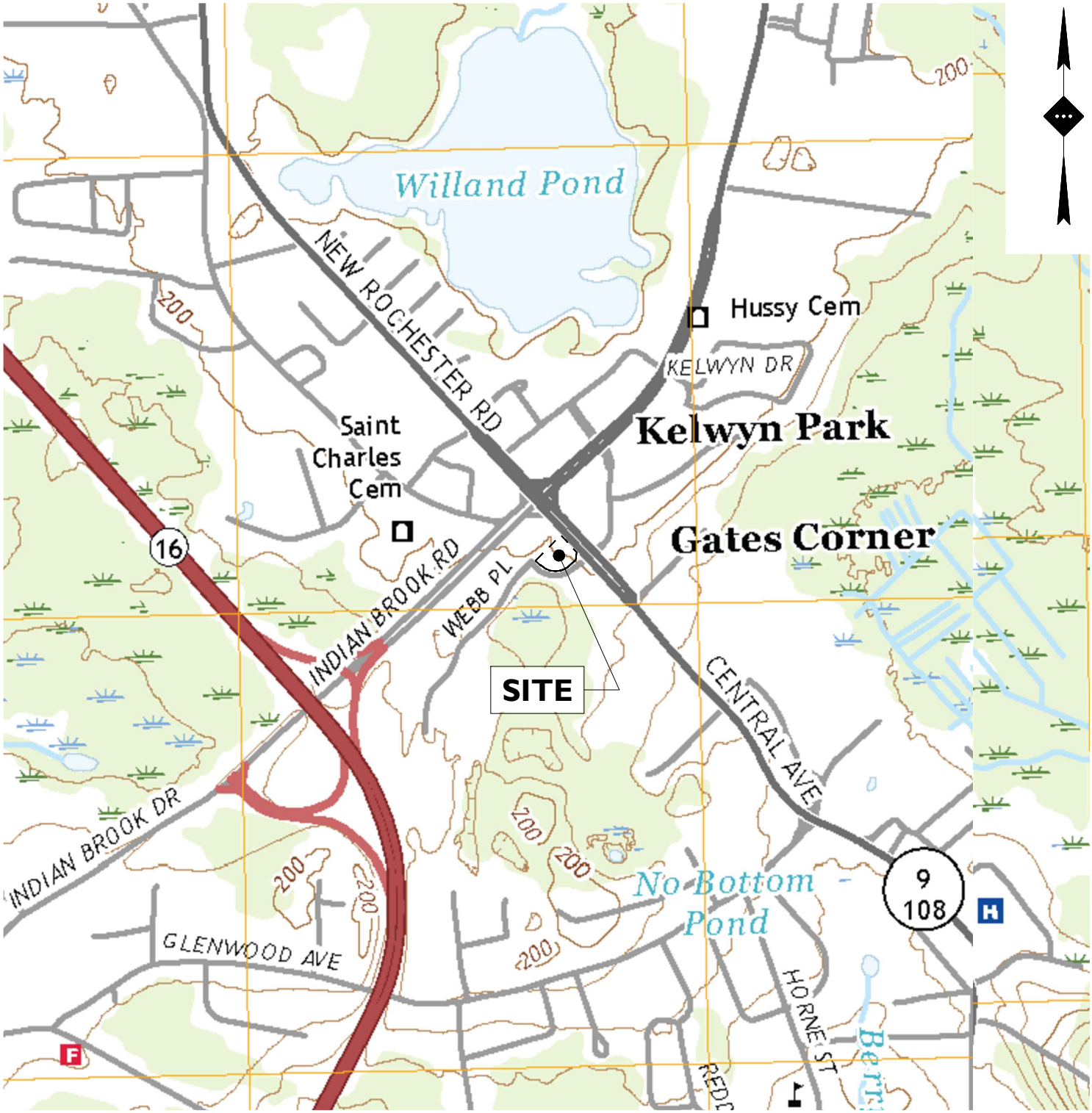

USGS QUADRANGLE MAP

1000' 0' 1000' 2000'

GRAPHIC SCALE IN FEET

1"= 1000'

SOURCE: UNITED STATES GEOLOGICAL SURVEY MAP, DOVER EAST QUADRANGLE & DOVER WEST QUADRANGLE, NEW HAMPSHIRE, 7.5 MINUTE SERIES, DATED 2021

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY. NEW HAMPSHIRE

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APPENDIX B
PROJECT SOILS

INVENTORY

B-1: NRCS SOILS REPORT

B-2: WHITESTONE GEOTECHNICAL REPORT

B-3: WHITESTONE SUPPLEMENTAL STORMWATER MANAGEMENT AREA EVALUATION

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

July 3, 2023

Contents

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How Soil Surveys Are Made.....5
Soil Map.....8
Soil Map.....9
Legend.....10
Map Unit Legend.....11
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Strafford County, New Hampshire.....13
HaB—Hinckley loamy sand, 3 to 8 percent slopes.....13
HbE—Hinckley loamy sand, 15 to 60 percent slopes.....14
References.....17

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: 1:729 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 10 20 40 60

Feet
0 35 70 140 210

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 23, Sep 9, 2022

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
HaB	Hinckley loamy sand, 3 to 8 percent slopes	0.7	59.0%
HbE	Hinckley loamy sand, 15 to 60 percent slopes	0.5	41.0%
Totals for Area of Interest		**1.2**	**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

HaB—Hinckley loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svm8
Elevation: 0 to 1,430 feet
Mean annual precipitation: 36 to 53 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Hinckley

Setting

Landform: Outwash deltas, outwash terraces, moraines, kames, outwash plains, kame terraces, eskers
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Nose slope, side slope, base slope, crest, riser, tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 3.0 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

Windsor
Percent of map unit: 8 percent
Landform: Outwash deltas, outwash terraces, moraines, kames, outwash plains, kame terraces, eskers
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Nose slope, side slope, base slope, crest, riser, tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Sudbury
Percent of map unit: 5 percent
Landform: Outwash deltas, outwash terraces, moraines, outwash plains, kame terraces
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Head slope, side slope, base slope, tread
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Agawam
Percent of map unit: 2 percent
Landform: Outwash deltas, outwash terraces, moraines, kames, outwash plains, kame terraces, eskers
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Nose slope, side slope, base slope, crest, riser, tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

HbE—Hinckley loamy sand, 15 to 60 percent slopes

Map Unit Setting
National map unit symbol: 2svmh
Elevation: 0 to 890 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition
Hinckley and similar soils: 85 percent
Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Outwash deltas, outwash terraces, moraines, kames, outwash plains, kame terraces, eskers
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Nose slope, side slope, crest, head slope, riser
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 15 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Windsor

Percent of map unit: 10 percent
Landform: Outwash deltas, outwash terraces, kames, outwash plains, kame terraces, eskers, moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Merrimac

Percent of map unit: 5 percent
Landform: Outwash terraces, moraines, kames, outwash plains, eskers
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope, crest, head slope, nose slope, riser
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

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REPORT OF GEOTECHNICAL INVESTIGATION

PROPOSED CHASE BANK BRANCH
ONE & THREE WEBB PLACE
MAP 38, LOTS 15A & 15B
DOVER, STRAFFORD COUNTY, NEW HAMPSHIRE

Prepared for:

STONEFIELD ENGINEERING & DESIGN, LLC
120 Washington Street, Suite 201
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Prepared by:

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Vice President

Whitestone Project No.: GM2320013.000
March 21, 2023

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March 21, 2023

via email

STONEFIELD ENGINEERING & DESIGN, LLC
120 Washington Street
Suite 201
Salem, Massachusetts 01970

Attention: Joshua H. Kline, P.E.
Team Lead

Regarding: PROPOSED CHASE BANK BRANCH
ONE & THREE WEBB PLACE
MAP 38, LOTS 15A & 15B
DOVER, STRAFFORD COUNTY, NEW HAMPSHIRE
WHITESTONE PROJECT NO.: GM2320013.000

Dear Mr. Kline:

Whitestone Associates, Inc. (Whitestone) is pleased to submit the attached *Report of Geotechnical Investigation* for the above-referenced project. The report presents the results of Whitestone's site visit and subsurface exploration, and includes design recommendations for the proposed foundations, floor slab, and pavements, and related earthwork associated with the proposed Chase bank.

Whitestone appreciates the opportunity to be of continuing service to Stonefield Engineering & Design, LLC. Should you have questions regarding the attached report, please contact us at (603) 514-2230.

Sincerely,

WHITESTONE ASSOCIATES, INC.

Richard W.M. McLaren
Senior Consultant

Ryan R. Roy, P.E.
Vice President

RWM/rs N:\Job Folders\2023\2320013GM\Reports and Submittals\Stonefield Chase Dover NH GM2320013 ROGI.docx
Enclosures
Copy: Laurence W. Keller, P.E., Whitestone Associates, Inc.

REPORT OF
GEOTECHNICAL INVESTIGATION
PROPOSED CHASE BANK BRANCH
One & Three Webb Place
Map 38, Lots 15A & 15B
Dover, Strafford County, New Hampshire

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REPORT OF
GEOTECHNICAL INVESTIGATION
PROPOSED CHASE BANK BRANCH
One & Three Webb Place
Map 38, Lots 15A & 15B
Dover, Strafford County, New Hampshire

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SECTION 1.0
Summary of Findings

Whitestone Associates, Inc. (Whitestone) has conducted an exploration and evaluation of the subsurface conditions at the site of the proposed Chase Bank branch to be located at One and Three Webb Place in the City of Dover, Strafford County, New Hampshire. Based on a January 27, 2023 *Concept A* plan prepared by Stonefield Engineering & Design, LLC of Salem, Massachusetts (Stonefield), the proposed project will include demolition of the existing commercial building and the construction of a single-story, 3,346-square feet bank building with drive-thru ATM, pavement, utilities, and landscaped areas. Whitestone anticipates that the building will be constructed close to existing site grade to match adjacent roadways. No retaining walls or additional stormwater management areas are shown on the *Concept A* plan.

The geotechnical investigation included conducting a reconnaissance of the project site, advancing seven soil borings, and collecting soil samples for laboratory testing and characterization. Site subsurface conditions consisted of asphaltic concrete or topsoil overlying existing fill, which is underlain by a natural glaciofluvial deposit. Groundwater was not encountered in the borings during the exploration.

There is significant variation in the thickness of existing fill. To eliminate the risk of excess settlement, all existing fill would typically be removed under footings and replaced with structural fill. However, this is unlikely to be cost effective, because of the depth of the fill within a portion of the proposed building footprint. As an alternative, contingent upon construction phase evaluation, Whitestone considers that the proposed structure may be supported, with limited risk, on conventional shallow foundations bearing on a minimum 18-inch thick layer of controlled structural fill placed on approved and improved existing fill that has been thoroughly surface compacted with a heavy roller compactor, where the natural glaciofluvial deposit is not exposed at or close to underside of footing elevation. The subgrade should be reviewed by the geotechnical engineer, as specified in this report prior to fill placement or structural support. The results of the investigation also indicate the site is suitable for a ground-supported floor slab deriving support from the properly inspected, improved, and approved existing fill and/or compacted structural fill, as specified in this report. Additionally, the site conditions support the use of typical pavement sections using standard State of New Hampshire Department of Transportation (NHDOT) specified materials.

The above summary is intended to provide an overview of the geotechnical findings and recommendations and is not fully developed. Greater detail is presented in the following sections. The entire report must be read for comprehensive understanding of the information contained herein.

SECTION 2.0
Introduction

2.1 AUTHORIZATION

Joshua H. Kline, P.E., Team Lead at Stonefield issued authorization to Whitestone to conduct a geotechnical investigation on the site relevant to a proposed Chase Bank branch at One and Three Webb Place in the City of Dover, Strafford County, New Hampshire. The geotechnical investigation was conducted in general accordance with Whitestone's February 2, 2023 proposal.

2.2 PURPOSE

The purpose of this exploration and analysis was to:

- ascertain the various soil profile components at test locations;
- estimate the engineering characteristics of the proposed foundation bearing and subgrade materials;
- provide geotechnical criteria for use by the design engineers in preparing the foundation, floor slab, and pavement design;
- provide recommendations for required earthwork and subgrade preparation;
- record groundwater and/or bedrock levels (if encountered) at the time of the investigation and discuss the potential impact on the proposed construction; and
- recommend additional investigation and/or analysis, if warranted.

2.3 SCOPE

The scope of the exploration and analysis included the subsurface exploration, field testing and sampling, laboratory testing, evaluation of the subsurface materials, and a geotechnical engineering analysis. This *Report of Geotechnical Investigation* is limited to addressing the site conditions related to the physical support of the proposed construction.

2.3.1 Field Exploration

Field exploration of the project site was conducted by means of seven borings, identified as B-1 through B-7, advanced with a truck-mounted CME 75 drill rig equipped with hollow stem augers to termination depths that ranged from approximately 12 fbgs to 22 fbgs. The borings were backfilled with excavated soils generated from the investigation and the surface patched with "cold patch" asphalt, where appropriate. Test locations are shown on the *Boring Location Plan* included as Figure 1. *Records of Subsurface Exploration* for the borings are provided in Appendix A.

Test locations were based on project information provided to Whitestone at the time of the investigation, including the January 27, 2023 *Concept A* plan. The subsurface testing was conducted in the presence of a Whitestone representative, who conducted field tests, recorded visual classifications, and collected samples of the various strata encountered. Test locations were established in the field using normal taping procedures and estimated right angles. These locations are presumed to be approximate.

Soil borings and Standard Penetration Tests (SPTs) were conducted in general accordance with ASTM International (ASTM) designation D1586. The Standard Penetration Resistance value (N) can be used as an indicator of the consistency of fine-grained soils and the relative density of coarse-grained soils. The N-value for various soil types can be correlated with the engineering behavior of earthworks and foundations. The soil classification information along other pertinent information was recorded on the boring logs and included in Appendix A on the *Records of Subsurface Exploration*.

Groundwater level observations, where encountered, were recorded during and immediately following the completion of the field operations prior to backfilling the borings. Seasonal variations, temperature effects, and recent rainfall conditions may influence the levels of the groundwater, and observed levels will depend on the permeability of the soils. Groundwater elevations derived from sources other than seasonally observed groundwater monitoring wells may not be representative of true groundwater levels.

2.3.2 Laboratory Testing

Laboratory testing was conducted to determine pertinent engineering characteristics of representative samples of on-site soils. The laboratory testing was conducted in general accordance with applicable ASTM standard test methods and included physical testing of the existing fill and glaciofluvial deposit.

Physical/Textural Analysis: Two representative samples of the site soils were subjected to laboratory testing that included moisture content determinations (ASTM D2216) and washed gradation analyses (ASTM D422) in order to conduct supplementary engineering soil classifications and to assess possible re-use of the site soils as structural fill. The results of the laboratory testing are summarized in the following table:

LABORATORY TESTING SUMMARY					
Boring	**Sample Number**	**Depth (fbgs)**	**Moisture Content (%)**	**Passing No. 200 Sieve (%)**	**USCS Classification**
B-2	S-2	2.0 - 4.0	8.2	12.1	FILL (SM)
B-4	S-3	5.0 - 7.0	3.4	2.7	SP

The engineering classifications are useful when considered in conjunction with the additional site data to estimate properties of the soil types encountered and to predict soil behavior under construction and service loads. Laboratory test results are provided in Appendix B.

SECTION 3.0
Site Description

3.1 LOCATION AND DESCRIPTION

The subject property is located at One and Three Webb Place in the City of Dover, Strafford County New Hampshire, Latitude 42.9594 North, and Longitude 71.4787 West. The 0.99-acre site, further identified as Map 38, Lots 15A and 15B, is developed with a commercial building.

The approximately square site is bounded to the southeast and southwest by Webb Place; to the northwest by a single-story, multi-tenant, retail building, then Indian Brook Road, and to the northeast by Central Avenue. Access to the site is from Webb Place. The site of the proposed construction is shown on the *Boring Location Plan* included as Figure 1.

3.2 EXISTING CONDITIONS

Existing Development: At the time of Whitestone's investigation, the site was developed with a one- to two-story commercial building, which will be demolished. There is a large wetlands area south of the site.

Topography: Based on a review of the *USGS 7.5 Minute Series Dover West Quadrangle, New Hampshire* (2021) and a December 23, 2022 *ALTA/NSPS Land Title Survey* prepared by Colliers Engineering & Design of Brunswick, Maine, and on Whitestone's visual observations, the site slopes down to the southwest from approximately 202 feet above National American Vertical Datum of 1988 (NAVD) to 196 feet above NAVD.

Utilities: The site is serviced by electrical, gas, and telecommunication utilities and connected to municipal water and sewer. The utility information contained in this report is presented for general discussion only and is not intended for construction purposes.

Site Drainage: Surface run-off will flow southwest to Webb Place, and thence to catch basins, which are presumed to drain to the local storm sewer system.

3.3 SITE GEOLOGY

From a review of the *Surficial Geologic Map of the Dover West Quadrangle, Strafford County, New Hampshire (1989)*, the site is underlain by a glaciofluvial deposit. The *Geologic Map of New Hampshire*, prepared by U.S. Geological Survey, indicates that the subject property is underlain, at depth, by the Ordovician- or Silurian-age Berwick Formation of the Merrimack Group, consisting of granofels and biotite schist with incidental calc-silicate rock, part of the Nashoba-Casco-Miramichi Terrane (Merrimack Trough).

3.4 PROPOSED CONSTRUCTION

Based on the aforementioned Stonefield *Concept A* plan, the proposed project will include demolition of the existing commercial building and the construction of a single-story, 3,346-square feet bank building with drive-thru ATM, pavement, utilities, and landscaped areas. Whitestone anticipates that the building will be constructed close to existing site grade to match adjacent roadways. No retaining walls or additional stormwater management areas are shown on the *Concept A* plan.

The proposed bank will be a single-story, masonry and metal-framed structure and a ground-supported floor slab and no basement. Maximum column, wall, and floor loads are expected to be on the order of:

- column loads - 30 kips;
- load bearing walls - 3.0 kips per lineal foot; and
- floor slab loads - 125 pounds per square foot.

The scope of Whitestone's investigation and the professional advice contained in this report were generated based on the project details and loading noted herein. Revisions or additions to the design details enumerated in this report should be brought to the attention of Whitestone for additional evaluation as warranted.

SECTION 4.0
Subsurface Conditions

Details of the subsurface materials encountered in the borings are presented on the *Records of Subsurface Exploration* in Appendix A of this report. The subsurface soil conditions encountered in the test locations consisted of the following generalized strata in order of increasing depth.

4.1 SUBSURFACE SOIL CONDITIONS

Surface Cover Materials: The borings, except B-6, encountered four inches of asphaltic concrete at the ground surface, with no apparent granular subbase. Boring B-6 encountered six inches of topsoil at the ground surface.

Existing Fill: Beneath the surface cover materials, the borings encountered existing fill, consisting of brown to gray-brown, loose to medium dense (occasionally very loose or dense), silty sand with gravel to poorly graded sand with silt and gravel, occasional wood pieces. SPT N-values recorded within the existing fill were variable, ranging from two blows per foot (bpf) to 47 bpf. The existing fill extended to depths of 3.5 fbgs to 12 fbgs.

Glaciofluvial Deposit: Beneath the existing fill, the borings encountered a glaciofluvial deposit, consisting of brown, medium dense to dense (occasionally loose or very dense), poorly graded sand with gravel (USCS: SP) to poorly graded sand with silt and gravel (USCS: SP-SM), occasional cobbles. SPT N-values recorded within the glaciofluvial deposit were variable, ranging from seven bpf to 60 bpf. The borings terminated in the glaciofluvial deposit at depths of 12 fbgs to 22 fbgs.

4.2 GROUNDWATER

Groundwater was not encountered in the borings during Whitestone's subsurface exploration activities. Static and perched/trapped water conditions generally will fluctuate seasonally and following periods of precipitation.

SECTION 5.0
Conclusions and Recommendations

5.1 GENERAL

There is significant variation in the thickness of existing fill. For foundation support, ideally, all existing fill would be removed and replaced with structural fill. However, this is unlikely to be cost effective or practical, as discussed above. As an alternative, contingent upon construction phase evaluation, Whitestone considers that the proposed structure may be supported, with limited risk, on conventional shallow foundations bearing on a minimum 18-inch thick layer of controlled structural fill placed on approved and improved existing fill that has been thoroughly surface compacted, where the natural glaciofluvial deposit is not exposed at or close to underside of footing elevation. The subgrade should be reviewed by the geotechnical engineer, as specified in this report prior to fill placement or structural support. The results of the investigation also indicate the site is suitable for a ground-supported floor slab deriving support from the properly inspected, improved, and approved existing fill and/or compacted structural fill, as specified in this report. Additionally, the site conditions support the use of typical pavement sections using standard NHDOT specified materials.

5.2 SITE PREPARATION AND EARTHWORK

Surface Cover Stripping and Demolition: Prior to stripping operations, underground utilities should be identified and secured. The existing pavements to be stripped should be removed from within and at least five feet beyond the limits of the proposed building, slab, and pavement areas. Topsoil, organic subsoil, vegetation, and other organic matter should also be removed from within and at least five feet beyond the limits of the proposed building footprints, as well as any other area that will require controlled structural fill placement. Given the size of the site and the configuration of the proposed and former buildings, existing structural elements, such as concrete foundations, walls, or slabs, should be removed entirely. The demolition contractor should be required to conduct earthwork in accordance with the recommendations in this report, including backfilling any excavation, etc. with structural fill. Fill or backfill placed within the proposed building and slab areas should be placed as structural fill in accordance with Sections 5.2, 5.3, and 5.11 of this report.

Surface Preparation/Proofrolling: Prior to placing fill or subbase materials to raise or restore grades to the desired subgrade elevations, the existing exposed soils should be compacted to a firm surface with several passes in two perpendicular directions of a minimum 10-ton vibratory roller. The surface should then be proofrolled with a loaded tandem axle truck in the presence of the geotechnical engineer to help identify soft or loose pockets that may require removal and replacement, or further evaluation. Proofrolling should be conducted after a suitable period of dry and non-freezing weather to reduce the likelihood of degrading an otherwise stable subgrade. Should construction be attempted in the winter or when temperatures are below freezing, Whitestone should be contacted for alternative surface preparation recommendations. Fill or backfill should be placed and compacted in accordance with Section 5.3.

Weather Performance Criteria: Every effort should be made to maintain drainage of surface water runoff away from construction areas by grading and limiting the exposure of excavations and prepared subgrades to rainfall. Accordingly, excavation and fill placement procedures should be conducted during favorable weather conditions. Overexcavation of wet or disturbed soils and replacement with controlled structural fill per Section 5.3 of this report may be required prior to resuming work on subgrade soils.

Subgrade Protection and Maintenance: Portions of the site soils may degrade if exposed to inclement weather, freeze-thaw cycles, or repeated construction traffic. However, if properly protected and maintained as recommended herein, the site soils will provide adequate support for the proposed construction. The site contractors should employ appropriate means and methods to protect the subgrade, including but not limited to the following:

- sealing exposed subgrade soils on a daily basis with a smooth drum roller operated in static mode;
- regrading the site as needed to maintain positive drainage away from open earthwork construction areas and to prevent standing water;
- removing wet surficial soils and ruts immediately; and
- limiting exposure to construction traffic and precipitation especially following inclement weather and subgrade thawing.

5.3 STRUCTURAL FILL AND BACKFILL

Imported Fill Material: Imported material placed as structural fill or backfill to raise elevations or restore design grades should consist of clean, relatively well graded sand or gravel with a maximum particle size of three inches and up to 15 percent, by weight, of material finer than a #200 sieve. Imported material should be free of silt, clay, organics, and deleterious material. Imported material should be approved by a qualified geotechnical engineer prior to delivery to the site.

On-Site Material Reuse: Whitestone anticipates that the site soils will be structurally suitable for selective reuse as fill/backfill material provided that soil moisture contents are controlled within three percent of optimum moisture level, particles larger than three inches in diameter either removed or crushed, and objectionable portions, such as organics or debris, segregated. Reuse of site materials will be contingent on careful review in the field by the owner's geotechnical engineer by visual observation during construction as recommended herein.

Compaction and Placement Requirements: Fill and backfill should be placed in maximum eight-inch thick loose lifts and compacted using a vibratory drum roller if space allows or a small hand-held vibratory compactor. Structural fill and backfill should be compacted to at least 95 percent of the maximum dry density within three percent of the optimum moisture content, as determined by ASTM D1557 (Modified Proctor).

Structural Fill Testing: A sample of the imported fill material or on-site material proposed for reuse as structural fill or backfill should be submitted to the owner's geotechnical engineer for analysis and approval at least one week prior to its use. The placement of fill and backfill should be monitored by a qualified engineering technician, such that the specified material and lift thicknesses are properly installed. A sufficient number of in-place density tests should be conducted, such that the specified compaction is achieved throughout the height of the fill or backfill.

5.4 GROUNDWATER CONTROL

Groundwater was not encountered within the soil borings during this investigation. However, perched/trapped water may be encountered during construction above non-permeable strata. As such, construction phase dewatering may consist of removing surface water runoff, infiltrating water, or trapped water at this site. Whitestone anticipates that construction phase dewatering may include installing temporary sump pits and filtered pumps within trenches and excavations.

Proper grading and drainage should be incorporated into the site design and construction phase grading to discourage ponding of surface runoff. Every effort should be made to maintain drainage of surface run-off away from construction areas by grading. The contractor should limit exposure of excavations and prepared subgrades to rainfall. Overexcavation of wet soils and replacement with controlled structural fill per Section 5.3 of this report may be required prior to resuming work on disturbed subgrade soils.

5.5 FOUNDATIONS

In order to eliminate risk associated with variability in the existing fill, all existing fill should be removed and replaced with structural fill. However, this option is unlikely to be cost effective, given the depth of the existing fill within a portion of the proposed building footprint. As an alternative, where the existing fill extends below underside of footing elevation, Whitestone considers that upon a minimum 18 inches of overexcavation of the existing fill below foundation subgrade, the proposed structure may be supported, with limited risk of excess settlement, on conventional spread and continuous wall footings designed to bear on a minimum 18-inch thick layer of controlled structural fill placed on approved and improved existing fill, provided the existing fill materials are properly evaluated, in accordance with Sections 5.2, 5.3, and 5.11 of this report. Shallow test pits should be excavated below the footings to further assess the condition of the existing fill. Footing excavations should be made sufficiently wide to allow the exposed surface of the existing fill, after overexcavation, to be thoroughly compacted with a walk-behind, double-drum, vibratory roller. Where exposed at underside of footing elevation, the natural glaciofluvial deposit may support conventional spread and continuous wall footings directly. Following in-trench compaction of soil foundation subgrades, foundations bearing within these materials may be designed to impart a maximum net allowable bearing pressure of 3,000 pounds per square foot.

Foundation subgrades should be compacted in the presence of the geotechnical engineer to densify loose upper soils and disturbed soils. Regardless of loading conditions, new foundations should be sized no less than minimum dimensions of 24 inches for continuous wall footings and 36 inches for isolated column footings.

Footings should be designed such that the maximum toe pressure due to the combined effect of vertical loads (including soil weight) and overturning moment does not exceed the recommended maximum allowable bearing pressure. In addition, positive contact pressure should be maintained throughout the base of the footings such that no uplift or tension exists between the base of the footings and the supporting soil. Uplift loads should be resisted by the weight of the concrete footing. Side friction should be neglected when proportioning the footings, and lateral resistance should be provided by friction resistance at the base of the footings. A coefficient of friction (ultimate) against sliding of 0.4 is recommended for use in the design of concrete foundations bearing within the site soils or imported structural fill.

Foundation Inspection/Overexcavation Criteria: Whitestone recommends that the suitability of the bearing materials along new footing bottoms be reviewed by a geotechnical engineer prior to placing concrete for the footings. Special attention should be given to any areas of the site underlain by soft/loose conditions. In the event that isolated areas of unsuitable materials are encountered in footing excavations, overexcavation and replacement of the materials or deeper foundation embedment may be necessary to provide a suitable footing subgrade. Overexcavation to be restored with structural fill should extend at least one foot laterally beyond footing edges for each vertical foot of overexcavation. Lateral overexcavation may be eliminated if grade is restored with lean concrete.

Settlement: Whitestone estimates post construction settlements of new building foundations will be on the order of one inch, if the recommendations outlined in this report are properly implemented. Differential settlements of new building foundations should be less than about one half to three quarters of total settlement.

Frost Coverage: Footings subject to frost action should be placed at least 48 inches below adjacent exterior grades, in accordance with the *State of New Hampshire Building Code* to provide protection from frost penetration. Interior footings not subject to frost action, including during construction, may be placed at a minimum depth of 18 inches below the slab subgrade.

5.6 FLOOR SLAB

Whitestone anticipates that the properly inspected and approved existing fill, improved by surface compaction, and/or compacted structural fill will be suitable for support of the proposed floor slab provided these materials are properly evaluated, compacted, and proofrolled in accordance with Sections 5.2, 5.3, and 5.11 of this report during favorable weather conditions. Areas that are, or become, softened or disturbed as a result of wetting and/or repeated exposure to construction traffic or contain objectionable materials should be removed and replaced with compacted structural fill. The properly prepared on-site soils are expected to yield a minimum subgrade modulus (k) of 150 psi/in.

A minimum 12-inch thick layer of NHDOT *304.3 Crushed Gravel* (or approved equivalent) should be placed below the floor slab to provide a uniform subbase. A moisture vapor barrier should be installed beneath the floor slab in accordance with flooring manufacturer's recommendations. A moisture vapor barrier should also be installed if the floor supports moisture-sensitive equipment.

5.7 PAVEMENT DESIGN CRITERIA

General: Whitestone anticipates that the properly inspected and approved existing fill, improved by surface compaction, and/or compacted structural fill placed to raise or restore design elevations will be suitable for support of the proposed pavements, provided these materials are properly evaluated, compacted, and proofrolled in accordance with Sections 5.2, 5.3, and 5.11 of this report during favorable weather conditions.

Design Criteria: A California Bearing Ratio of 8.0 has been assigned to the properly prepared subgrade soils for pavement design purposes. This value was correlated with pertinent soil support values and assumed traffic loads to prepare flexible and rigid pavement designs per the AASHTO *Guide for the Design of Pavement Structures*.

Design traffic loads were assumed based on typical volumes for similar facilities and correlated with 18-kip equivalent single axle loads (ESAL) for a 20-year life. Estimated maximum pavement loads of 30,000 ESALs and 75,000 ESALs were used for the standard-duty and heavy-duty pavement areas, respectively. These values assume the pavements primarily will accommodate both automobile and limited heavier truck traffic, with the heavier truck traffic designated to the main drive lanes. Actual loading experienced is anticipated to be less than these values.

Pavement Sections: Pavement components should meet material specifications from NHDOT *Standard Specifications* specified below. The recommended flexible pavement sections are tabulated below:

FLEXIBLE PAVEMENT SECTION			
LAYER	**Material**	**Standard-Duty Thickness (inches)**	**Heavy-Duty Thickness (inches)**
Asphalt Surface Course	NHDOT "Wearing Course"	1.5	1.5
Asphalt Binder Course	NHDOT "Binder Course"	1.5	2.5
Granular Subbase	NHDOT 304.3 Crushed Gravel	12.0	12.0

A rigid concrete pavement should be used to provide suitable support at areas of high traffic or severe turns, such as at the trash enclosure, drive-thru ATM, and ingress/egress locations. The recommended rigid pavement is tabulated below:

RIGID PAVEMENT SECTION		
LAYER	**Material**	**Thickness (inches)**
Surface	4,000 psi Air-Entrained Concrete	6.0[1]
Granular Subbase	NHDOT 304.3 Crushed Gravel	12.0

Note [1]: The outer edges of concrete pavements are susceptible to damage as trucks move from rigid pavement to adjacent flexible pavement. Therefore, the thickness at the outer two feet of the rigid concrete pavement should be 12 inches. The concrete should be reinforced with at least one layer of 6-inch by 6-inch W5.4/W5.4 welded wire fabric (ASTM A185).

Additional Design Considerations: The pavement section thickness designs presented in this report are based on the design parameters detailed herein and are contingent on proper construction, inspection, and maintenance. Additional pavement thickness may be required by local code. The designs are contingent on achieving the minimum soil support value in the field. To accomplish this requirement, subgrade soil and supporting fill or backfill should be placed, compacted, and evaluated in accordance with Sections 5.2, 5.3, and 5.11 of this report. Proper drainage should be provided for the pavement structure, including appropriate grading and surface water control.

The performance of the pavement also will depend on the quality of materials and workmanship. Whitestone recommends that NHDOT standards for materials, workmanship, and maintenance be applied to this site. Project specifications should include verifying that the installed asphaltic concrete material composition is within tolerance for the specified materials and that the percentage of air voids of the installed pavement is within specified ranges for the respective materials. Rigid concrete pavements should be suitably air-entrained, jointed, and reinforced in general accordance with ACI 330R-08 *Guide for the Design and Construction of Concrete Parking Lots*.

5.8 RETAINING WALLS/BELOW GRADE WALLS

Proposed site retaining walls were not indicated at this time. Whitestone should be notified if retaining walls or structures resisting lateral earth pressures are planned. The following recommendations are provided for preliminary planning of any retaining walls, below-grade walls, and other structures reliant on granular materials to provide adequate drainage. However, the parameters are not directly applicable to the design of mechanically stabilized earth (MSE) retaining walls, which require proprietary design methods for the selected earth retention system.

Lateral Earth Pressures: Retaining/below-grade walls should be capable of withstanding active and at-rest earth pressures. With an active earth pressure coefficient (K_a) of 0.33 and assuming a level backfill and an assumed maximum backfill soil unit weight of 140 pounds per cubic foot (pcf), an equivalent fluid pressure of 46 psf per foot of wall height should be used in design of retaining/below-grade walls which are free to rotate.

Retaining/below-grade walls and wall corners typically are restrained from lateral movement and should be designed using at-rest earth pressures. A coefficient of at-rest earth pressure (K_o) of 0.5, for a level backfill, is recommended for retaining/below-grade walls designed to resist at-rest earth pressures, which assume no lateral movement. With an assumed maximum total unit weight of backfill of approximately 140 pcf, an equivalent fluid pressure of 70 psf of wall height should be used in design of restrained retaining/below-grade wall and wall corners. A coefficient of friction of 0.4 against sliding can be used for concrete on the existing site soils. Additional lateral earth pressures from a sloped backfill or any temporary or long-term surcharge loads also should be included in the design. Retaining wall design should include a global stability analysis.

Backfill Criteria: Whitestone recommends that granular soils be used to backfill behind retaining walls. The granular backfill materials should consist of clean, relatively well graded sand or gravel with a maximum particle size of three inches and up to 15 percent of material finer than a #200 U.S. Standard sieve.

Whitestone recommends that backfill directly behind any walls be compacted with light, hand-held compactors. Heavy compactors and grading equipment should not be allowed to operate within a zone of influence measured at a 45-degree angle from the base of the walls during backfilling to avoid developing excessive temporary or long-term lateral soil pressures.

Wall Drainage: Positive drainage should be provided at the base of the below-grade walls. Where wall drainage is not provided, the wall should be designed to withstand full hydrostatic pressure. All below grade walls should also include a minimum 18 inches of open graded stone backfill immediately adjacent to the wall that re-directs water from the building. Geotextile separation fabric should be placed between the open graded stone and the site soils.

Whitestone should be notified if any retaining structures or design considerations requiring lateral earth pressure estimations are proposed. Specific recommendations for temporary retaining structures are beyond Whitestone's scope of services.

5.9 SEISMIC AND LIQUEFACTION CONSIDERATIONS

The subsurface conditions are most consistent with a Site Class D, as defined by the *State of New Hampshire Building Code*. Based on the building type (single story), seismic zone, and soil profile, liquefaction considerations are not expected to have a substantial impact on design.

5.10 EXCAVATIONS

The site soils encountered during this investigation typically are, at a minimum, consistent with Type C Soil Conditions as defined by 29 CFR Part 1926 (OSHA), which require a maximum unbraced excavation angle of 1.5:1 (horizontal:vertical). Actual conditions encountered during construction should be evaluated by a competent person (as defined by OSHA), such that safe excavation methods and/or shoring and bracing requirements are implemented.

5.11 SUPPLEMENTAL POST INVESTIGATION SERVICES

Construction Phase Evaluation of Existing Fill and Inaccessible Areas: A portion of the proposed building footprint was inaccessible during Whitestone's subsurface investigations because of the presence of existing building. Whitestone recommends further reviewing the condition of the site soils for structure, floor slab, and pavement support, and/or re-use of existing fill as structural fill by means of supplemental test pit evaluation following demolition and either prior to or during the early stages of construction, as discussed further herein, to identify areas requiring removal and possible uncontrolled conditions or deleterious materials not disclosed by the soil borings conducted during the exploration.

Demolition and Construction Inspection and Monitoring: Earthwork inspections, testing, and consultation should be conducted during construction as described in previous sections of this report. Monitoring and testing should also be conducted to confirm that the existing building is properly demolished, any encountered underground structures, such as the existing building foundations, and any basement/crawl spaces are properly backfilled, the existing surface cover materials are properly removed, and suitable materials, used for controlled fill, are properly placed and compacted over suitable subgrade soils. Overexcavation of any deleterious material beneath proposed foundations, and proofrolling of all subgrades prior to foundation, slab, and pavement support should be witnessed and documented by the owner's geotechnical engineer to confirm earthwork is conducted in accordance with the recommendations herein.

SECTION 6.0
General Comments

Supplemental recommendations may be required upon finalization of construction plans or if significant changes are made in the characteristics or location of the proposed structure. Soil bearing conditions should be checked at the appropriate time for consistency with those conditions encountered during Whitestone's geotechnical investigation.

The recommendations presented herein should be utilized by a qualified engineer in preparing the project plans and specifications. The engineer should consider these recommendations as minimum physical standards, which may be superseded by local and regional building codes and structural considerations. These recommendations are prepared for the sole use of the Stonefield Engineering & Design, LLC for the specific project detailed and should not be used by any third party. These recommendations are relevant to the design phase and should not be substituted for construction specifications.

The possibility exists that conditions between borings may differ from those at specific test locations, and conditions may not be as anticipated by the designers or contractors. In addition, the construction process may alter soil and rock conditions. Therefore, experienced geotechnical personnel should observe and document the construction procedures used and the conditions encountered.

Whitestone assumes that a qualified contractor will be employed to conduct the construction work, and that the contractor will be required to exercise care to ensure excavations are conducted in accordance with applicable regulations and good practice. Particular attention should be paid to avoiding damaging or undermining adjacent buildings/properties and maintaining slope stability.

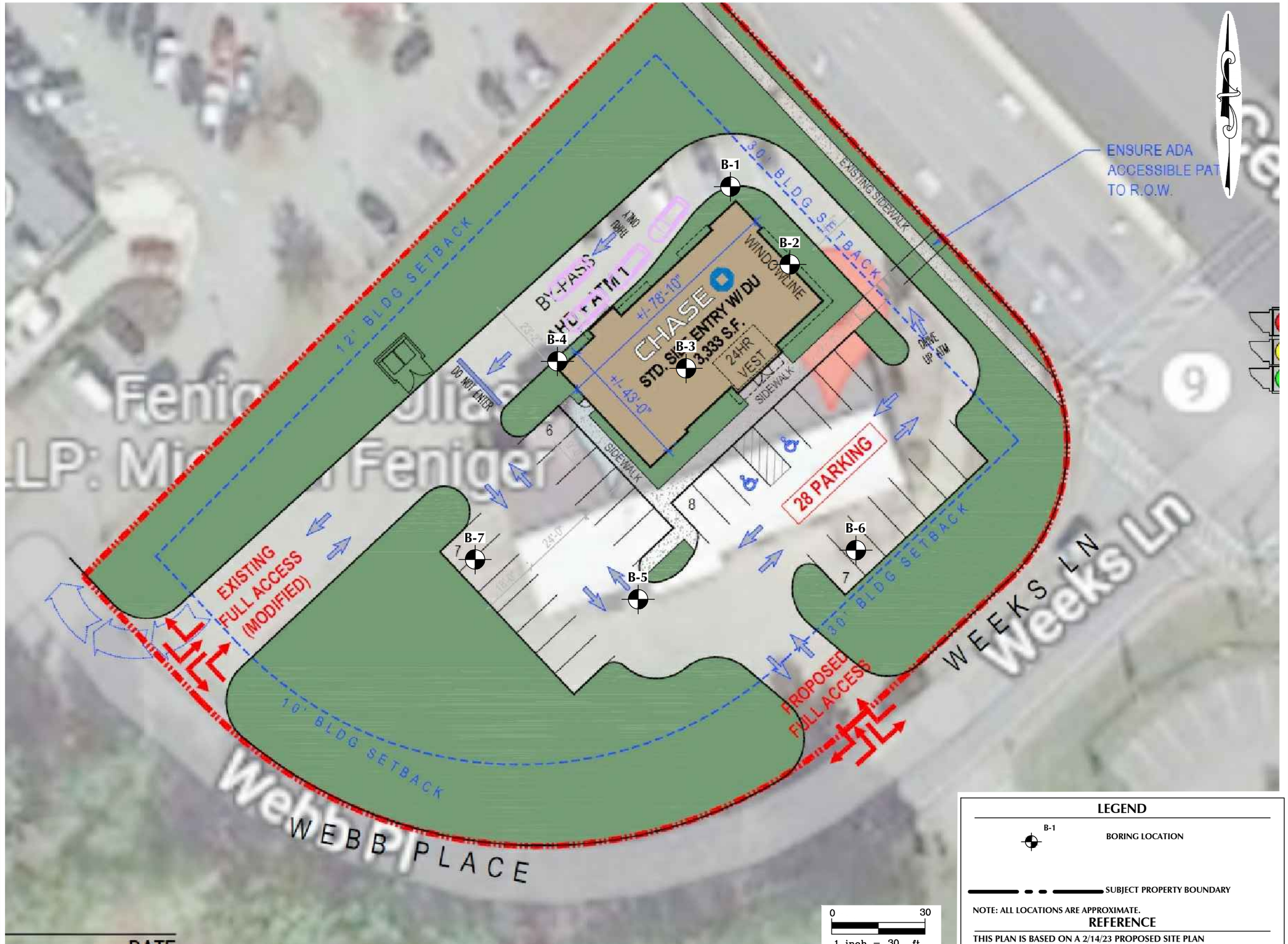
Whitestone recommends that the services of the geotechnical engineer be engaged to test and evaluate the materials in the footing excavations prior to concreting in order to determine that the materials will support the bearing pressures. Monitoring and testing also should be conducted to check that suitable materials are used for controlled fills and that they are properly placed and compacted over suitable subgrade.

The exploration and analysis of the foundation conditions reported herein are considered sufficient in detail and scope to form a reasonable basis for the foundation design. The recommendations submitted for the proposed construction are based on the available soil information and the design details furnished by Stonefield Engineering & Design, LLC. Deviations from the noted subsurface conditions encountered during construction should be brought to the attention of the geotechnical engineer.

The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been promulgated after being prepared in accordance with generally accepted professional engineering practice in the fields of foundation engineering, soil mechanics, and engineering geology. No other warranties, express or implied, are made.

WHITESTONE

FIGURE 1
Boring Location Plan



LEGEND

B-1 — BORING LOCATION

SUBJECT PROPERTY BOUNDARY

NOTE: ALL LOCATIONS ARE APPROXIMATE.

REFERENCE

THIS PLAN IS BASED ON A 2/14/23 PROPOSED SITE PLAN PREPARED BY CHASE.

WHITESTONE
An Employee-Owned Company
352 TURNPIKE ROAD, SUITE 105, SOUTHBOROUGH, MA 01772
508.485.0755 WHITESTONEASSOC.COM

DRAWING TITLE: **BORING LOCATION PLAN**

CLIENT: **STONEFIELD ENGINEERING & DESIGN, LLC**

PROJECT:
PROPOSED CHASE BANK BRANCH
ONE & THREE WEBB PLACE
PARCEL ID NO.: 38015-A00000
DOVER, STRAFFORD COUNTY, NEW HAMPSHIRE

PROJECT #:	GM2320013.000
DESIGNED BY: MR	PROJ. MGR.: RR
DATE: 2/27/23	FIGURE: 1
SCALE: 1" = 30'	

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APPENDIX A
Records of Subsurface Exploration

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-1

Page 1 of 1

Project:	Proposed Chase Bank Branch	**WAI Project No.:**	GM2320013.000
Location:	1 & 3 Webb Place, Dover, Strafford County, New Hampshire	**Client:**	Stonefield Engineering & Design, LLC
Surface Elevation:	± 202.0 feet Above NAVD88	**Date Started:**	2/21/2023
Termination Depth:	22.0 feet bgs	**Date Completed:**	2/21/2023
Proposed Location:	Building	**Logged By:**	JR
Drill / Test Method:	HSA / SPT	**Contractor:**	GS
		Equipment:	CME 75

	Water Depth (feet bgs)	Elevation (ft NAVD88)	Cave-In Depth (feet bgs)	Elevation (ft NAVD88)
During:	--	--		
At Completion:	--	--	**At Completion:**	-- / --
24 Hours:	--	--	**24 Hours:**	-- / --

Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	DEPTH (feet)	STRATA	DESCRIPTION OF MATERIALS (Classification)	REMARKS
						0.0			
0 - 2	S-1	X	16 - 12 - 8 - 5	19	20		PAVEMENT	4" Asphalt	
							EXISTING FILL	Brown, Medium Dense, Poorly Graded Sand with Silt and Gravel (FILL)	
2 - 4	S-2	X	8 - 8 - 6 - 5	16	14			As Above (FILL)	
						5.0			
5 - 7	S-3	X	12 - 26 - 21 - 19	3	47			Brown, Dense, Silty Sand with Gravel (FILL)	
7 - 9	S-4	X	19 - 17 - 19 - 20	2	36			As Above (FILL)	
						10.0			
						10.5			
10 - 12	S-5	X	8 - 10 - 13 - 15	13	23		GLACIO-FLUVIAL DEPOSIT	Brown, Medium Dense, Poorly Graded Sand with Silt and Gravel (SP-SM)	
12 - 14	S-6	X	14 - 14 - 16 - 17	15	30			As Above, Medium Dense to Dense (SP-SM)	
						15.0			
15 - 17	S-7	X	5 - 8 - 9 - 11	20	17			As Above, Medium Dense (SP-SM)	
17 - 19	S-8	X	12 - 12 - 15 - 21	21	27			As Above (SP-SM)	
						20.0			
20 - 22	S-9	X	8 - 9 - 9 - 10	22	18			As Above (SP-SM)	
								Boring Log B-1 Terminated at Depth of 22.0 Feet Below Ground Surface	
						25.0			

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-2

Page 1 of 1

Project:	Proposed Chase Bank Branch	**WAI Project No.:**	GM2320013.000
Location:	1 & 3 Webb Place, Dover, Strafford County, New Hampshire	**Client:**	Stonefield Engineering & Design, LLC
Surface Elevation:	± 202.0 feet Above NAVD88	**Date Started:**	2/21/2023
Termination Depth:	22.0 feet bgs	**Date Completed:**	2/21/2023
Proposed Location:	Building	**Logged By:**	JR
Drill / Test Method:	HSA / SPT	**Contractor:**	GS
		Equipment:	CME 75

	Water Depth (feet bgs)	Elevation (ft NAVD88)	Cave-In Depth (feet bgs)	Elevation (ft NAVD88)
During:	--	--		
At Completion:	--	--	**At Completion:**	-- / --
24 Hours:	--	--	**24 Hours:**	-- / --

Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	DEPTH (feet)	STRATA	DESCRIPTION OF MATERIALS (Classification)	REMARKS
						0.0			
0 - 2	S-1	X	10 - 6 - 5 - 4	15	11		PAVEMENT	4" Asphalt	
							EXISTING FILL	Brown, Medium Dense, Silty Sand with Gravel (FILL)	
2 - 4	S-2	X	6 - 2 - 3 - 5	17	5			As Above, Loose (FILL)	
						5.0			
5 - 7	S-3	X	2 - 4 - 12 - 27	16	16	6.0		As Above (FILL)	
							GLACIO-FLUVIAL DEPOSIT	Brown, Medium Dense, Poorly Graded Sand with Silt and Gravel (SP-SM)	
7 - 9	S-4	X	17 - 45 - 15 - 12	21	60			As Above, Very Dense (SP-SM)	Cobbles
						10.0			
10 - 12	S-5	X	2 - 4 - 8 - 8	18	12			As Above, Medium Dense (SP-SM)	
12 - 14	S-6	X	12 - 8 - 11 - 14	20	19			As Above (SP-SM)	
						15.0			
15 - 17	S-7	X	8 - 6 - 8 - 8	18	14			As Above (SP-SM)	
17 - 19	S-8	X	10 - 8 - 8 - 9	19	16			As Above (SP-SM)	
						20.0			
20 - 22	S-9	X	2 - 3 - 6 - 5	18	9			As Above, Loose (SP-SM)	
						25.0		Boring Log B-2 Terminated at Depth of 22.0 Feet Below Ground Surface	

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-3

Project:	Proposed Chase Bank Branch	**WAI Project No.:**	GM2320013.000
Location:	1 & 3 Webb Place, Dover, Strafford County, New Hampshire	**Client:**	Stonefield Engineering & Design, LLC
Surface Elevation:	± 201.0 feet Above NAVD88	**Date Started:**	2/21/2023
Termination Depth:	22.0 feet bgs	**Date Completed:**	2/21/2023
Proposed Location:	Building	**Logged By:**	JR
Drill / Test Method:	HSA / SPT	**Contractor:**	GS
		Equipment:	CME 75

Water Depth | Elevation	(feet bgs) | (ft NAVD88)	Cave-In Depth | Elevation	(feet bgs) | (ft NAVD88)
During:	-- | --		
At Completion:	-- | --	At Completion:	-- | --
24 Hours:	-- | --	24 Hours:	-- | --

Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	DEPTH (feet)	STRATA	DESCRIPTION OF MATERIALS (Classification)	REMARKS
						0.0			
0 - 2	S-1	X	12 - 14 - 6 - 5	6	20		PAVEMENT	4" Asphalt	
							EXISTING FILL	Brown, Medium Dense, Poorly Graded Sand with Silt and Gravel (FILL)	
2 - 4	S-2	X	3 - 2 - 2 - 4	8	4	4.0		As Above, Loose to Medium Dense, Wood Pieces (FILL)	
						5.0			
5 - 7	S-3	X	6 - 4 - 6 - 12	12	10			Brown, Loose to Medium Dense, Poorly Graded Sand with Gravel (SP)	
7 - 9	S-4	X	8 - 11 - 12 - 10	16	23			As Above (SP)	
						10.0			
10 - 12	S-5	X	3 - 3 - 6 - 5	14	9			As Above, Loose (SP)	
12 - 14	S-6	X	7 - 5 - 6 - 7	16	11		GLACIO-FLUVIAL DEPOSIT	As Above, Medium Dense (SP)	
						15.0			
15 - 17	S-7	X	4 - 5 - 7 - 14	18	12			As Above (SP)	
17 - 19	S-8	X	7 - 12 - 11 - 14	20	23			As Above (SP)	
						20.0			
20 - 22	S-9	X	8 - 10 - 20 - 23	18	30			As Above, Medium Dense to Dense (SP)	
						25.0		Boring Log B-3 Terminated at Depth of 22.0 Feet Below Ground Surface	

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-4

Page 1 of 1

Project:	Proposed Chase Bank Branch	**WAI Project No.:**	GM2320013.000
Location:	1 & 3 Webb Place, Dover, Strafford County, New Hampshire	**Client:**	Stonefield Engineering & Design, LLC
Surface Elevation:	± 201.0 feet Above NAVD88	**Date Started:**	2/21/2023
Termination Depth:	19.0 feet bgs	**Date Completed:**	2/21/2023
Proposed Location:	Building / Drive-thru	**Logged By:**	JR
Drill / Test Method:	HSA / SPT	**Contractor:**	GS
		Equipment:	CME 75

Water Depth | Elevation (feet bgs) | (ft NAVD88)		Cave-In Depth | Elevation (feet bgs) | (ft NAVD88)	
During:	-- | --		
At Completion:	-- | --	**At Completion:**	-- | --
24 Hours:	-- | --	**24 Hours:**	-- | --

SAMPLE INFORMATION						DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	(feet)				
						0.0				
							PAVEMENT		4" Asphalt	
0 - 2	S-1	X	27 - 8 - 8 - 9	18	16		EXISTING FILL		Gray-Brown, Medium Dense, Silty Sand with Gravel (FILL)	
2 - 4	S-2	X	10 - 10 - 8 - 9	12	18	4.0			As Above (FILL)	
						5.0				
5 - 7	S-3	X	4 - 5 - 5 - 5	18	10				Brown, Loose to Medium Dense, Poorly Graded Sand with Gravel (SP)	
7 - 9	S-4	X	5 - 7 - 8 - 10	18	15				As Above, Medium Dense (SP)	
						10.0				
10 - 12	S-5	X	3 - 5 - 5 - 5	21	10		GLACIO-FLUVIAL DEPOSIT		As Above, Loose to Medium Dense (SP)	
12 - 14	S-6	X	8 - 7 - 12 - 11	20	19				As Above, Medium Dense (SP)	
						15.0				
15 - 17	S-7	X	10 - 10 - 6 - 8	12	16				As Above (SP)	
17 - 19	S-8	X	15 - 21 - 34 - 21	18	55				As Above, Very Dense (SP)	Cobbles
						20.0			Boring Log B-4 Terminated at Depth of 19.0 Feet Below Ground Surface	
						25.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-5

Page 1 of 1

Project:	Proposed Chase Bank Branch	**WAI Project No.:**	GM2320013.000
Location:	1 & 3 Webb Place, Dover, Strafford County, New Hampshire	**Client:**	Stonefield Engineering & Design, LLC
Surface Elevation:	± 196.0 feet Above NAVD88	**Date Started:**	2/21/2023
Termination Depth:	12.0 feet bgs	**Date Completed:**	2/21/2023
Proposed Location:	Roadway	**Logged By:**	JR
Drill / Test Method:	HSA / SPT	**Contractor:**	GS
		Equipment:	CME 75

	Water Depth (feet bgs)	Water Elevation (ft NAVD88)	Cave-In Depth (feet bgs)	Cave-In Elevation (ft NAVD88)
During:	--	--		
At Completion:	--	--	**At Completion:**	-- / --
24 Hours:	--	--	**24 Hours:**	-- / --

Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	DEPTH (feet)	STRATA	DESCRIPTION OF MATERIALS (Classification)	REMARKS
						0.0			
0 - 2	S-1	X	9 - 6 - 5 - 5	10	11		PAVEMENT	4" Asphalt	
							EXISTING FILL	Brown, Medium Dense, Poorly Graded Sand with Gravel (SP)	
2 - 4	S-2	X	8 - 12 - 16 - 19	13	28	3.5		As Above (SP)	
						5.0			
5 - 7	S-3	X	7 - 9 - 10 - 10	5	19		GLACIO-FLUVIAL DEPOSIT	Brown, Medium Dense, Poorly Graded Sand with Gravel (SP)	
7 - 9	S-4	X	10 - 9 - 7 - 7	8	16			As Above (SP)	
						10.0			
10 - 12	S-5	X	3 - 5 - 6 - 6	10	11			As Above (SP)	
								Boring Log B-5 Terminated at Depth of 12.0 Feet Below Ground Surface	
						15.0			
						20.0			
						25.0			

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-6

Project:	Proposed Chase Bank Branch	**WAI Project No.:**	GM2320013.000
Location:	1 & 3 Webb Place, Dover, Strafford County, New Hampshire	**Client:**	Stonefield Engineering & Design, LLC
Surface Elevation:	± 197.0 feet Above NAVD88	**Date Started:**	2/21/2023
Termination Depth:	14.0 feet bgs	**Date Completed:**	2/21/2023
Proposed Location:	Parking	**Logged By:**	JR
Drill / Test Method:	HSA / SPT	**Contractor:**	GS
		Equipment:	CME 75

	Water Depth (feet bgs)	Water Elevation (ft NAVD88)	Cave-In Depth (feet bgs)	Cave-In Elevation (ft NAVD88)
During:	--	--		
At Completion:	--	--	**At Completion:**	-- / --
24 Hours:	--	--	**24 Hours:**	-- / --

Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	DEPTH (feet)	STRATA	DESCRIPTION OF MATERIALS (Classification)	REMARKS
						0.0			
0 - 2	S-1	X	16 - 8 - 8 - 5	10	16		PAVEMENT	4" Asphalt	
							EXISTING FILL	Brown, Medium Dense, Poorly Graded Sand with Silt and Gravel (FILL)	
2 - 4	S-2	X	5 - 3 - 3 - 2	8	6			As Above, Loose (FILL)	
						5.0			
5 - 7	S-3	X	1 - 1 - 1 - 2	14	2			As Above, Very Loose (FILL)	
7 - 9	S-4	X	3 - 2 - 2 - 2	12	4			As Above, Loose (FILL)	
						10.0			
10 - 12	S-5	X	WOH - 1 - 2 - 1	12	3			As Above, Very Loose (FILL)	
						12.0			
12 - 14	S-6	X	12 - 14 - 18 - 19	14	32		GLACIO-FLUVIAL DEPOSIT	Brown, Dense, Poorly Graded Sand with Silt and Gravel (SP-SM)	
						15.0		Boring Log B-6 Terminated at Depth of 14.0 Feet Below Ground Surface	
						20.0			
						25.0			

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

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RECORD OF SUBSURFACE EXPLORATION

Boring No.: B-7

Project:	Proposed Chase Bank Branch	**WAI Project No.:**	GM2320013.000
Location:	1 & 3 Webb Place, Dover, Strafford County, New Hampshire	**Client:**	Stonefield Engineering & Design, LLC
Surface Elevation:	± 198.0 feet Above NAVD88	**Date Started:**	2/21/2023
Termination Depth:	14.0 feet bgs	**Date Completed:**	2/21/2023
Proposed Location:	Parking	**Logged By:**	JR
Drill / Test Method:	HSA / SPT	**Contractor:**	GS
		Equipment:	CME 75

	Water Depth (feet bgs)	Water Elevation (ft NAVD88)	Cave-In Depth (feet bgs)	Cave-In Elevation (ft NAVD88)
During:	--	--		
At Completion:	--	--	**At Completion:**	-- / --
24 Hours:	--	--	**24 Hours:**	-- / --

Depth (feet)	No	Type	Blows Per 6"	Rec. (in.)	N	DEPTH (feet)	STRATA	DESCRIPTION OF MATERIALS (Classification)	REMARKS
						0.0			
0 - 2	S-1	X	4 - 6 - 8 - 8	18	14		TS	6" Topsoil	
							EXISTING FILL	Brown, Medium Dense, Poorly Graded Sand with Silt and Gravel (FILL)	
2 - 4	S-2	X	9 - 17 - 20 - 11	8	37	4.0		As Above, Dense (FILL)	
						5.0	GLACIO-FLUVIAL DEPOSIT		
5 - 7	S-3	X	6 - 6 - 5 - 6	10	11			Brown, Medium Dense, Poorly Graded Sand (SP)	
7 - 9	S-4	X	4 - 5 - 5 - 5	16	10			As Above, Loose to Medium Dense (SP)	
						10.0			
10 - 12	S-5	X	3 - 3 - 4 - 5	18	7			As Above, Loose (SP)	
12 - 14	S-6	X	8 - 4 - 4 - 5	18	8			As Above (SP)	
						15.0		Boring Log B-7 Terminated at Depth of 14.0 Feet Below Ground Surface	
						20.0			
						25.0			

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

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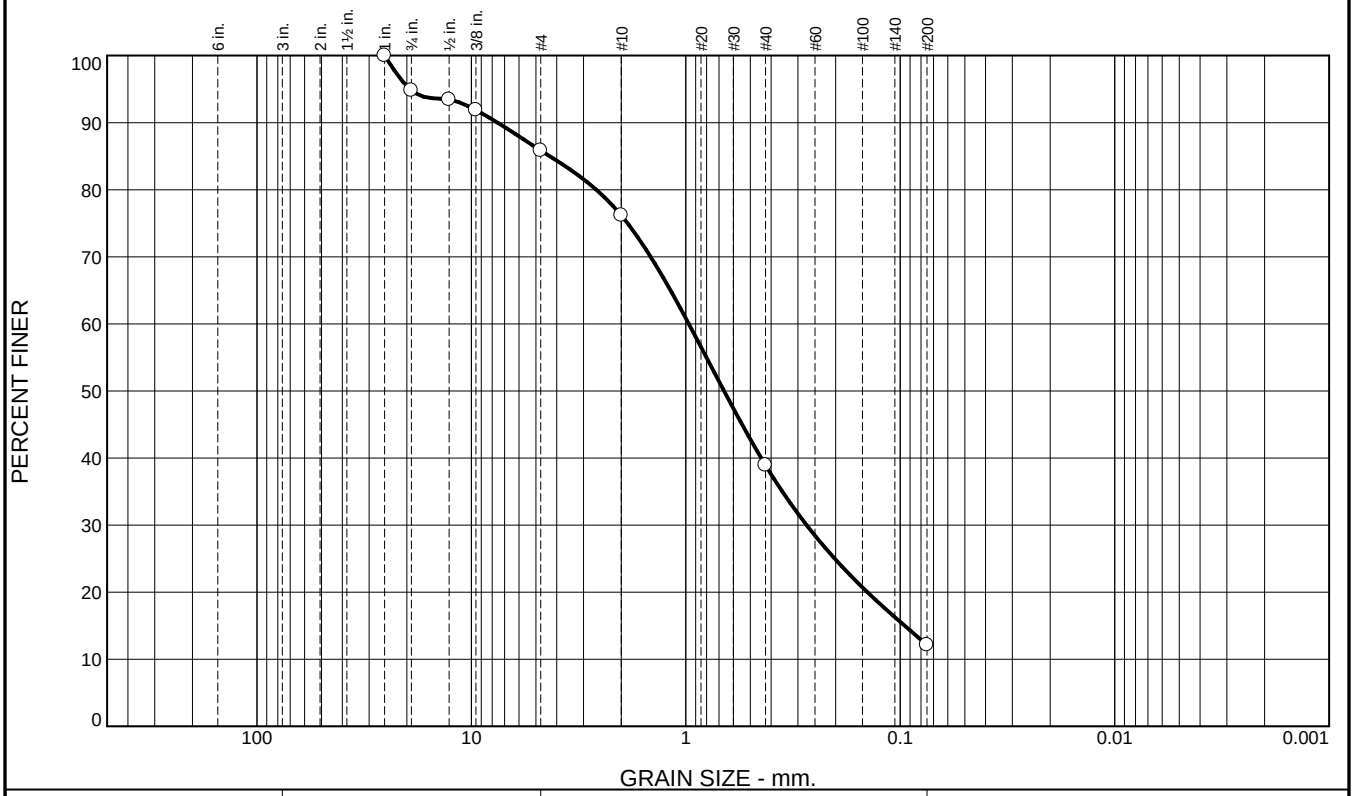
APPENDIX B
Laboratory Test Results

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.2	9.0	9.6	37.3	26.8	12.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	94.8		
1/2"	93.4		
3/8"	91.9		
#4	85.8		
#10	76.2		
#40	38.9		
#200	12.1		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NV

Coefficients

D_{90}= 7.5420 D_{85}= 4.3141 D_{60}= 0.9685
D_{50}= 0.6631 D_{30}= 0.2734 D_{15}= 0.0955
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

Moisture Content: 8.2%

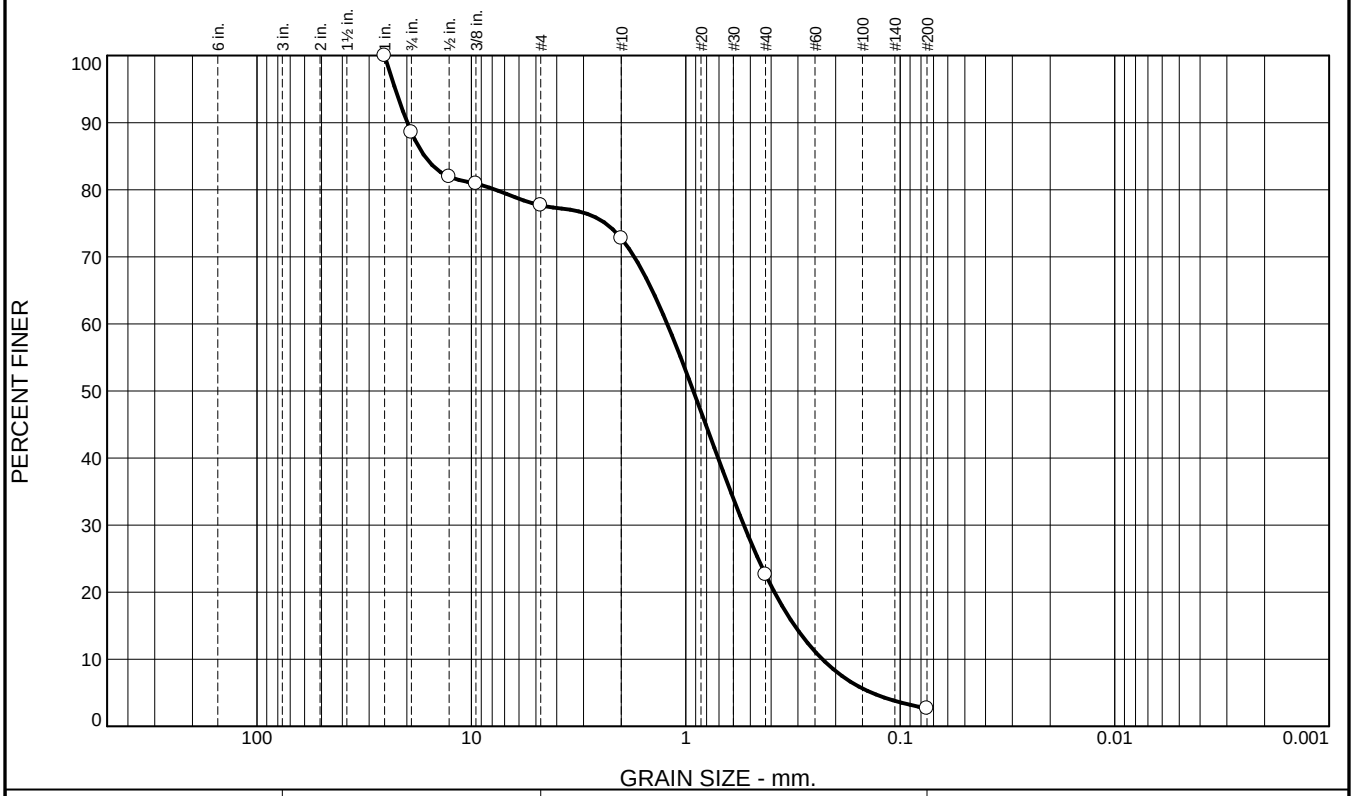
Location: B-2
Sample Number: S-2 **Depth:** 2'-4' **Date:** 3.13.23

WHITESTONE ASSOCIATES, INC.
Warren, New Jersey

Client: Stonefield Engineering & Design
Project: Proposed Chase Bank
1 and 3 Webb Place Dover, Strafford County, New Hampshire
Project No: GM2320013.000 **Figure** S-1

Tested By: RK **Checked By:** RWM

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	11.4	10.9	4.9	50.2	19.9	2.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	88.6		
1/2"	81.9		
3/8"	80.9		
#4	77.7		
#10	72.8		
#40	22.6		
#200	2.7		

* (no specification provided)

Material Description

Poorly Graded Sand with Gravel

Atterberg Limits

PL= NP LL= NV PI= NV

Coefficients

D_{90}= 19.9034 D_{85}= 16.5037 D_{60}= 1.2225
D_{50}= 0.9221 D_{30}= 0.5364 D_{15}= 0.3106
D_{10}= 0.2308 C_u= 5.30 C_c= 1.02

Classification

USCS= SP AASHTO= A-1-b

Remarks

Moisture Content: 3.4%

Location: B-4
Sample Number: S-3 **Depth:** 5'-7' **Date:** 03.13.23

WHITESTONE ASSOCIATES, INC.
Warren, New Jersey

Client: Stonefield Engineering & Design
Project: Proposed Chase Bank
1 and 3 Webb Place Dover, Strafford County, New Hampshire
Project No: GM2320013.000 **Figure** S-2

Tested By: RK **Checked By:** RWM

WHITESTONE

APPENDIX C
Supplemental Information (USCS, Terms & Symbols)

WHITESTONE
An Employee-Owned Company

3 EXECUTIVE PARK DRIVE
SUITE 202
BEDFORD, NH 03110
813.851.0690
whitestoneassoc.com

UNIFIED SOIL CLASSIFICATION SYSTEM

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
			GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	SM	SILTY SANDS, SAND-SILT MIXTURES
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMITS LESS THAN 50	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMITS GREATER THAN 50	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS FOR SAMPLES WITH 5% TO 12% FINES

GRADATION*

% FINER BY WEIGHT

TRACE..... 1% TO 10%
LITTLE..... 10% TO 20%
SOME..... 20% TO 35%
AND..... 35% TO 50%

COMPACTNESS*
Sand and/or Gravel

RELATIVE DENSITY

LOOSE. ..... 0% TO 40%
MEDIUM DENSE.... 40% TO 70%
DENSE..... 70% TO 90%
VERY DENSE..... 90% TO 100%

CONSISTENCY*
Clay and/or Silt

RANGE OF SHEARING STRENGTH IN POUNDS PER SQUARE FOOT

VERY SOFT..... LESS THAN 250
SOFT..... ..... 250 TO 500
MEDIUM..... 500 TO 1000
STIFF..... 1000 TO 2000
VERY STIFF..... 2000 TO 4000
HARD..... GREATER THAN 4000

** VALUES ARE FROM LABORATORY OR FIELD TEST DATA, WHERE APPLICABLE. WHEN NO TESTING WAS PERFORMED, VALUES ARE ESTIMATED.*

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GEOTECHNICAL TERMS AND SYMBOLS

SAMPLE IDENTIFICATION

The Unified Soil Classification System is used to identify the soil unless otherwise noted.

SOIL PROPERTY SYMBOLS

N: Standard Penetration Value: Blows per ft. of a 140 lb. hammer falling 30" on a 2" O.D. split-spoon.
Qu: Unconfined compressive strength, TSF.
Qp: Penetrometer value, unconfined compressive strength, TSF.
Mc: Moisture content, %.
LL: Liquid limit, %.
PI: Plasticity index, %.
δd: Natural dry density, PCF.
▼: Apparent groundwater level at time noted after completion of boring.

DRILLING AND SAMPLING SYMBOLS

NE: Not Encountered (Groundwater was not encountered).
SS: Split-Spoon - 1 ⅜" I.D., 2" O.D., except where noted.
ST: Shelby Tube - 3" O.D., except where noted.
AU: Auger Sample.
OB: Diamond Bit.
CB: Carbide Bit
WS: Washed Sample.

RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION

Term (Non-Cohesive Soils)	Standard Penetration Resistance
Very Loose	0-4
Loose	4-10
Medium Dense	10-30
Dense	30-50
Very Dense	Over 50

Term (Cohesive Soils)	Qu (TSF)
Very Soft	0 - 0.25
Soft	0.25 - 0.50
Firm (Medium)	0.50 - 1.00
Stiff	1.00 - 2.00
Very Stiff	2.00 - 4.00
Hard	4.00+

PARTICLE SIZE

Boulders	8 in.+	Coarse Sand	5mm-0.6mm	Silt	0.074mm-0.005mm
Cobbles	8 in.-3 in.	Medium Sand	0.6mm-0.2mm	Clay	-0.005mm
Gravel	3 in.-5mm	Fine Sand	0.2mm-0.074mm		

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January 18, 2024

via email

STONEFIELD ENGINEERING & DESIGN, LLC
120 Washington Street
Suite 201
Salem, Massachusetts 01970

Attention: Joshua H. Kline, P.E.
Team Lead

Regarding: SUPPLEMENTAL STORMWATER MANAGEMENT AREA EVALUATION
PROPOSED CHASE BANK BRANCH
1 & 3 WEBB PLACE
DOVER, STRAFFORD COUNTY, NEW HAMPSHIRE
WHITESTONE PROJECT NO.: GM2320013.001

Dear Mr. Kline:

Whitestone Associates, Inc. (Whitestone) is pleased to submit the results of the supplemental stormwater management (SWM) area evaluation in support of the proposed development referenced above. Services were provided in general accordance with Whitestone's December 18, 2023 proposal. Whitestone issued a March 21, 2023 *Report of Geotechnical Investigation* (ROGI) for the Chase bank building.

1.0 PROJECT DESCRIPTION

The subject property located at 1 and 3 Webb Place in Dover, Strafford County, New Hampshire, is currently developed with a one- to two-story commercial building, which will be demolished. The site also has paved parking and landscaped areas.

2.0 FIELD EXPLORATION & TESTING

2.1 Field Exploration

Field exploration consisted of excavating three test pits, identified as TP-1, TP-2, and TP-3. The test pits subsequently were backfilled to the surface with excavated soils from the investigation after observing soil conditions and performing infiltration testing. The locations of the test pits are shown on the accompanying *Test Location Plan* included as Figure 1. *Records of Subsurface Exploration* for the test pits are provided in Appendix A. The borings on the figure are documented in the previously issued March 21, 2023 ROGI.

The subsurface tests were conducted in the presence of a Whitestone engineer who performed field tests, recorded visual classifications, and collected samples of the various strata encountered. The test pits were located in the field using normal taping procedures and estimated right angles. These locations are presumed to be accurate within a few feet.

Groundwater level observations, where encountered, were recorded during and immediately after the

completion of field operations prior to backfilling the test pits. Seasonal variations, temperature effects, man-made effects, and recent rainfall conditions may influence the levels of the groundwater, and the observed levels will depend on the permeability of the soils. Groundwater elevations derived from sources other than seasonally observed groundwater monitor wells may not be representative of true groundwater levels.

2.2 Infiltration Testing

Prior to infiltration testing, test pits TP-1, TP-2, and TP-3 were excavated to a depth of 10 fbgs to assess soil conditions. Falling head infiltration tests, I-1, I-2, and I-3, were conducted in cased holes at the locations shown on the *Test Location Plan*. Four-inch diameter PVC casing was installed to the depths tabulated below. The soil was pre-soaked for 20 minutes. Following testing, the casings were removed. The results are tabulated below.

SUMMARY OF INFILTRATION TESTING				
Location	**Approximate Ground Elevation (ft)**	**Approx. Test Depth (ft)**	**Approximate Test Elevation (ft)**	**Infiltration Rate (in/hr)**
I-1 (TP-1)	195	4.4	190.6	> 10
I-2 (TP-2)	197	4.6	192.4	4
I-3 (TP-3)	202	4.2	197.8	4

Typically, a Factor of Safety (FoS) is applied to measured infiltration rates to account for siltation and consolidation of soil below the systems over time. Safety factors used should consider how critical the systems are to the development and the available storage. If the system is critical or storage limited, a higher FoS should be applied. Infiltration rates are variable and dependent on test depth and stratification, especially within the varying fines content in the glaciofluvial deposit.

Based on the results of the gradation testing in the previous explorations at the site, the USDA textural analysis classifies the glaciofluvial deposit as “sand”.

3.0 SUBSURFACE CONDITIONS

The soil conditions encountered within the subsurface tests conducted by Whitestone consisted of the following generalized strata in order of increasing depth. *Records of Subsurface Exploration* are provided in Appendix A.

Surface Cover Materials: The test pits encountered six inches to 12 inches of topsoil at the ground surface.

Existing Fill: Beneath the surface cover materials, the test pits encountered existing fill, consisting of brown to gray, silty sand with gravel, occasional cobbles. The existing fill extended to depths of 1.5 fbgs to 2.5 fbgs.

Glaciofluvial Deposit: Beneath the existing fill, the test pits encountered a glaciofluvial deposit, consisting of brown, poorly graded sand with silt and gravel, occasional silt layers, occasional cobbles and boulders (USCS: SP-SM). The test pits terminated in the glaciofluvial deposit at a depth of 10 fbgs.

Groundwater: Groundwater was not encountered within the test pits during the exploration. There were no indications of seasonal high groundwater level on the sidewalls of the test pits. Groundwater levels should be expected to fluctuate seasonally and following periods of precipitation.

Whitestone appreciates being of continued service to Stonefield Engineering & Design, LLC. Please contact us with any questions regarding this letter.

Sincerely,

WHITESTONE ASSOCIATES, INC.

Richard W.M. McLaren, P.E.
Senior Consultant

Ryan R. Roy, P.E.
Vice President

RWM/pwd N:\Job Folders\2023\2320013GM\Reports and Submittals\Stonefield Chase Dover NH Supplemental SWM GM2320013.001.docx
Enclosures

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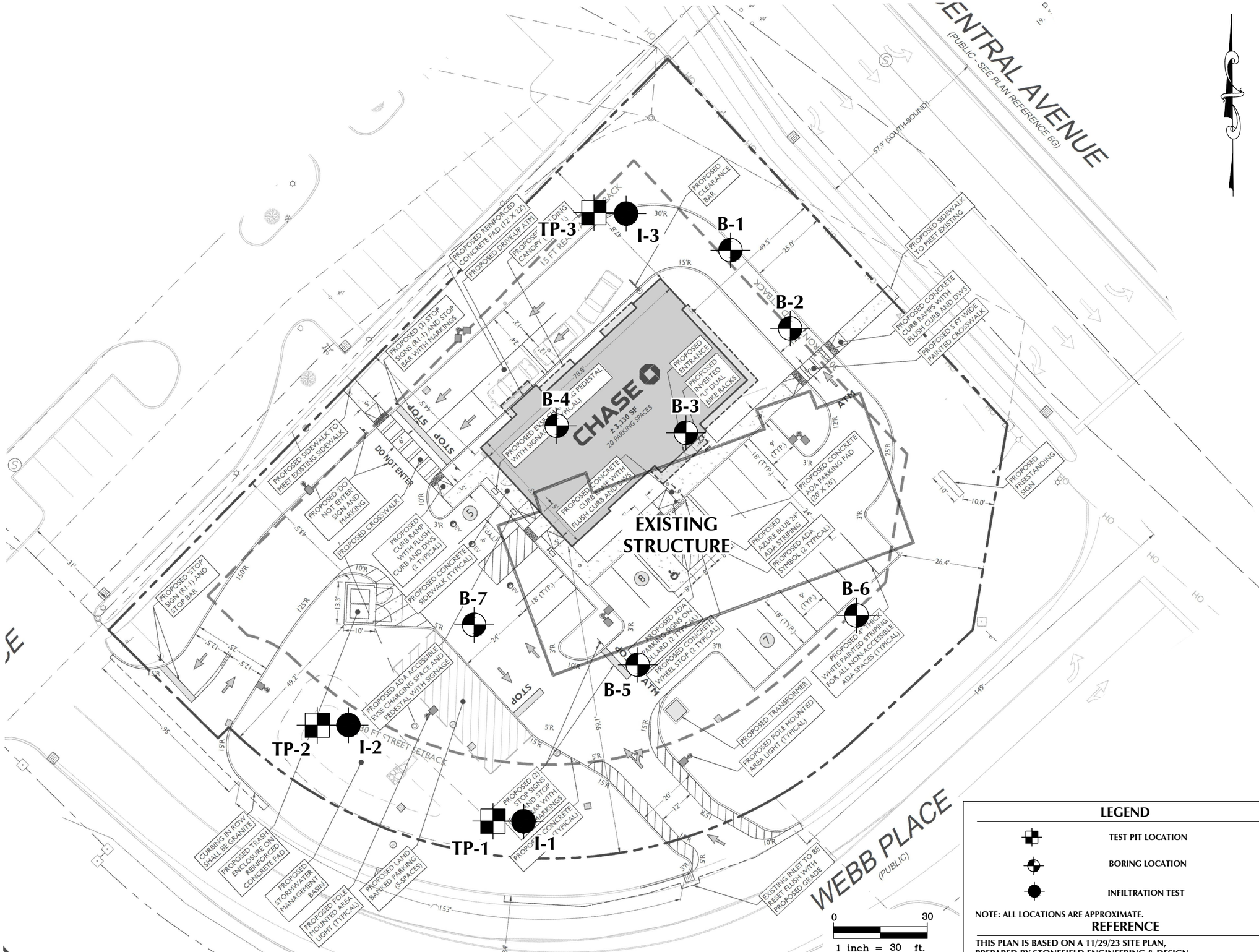
FIGURE 1
Test Location Plan



LEGEND

- TEST PIT LOCATION
- BORING LOCATION
- INFILTRATION TEST

NOTE: ALL LOCATIONS ARE APPROXIMATE.

REFERENCE

THIS PLAN IS BASED ON A 11/29/23 SITE PLAN, PREPARED BY STONEFIELD ENGINEERING & DESIGN

WHITESTONE
An Employee-Owned Company
3 EXECUTIVE PARK DR SUITE 202, BEDFORD, NH 03110
PHONE: 603.514.2230 WHITESTONEASSOC.COM

DRAWING TITLE: **TEST LOCATION PLAN**

CLIENT: **STONEFIELD ENGINEERING & DESIGN**

PROJECT: **PROPOSED CHASE BANK BRANCH 1&3 WEBB PLACE DOVER, STRAFFORD COUNTY, NEW HAMPSHIRE**

PROJECT #: GM2320013.001	
DESIGNED BY: MR	PROJ. MGR.: RR
DATE: 1/17/24	FIGURE: 1
SCALE: 1" = 30'	

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APPENDIX A
Records of Subsurface Exploration

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RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-1

Page 1 of 1

Project:	Proposed Chase Bank Branch	**WAI Project No.:**	GM2320013.001
Location:	1 & 3 Webb Place, Dover, Strafford County, New Hampshire	**Client:**	Stonefield Engineering & Design, LLC

Surface Elevation:	± 195.0 feet NAVD88	**Date Started:**	12/20/2023		**Water Depth (feet bgs)**	**Elevation (ft NAVD88)**	**Cave-In Depth (feet bgs) | Elevation (ft NAVD88)**
Termination Depth:	10.0 feet bgs	**Date Completed:**	12/20/2023				
Proposed Location:	SWM Area	**Logged By:**	ZH	**During:**	--	--	
Excavating Method:	Compact Excavator	**Contractor:**	BG	**At Completion:**	--	--	**At Completion:** -- | --
Test Method:	Visual Observation	**Rig Type:**	Kubota KX080	**24 Hours:**	--	--	

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				
0.5	1	Grab		TOPSOIL		12" Topsoil	
				EXISTING FILL		Brown, Silty Sand with Gravel, Cobbles (FILL)	
			2.5				
3	2	Grab					
							Infiltration test @ 4.4 fbgs
			5.0	GLACIO-FLUVIAL DEPOSIT		Brown, Poorly Graded Sand with Silt and Gravel, Occ. Cobbles & Boulders (SP-SM)	
8	3	Grab					
9.5	4	Grab	10.0				
						Test Pit TP-1 Terminated at Depth of 10 Feet Below Ground Surface.	
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-2

Page 1 of 1

Project:	Proposed Chase Bank Branch	**WAI Project No.:**	GM2320013.001
Location:	1 & 3 Webb Place, Dover, Strafford County, New Hampshire	**Client:**	Stonefield Engineering & Design, LLC

Surface Elevation:	± 197.0 feet NAVD88	**Date Started:**	12/20/2023		**Water Depth (feet bgs)**	**Elevation (ft NAVD88)**	**Cave-In Depth (feet bgs) / Elevation (ft NAVD88)**
Termination Depth:	10.0 feet bgs	**Date Completed:**	12/20/2023				
Proposed Location:	SWM Area	**Logged By:**	ZH	**During:**	--	--	
Excavating Method:	Compact Excavator	**Contractor:**	BG	**At Completion:**	--	--	**At Completion:** -- / --
Test Method:	Visual Observation	**Rig Type:**	Kubota KX080	**24 Hours:**	--	--	

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				
				TOPSOIL		12" Topsoil	
1.5	1	Grab	1.5	FILL		Gray, Silty Sand with Gravel (FILL)	
2.5	3	Grab					
			5.0	GLACIO-FLUVIAL DEPOSIT		Brown, Poorly Graded Sand with Silt and Gravel (SP-SM)	Infiltration test @ 4.6 fbgs
7	3	Grab					
9.5	4	Grab	10.0				
						Test Pit TP-2 Terminated at Depth of 10 Feet Below Ground Surface.	
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-3

Page 1 of 1

Project:	Proposed Chase Bank Branch	**WAI Project No.:**	GM2320013.001
Location:	1 & 3 Webb Place, Dover, Strafford County, New Hampshire	**Client:**	Stonefield Engineering & Design, LLC

Surface Elevation:	± 202.0 feet NAVD88	**Date Started:**	12/20/2023		**Water Depth (feet bgs)**	**Elevation (ft NAVD88)**	**Cave-In Depth (feet bgs) / Elevation (ft NAVD88)**
Termination Depth:	10.0 feet bgs	**Date Completed:**	12/20/2023				
Proposed Location:	SWM Area	**Logged By:**	ZH	**During:**	--	--	
Excavating Method:	Compact Excavator	**Contractor:**	BG	**At Completion:**	--	--	**At Completion:** -- / --
Test Method:	Visual Observation	**Rig Type:**	Kubota KX080	**24 Hours:**	--	--	

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				
				TOPSOIL		6" Topsoil	
1	1	Grab		EXISTING FILL		Gray, Silty Sand with Gravel (FILL)	
			1.5				
2.5	2	Grab					
							Infiltration test @ 4.2 fbgs
			5.0	GLACIO-FLUVIAL DEPOSIT		Brown, Poorly Graded Sand with Silt and Gravel (SP-SM)	
7	3	Grab					
							Silt Layer
9.5	4	Grab					
			10.0				
						Test Pit TP-3 Terminated at Depth of 10 Feet Below Ground Surface.	
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

APPENDIX B
Supplemental Information (USCS, Terms & Symbols)

WHITESTONE
An Employee-Owned Company

352 TURNPIKE ROAD
SUITE 320
SOUTHBOROUGH, MA 01772
508.485.0755
whitestoneassoc.com

UNIFIED SOIL CLASSIFICATION SYSTEM

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
			GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	SM	SILTY SANDS, SAND-SILT MIXTURES
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMITS LESS THAN 50	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMITS GREATER THAN 50	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

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GRADATION*

% FINER BY WEIGHT

TRACE..... 1% TO 10%
LITTLE..... 10% TO 20%
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AND..... 35% TO 50%

COMPACTNESS*
Sand and/or Gravel

RELATIVE DENSITY

LOOSE. ..... 0% TO 40%
MEDIUM DENSE.... 40% TO 70%
DENSE..... 70% TO 90%
VERY DENSE..... 90% TO 100%

CONSISTENCY*
Clay and/or Silt

RANGE OF SHEARING STRENGTH IN POUNDS PER SQUARE FOOT

VERY SOFT..... LESS THAN 250
SOFT..... ..... 250 TO 500
MEDIUM..... 500 TO 1000
STIFF..... 1000 TO 2000
VERY STIFF..... 2000 TO 4000
HARD..... GREATER THAN 4000

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▼: Apparent groundwater level at time noted after completion of boring.

DRILLING AND SAMPLING SYMBOLS

NE: Not Encountered (Groundwater was not encountered).
SS: Split-Spoon - 1 ⅜" I.D., 2" O.D., except where noted.
ST: Shelby Tube - 3" O.D., except where noted.
AU: Auger Sample.
OB: Diamond Bit.
CB: Carbide Bit
WS: Washed Sample.

RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION

Term (Non-Cohesive Soils)	Standard Penetration Resistance
Very Loose	0-4
Loose	4-10
Medium Dense	10-30
Dense	30-50
Very Dense	Over 50

Term (Cohesive Soils)	Qu (TSF)
Very Soft	0 - 0.25
Soft	0.25 - 0.50
Firm (Medium)	0.50 - 1.00
Stiff	1.00 - 2.00
Very Stiff	2.00 - 4.00
Hard	4.00+

PARTICLE SIZE

Boulders	8 in.+	Coarse Sand	5mm-0.6mm	Silt	0.074mm-0.005mm
Cobbles	8 in.-3 in.	Medium Sand	0.6mm-0.2mm	Clay	-0.005mm
Gravel	3 in.-5mm	Fine Sand	0.2mm-0.074mm		

L:\Geotechnical Forms and References\Reports\USCSTRMSSYM MA.docx

APPENDIX C
HYDROLOGIC & HYDRAULIC CALCULATIONS

INVENTORY

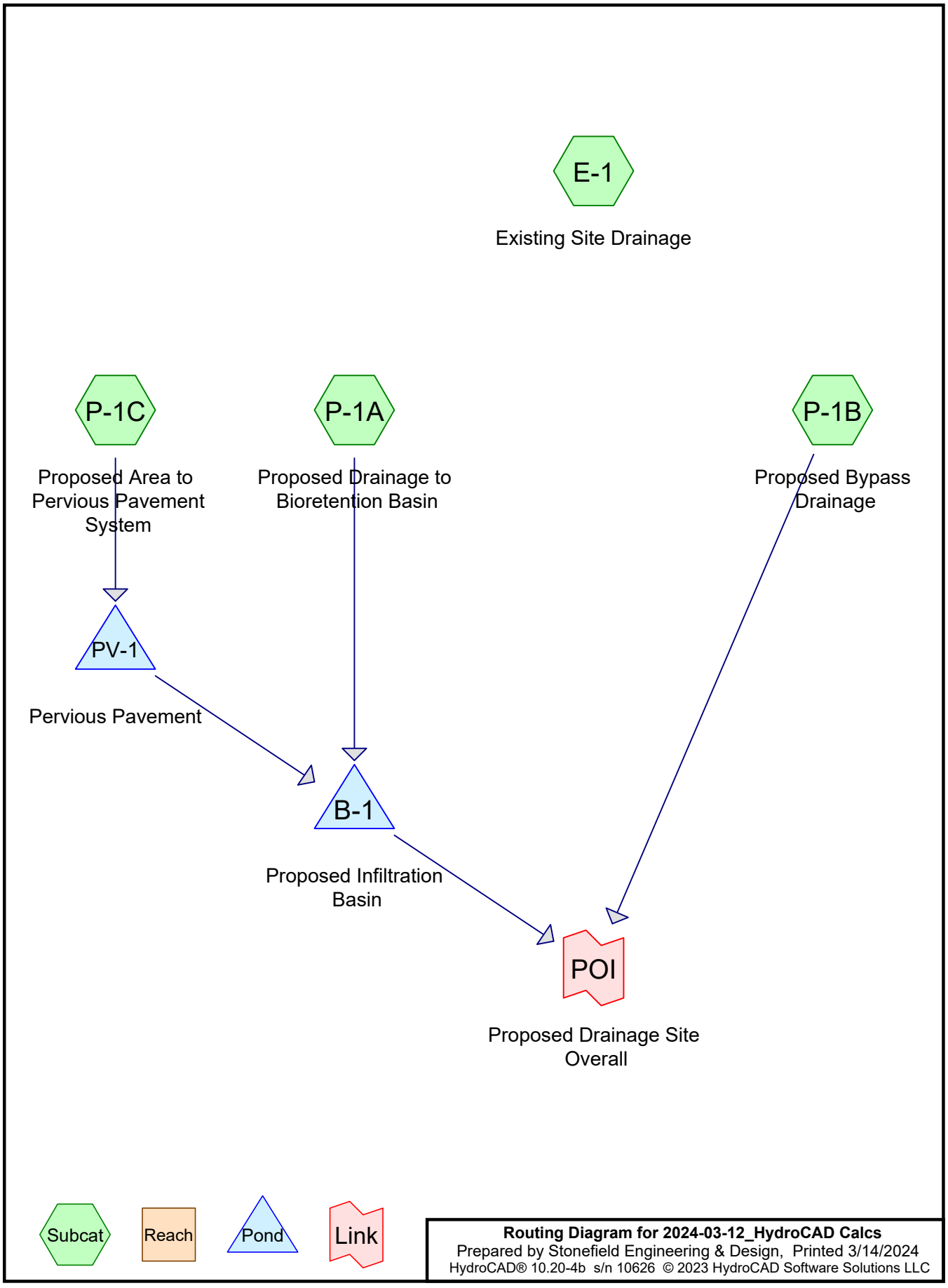
C-1: HYDROCAD NODE SCHEMATIC DIAGRAM

C-2: HYDROCAD HYDROLOGIC CALCULATIONS

C-3: HYDRAFLOW PIPE NETWORK SUMMARY CHART

C-4: HYDRAFLOW HYDRAULIC PIPE ANALYSIS

C-5: RIP RAP PAD SIZING CALCULATIONS



Routing Diagram for 2024-03-12_HydroCAD Calcs
Prepared by Stonefield Engineering & Design, Printed 3/14/2024
HydroCAD® 10.20-4b s/n 10626 © 2023 HydroCAD Software Solutions LLC

Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E-1: Existing Site Drainage Runoff Area=42,879 sf 74.68% Impervious Runoff Depth=2.07"
Tc=6.0 min CN=39/98 Runoff=1.97 cfs 7,387 cf

Subcatchment P-1A: Proposed Drainage Runoff Area=33,098 sf 54.65% Impervious Runoff Depth=1.51"
Tc=6.0 min CN=39/98 Runoff=1.11 cfs 4,172 cf

Subcatchment P-1B: Proposed Bypass Runoff Area=5,162 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=39/0 Runoff=0.00 cfs 0 cf

Subcatchment P-1C: Proposed Area to Runoff Area=4,619 sf 95.71% Impervious Runoff Depth=2.65"
Tc=6.0 min CN=39/98 Runoff=0.27 cfs 1,020 cf

Pond B-1: Proposed Infiltration Basin Peak Elev=193.04' Storage=1,497 cf Inflow=1.11 cfs 4,172 cf
Discarded=0.09 cfs 4,172 cf Primary=0.00 cfs 0 cf Outflow=0.09 cfs 4,172 cf

Pond PV-1: Pervious Pavement Peak Elev=194.21' Storage=162 cf Inflow=0.27 cfs 1,020 cf
Discarded=0.06 cfs 1,020 cf Primary=0.00 cfs 0 cf Outflow=0.06 cfs 1,020 cf

Link POI: Proposed Drainage Site Overall Inflow=0.00 cfs 0 cf
Primary=0.00 cfs 0 cf

Total Runoff Area = 85,758 sf Runoff Volume = 12,579 cf Average Runoff Depth = 1.76"
36.42% Pervious = 31,230 sf 63.58% Impervious = 54,528 sf

Summary for Subcatchment E-1: Existing Site Drainage

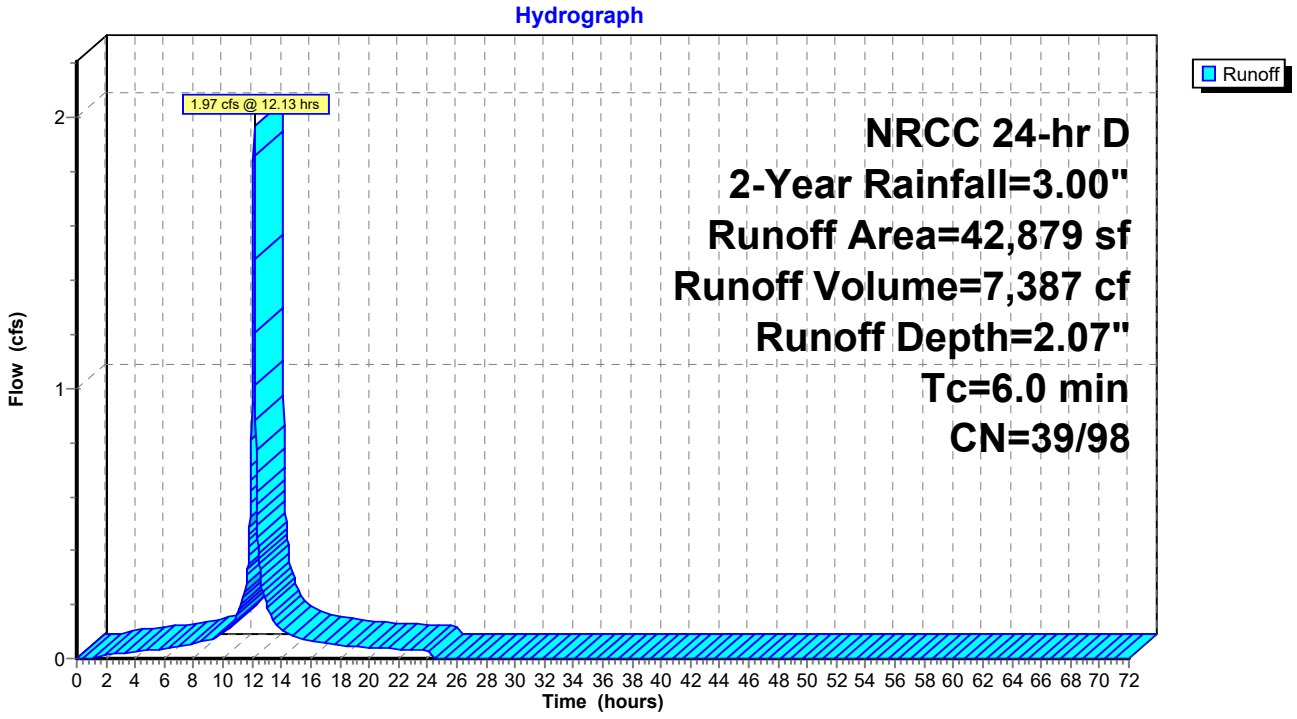
Runoff = 1.97 cfs @ 12.13 hrs, Volume= 7,387 cf, Depth= 2.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 2-Year Rainfall=3.00"

	Area (sf)	CN	Description
*	32,020	98	Impervious Areas
	10,859	39	>75% Grass cover, Good, HSG A
	42,879	83	Weighted Average
	10,859	39	25.32% Pervious Area
	32,020	98	74.68% Impervious Area

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

Subcatchment E-1: Existing Site Drainage



Summary for Subcatchment P-1A: Proposed Drainage to Bioretention Basin

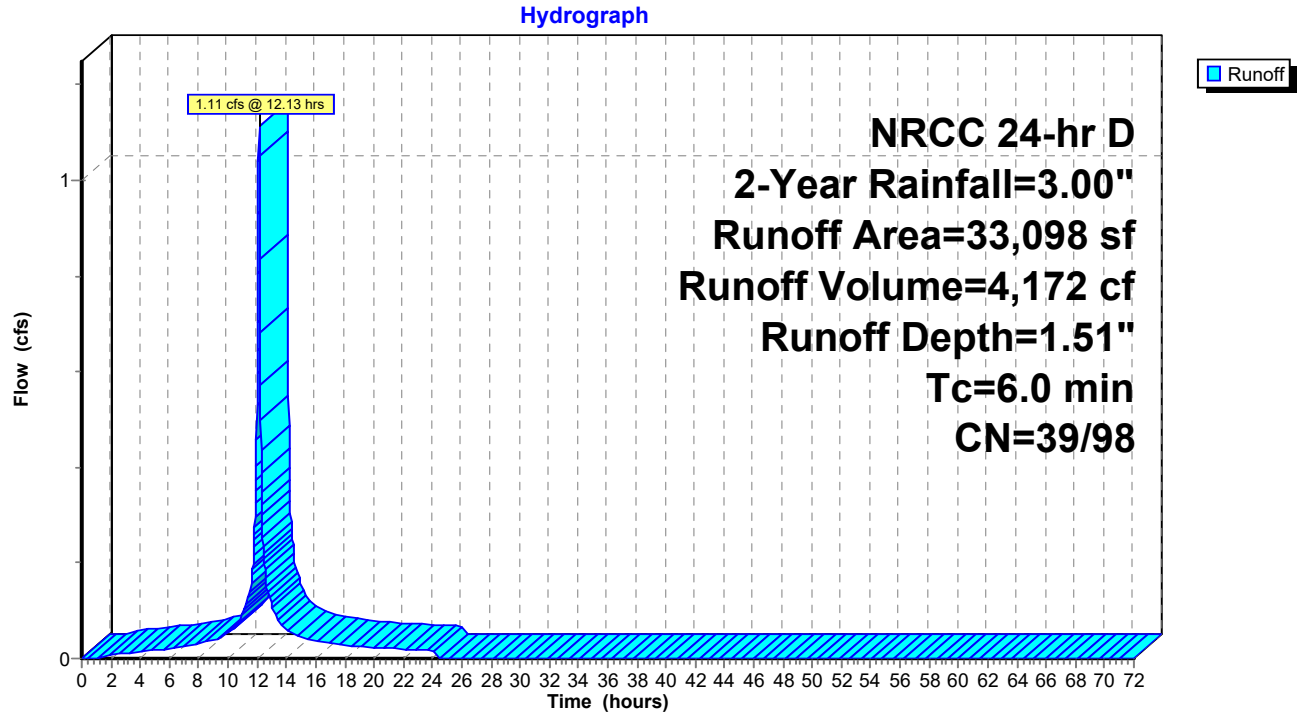
Runoff = 1.11 cfs @ 12.13 hrs, Volume= 4,172 cf, Depth= 1.51"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 2-Year Rainfall=3.00"

	Area (sf)	CN	Description
*	18,087	98	Impervious Areas
	15,011	39	>75% Grass cover, Good, HSG A
	33,098	71	Weighted Average
	15,011	39	45.35% Pervious Area
	18,087	98	54.65% Impervious Area

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

Subcatchment P-1A: Proposed Drainage to Bioretention Basin



Summary for Subcatchment P-1B: Proposed Bypass Drainage

[45] Hint: Runoff=Zero

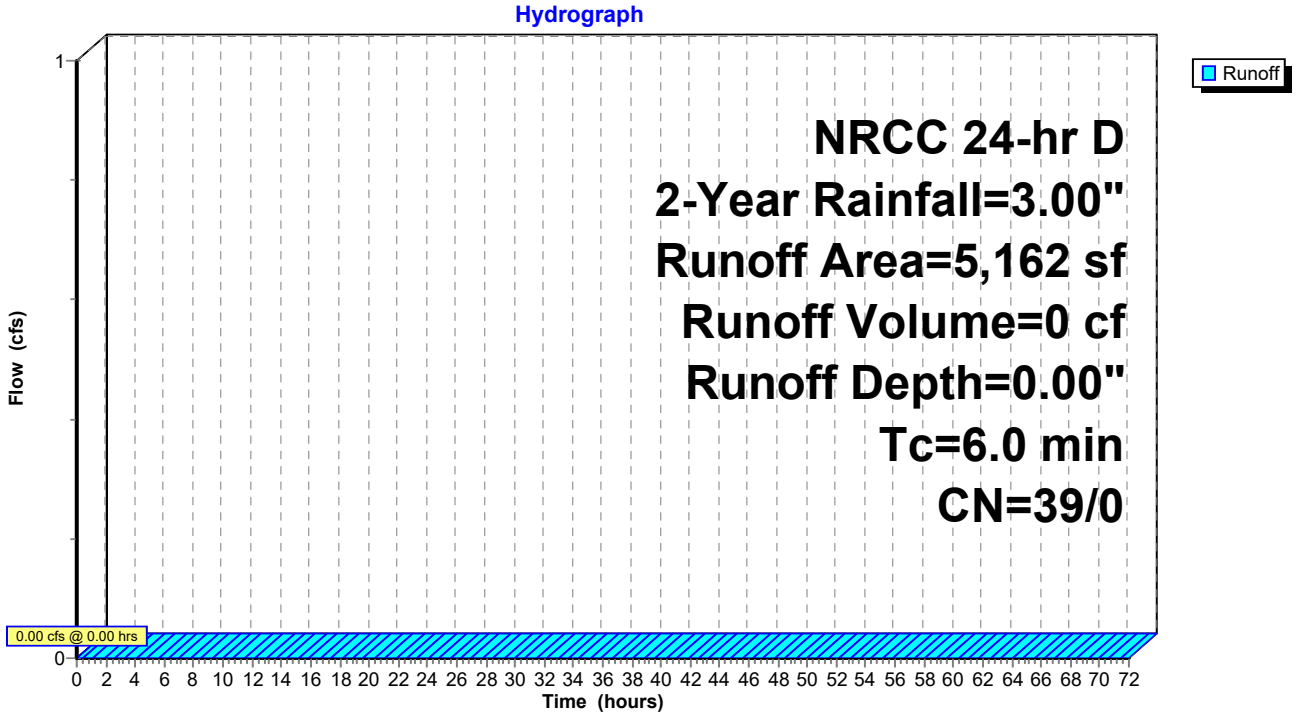
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 2-Year Rainfall=3.00"

	Area (sf)	CN	Description
*	0	98	Impervious Areas
	5,162	39	>75% Grass cover, Good, HSG A
	5,162	39	Weighted Average
	5,162	39	100.00% Pervious Area

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

Subcatchment P-1B: Proposed Bypass Drainage



Summary for Subcatchment P-1C: Proposed Area to Pervious Pavement System

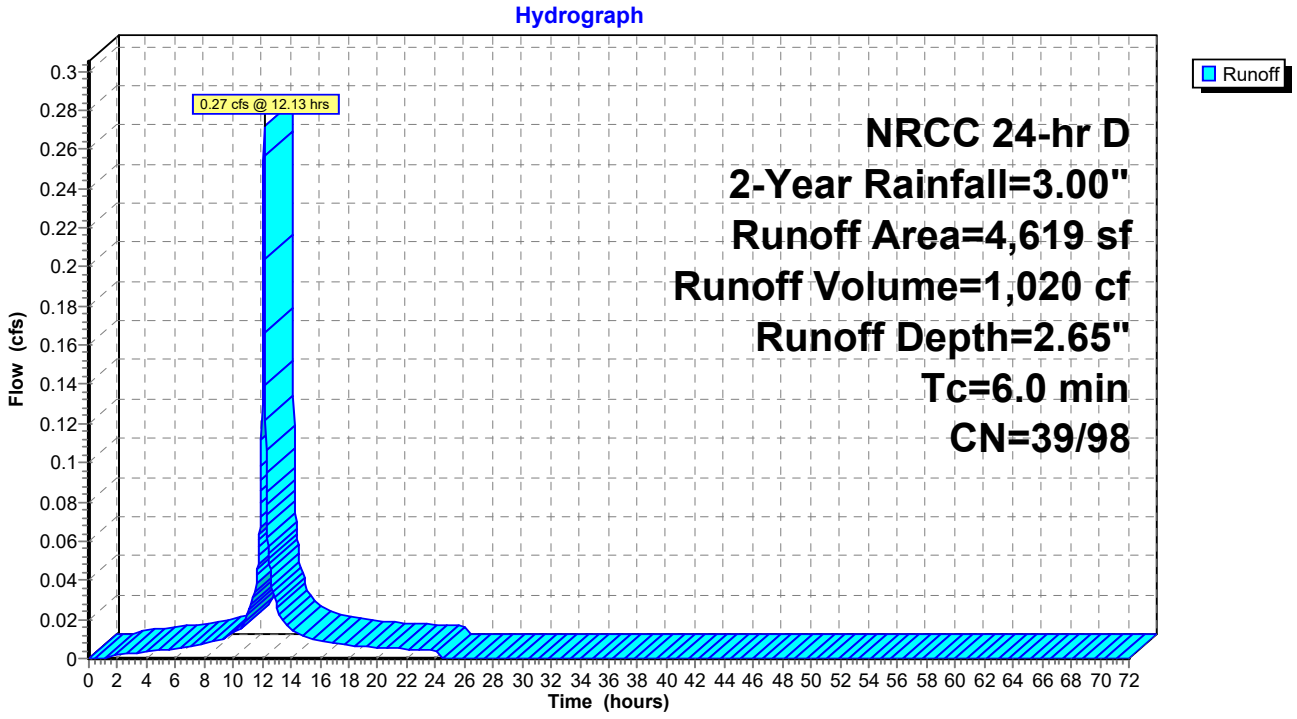
Runoff = 0.27 cfs @ 12.13 hrs, Volume= 1,020 cf, Depth= 2.65"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 2-Year Rainfall=3.00"

Area (sf)	CN	Description
4,421	98	Paved parking, HSG A
198	39	>75% Grass cover, Good, HSG A
4,619	95	Weighted Average
198	39	4.29% Pervious Area
4,421	98	95.71% Impervious Area

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

Subcatchment P-1C: Proposed Area to Pervious Pavement System



Summary for Pond B-1: Proposed Infiltration Basin

Inflow Area = 37,717 sf, 59.68% Impervious, Inflow Depth = 1.33" for 2-Year event
Inflow = 1.11 cfs @ 12.13 hrs, Volume= 4,172 cf
Outflow = 0.09 cfs @ 13.31 hrs, Volume= 4,172 cf, Atten= 92%, Lag= 71.0 min
Discarded = 0.09 cfs @ 13.31 hrs, Volume= 4,172 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 193.04' @ 13.31 hrs Surf.Area= 1,804 sf Storage= 1,497 cf

Plug-Flow detention time= 146.1 min calculated for 4,172 cf (100% of inflow)
Center-of-Mass det. time= 146.1 min (908.2 - 762.1)

Volume	Invert	Avail.Storage	Storage Description
#1	192.00'	6,212 cf	**Bioretention Filtration System (Irregular)** Listed below (Recalc)

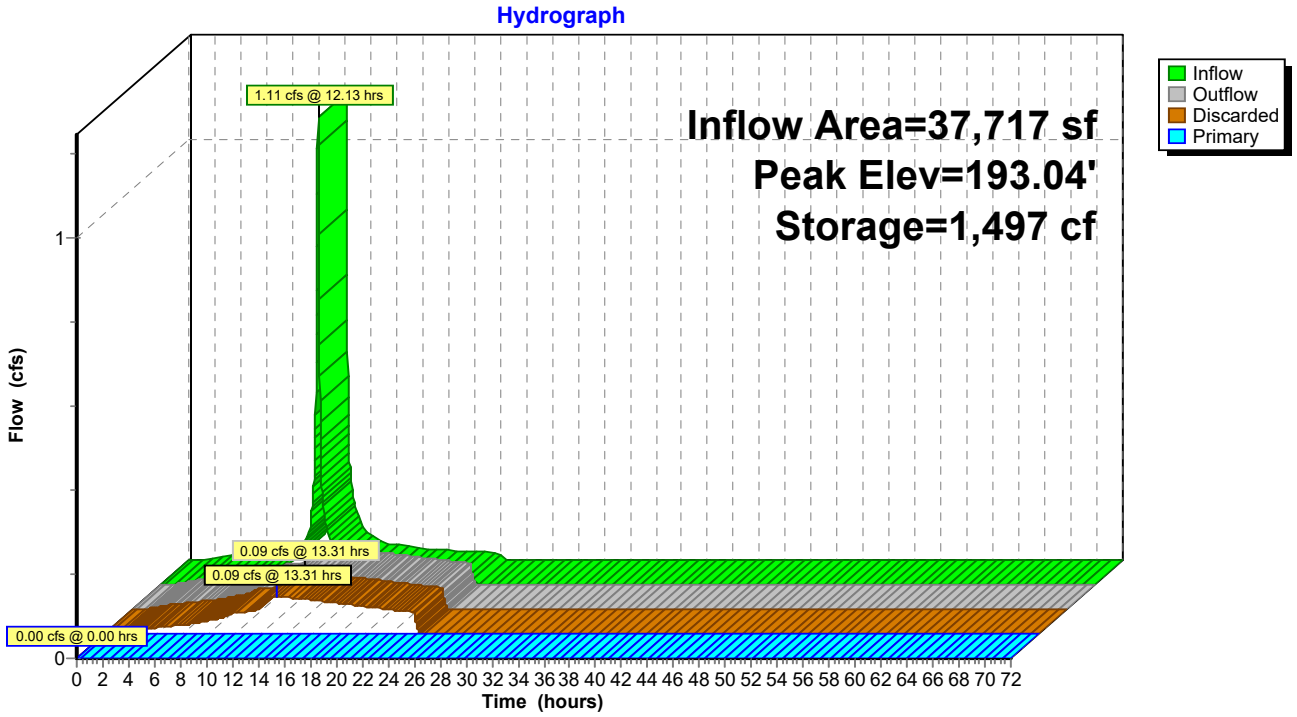
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
192.00	1,096	149.7	0	0	1,096
193.00	1,782	235.6	1,425	1,425	3,737
194.00	2,390	252.3	2,079	3,504	4,430
195.00	3,040	269.1	2,708	6,212	5,174

Device	Routing	Invert	Outlet Devices
#1	Primary	188.25'	**12.0" Vert. 12" Outlet Pipe** C= 0.600 Limited to weir flow at low heads
#2	Device 1	193.75'	**24.0" x 24.0" Horiz. Overflow Grate** C= 0.600 Limited to weir flow at low heads
#3	Discarded	192.00'	**2.000 in/hr Infiltration over Surface area** Conductivity to Groundwater Elevation = 173.00' Phase-In= 0.01'

Discarded OutFlow Max=0.09 cfs @ 13.31 hrs HW=193.04' (Free Discharge)
↑└**3=Infiltration** (Controls 0.09 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=192.00' TW=0.00' (Dynamic Tailwater)
↑└**1=12" Outlet Pipe** (Passes 0.00 cfs of 6.82 cfs potential flow)
↑└**2=Overflow Grate** (Controls 0.00 cfs)

Pond B-1: Proposed Infiltration Basin



Summary for Pond PV-1: Pervious Pavement

[42] Hint: Gap in defined storage above volume #2 at 194.90'

Inflow Area = 4,619 sf, 95.71% Impervious, Inflow Depth = 2.65" for 2-Year event
Inflow = 0.27 cfs @ 12.13 hrs, Volume= 1,020 cf
Outflow = 0.06 cfs @ 12.39 hrs, Volume= 1,020 cf, Atten= 78%, Lag= 15.4 min
Discarded = 0.06 cfs @ 12.39 hrs, Volume= 1,020 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 194.21' @ 12.39 hrs Surf.Area= 1,296 sf Storage= 162 cf

Plug-Flow detention time= 11.4 min calculated for 1,020 cf (100% of inflow)
Center-of-Mass det. time= 11.4 min (773.5 - 762.1)

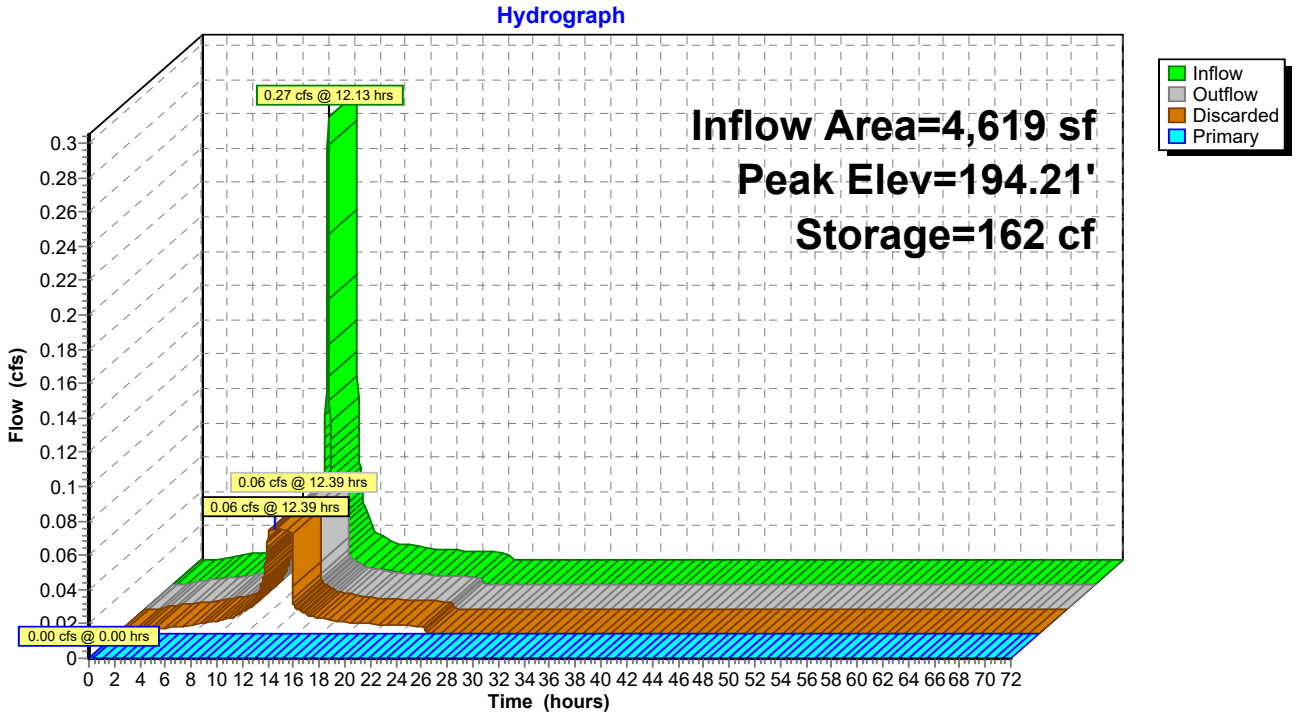
Volume	Invert	Avail.Storage	Storage Description
#1	195.15'	1,296 cf	**18.00'W x 72.00'L x 2.50'H Filter Course Storage** 3,240 cf Overall x 40.0% Voids
#2	193.90'	518 cf	**18.00'W x 72.00'L x 1.00'H Resevoir Course Storage** 1,296 cf Overall x 40.0% Voids
		1,814 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	194.90'	**12.0" Vert. Overflow Outlet** C= 0.600 Limited to weir flow at low heads
#2	Discarded	193.90'	**2.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 173.00' Phase-In= 0.01'

Discarded OutFlow Max=0.06 cfs @ 12.39 hrs HW=194.21' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=193.90' TW=192.00' (Dynamic Tailwater)
↑—**1=Overflow Outlet** (Controls 0.00 cfs)

Pond PV-1: Pervious Pavement

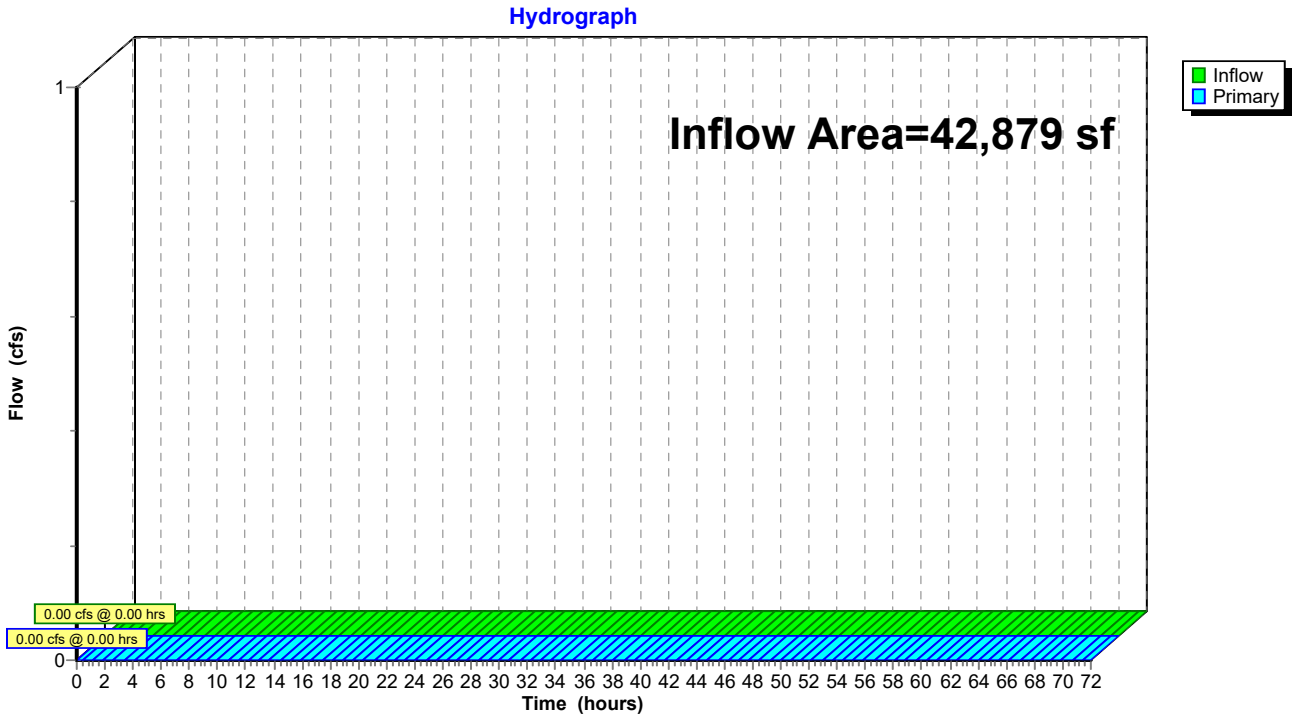


Summary for Link POI: Proposed Drainage Site Overall

Inflow Area = 42,879 sf, 52.49% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link POI: Proposed Drainage Site Overall



Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E-1: Existing Site Drainage Runoff Area=42,879 sf 74.68% Impervious Runoff Depth=3.06"
Tc=6.0 min CN=39/98 Runoff=2.85 cfs 10,919 cf

Subcatchment P-1A: Proposed Drainage Runoff Area=33,098 sf 54.65% Impervious Runoff Depth=2.26"
Tc=6.0 min CN=39/98 Runoff=1.61 cfs 6,228 cf

Subcatchment P-1B: Proposed Bypass Runoff Area=5,162 sf 0.00% Impervious Runoff Depth=0.08"
Tc=6.0 min CN=39/0 Runoff=0.00 cfs 35 cf

Subcatchment P-1C: Proposed Area to Runoff Area=4,619 sf 95.71% Impervious Runoff Depth=3.89"
Tc=6.0 min CN=39/98 Runoff=0.39 cfs 1,499 cf

Pond B-1: Proposed Infiltration Basin Peak Elev=193.54' Storage=2,482 cf Inflow=1.61 cfs 6,228 cf
Discarded=0.10 cfs 6,228 cf Primary=0.00 cfs 0 cf Outflow=0.10 cfs 6,228 cf

Pond PV-1: Pervious Pavement Peak Elev=194.48' Storage=302 cf Inflow=0.39 cfs 1,499 cf
Discarded=0.06 cfs 1,499 cf Primary=0.00 cfs 0 cf Outflow=0.06 cfs 1,499 cf

Link POI: Proposed Drainage Site Overall Inflow=0.00 cfs 35 cf
Primary=0.00 cfs 35 cf

Total Runoff Area = 85,758 sf Runoff Volume = 18,681 cf Average Runoff Depth = 2.61"
36.42% Pervious = 31,230 sf 63.58% Impervious = 54,528 sf

Summary for Subcatchment E-1: Existing Site Drainage

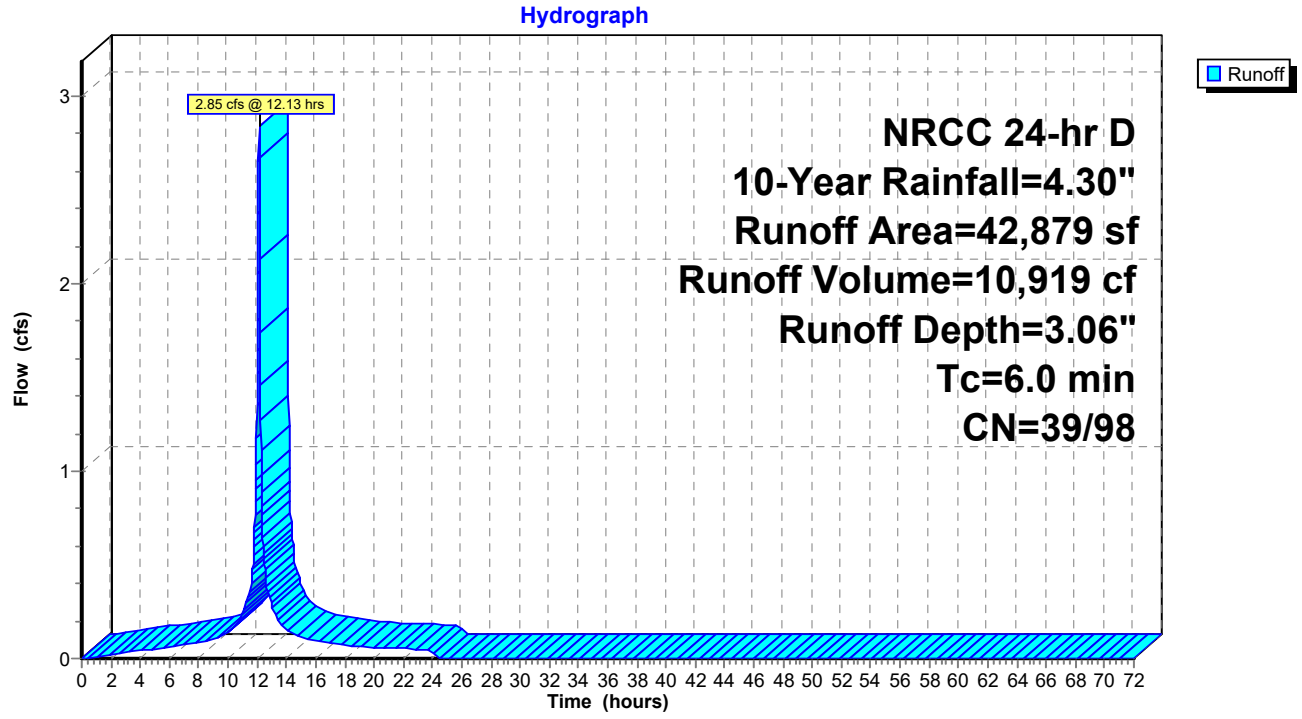
Runoff = 2.85 cfs @ 12.13 hrs, Volume= 10,919 cf, Depth= 3.06"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 10-Year Rainfall=4.30"

	Area (sf)	CN	Description
*	32,020	98	Impervious Areas
	10,859	39	>75% Grass cover, Good, HSG A
	42,879	83	Weighted Average
	10,859	39	25.32% Pervious Area
	32,020	98	74.68% Impervious Area

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

Subcatchment E-1: Existing Site Drainage



Summary for Subcatchment P-1A: Proposed Drainage to Bioretention Basin

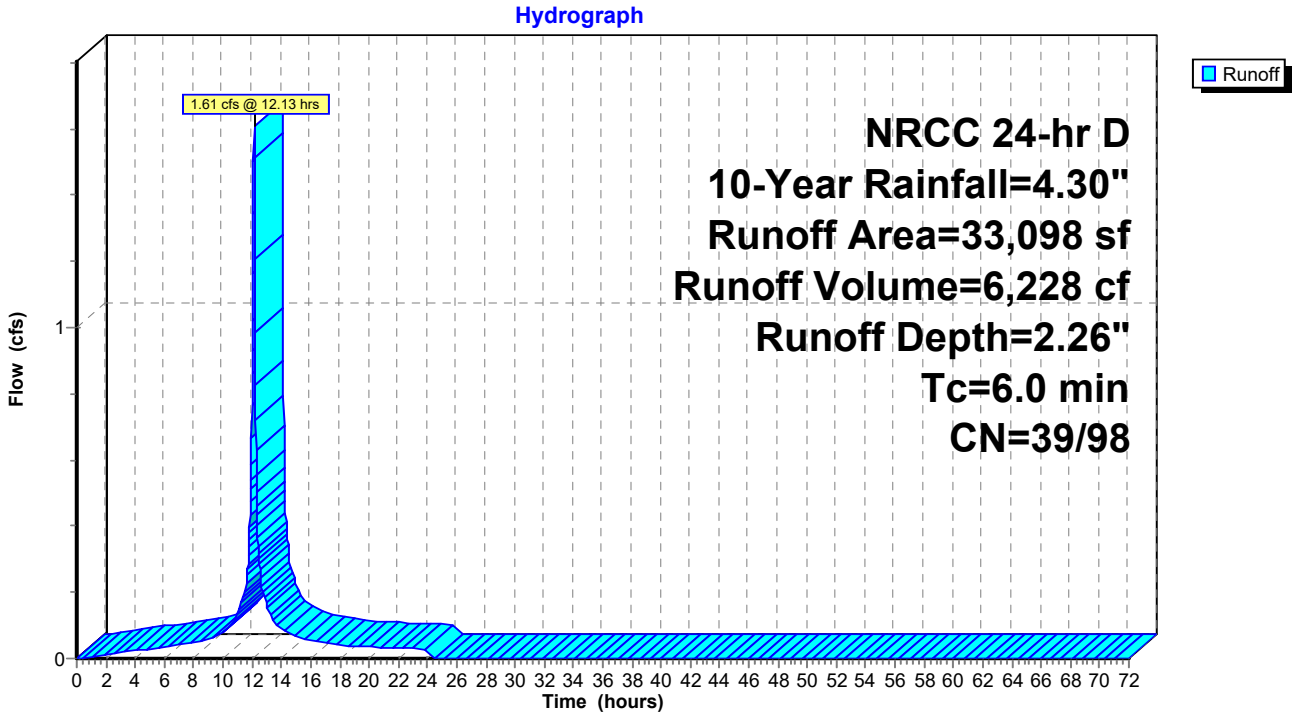
Runoff = 1.61 cfs @ 12.13 hrs, Volume= 6,228 cf, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 10-Year Rainfall=4.30"

	Area (sf)	CN	Description
*	18,087	98	Impervious Areas
	15,011	39	>75% Grass cover, Good, HSG A
	33,098	71	Weighted Average
	15,011	39	45.35% Pervious Area
	18,087	98	54.65% Impervious Area

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

Subcatchment P-1A: Proposed Drainage to Bioretention Basin



Summary for Subcatchment P-1B: Proposed Bypass Drainage

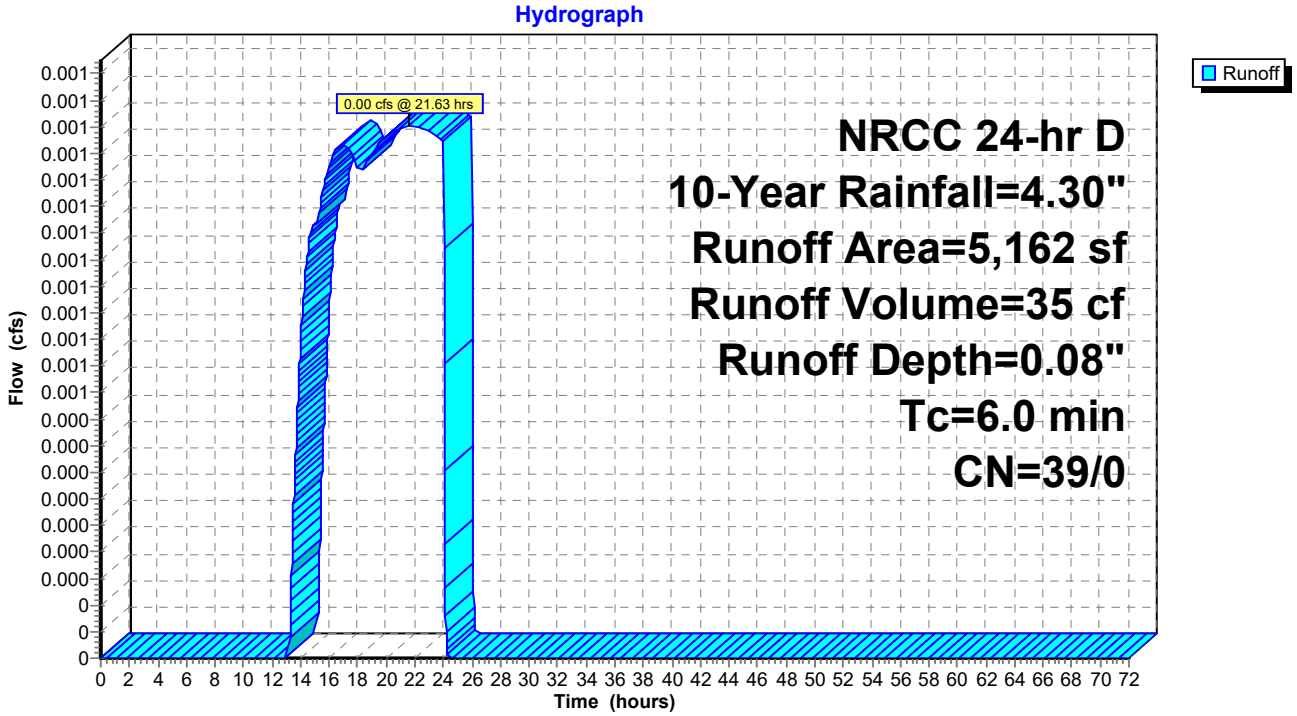
Runoff = 0.00 cfs @ 21.63 hrs, Volume= 35 cf, Depth= 0.08"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 10-Year Rainfall=4.30"

	Area (sf)	CN	Description
*	0	98	Impervious Areas
	5,162	39	>75% Grass cover, Good, HSG A
	5,162	39	Weighted Average
	5,162	39	100.00% Pervious Area

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

Subcatchment P-1B: Proposed Bypass Drainage



Summary for Subcatchment P-1C: Proposed Area to Pervious Pavement System

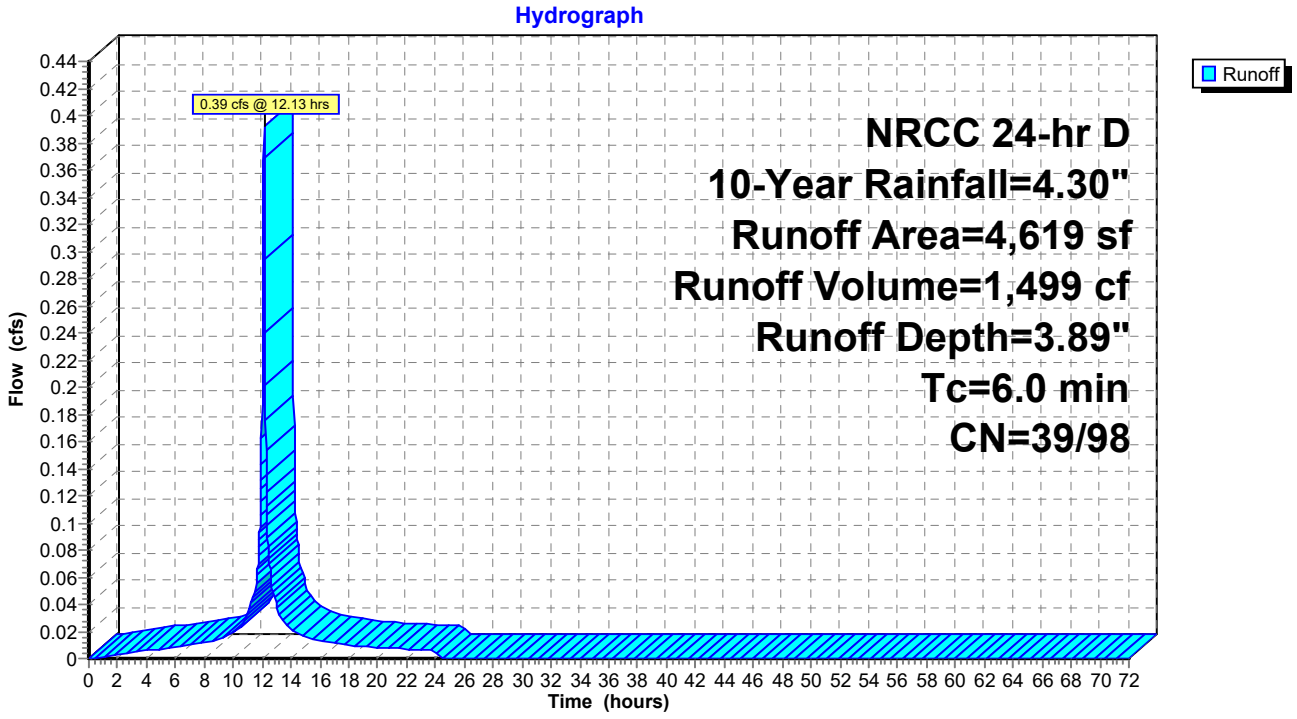
Runoff = 0.39 cfs @ 12.13 hrs, Volume= 1,499 cf, Depth= 3.89"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 10-Year Rainfall=4.30"

Area (sf)	CN	Description
4,421	98	Paved parking, HSG A
198	39	>75% Grass cover, Good, HSG A
4,619	95	Weighted Average
198	39	4.29% Pervious Area
4,421	98	95.71% Impervious Area

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

Subcatchment P-1C: Proposed Area to Pervious Pavement System



Summary for Pond B-1: Proposed Infiltration Basin

Inflow Area = 37,717 sf, 59.68% Impervious, Inflow Depth = 1.98" for 10-Year event
Inflow = 1.61 cfs @ 12.13 hrs, Volume= 6,228 cf
Outflow = 0.10 cfs @ 13.58 hrs, Volume= 6,228 cf, Atten= 94%, Lag= 87.0 min
Discarded = 0.10 cfs @ 13.58 hrs, Volume= 6,228 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 193.54' @ 13.58 hrs Surf.Area= 2,102 sf Storage= 2,482 cf

Plug-Flow detention time= 226.9 min calculated for 6,227 cf (100% of inflow)
Center-of-Mass det. time= 226.9 min (986.9 - 760.0)

Volume	Invert	Avail.Storage	Storage Description
#1	192.00'	6,212 cf	**Bioretention Filtration System (Irregular)** Listed below (Recalc)

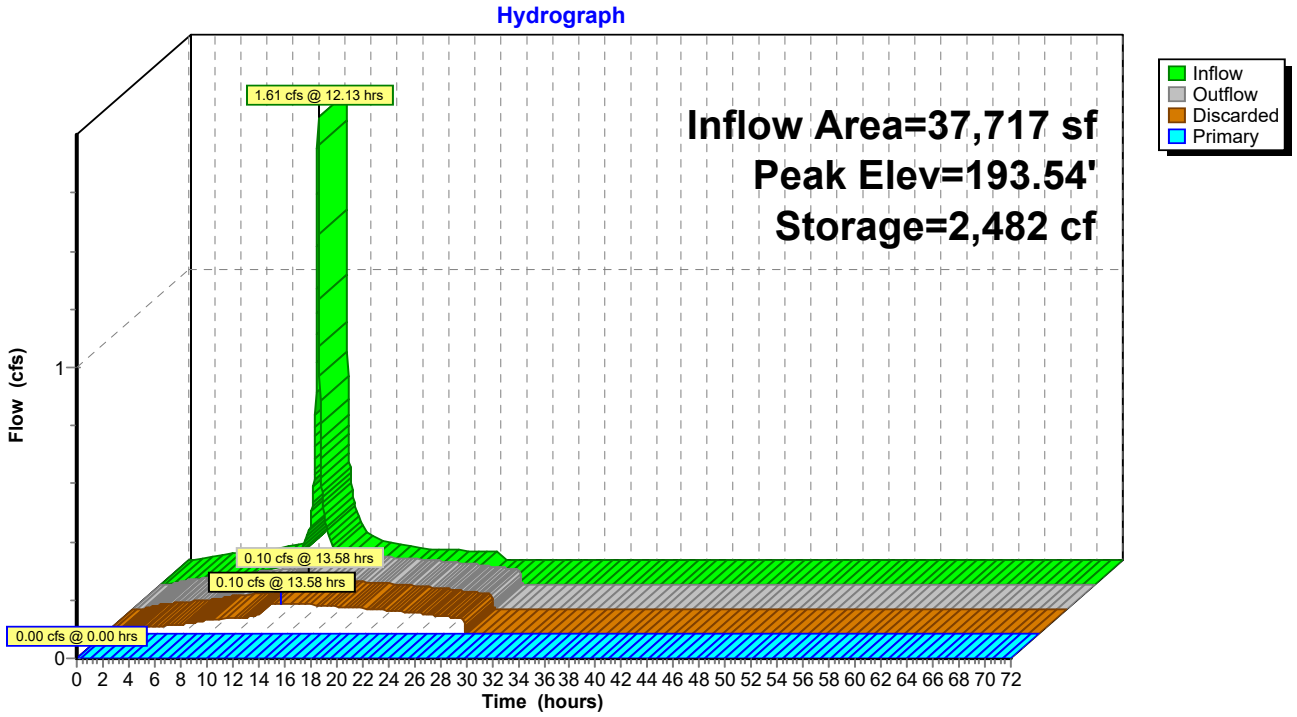
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
192.00	1,096	149.7	0	0	1,096
193.00	1,782	235.6	1,425	1,425	3,737
194.00	2,390	252.3	2,079	3,504	4,430
195.00	3,040	269.1	2,708	6,212	5,174

Device	Routing	Invert	Outlet Devices
#1	Primary	188.25'	**12.0" Vert. 12" Outlet Pipe** C= 0.600 Limited to weir flow at low heads
#2	Device 1	193.75'	**24.0" x 24.0" Horiz. Overflow Grate** C= 0.600 Limited to weir flow at low heads
#3	Discarded	192.00'	**2.000 in/hr Infiltration over Surface area** Conductivity to Groundwater Elevation = 173.00' Phase-In= 0.01'

Discarded OutFlow Max=0.10 cfs @ 13.58 hrs HW=193.54' (Free Discharge)
↑└**3=Infiltration** (Controls 0.10 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=192.00' TW=0.00' (Dynamic Tailwater)
↑└**1=12" Outlet Pipe** (Passes 0.00 cfs of 6.82 cfs potential flow)
↑└**2=Overflow Grate** (Controls 0.00 cfs)

Pond B-1: Proposed Infiltration Basin



Summary for Pond PV-1: Pervious Pavement

[42] Hint: Gap in defined storage above volume #2 at 194.90'

Inflow Area = 4,619 sf, 95.71% Impervious, Inflow Depth = 3.89" for 10-Year event
Inflow = 0.39 cfs @ 12.13 hrs, Volume= 1,499 cf
Outflow = 0.06 cfs @ 12.57 hrs, Volume= 1,499 cf, Atten= 84%, Lag= 26.7 min
Discarded = 0.06 cfs @ 12.57 hrs, Volume= 1,499 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 194.48' @ 12.57 hrs Surf.Area= 1,296 sf Storage= 302 cf

Plug-Flow detention time= 24.0 min calculated for 1,498 cf (100% of inflow)
Center-of-Mass det. time= 24.0 min (777.9 - 753.9)

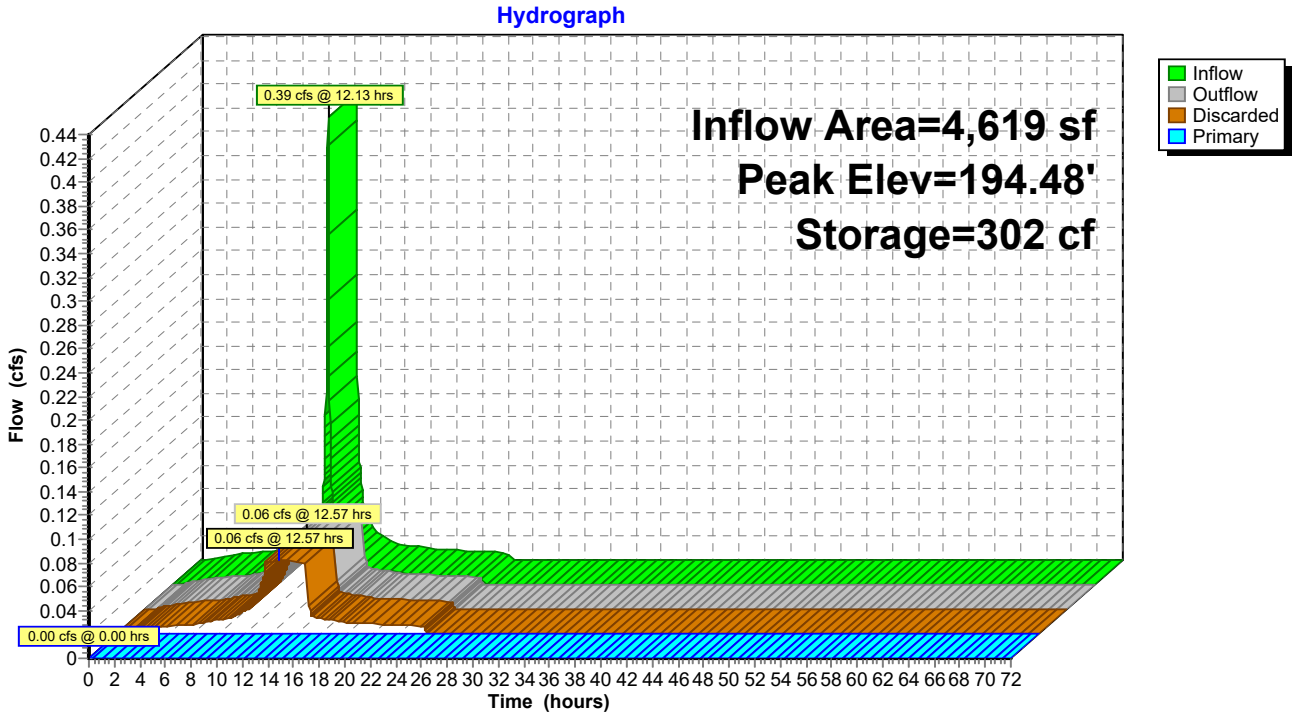
Volume	Invert	Avail.Storage	Storage Description
#1	195.15'	1,296 cf	**18.00'W x 72.00'L x 2.50'H Filter Course Storage** 3,240 cf Overall x 40.0% Voids
#2	193.90'	518 cf	**18.00'W x 72.00'L x 1.00'H Resevoir Course Storage** 1,296 cf Overall x 40.0% Voids
		1,814 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	194.90'	**12.0" Vert. Overflow Outlet** C= 0.600 Limited to weir flow at low heads
#2	Discarded	193.90'	**2.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 173.00' Phase-In= 0.01'

Discarded OutFlow Max=0.06 cfs @ 12.57 hrs HW=194.48' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=193.90' TW=192.00' (Dynamic Tailwater)
↑—**1=Overflow Outlet** (Controls 0.00 cfs)

Pond PV-1: Pervious Pavement

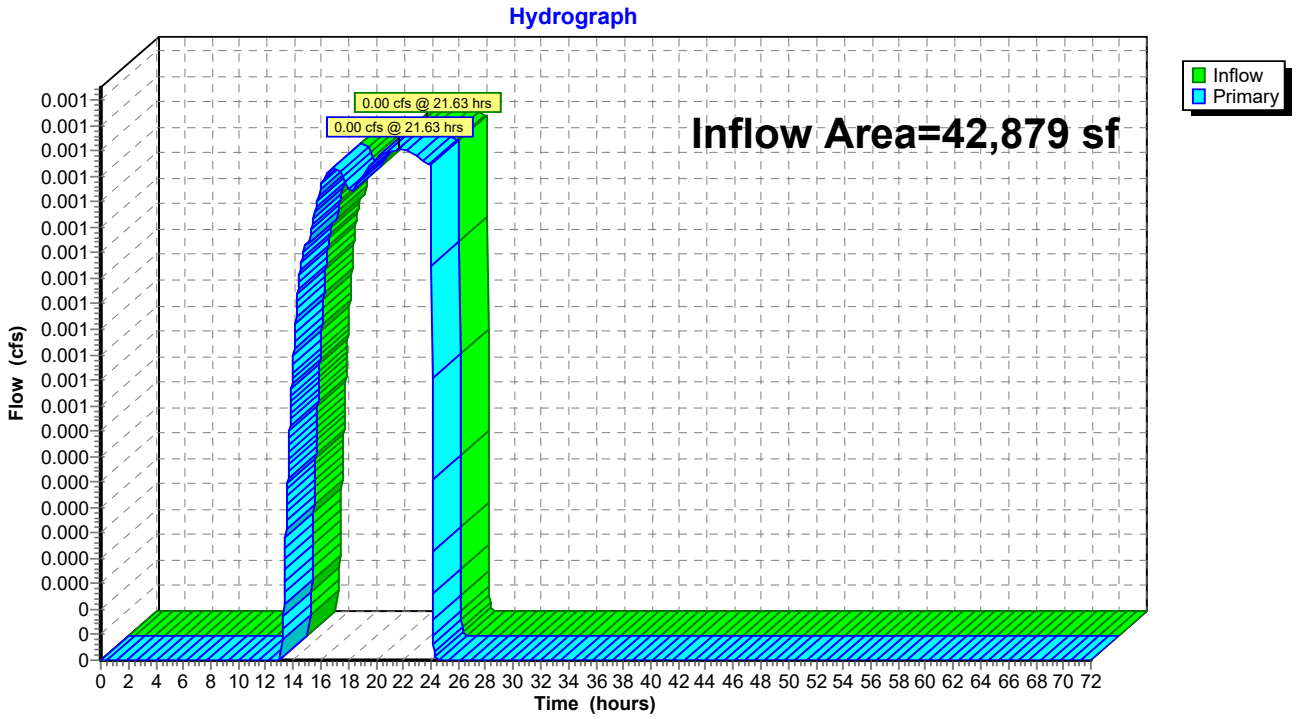


Summary for Link POI: Proposed Drainage Site Overall

Inflow Area = 42,879 sf, 52.49% Impervious, Inflow Depth = 0.01" for 10-Year event
Inflow = 0.00 cfs @ 21.63 hrs, Volume= 35 cf
Primary = 0.00 cfs @ 21.63 hrs, Volume= 35 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link POI: Proposed Drainage Site Overall



Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E-1: Existing Site Drainage Runoff Area=42,879 sf 74.68% Impervious Runoff Depth=3.77"
Tc=6.0 min CN=39/98 Runoff=3.45 cfs 13,462 cf

Subcatchment P-1A: Proposed Drainage Runoff Area=33,098 sf 54.65% Impervious Runoff Depth=2.82"
Tc=6.0 min CN=39/98 Runoff=1.95 cfs 7,783 cf

Subcatchment P-1B: Proposed Bypass Runoff Area=5,162 sf 0.00% Impervious Runoff Depth=0.24"
Tc=6.0 min CN=39/0 Runoff=0.00 cfs 104 cf

Subcatchment P-1C: Proposed Area to Runoff Area=4,619 sf 95.71% Impervious Runoff Depth=4.76"
Tc=6.0 min CN=39/98 Runoff=0.48 cfs 1,832 cf

Pond B-1: Proposed Infiltration Basin Peak Elev=193.78' Storage=2,991 cf Inflow=1.95 cfs 7,783 cf
Discarded=0.11 cfs 7,431 cf Primary=0.13 cfs 352 cf Outflow=0.24 cfs 7,783 cf

Pond PV-1: Pervious Pavement Peak Elev=194.70' Storage=414 cf Inflow=0.48 cfs 1,832 cf
Discarded=0.06 cfs 1,832 cf Primary=0.00 cfs 0 cf Outflow=0.06 cfs 1,832 cf

Link POI: Proposed Drainage Site Overall Inflow=0.13 cfs 456 cf
Primary=0.13 cfs 456 cf

Total Runoff Area = 85,758 sf Runoff Volume = 23,182 cf Average Runoff Depth = 3.24"
36.42% Pervious = 31,230 sf 63.58% Impervious = 54,528 sf

Summary for Subcatchment E-1: Existing Site Drainage

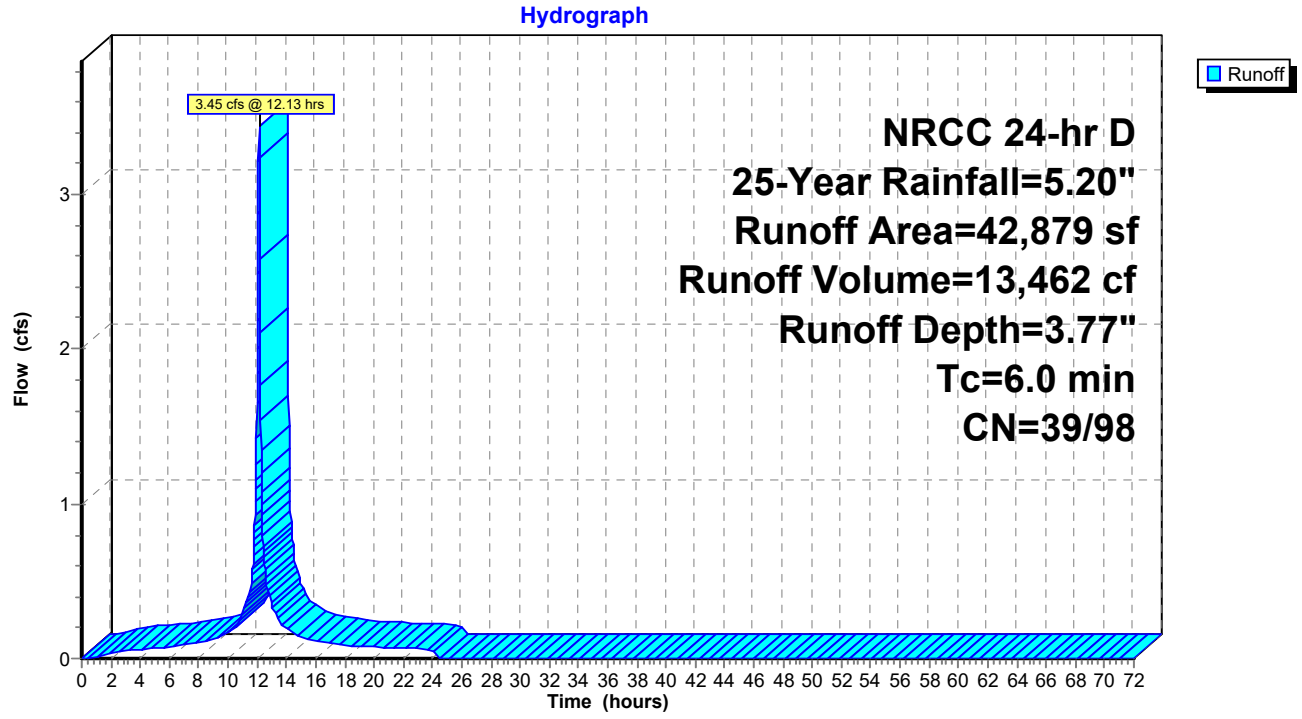
Runoff = 3.45 cfs @ 12.13 hrs, Volume= 13,462 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 25-Year Rainfall=5.20"

	Area (sf)	CN	Description
*	32,020	98	Impervious Areas
	10,859	39	>75% Grass cover, Good, HSG A
	42,879	83	Weighted Average
	10,859	39	25.32% Pervious Area
	32,020	98	74.68% Impervious Area

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

Subcatchment E-1: Existing Site Drainage



Summary for Subcatchment P-1A: Proposed Drainage to Bioretention Basin

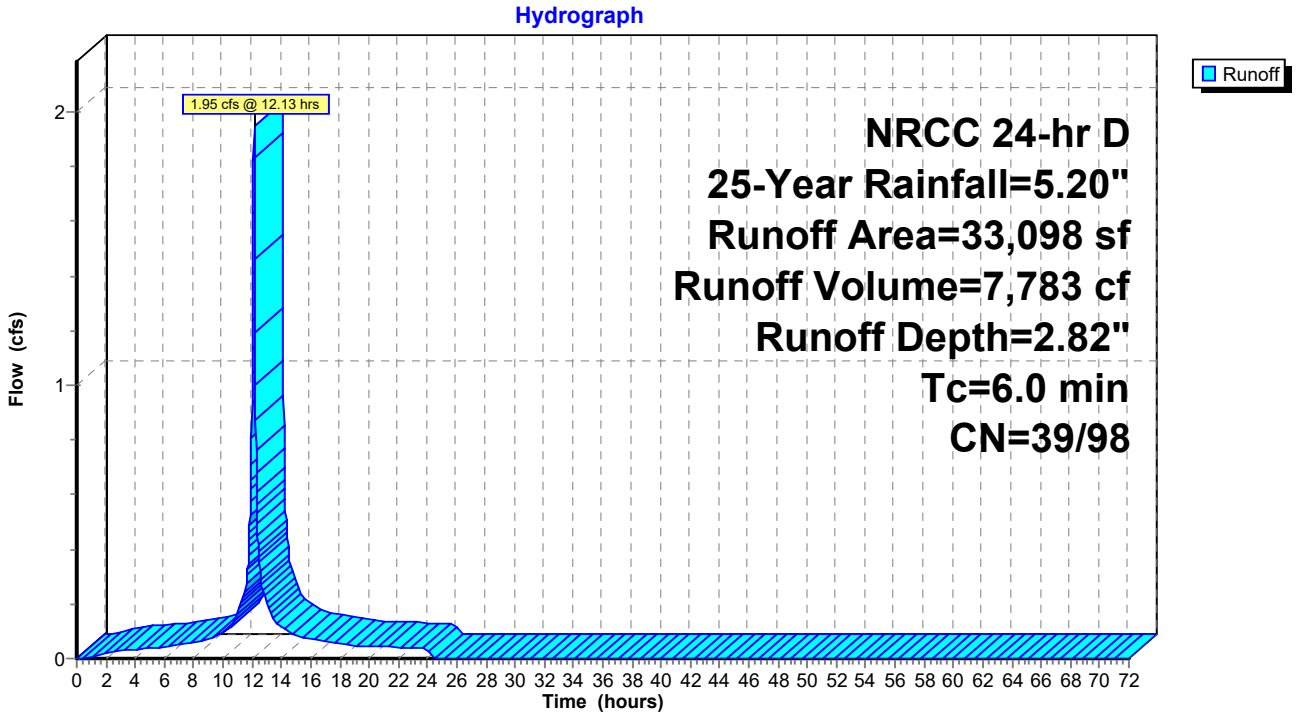
Runoff = 1.95 cfs @ 12.13 hrs, Volume= 7,783 cf, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 25-Year Rainfall=5.20"

	Area (sf)	CN	Description
*	18,087	98	Impervious Areas
	15,011	39	>75% Grass cover, Good, HSG A
	33,098	71	Weighted Average
	15,011	39	45.35% Pervious Area
	18,087	98	54.65% Impervious Area

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

Subcatchment P-1A: Proposed Drainage to Bioretention Basin



Summary for Subcatchment P-1B: Proposed Bypass Drainage

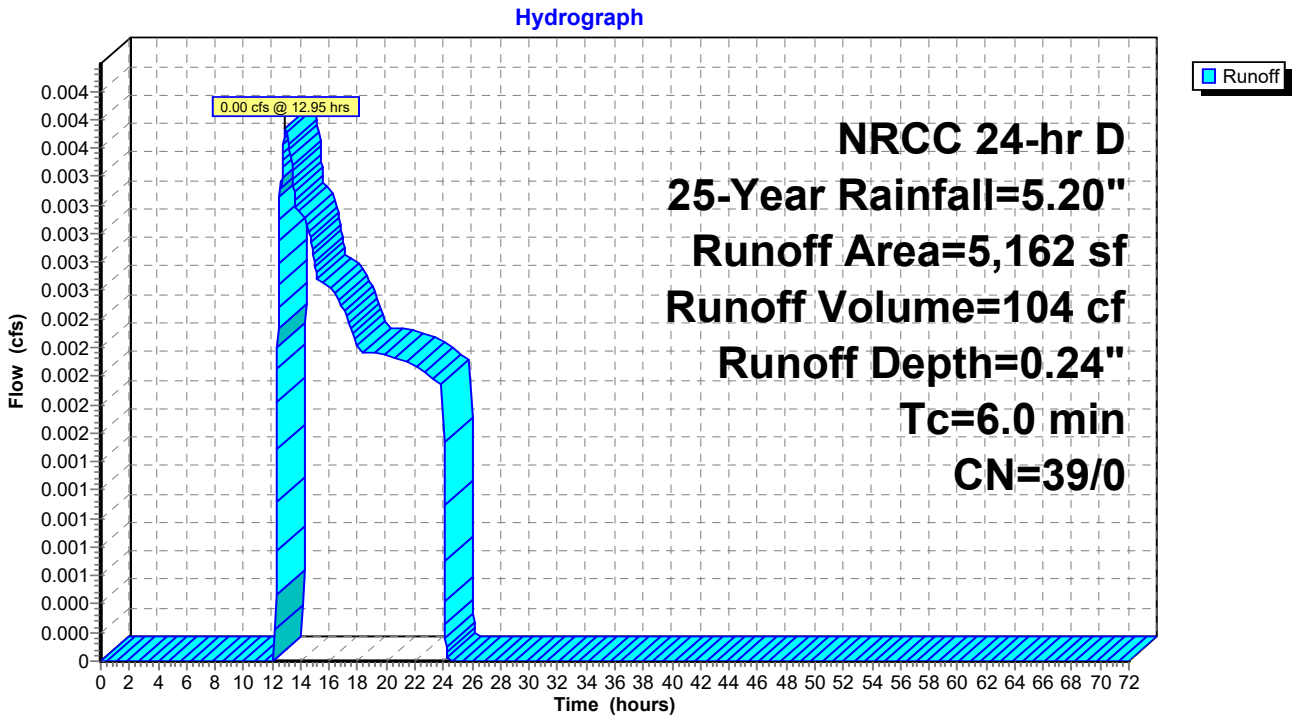
Runoff = 0.00 cfs @ 12.95 hrs, Volume= 104 cf, Depth= 0.24"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 25-Year Rainfall=5.20"

	Area (sf)	CN	Description
*	0	98	Impervious Areas
	5,162	39	>75% Grass cover, Good, HSG A
	5,162	39	Weighted Average
	5,162	39	100.00% Pervious Area

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

Subcatchment P-1B: Proposed Bypass Drainage



Summary for Subcatchment P-1C: Proposed Area to Pervious Pavement System

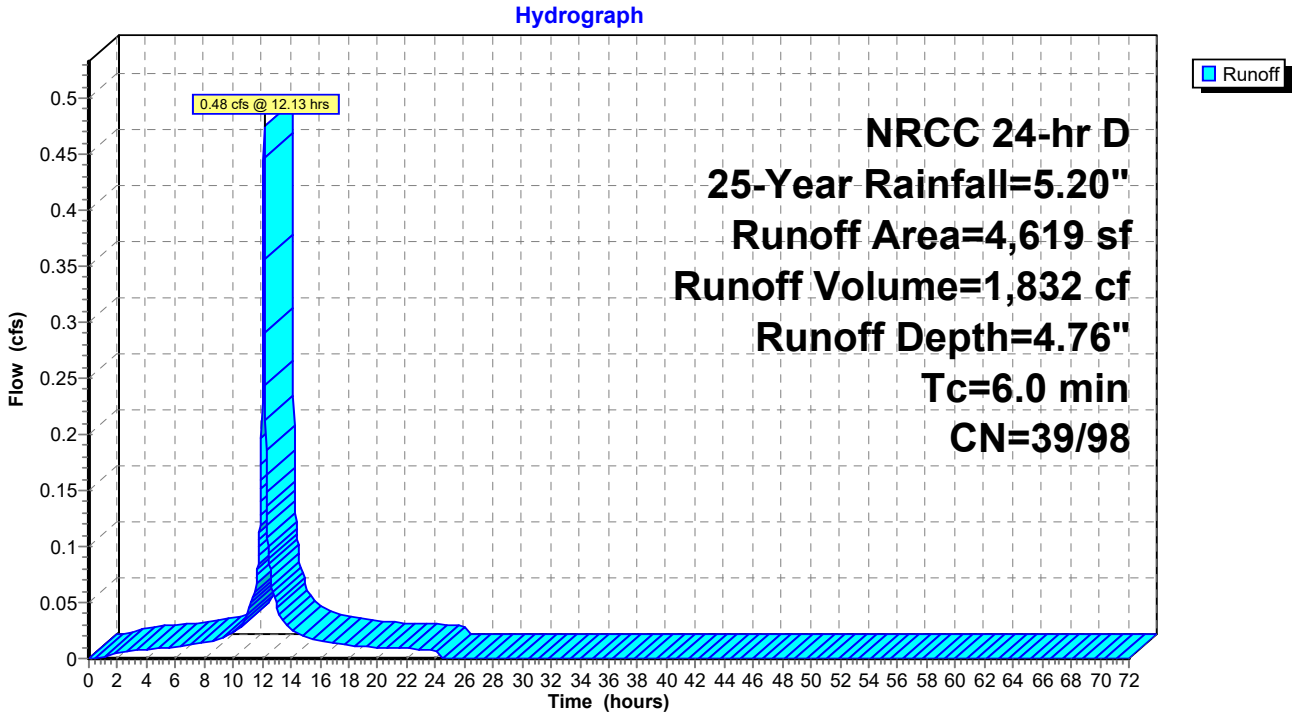
Runoff = 0.48 cfs @ 12.13 hrs, Volume= 1,832 cf, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 25-Year Rainfall=5.20"

Area (sf)	CN	Description
4,421	98	Paved parking, HSG A
198	39	>75% Grass cover, Good, HSG A
4,619	95	Weighted Average
198	39	4.29% Pervious Area
4,421	98	95.71% Impervious Area

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

Subcatchment P-1C: Proposed Area to Pervious Pavement System



Summary for Pond B-1: Proposed Infiltration Basin

Inflow Area = 37,717 sf, 59.68% Impervious, Inflow Depth = 2.48" for 25-Year event
Inflow = 1.95 cfs @ 12.13 hrs, Volume= 7,783 cf
Outflow = 0.24 cfs @ 12.80 hrs, Volume= 7,783 cf, Atten= 88%, Lag= 40.3 min
Discarded = 0.11 cfs @ 12.80 hrs, Volume= 7,431 cf
Primary = 0.13 cfs @ 12.80 hrs, Volume= 352 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 193.78' @ 12.80 hrs Surf.Area= 2,248 sf Storage= 2,991 cf

Plug-Flow detention time= 253.8 min calculated for 7,783 cf (100% of inflow)
Center-of-Mass det. time= 253.8 min (1,015.5 - 761.7)

Volume	Invert	Avail.Storage	Storage Description
#1	192.00'	6,212 cf	**Bioretention Filtration System (Irregular)** Listed below (Recalc)

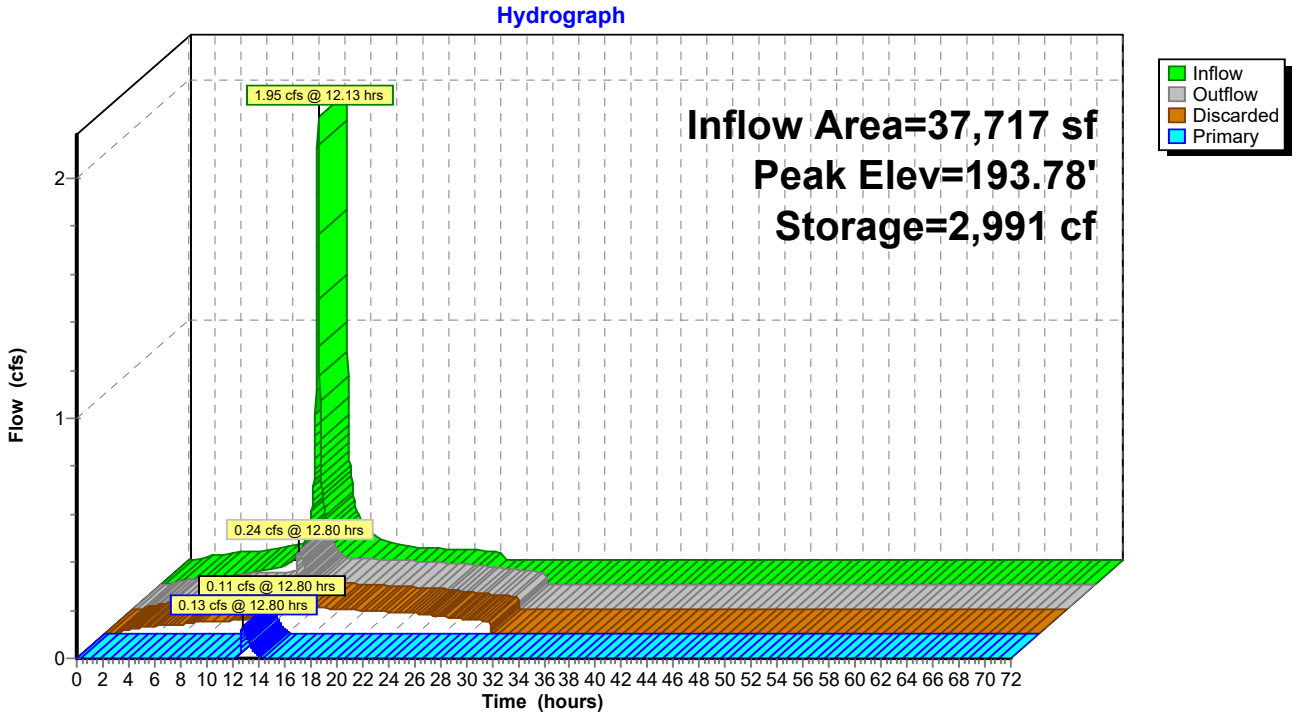
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
192.00	1,096	149.7	0	0	1,096
193.00	1,782	235.6	1,425	1,425	3,737
194.00	2,390	252.3	2,079	3,504	4,430
195.00	3,040	269.1	2,708	6,212	5,174

Device	Routing	Invert	Outlet Devices
#1	Primary	188.25'	**12.0" Vert. 12" Outlet Pipe** C= 0.600 Limited to weir flow at low heads
#2	Device 1	193.75'	**24.0" x 24.0" Horiz. Overflow Grate** C= 0.600 Limited to weir flow at low heads
#3	Discarded	192.00'	**2.000 in/hr Infiltration over Surface area** Conductivity to Groundwater Elevation = 173.00' Phase-In= 0.01'

Discarded OutFlow Max=0.11 cfs @ 12.80 hrs HW=193.78' (Free Discharge)
↑└**3=Infiltration** (Controls 0.11 cfs)

Primary OutFlow Max=0.13 cfs @ 12.80 hrs HW=193.78' TW=0.00' (Dynamic Tailwater)
↑└**1=12" Outlet Pipe** (Passes 0.13 cfs of 8.48 cfs potential flow)
↑└**2=Overflow Grate** (Weir Controls 0.13 cfs @ 0.55 fps)

Pond B-1: Proposed Infiltration Basin



Summary for Pond PV-1: Pervious Pavement

[42] Hint: Gap in defined storage above volume #2 at 194.90'

Inflow Area = 4,619 sf, 95.71% Impervious, Inflow Depth = 4.76" for 25-Year event
Inflow = 0.48 cfs @ 12.13 hrs, Volume= 1,832 cf
Outflow = 0.06 cfs @ 12.67 hrs, Volume= 1,832 cf, Atten= 87%, Lag= 32.5 min
Discarded = 0.06 cfs @ 12.67 hrs, Volume= 1,832 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 194.70' @ 12.67 hrs Surf.Area= 1,296 sf Storage= 414 cf

Plug-Flow detention time= 35.2 min calculated for 1,832 cf (100% of inflow)
Center-of-Mass det. time= 35.2 min (785.6 - 750.4)

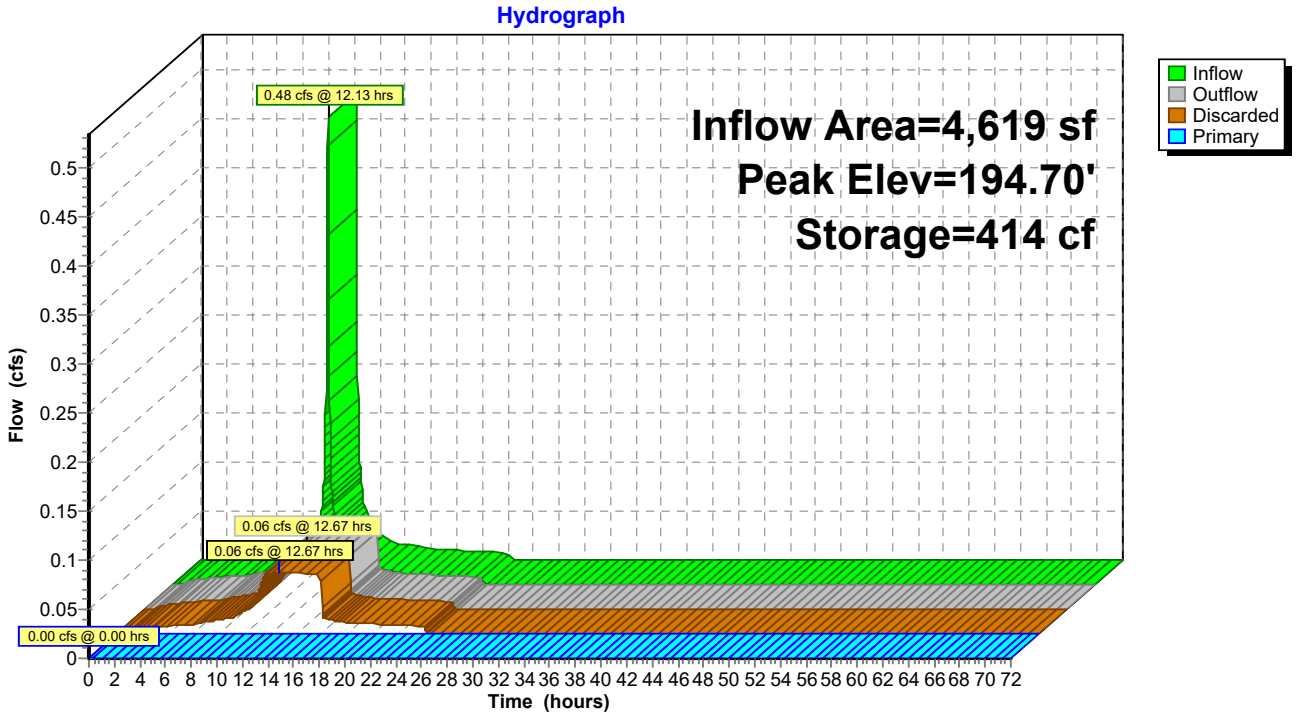
Volume	Invert	Avail.Storage	Storage Description
#1	195.15'	1,296 cf	**18.00'W x 72.00'L x 2.50'H Filter Course Storage** 3,240 cf Overall x 40.0% Voids
#2	193.90'	518 cf	**18.00'W x 72.00'L x 1.00'H Resevoir Course Storage** 1,296 cf Overall x 40.0% Voids
		1,814 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	194.90'	**12.0" Vert. Overflow Outlet** C= 0.600 Limited to weir flow at low heads
#2	Discarded	193.90'	**2.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 173.00' Phase-In= 0.01'

Discarded OutFlow Max=0.06 cfs @ 12.67 hrs HW=194.70' (Free Discharge)
↑**2=Exfiltration** (Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=193.90' TW=192.00' (Dynamic Tailwater)
↑**1=Overflow Outlet** (Controls 0.00 cfs)

Pond PV-1: Pervious Pavement

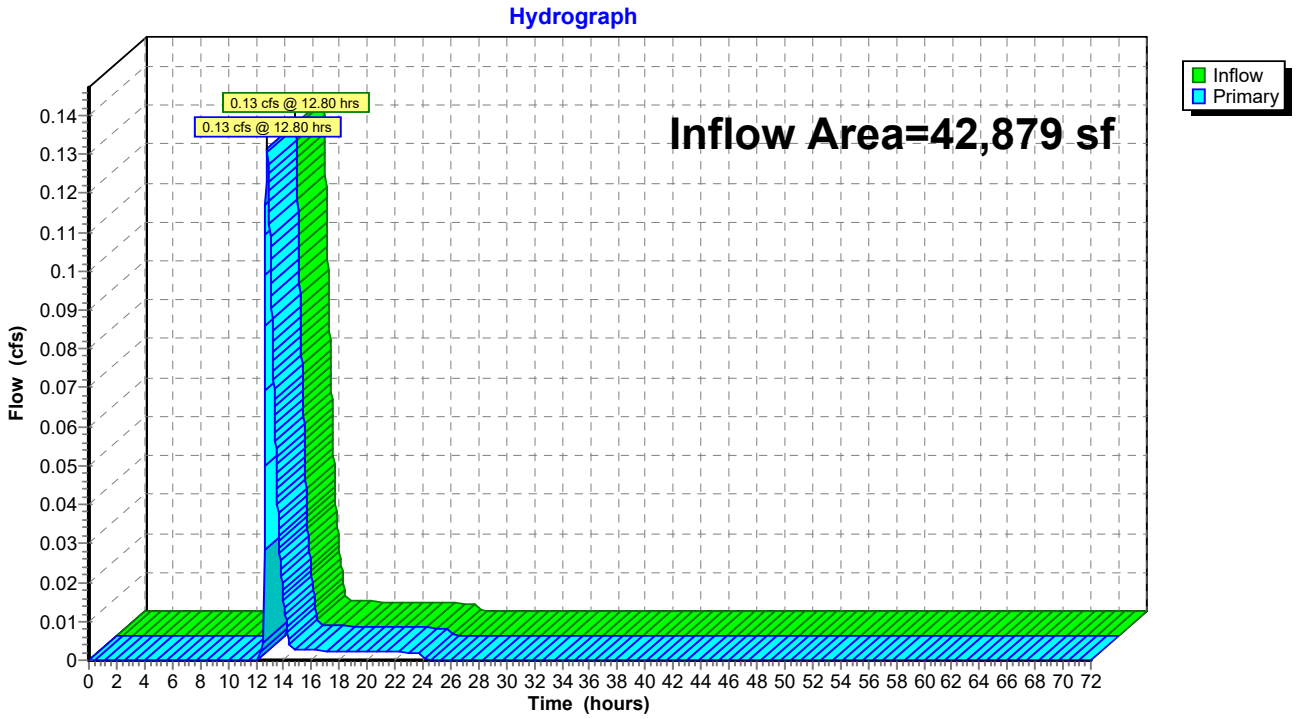


Summary for Link POI: Proposed Drainage Site Overall

Inflow Area = 42,879 sf, 52.49% Impervious, Inflow Depth = 0.13" for 25-Year event
Inflow = 0.13 cfs @ 12.80 hrs, Volume= 456 cf
Primary = 0.13 cfs @ 12.80 hrs, Volume= 456 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link POI: Proposed Drainage Site Overall



Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E-1: Existing Site Drainage Runoff Area=42,879 sf 74.68% Impervious Runoff Depth=4.17"
Tc=6.0 min CN=39/98 Runoff=3.79 cfs 14,904 cf

Subcatchment P-1A: Proposed Drainage Runoff Area=33,098 sf 54.65% Impervious Runoff Depth=3.15"
Tc=6.0 min CN=39/98 Runoff=2.14 cfs 8,687 cf

Subcatchment P-1B: Proposed Bypass Runoff Area=5,162 sf 0.00% Impervious Runoff Depth=0.36"
Tc=6.0 min CN=39/0 Runoff=0.01 cfs 156 cf

Subcatchment P-1C: Proposed Area to Runoff Area=4,619 sf 95.71% Impervious Runoff Depth=5.24"
Tc=6.0 min CN=39/98 Runoff=0.52 cfs 2,018 cf

Pond B-1: Proposed Infiltration Basin Peak Elev=193.81' Storage=3,054 cf Inflow=2.14 cfs 8,687 cf
Discarded=0.11 cfs 7,800 cf Primary=0.35 cfs 887 cf Outflow=0.47 cfs 8,687 cf

Pond PV-1: Pervious Pavement Peak Elev=194.83' Storage=480 cf Inflow=0.52 cfs 2,018 cf
Discarded=0.06 cfs 2,018 cf Primary=0.00 cfs 0 cf Outflow=0.06 cfs 2,018 cf

Link POI: Proposed Drainage Site Overall Inflow=0.36 cfs 1,043 cf
Primary=0.36 cfs 1,043 cf

Total Runoff Area = 85,758 sf Runoff Volume = 25,765 cf Average Runoff Depth = 3.61"
36.42% Pervious = 31,230 sf 63.58% Impervious = 54,528 sf

Summary for Subcatchment E-1: Existing Site Drainage

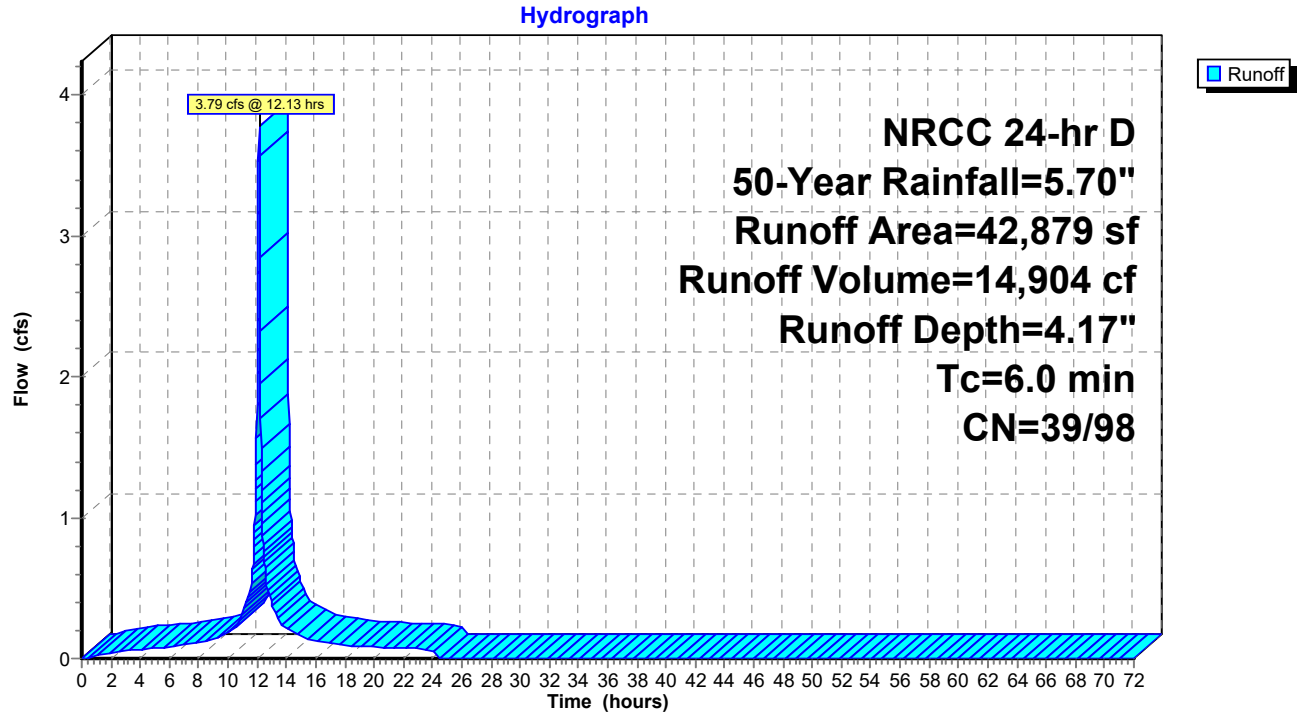
Runoff = 3.79 cfs @ 12.13 hrs, Volume= 14,904 cf, Depth= 4.17"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 50-Year Rainfall=5.70"

	Area (sf)	CN	Description
*	32,020	98	Impervious Areas
	10,859	39	>75% Grass cover, Good, HSG A
	42,879	83	Weighted Average
	10,859	39	25.32% Pervious Area
	32,020	98	74.68% Impervious Area

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

Subcatchment E-1: Existing Site Drainage



Summary for Subcatchment P-1A: Proposed Drainage to Bioretention Basin

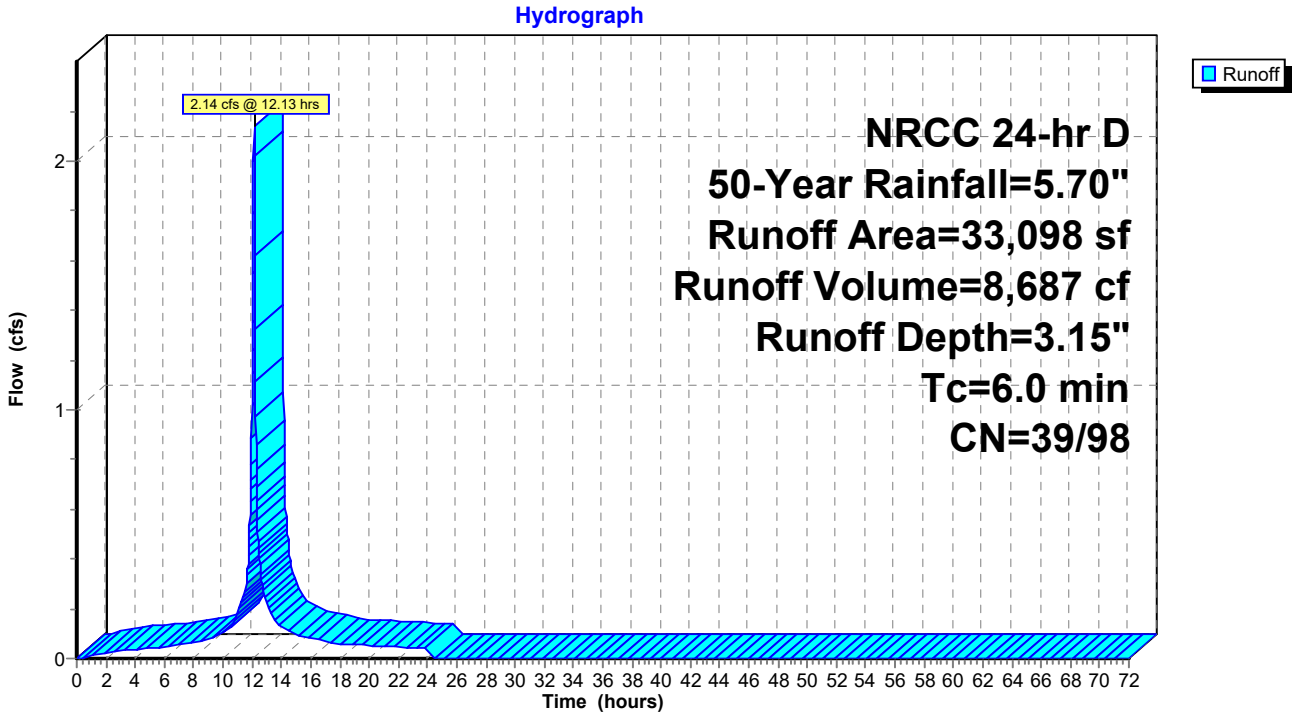
Runoff = 2.14 cfs @ 12.13 hrs, Volume= 8,687 cf, Depth= 3.15"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 50-Year Rainfall=5.70"

	Area (sf)	CN	Description
*	18,087	98	Impervious Areas
	15,011	39	>75% Grass cover, Good, HSG A
	33,098	71	Weighted Average
	15,011	39	45.35% Pervious Area
	18,087	98	54.65% Impervious Area

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

Subcatchment P-1A: Proposed Drainage to Bioretention Basin



Summary for Subcatchment P-1B: Proposed Bypass Drainage

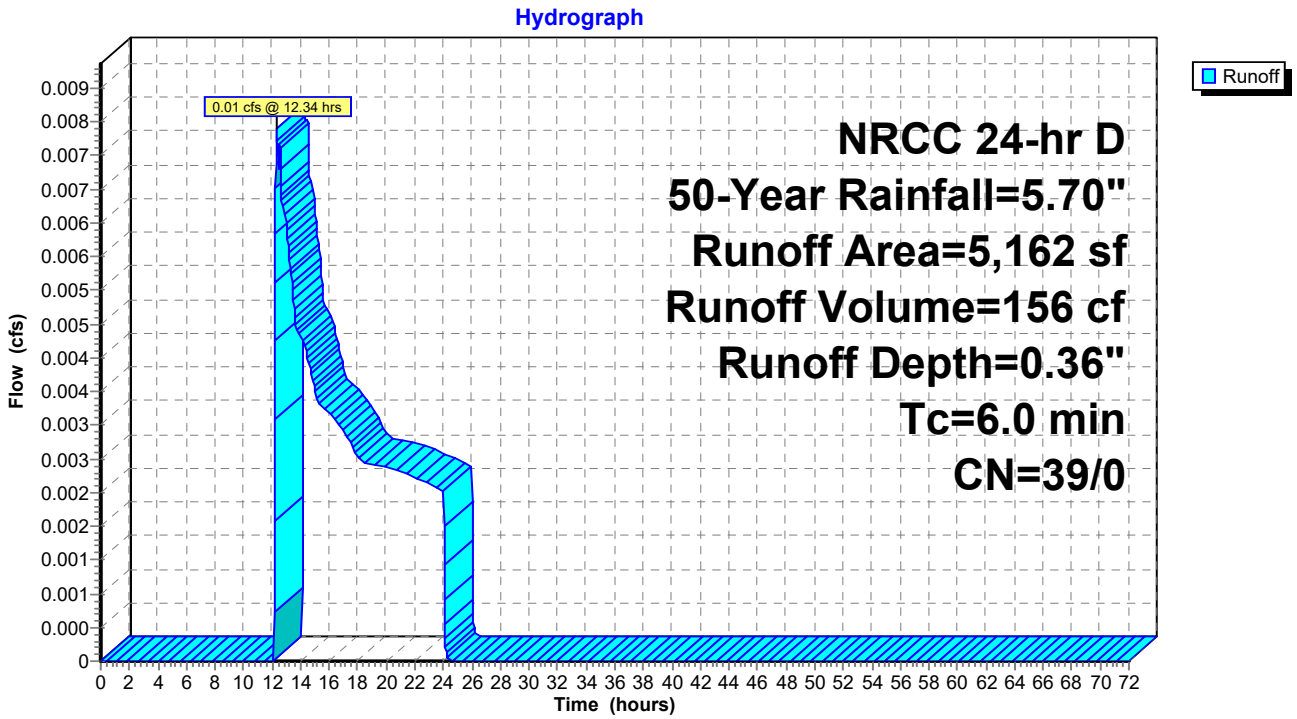
Runoff = 0.01 cfs @ 12.34 hrs, Volume= 156 cf, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 50-Year Rainfall=5.70"

	Area (sf)	CN	Description
*	0	98	Impervious Areas
	5,162	39	>75% Grass cover, Good, HSG A
	5,162	39	Weighted Average
	5,162	39	100.00% Pervious Area

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

Subcatchment P-1B: Proposed Bypass Drainage



Summary for Subcatchment P-1C: Proposed Area to Pervious Pavement System

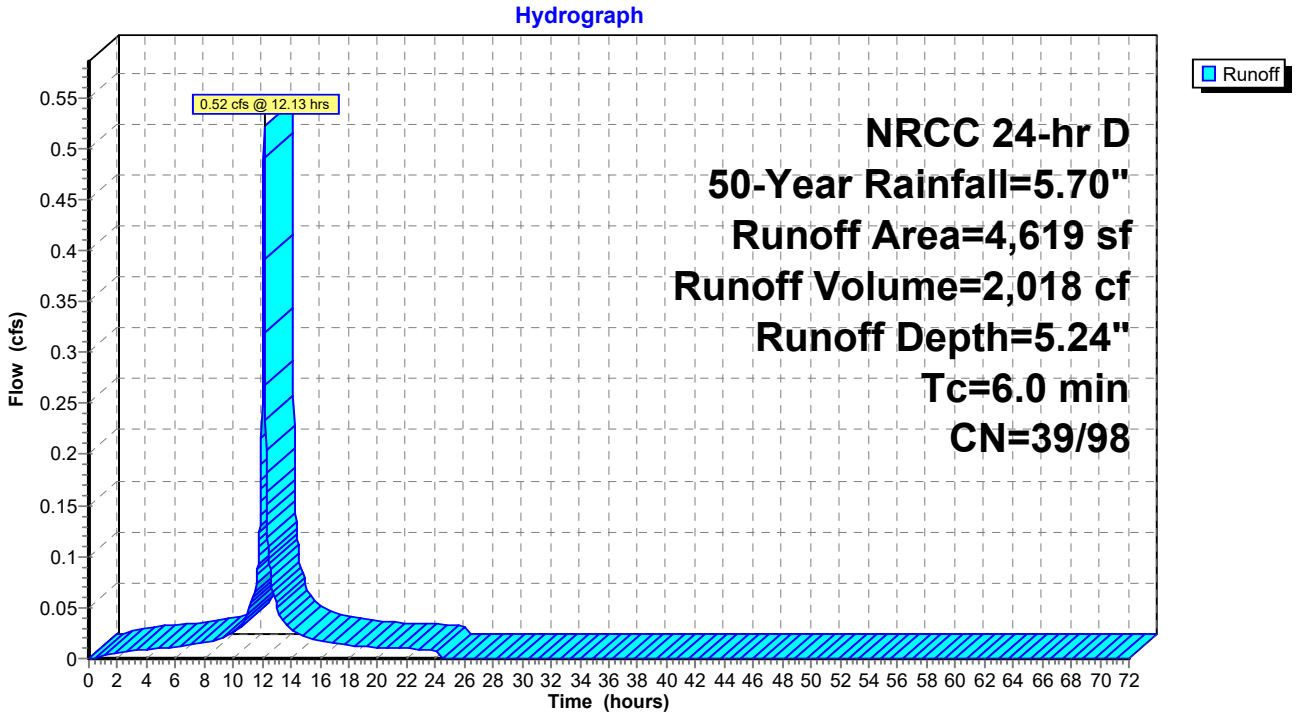
Runoff = 0.52 cfs @ 12.13 hrs, Volume= 2,018 cf, Depth= 5.24"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 50-Year Rainfall=5.70"

Area (sf)	CN	Description
4,421	98	Paved parking, HSG A
198	39	>75% Grass cover, Good, HSG A
4,619	95	Weighted Average
198	39	4.29% Pervious Area
4,421	98	95.71% Impervious Area

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

Subcatchment P-1C: Proposed Area to Pervious Pavement System



Summary for Pond B-1: Proposed Infiltration Basin

Inflow Area = 37,717 sf, 59.68% Impervious, Inflow Depth = 2.76" for 50-Year event
Inflow = 2.14 cfs @ 12.13 hrs, Volume= 8,687 cf
Outflow = 0.47 cfs @ 12.41 hrs, Volume= 8,687 cf, Atten= 78%, Lag= 16.7 min
Discarded = 0.11 cfs @ 12.41 hrs, Volume= 7,800 cf
Primary = 0.35 cfs @ 12.41 hrs, Volume= 887 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 193.81' @ 12.41 hrs Surf.Area= 2,266 sf Storage= 3,054 cf

Plug-Flow detention time= 244.3 min calculated for 8,685 cf (100% of inflow)
Center-of-Mass det. time= 244.4 min (1,007.0 - 762.6)

Volume	Invert	Avail.Storage	Storage Description
#1	192.00'	6,212 cf	**Bioretention Filtration System (Irregular)** Listed below (Recalc)

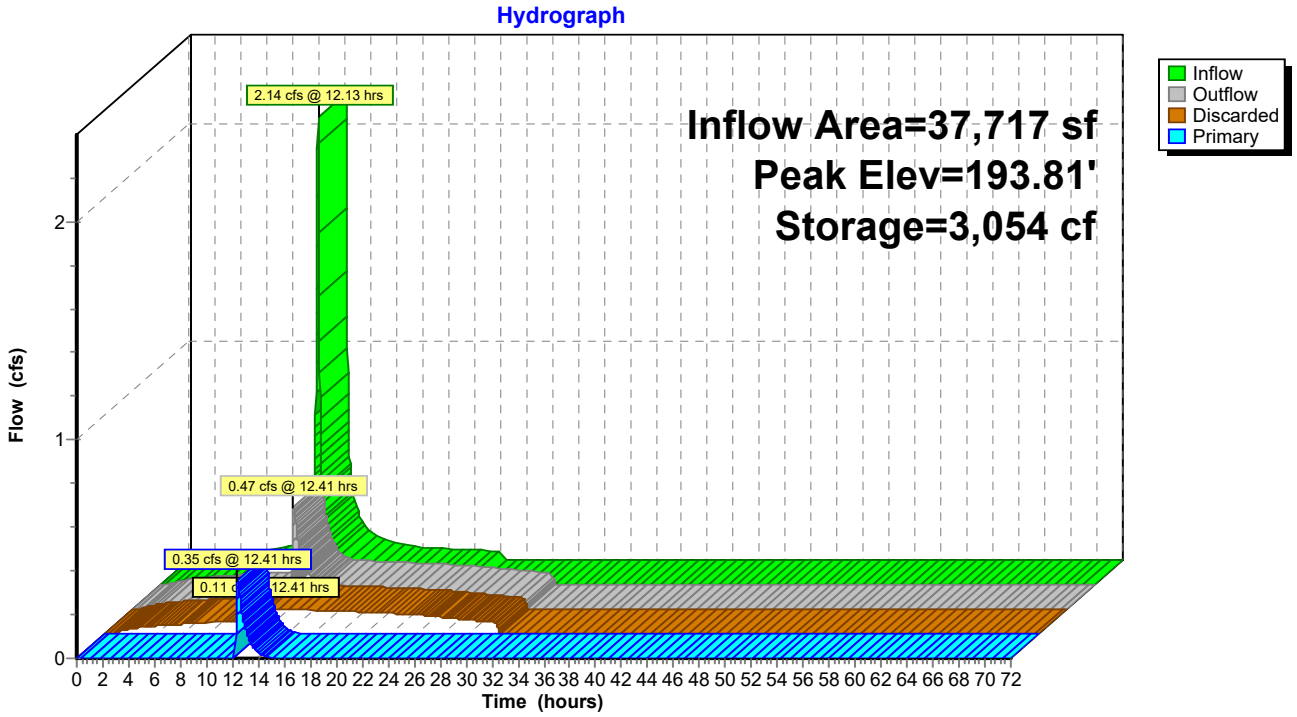
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
192.00	1,096	149.7	0	0	1,096
193.00	1,782	235.6	1,425	1,425	3,737
194.00	2,390	252.3	2,079	3,504	4,430
195.00	3,040	269.1	2,708	6,212	5,174

Device	Routing	Invert	Outlet Devices
#1	Primary	188.25'	**12.0" Vert. 12" Outlet Pipe** C= 0.600 Limited to weir flow at low heads
#2	Device 1	193.75'	**24.0" x 24.0" Horiz. Overflow Grate** C= 0.600 Limited to weir flow at low heads
#3	Discarded	192.00'	**2.000 in/hr Infiltration over Surface area** Conductivity to Groundwater Elevation = 173.00' Phase-In= 0.01'

Discarded OutFlow Max=0.11 cfs @ 12.41 hrs HW=193.81' (Free Discharge)
↑└**3=Infiltration** (Controls 0.11 cfs)

Primary OutFlow Max=0.35 cfs @ 12.41 hrs HW=193.81' TW=0.00' (Dynamic Tailwater)
↑└**1=12" Outlet Pipe** (Passes 0.35 cfs of 8.50 cfs potential flow)
  ↑└**2=Overflow Grate** (Weir Controls 0.35 cfs @ 0.78 fps)

Pond B-1: Proposed Infiltration Basin



Summary for Pond PV-1: Pervious Pavement

[42] Hint: Gap in defined storage above volume #2 at 194.90'

Inflow Area = 4,619 sf, 95.71% Impervious, Inflow Depth = 5.24" for 50-Year event
Inflow = 0.52 cfs @ 12.13 hrs, Volume= 2,018 cf
Outflow = 0.06 cfs @ 12.78 hrs, Volume= 2,018 cf, Atten= 88%, Lag= 38.9 min
Discarded = 0.06 cfs @ 12.78 hrs, Volume= 2,018 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 194.83' @ 12.78 hrs Surf.Area= 1,296 sf Storage= 480 cf

Plug-Flow detention time= 42.3 min calculated for 2,018 cf (100% of inflow)
Center-of-Mass det. time= 42.3 min (791.2 - 748.9)

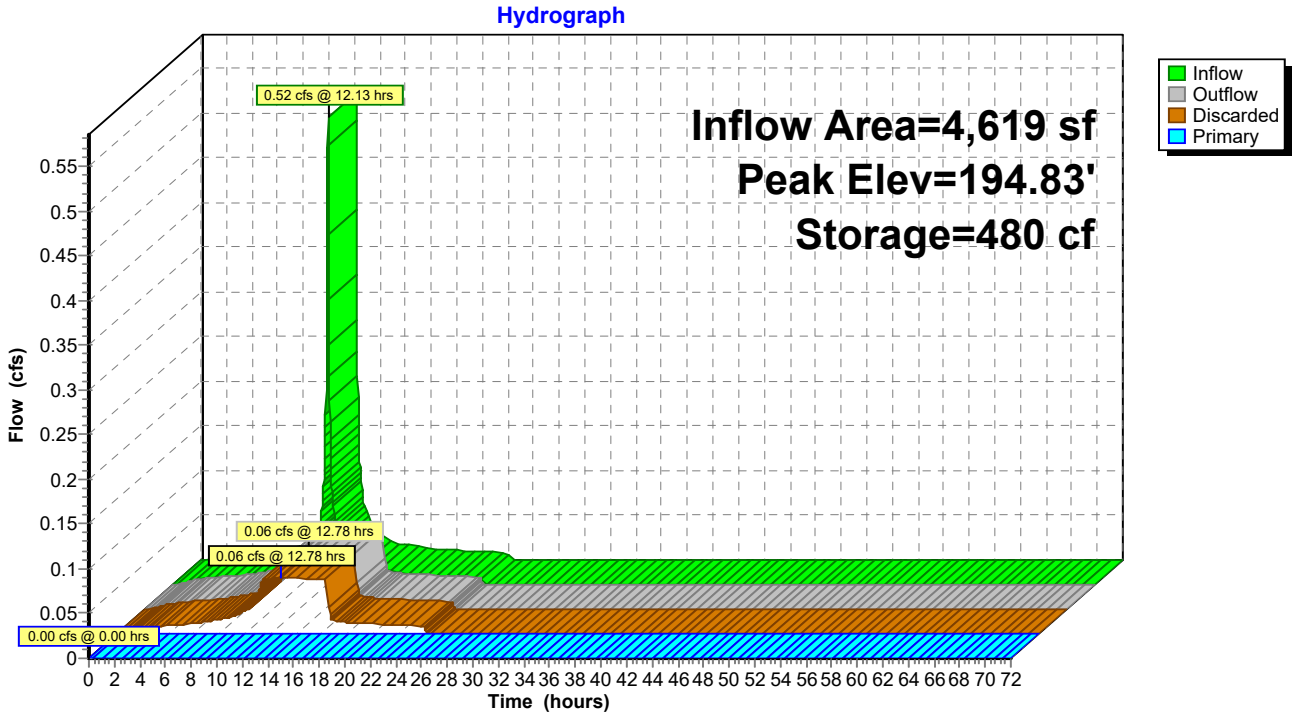
Volume	Invert	Avail.Storage	Storage Description
#1	195.15'	1,296 cf	**18.00'W x 72.00'L x 2.50'H Filter Course Storage** 3,240 cf Overall x 40.0% Voids
#2	193.90'	518 cf	**18.00'W x 72.00'L x 1.00'H Resevoir Course Storage** 1,296 cf Overall x 40.0% Voids
		1,814 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	194.90'	**12.0" Vert. Overflow Outlet** C= 0.600 Limited to weir flow at low heads
#2	Discarded	193.90'	**2.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 173.00' Phase-In= 0.01'

Discarded OutFlow Max=0.06 cfs @ 12.78 hrs HW=194.83' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=193.90' TW=192.00' (Dynamic Tailwater)
↑—**1=Overflow Outlet** (Controls 0.00 cfs)

Pond PV-1: Pervious Pavement

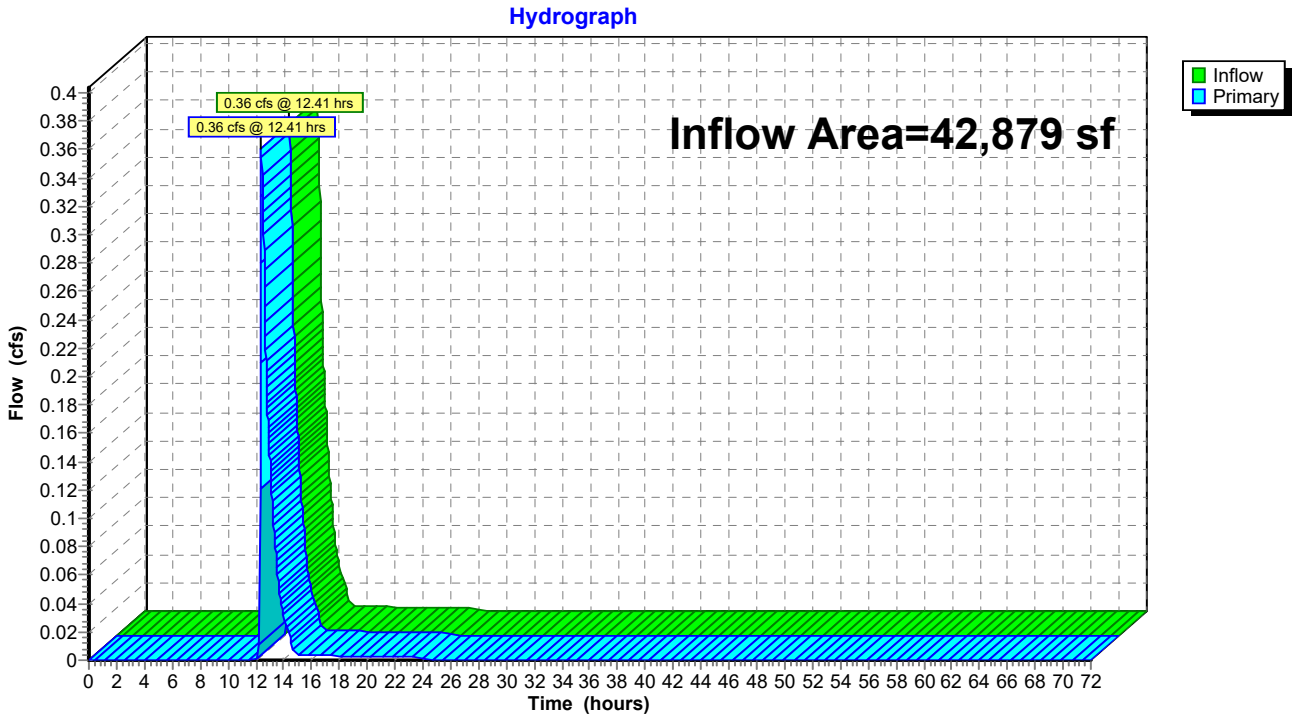


Summary for Link POI: Proposed Drainage Site Overall

Inflow Area = 42,879 sf, 52.49% Impervious, Inflow Depth = 0.29" for 50-Year event
Inflow = 0.36 cfs @ 12.41 hrs, Volume= 1,043 cf
Primary = 0.36 cfs @ 12.41 hrs, Volume= 1,043 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link POI: Proposed Drainage Site Overall



Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E-1: Existing Site Drainage Runoff Area=42,879 sf 74.68% Impervious Runoff Depth=4.74"
Tc=6.0 min CN=39/98 Runoff=4.29 cfs 16,953 cf

Subcatchment P-1A: Proposed Drainage Runoff Area=33,098 sf 54.65% Impervious Runoff Depth=3.62"
Tc=6.0 min CN=39/98 Runoff=2.47 cfs 9,995 cf

Subcatchment P-1B: Proposed Bypass Runoff Area=5,162 sf 0.00% Impervious Runoff Depth=0.57"
Tc=6.0 min CN=39/0 Runoff=0.03 cfs 243 cf

Subcatchment P-1C: Proposed Area to Runoff Area=4,619 sf 95.71% Impervious Runoff Depth=5.92"
Tc=6.0 min CN=39/98 Runoff=0.59 cfs 2,279 cf

Pond B-1: Proposed Infiltration Basin Peak Elev=193.86' Storage=3,173 cf Inflow=2.47 cfs 10,058 cf
Discarded=0.11 cfs 8,286 cf Primary=0.94 cfs 1,772 cf Outflow=1.05 cfs 10,058 cf

Pond PV-1: Pervious Pavement Peak Elev=195.10' Storage=518 cf Inflow=0.59 cfs 2,279 cf
Discarded=0.06 cfs 2,216 cf Primary=0.17 cfs 63 cf Outflow=0.23 cfs 2,279 cf

Link POI: Proposed Drainage Site Overall Inflow=0.96 cfs 2,016 cf
Primary=0.96 cfs 2,016 cf

Total Runoff Area = 85,758 sf Runoff Volume = 29,471 cf Average Runoff Depth = 4.12"
36.42% Pervious = 31,230 sf 63.58% Impervious = 54,528 sf

Summary for Subcatchment E-1: Existing Site Drainage

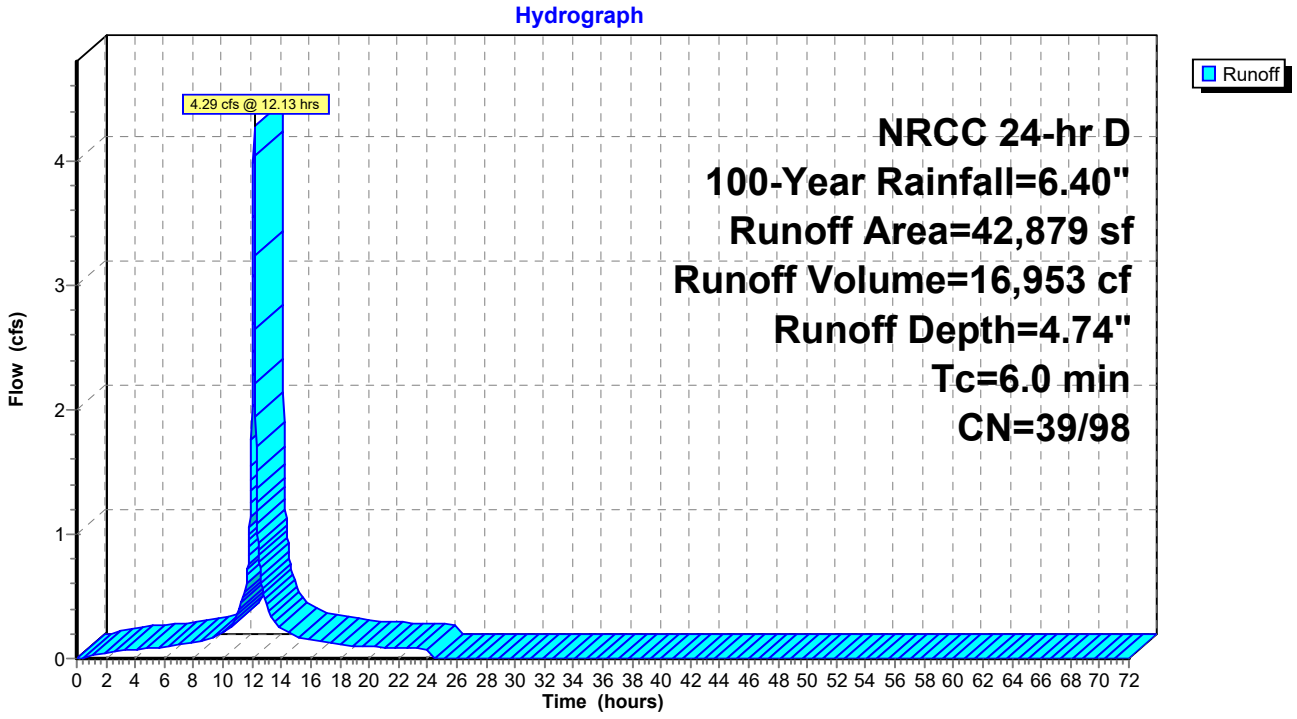
Runoff = 4.29 cfs @ 12.13 hrs, Volume= 16,953 cf, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 100-Year Rainfall=6.40"

	Area (sf)	CN	Description
*	32,020	98	Impervious Areas
	10,859	39	>75% Grass cover, Good, HSG A
	42,879	83	Weighted Average
	10,859	39	25.32% Pervious Area
	32,020	98	74.68% Impervious Area

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

Subcatchment E-1: Existing Site Drainage



Summary for Subcatchment P-1A: Proposed Drainage to Bioretention Basin

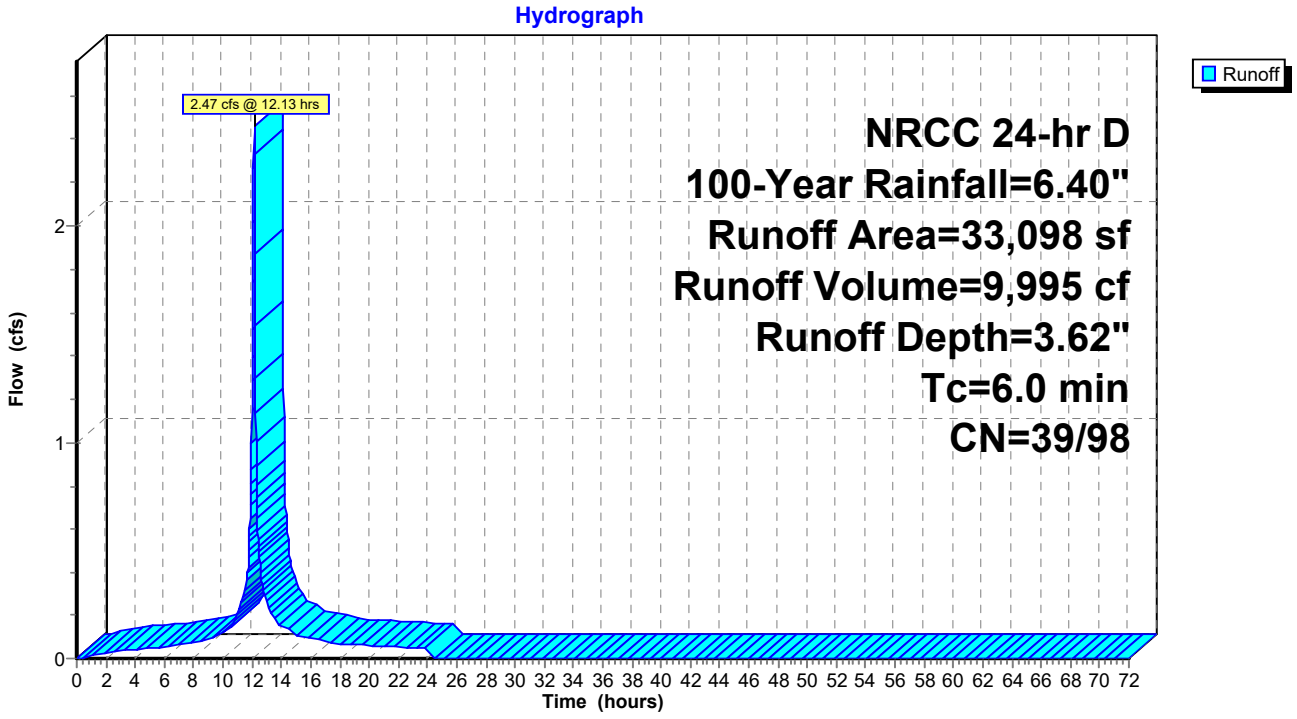
Runoff = 2.47 cfs @ 12.13 hrs, Volume= 9,995 cf, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 100-Year Rainfall=6.40"

	Area (sf)	CN	Description
*	18,087	98	Impervious Areas
	15,011	39	>75% Grass cover, Good, HSG A
	33,098	71	Weighted Average
	15,011	39	45.35% Pervious Area
	18,087	98	54.65% Impervious Area

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

Subcatchment P-1A: Proposed Drainage to Bioretention Basin



Summary for Subcatchment P-1B: Proposed Bypass Drainage

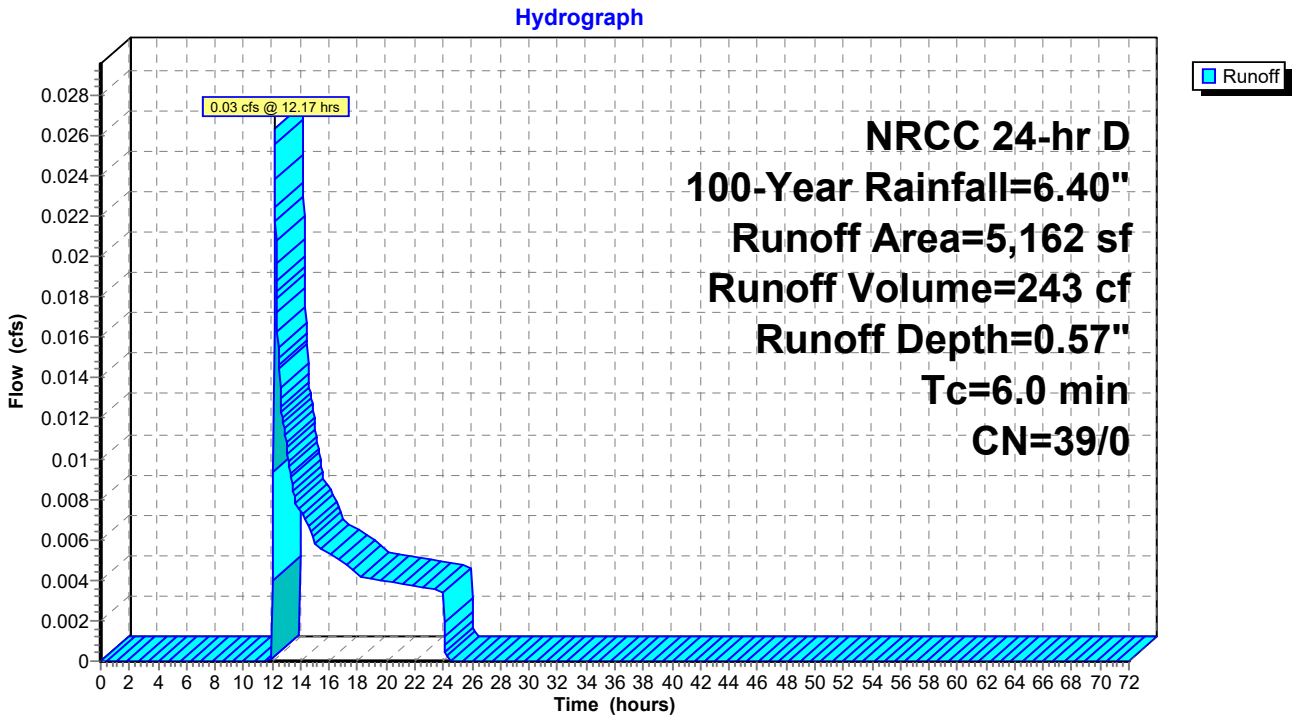
Runoff = 0.03 cfs @ 12.17 hrs, Volume= 243 cf, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 100-Year Rainfall=6.40"

	Area (sf)	CN	Description
*	0	98	Impervious Areas
	5,162	39	>75% Grass cover, Good, HSG A
	5,162	39	Weighted Average
	5,162	39	100.00% Pervious Area

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

Subcatchment P-1B: Proposed Bypass Drainage



Summary for Subcatchment P-1C: Proposed Area to Pervious Pavement System

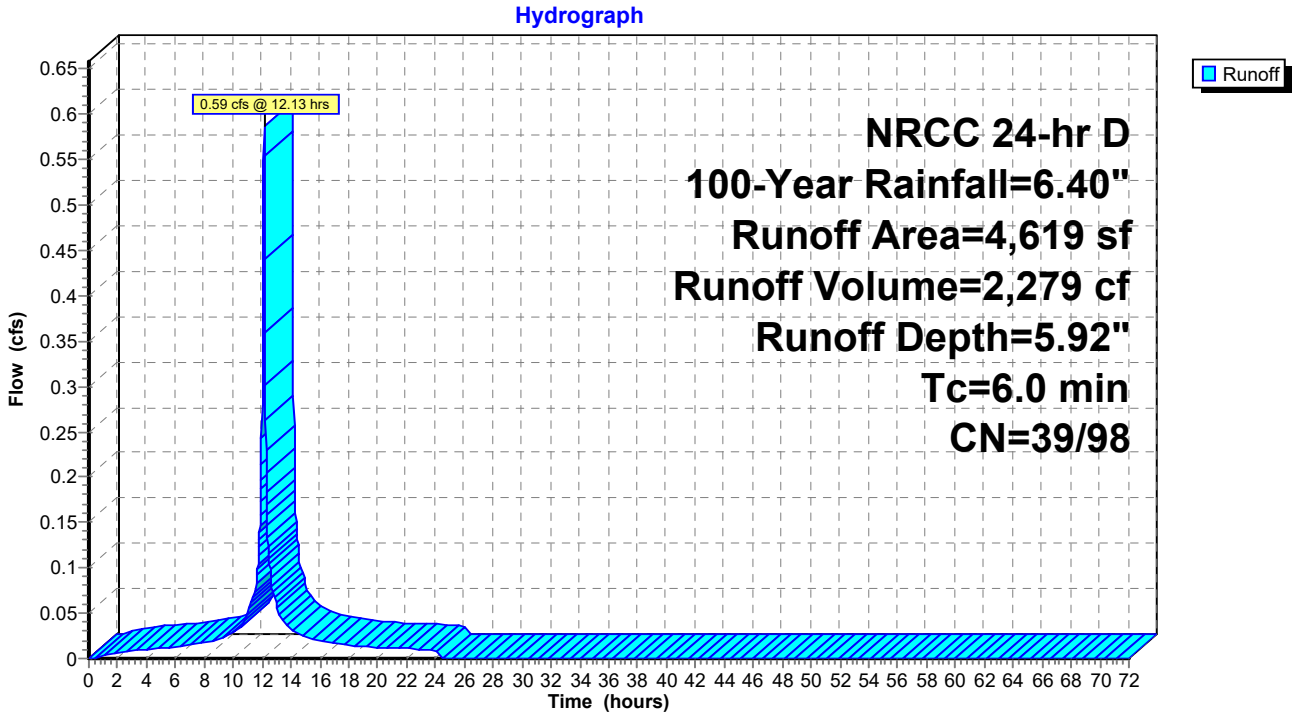
Runoff = 0.59 cfs @ 12.13 hrs, Volume= 2,279 cf, Depth= 5.92"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
NRCC 24-hr D 100-Year Rainfall=6.40"

Area (sf)	CN	Description
4,421	98	Paved parking, HSG A
198	39	>75% Grass cover, Good, HSG A
4,619	95	Weighted Average
198	39	4.29% Pervious Area
4,421	98	95.71% Impervious Area

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

Subcatchment P-1C: Proposed Area to Pervious Pavement System



Summary for Pond B-1: Proposed Infiltration Basin

Inflow Area = 37,717 sf, 59.68% Impervious, Inflow Depth = 3.20" for 100-Year event
Inflow = 2.47 cfs @ 12.13 hrs, Volume= 10,058 cf
Outflow = 1.05 cfs @ 12.25 hrs, Volume= 10,058 cf, Atten= 57%, Lag= 7.4 min
Discarded = 0.11 cfs @ 12.25 hrs, Volume= 8,286 cf
Primary = 0.94 cfs @ 12.25 hrs, Volume= 1,772 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 193.86' @ 12.25 hrs Surf.Area= 2,299 sf Storage= 3,173 cf

Plug-Flow detention time= 230.9 min calculated for 10,055 cf (100% of inflow)
Center-of-Mass det. time= 230.9 min (994.7 - 763.8)

Volume	Invert	Avail.Storage	Storage Description
#1	192.00'	6,212 cf	**Bioretention Filtration System (Irregular)** Listed below (Recalc)

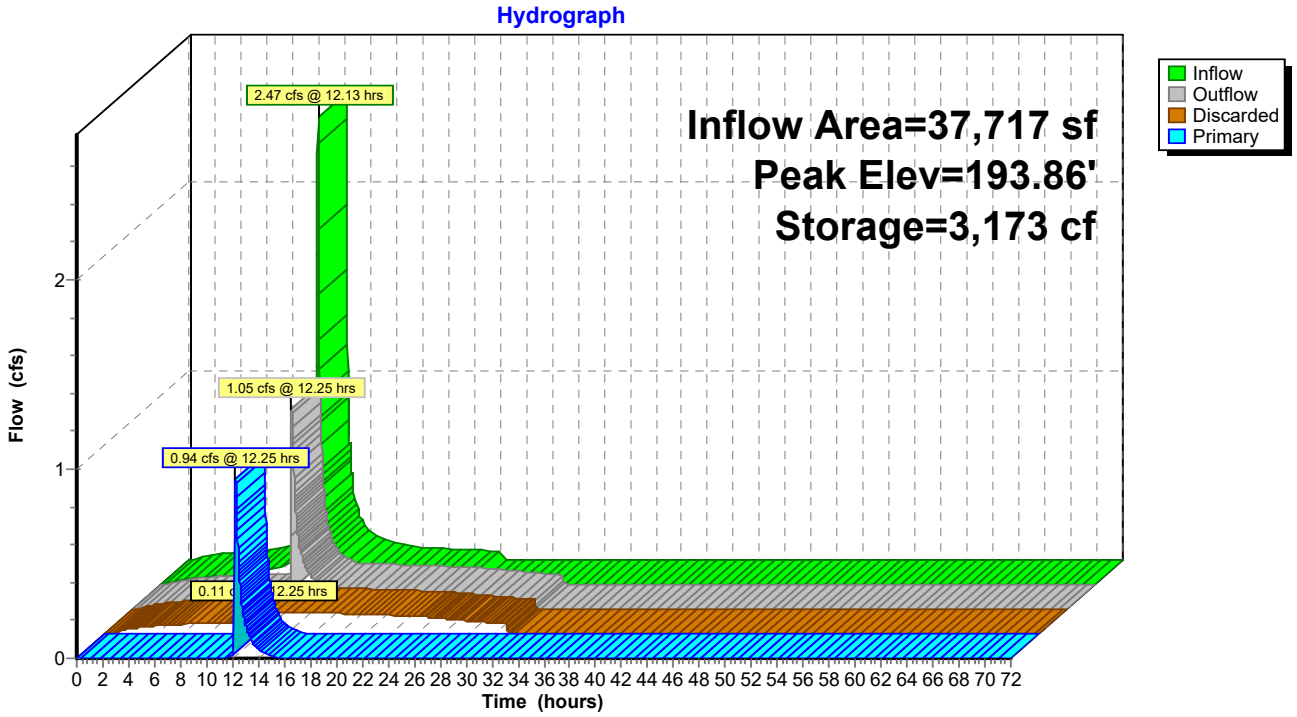
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
192.00	1,096	149.7	0	0	1,096
193.00	1,782	235.6	1,425	1,425	3,737
194.00	2,390	252.3	2,079	3,504	4,430
195.00	3,040	269.1	2,708	6,212	5,174

Device	Routing	Invert	Outlet Devices
#1	Primary	188.25'	**12.0" Vert. 12" Outlet Pipe** C= 0.600 Limited to weir flow at low heads
#2	Device 1	193.75'	**24.0" x 24.0" Horiz. Overflow Grate** C= 0.600 Limited to weir flow at low heads
#3	Discarded	192.00'	**2.000 in/hr Infiltration over Surface area** Conductivity to Groundwater Elevation = 173.00' Phase-In= 0.01'

Discarded OutFlow Max=0.11 cfs @ 12.25 hrs HW=193.86' (Free Discharge)
↑└**3=Infiltration** (Controls 0.11 cfs)

Primary OutFlow Max=0.94 cfs @ 12.25 hrs HW=193.86' TW=0.00' (Dynamic Tailwater)
↑└**1=12" Outlet Pipe** (Passes 0.94 cfs of 8.55 cfs potential flow)
↑└**2=Overflow Grate** (Weir Controls 0.94 cfs @ 1.08 fps)

Pond B-1: Proposed Infiltration Basin



Summary for Pond PV-1: Pervious Pavement

[42] Hint: Gap in defined storage above volume #2 at 194.90'
[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=11)

Inflow Area = 4,619 sf, 95.71% Impervious, Inflow Depth = 5.92" for 100-Year event
Inflow = 0.59 cfs @ 12.13 hrs, Volume= 2,279 cf
Outflow = 0.23 cfs @ 12.34 hrs, Volume= 2,279 cf, Atten= 61%, Lag= 12.7 min
Discarded = 0.06 cfs @ 12.34 hrs, Volume= 2,216 cf
Primary = 0.17 cfs @ 12.34 hrs, Volume= 63 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Peak Elev= 195.10' @ 12.34 hrs Surf.Area= 1,296 sf Storage= 518 cf

Plug-Flow detention time= 45.7 min calculated for 2,279 cf (100% of inflow)
Center-of-Mass det. time= 45.7 min (792.8 - 747.1)

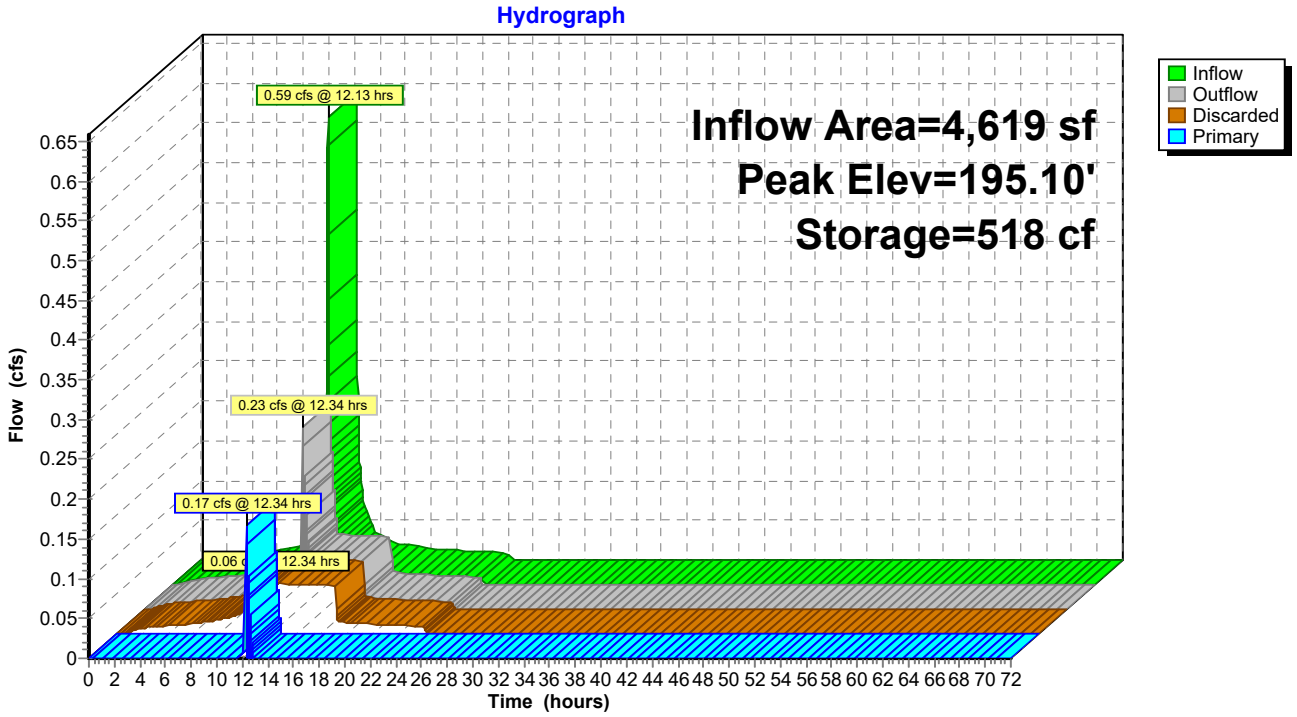
Volume	Invert	Avail.Storage	Storage Description
#1	195.15'	1,296 cf	**18.00'W x 72.00'L x 2.50'H Filter Course Storage** 3,240 cf Overall x 40.0% Voids
#2	193.90'	518 cf	**18.00'W x 72.00'L x 1.00'H Resevoir Course Storage** 1,296 cf Overall x 40.0% Voids
		1,814 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	194.90'	**12.0" Vert. Overflow Outlet** C= 0.600 Limited to weir flow at low heads
#2	Discarded	193.90'	**2.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 173.00' Phase-In= 0.01'

Discarded OutFlow Max=0.06 cfs @ 12.34 hrs HW=195.09' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.06 cfs)

Primary OutFlow Max=0.16 cfs @ 12.34 hrs HW=195.09' TW=193.84' (Dynamic Tailwater)
↑—**1=Overflow Outlet** (Orifice Controls 0.16 cfs @ 1.50 fps)

Pond PV-1: Pervious Pavement

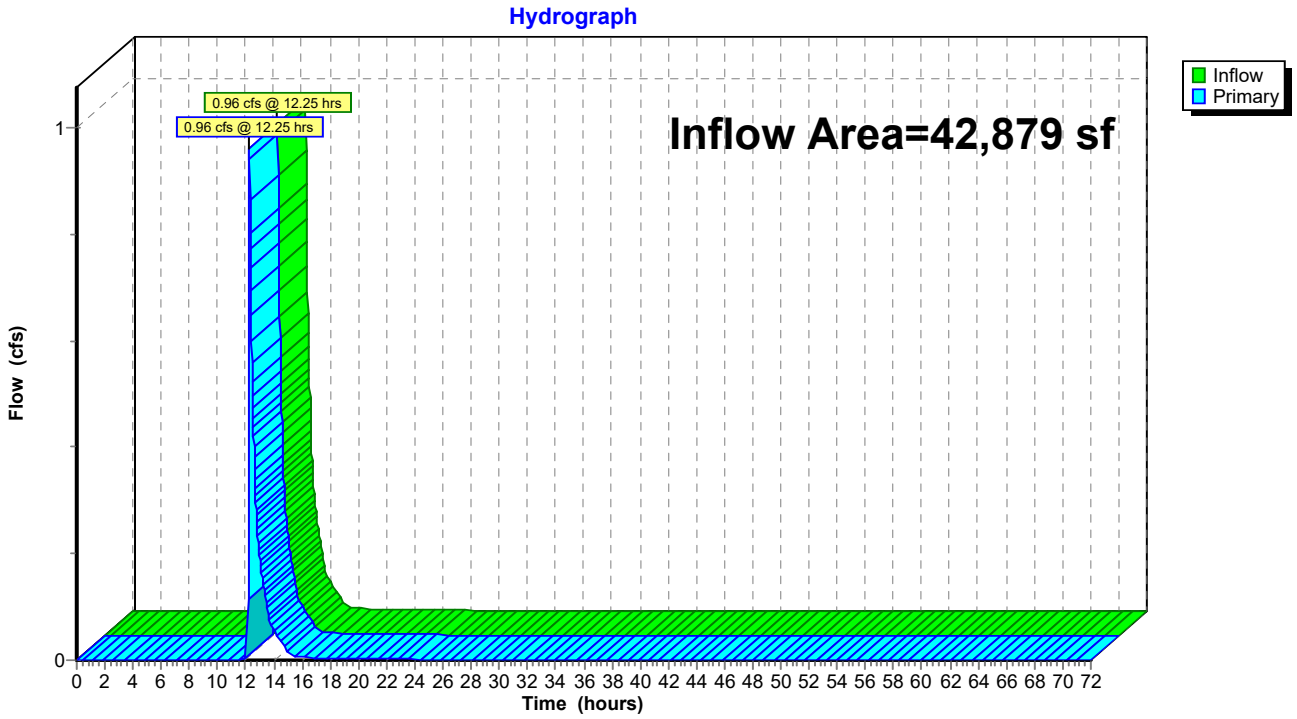


Summary for Link POI: Proposed Drainage Site Overall

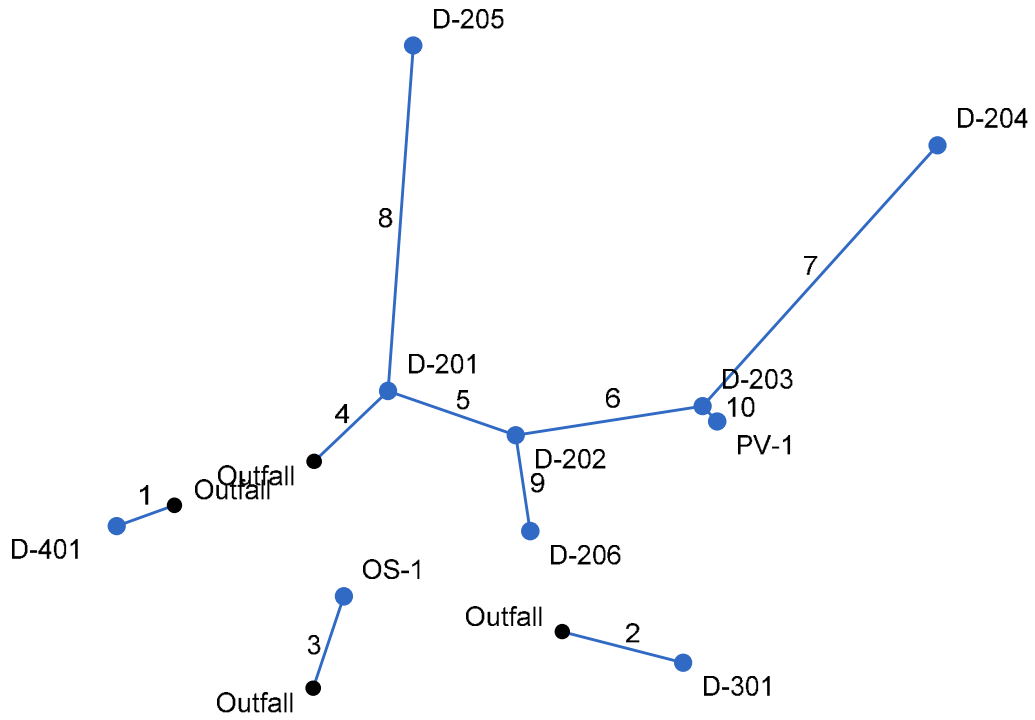
Inflow Area = 42,879 sf, 52.49% Impervious, Inflow Depth = 0.56" for 100-Year event
Inflow = 0.96 cfs @ 12.25 hrs, Volume= 2,016 cf
Primary = 0.96 cfs @ 12.25 hrs, Volume= 2,016 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link POI: Proposed Drainage Site Overall



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: 2024-03-13_Pipe Sizing_Dover, NH.stm	Number of lines: 10	Date: 3/13/2024

SED

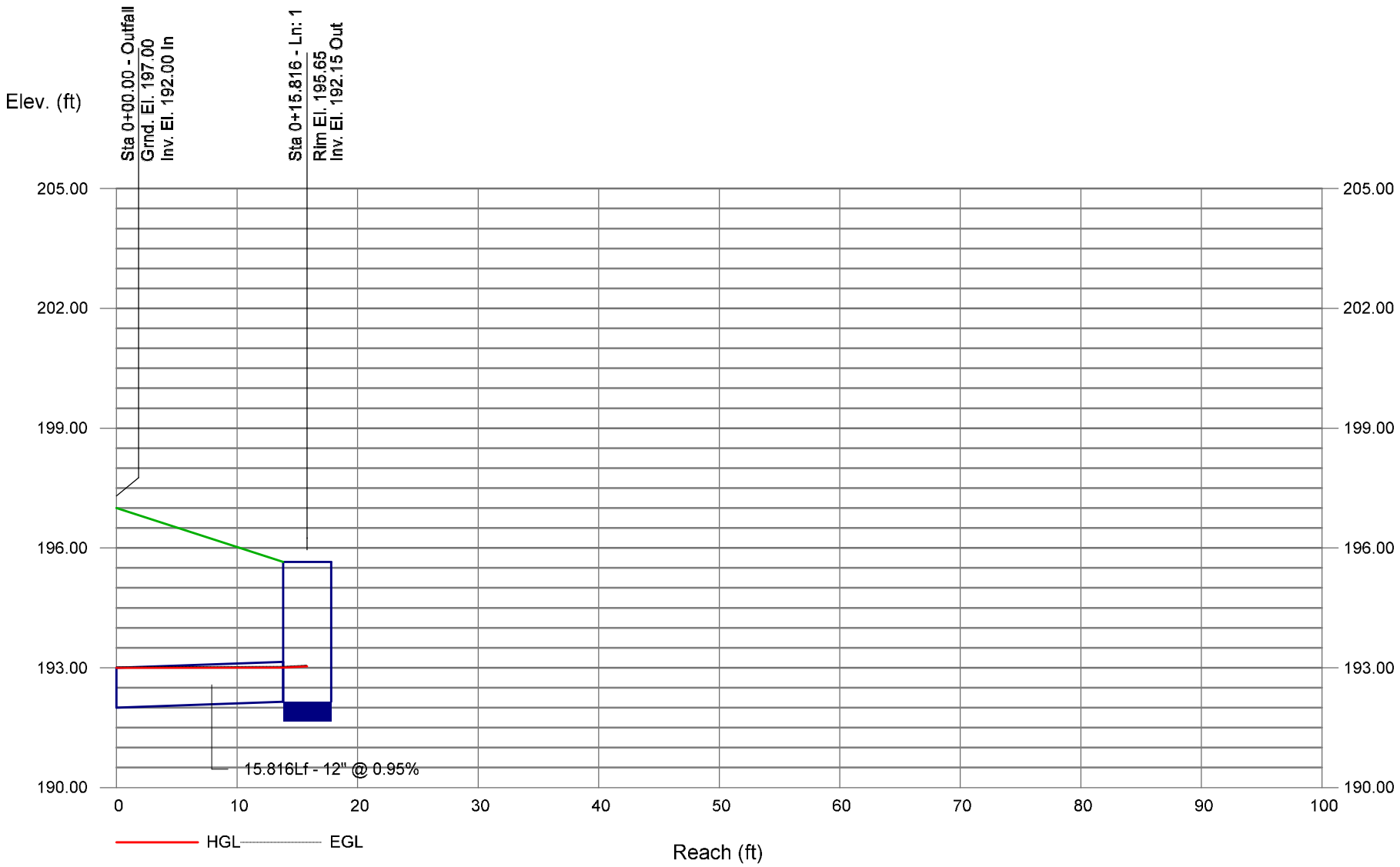
Line No.	Line ID	Invert Dn (ft)	Invert Up (ft)	Line Size (in)	Line Slope (%)	Flow Rate (cfs)	Vel Dn (ft/s)	Capac Full (cfs)	HGL Dn (ft)	HGL Up (ft)	Drng Area (ac)	Tc (min)	i Inlet (in/hr)	n-val Pipe	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	Line Length (ft)	
1	D-401 to Basin	192.00	192.15	12	0.95	0.98	1.25	3.47	193.00	193.01	0.15	6.0	7.44	0.013	0.00	195.65	15.816	
2	D-301 to Basin	192.00	192.30	15	0.93	0.74	0.61	6.24	193.25	193.25	0.11	6.0	7.44	0.013	0.00	196.32	32.144	
3	OS-1 to EX-1	188.04	188.30	12	1.04	0.13	0.17	3.63	189.04	189.04	0.00	6.0	0.00	0.013	194.24	193.50	25.000	
4	D-201 to Basin	192.00	192.25	12	0.95	1.81	2.30	3.47	193.00	193.04	0.00	7.2	0.00	0.013	192.00	198.45	26.323	
5	D-202 to D-201	194.20	194.40	12	0.57	1.12	3.28	2.70	194.65	194.85	0.00	7.0	0.00	0.013	198.45	198.50	34.808	
6	D-203 to D-202	194.40	194.65	12	0.51	0.83	1.69	2.55	195.00	195.06	0.00	6.6	0.00	0.013	198.50	198.50	48.706	
7	D-204 to D-203	194.65	195.10	12	0.50	0.74	1.82	2.51	195.16	195.46	0.19	6.0	7.44	0.013	198.50	197.85	90.622	
8	D-205 to D-201	195.05	195.95	12	1.00	0.76	3.61	3.57	195.36	196.31	0.73	6.0	7.44	0.013	198.45	198.70	89.611	
9	D-206 to D-202	194.40	194.55	12	0.60	0.33	0.67	2.75	195.00	194.79	0.05	6.0	7.44	0.013	198.50	197.50	25.094	
10	PV-1 to D-203	194.40	194.90	12	9.20	0.13	0.20	10.80	195.16	195.05	0.00	6.0	0.00	0.013	198.50	198.50	5.438	

Project File: 2024-03-13_Pipe Sizing_Dover, NH.stm | Number of lines: 10 | Date: 3/13/2024

NOTES: Intensity = 38.51 / (Inlet time + 3.80) ^ 0.72 -- Return period = 25 Yrs. ; ** Critical depth

Storm Sewer Profile

Proj. file: 2024-03-13_Pipe Sizing_Dover, NH.stm



Storm Sewer Profile

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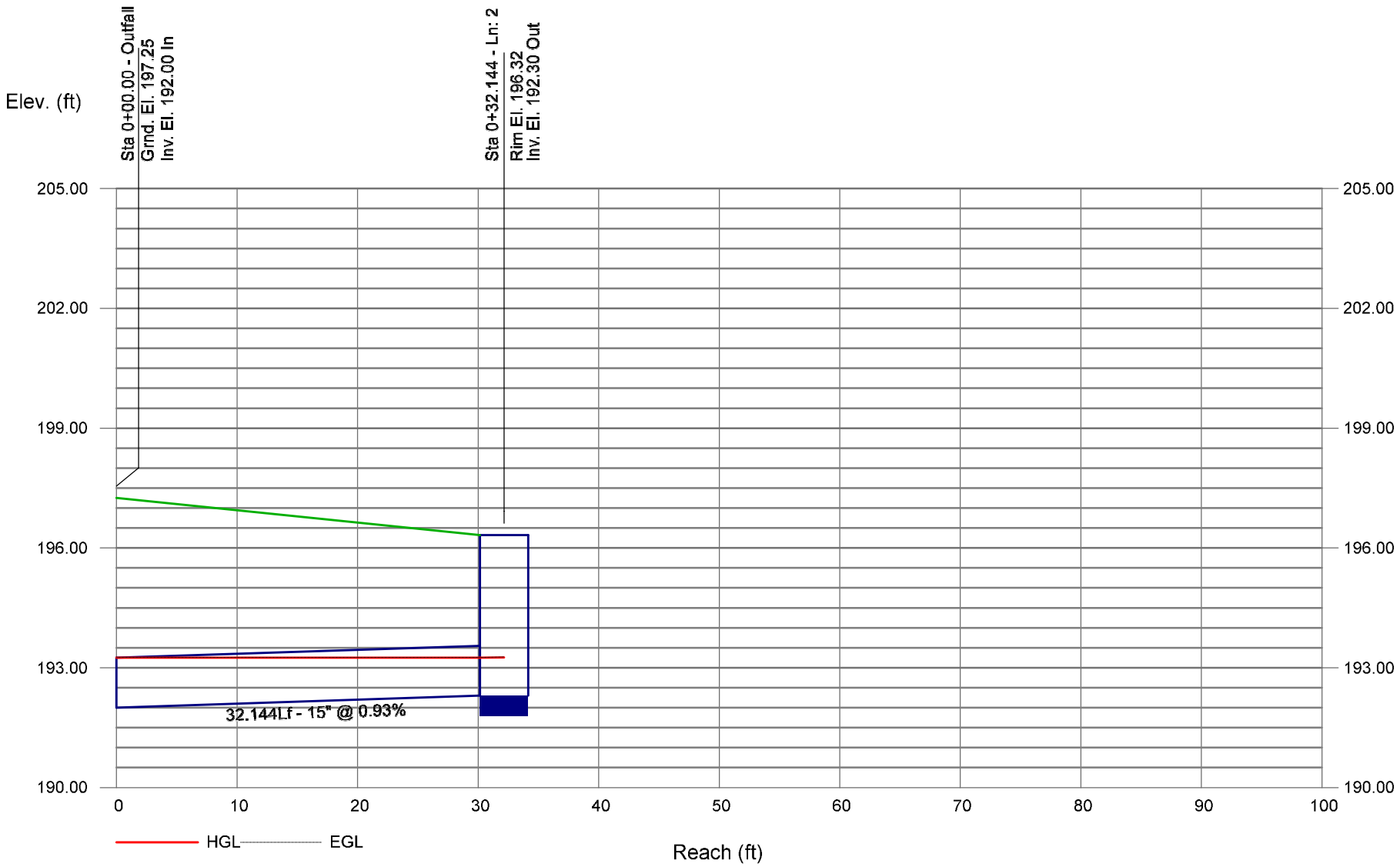

Storm Sewer Profile

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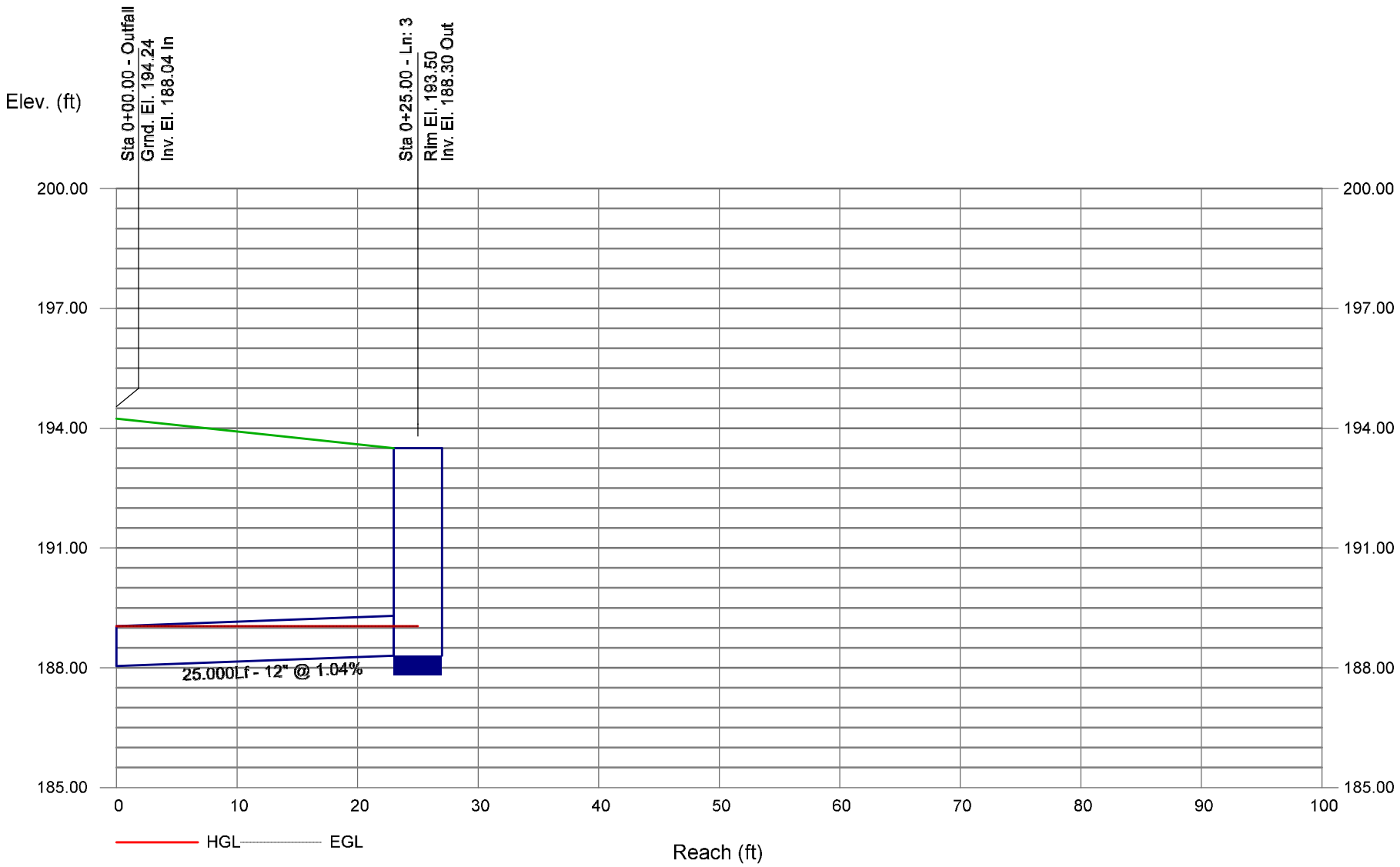

Storm Sewer Profile

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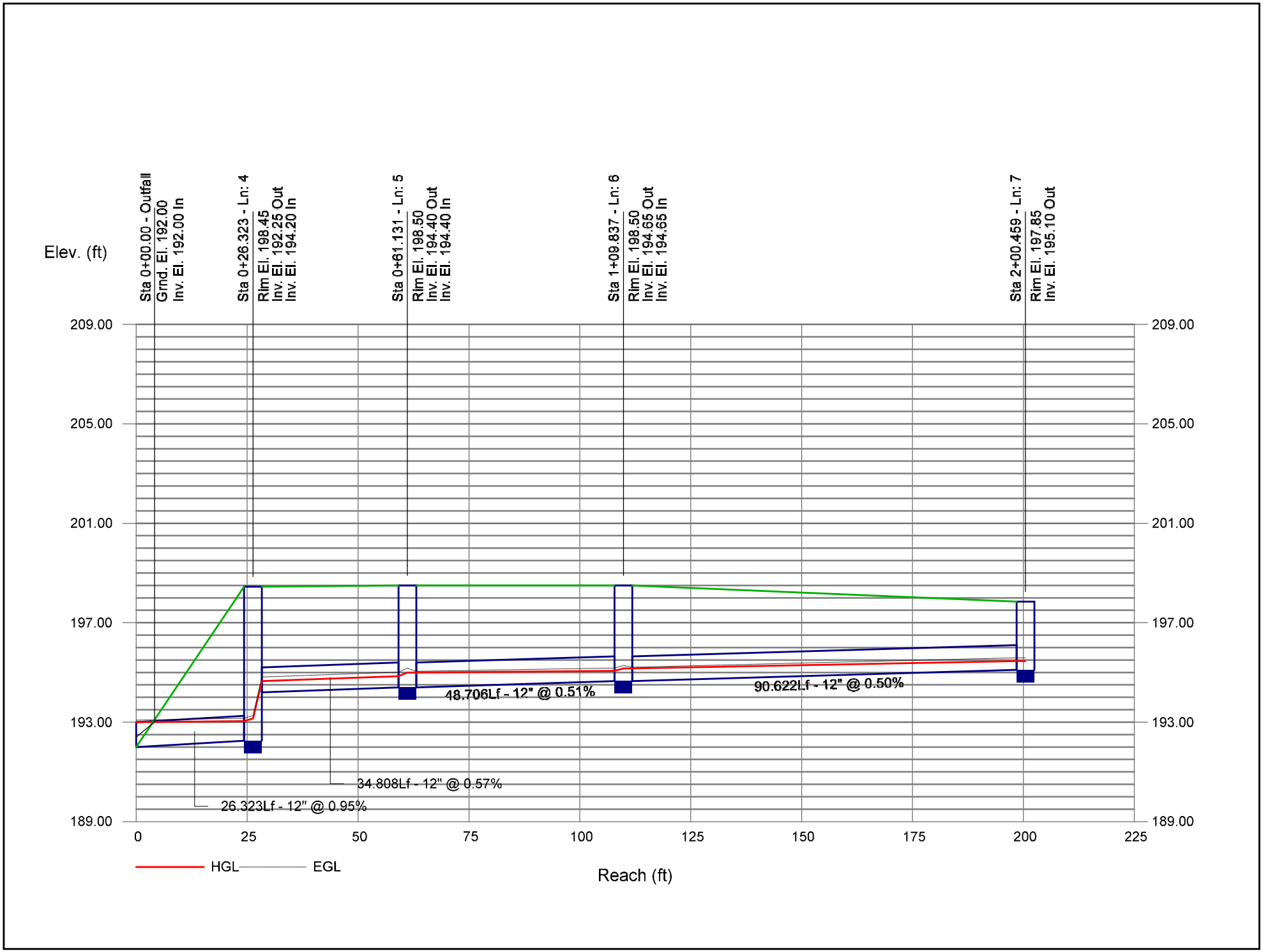

Storm Sewer Profile

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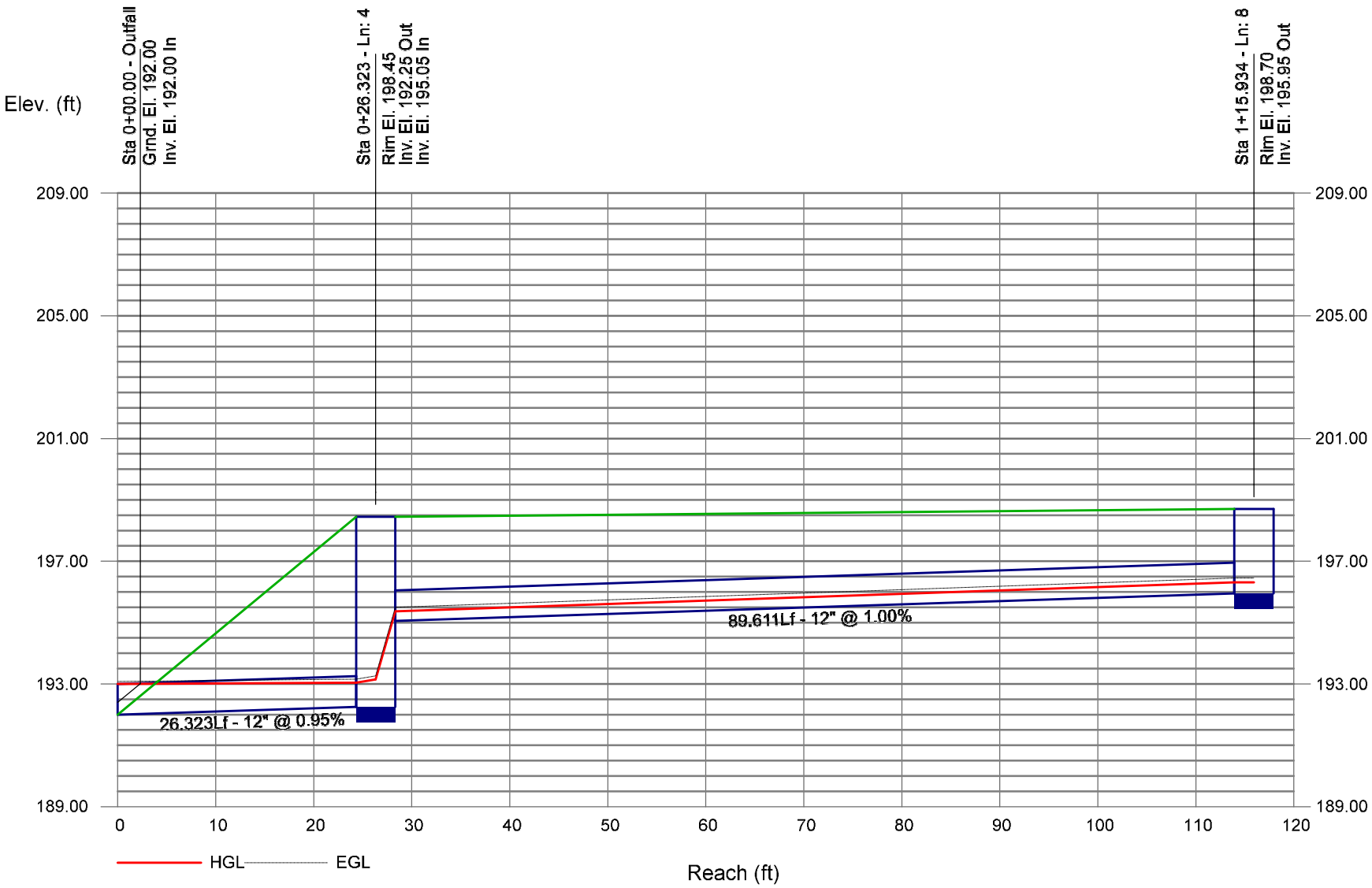

Storm Sewer Profile

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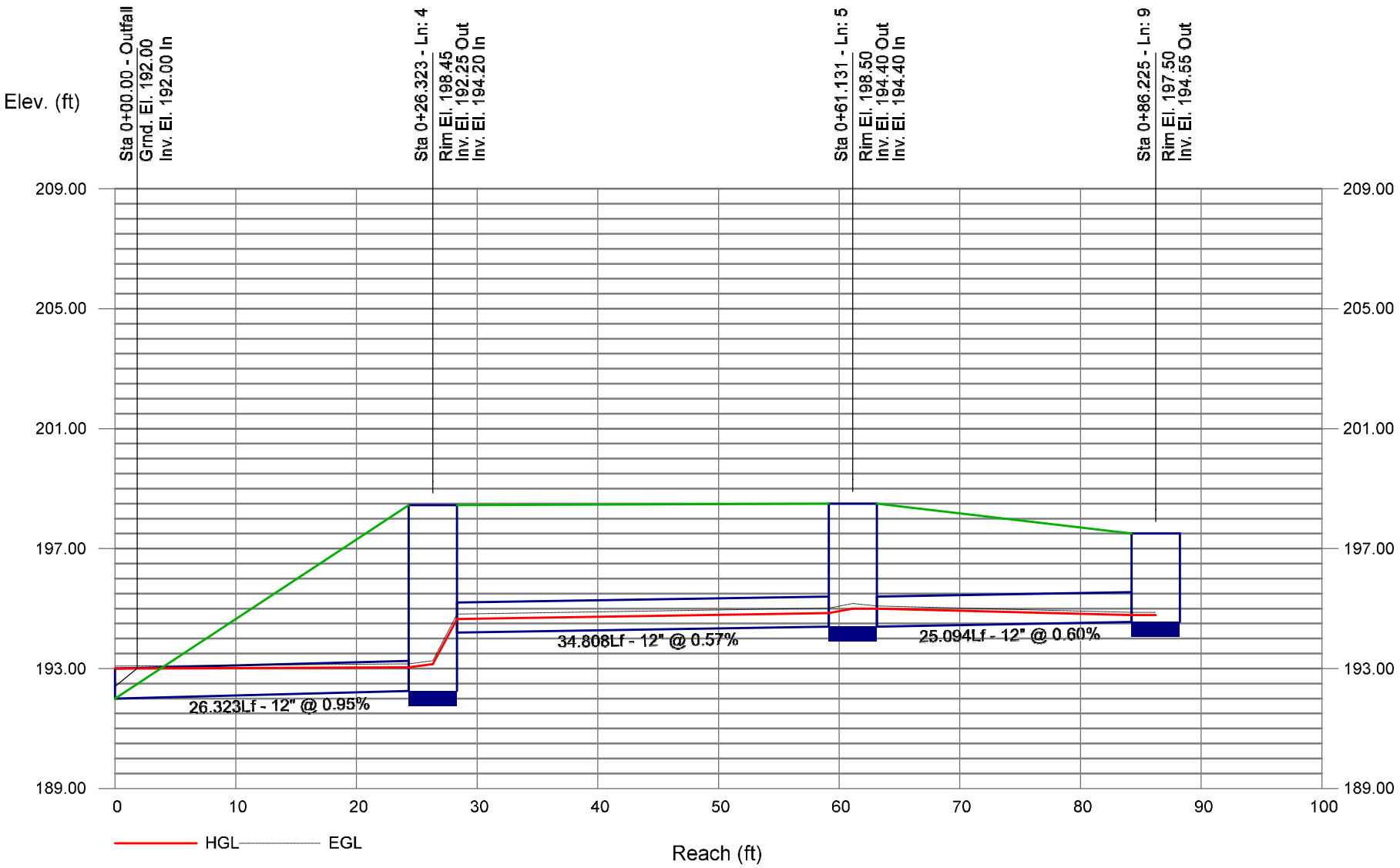

Storm Sewer Profile

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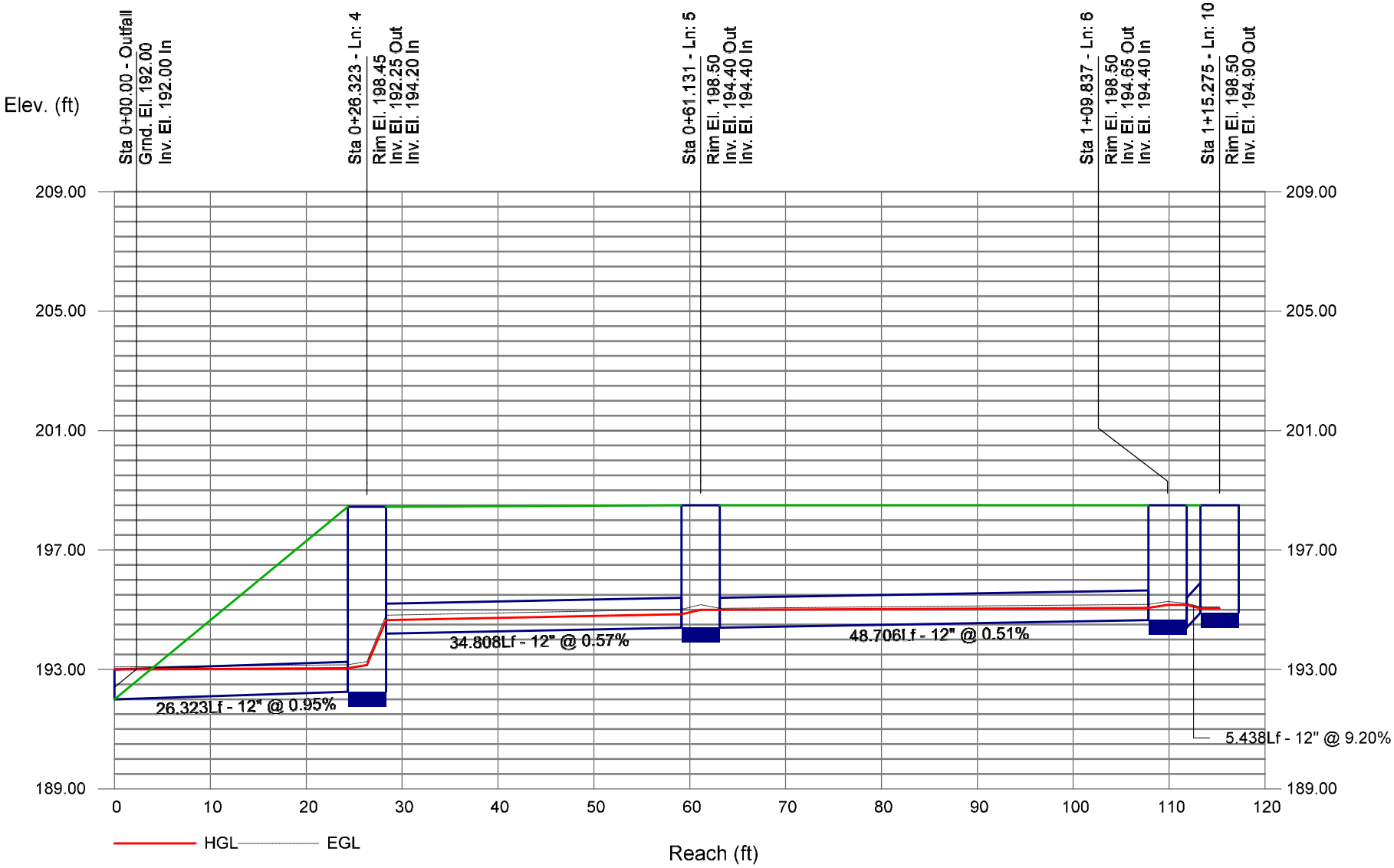


CONDUIT OUTLET PROTECTION CALCULATION

RIP-RAP OUTLET (D100)

OUTLET PARAMETERS

OPENING WIDTH (W_O):	1.25 FT	OPENING HEIGHT (D_O):	1.25 FT
FLOW AT OUTLET ($Q_{25\,yr}$):	1.81 CFS	UNIT DISCHARGE (q):	1.45 CFS/FT
TAILWATER DEPTH (TW):	1.04 FT	TAILWATER < 0.5 D_O?	NO

APRON DIMENSIONS

LENGTH (La):	3.89 FT	RIPRAP SIZE (d_{50}):	0.38 IN* (6-inch minimum)
WIDTH (Wa):	7.64 FT		
WIDTH AT OUTLET (W_O):	3.75 FT		

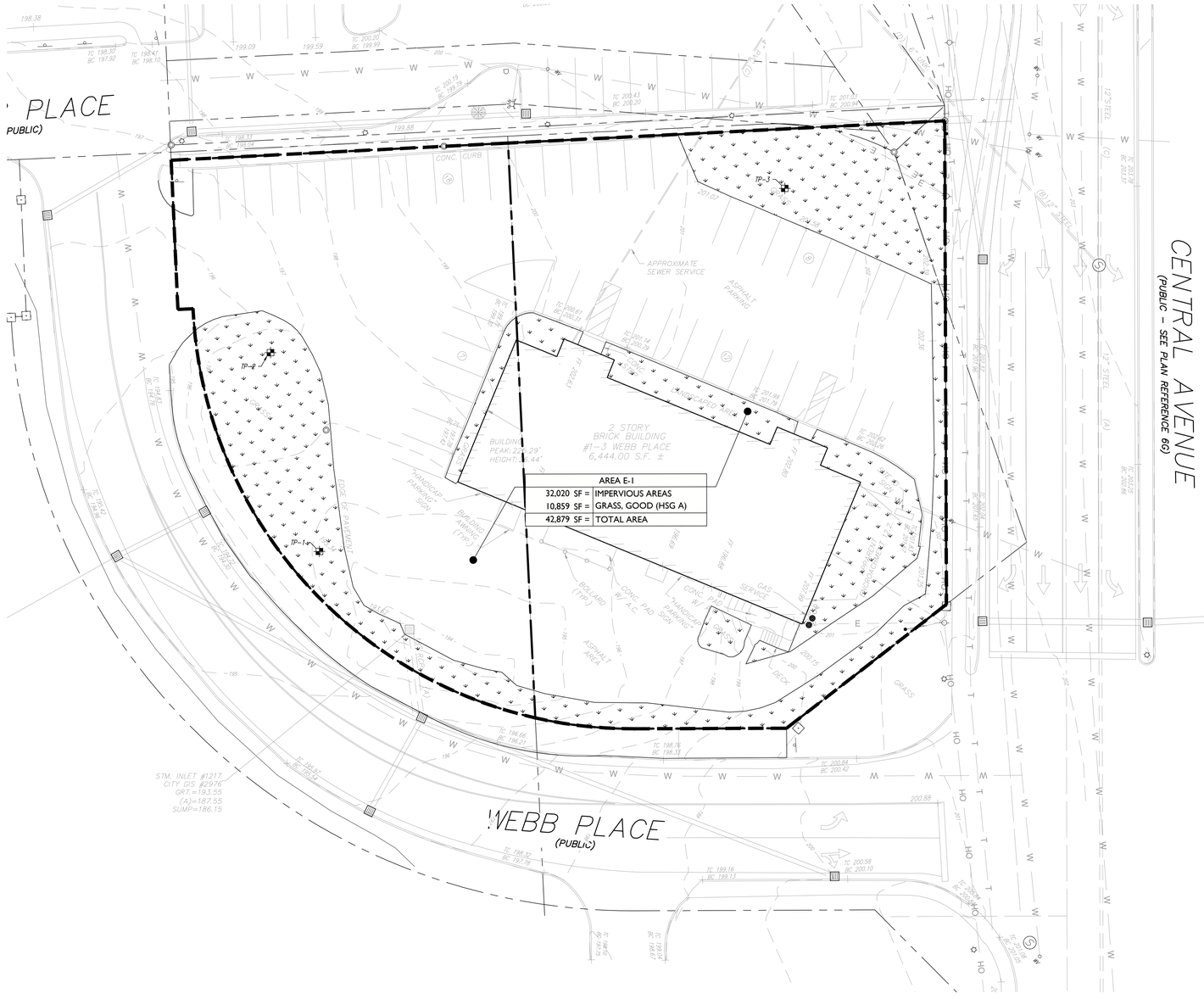
APPENDIX D
DRAINAGE AREA MAPS

INVENTORY

SHEET 1 OF 3: EXISTING DRAINAGE AREA MAP

SHEET 2 OF 3: PROPOSED DRAINAGE AREA MAP

SHEET 3 OF 3: INLET DRAINAGE AREA MAP



SYMBOL	DESCRIPTION
	PROPERTY LINE
	AREA OF DRAINAGE ANALYSIS
	EXISTING DRAINAGE AREA
	EXISTING TIME OF CONCENTRATION
	EXISTING GRASS AREA

20' 0' 20' 40'

GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
03	03/13/2024	GMC	FOR MUNICIPAL RESUBMISSION
02	12/26/2023	GMC	FOR MUNICIPAL RESUBMISSION
01	7/31/2023	JJR	FOR MUNICIPAL SUBMISSION

NOT APPROVED FOR CONSTRUCTION

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DRAINAGE AREA MAPS

CHASE

PROPOSED BANK DRIVE-UP ATM

TAX MAP: 38, LOTS: 15A & 15B
13 WEBB PLACE
CITY OF DOVER
STAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-220137

TITLE: EXISTING DRAINAGE AREA

DRAWING: 1 OF 2

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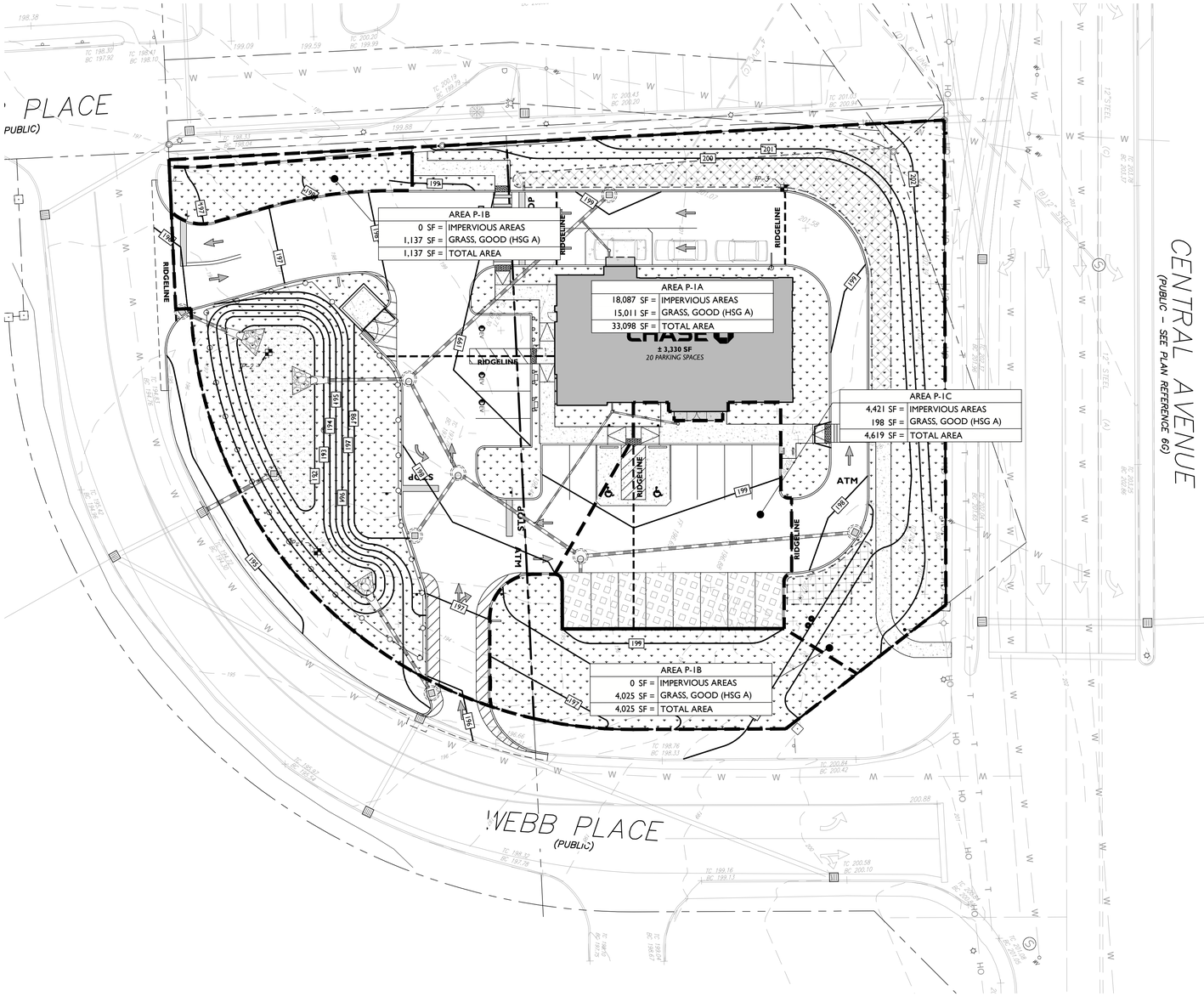

SYMBOL	DESCRIPTION
	PROPERTY LINE
100	PROPOSED GRADING CONTOUR
RIDGELINE	PROPOSED GRADING RIDGELINE
	PROPOSED STORMWATER STRUCTURES
	PROPOSED STORMWATER PIPING
	AREA OF DRAINAGE ANALYSIS
	PROPOSED DRAINAGE AREA
	PROPOSED PERVIOUS AREA

20' 0' 20' 40'

GRAPHIC SCALE IN FEET

1" = 20'

ISSUE	DATE	BY	DESCRIPTION
03	03/13/2024	GMC	FOR MUNICIPAL RESUBMISSION
02	12/26/2023	GMC	FOR MUNICIPAL RESUBMISSION
01	7/31/2023	JJR	FOR MUNICIPAL SUBMISSION

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design

Rutherford, NJ · New York, NY · Boston, MA
Princeton, NJ · Tampa, FL · Detroit, MI
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120 Washington Street, Suite 201, Salem, MA 01970
Phone 617.203.2076

DRAINAGE AREA MAPS

CHASE

PROPOSED BANK DRIVE-UP ATM

TAX MAP: 38, LOTS: 15A & 15B
13 WEBB PLACE
CITY / TOWN: DOVER
STAFFORD COUNTY, NEW HAMPSHIRE

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SCALE: 1" = 20' | PROJECT ID: BOS-220137

TITLE:

PROPOSED DRAINAGE AREA

DRAWING:

2 OF 3

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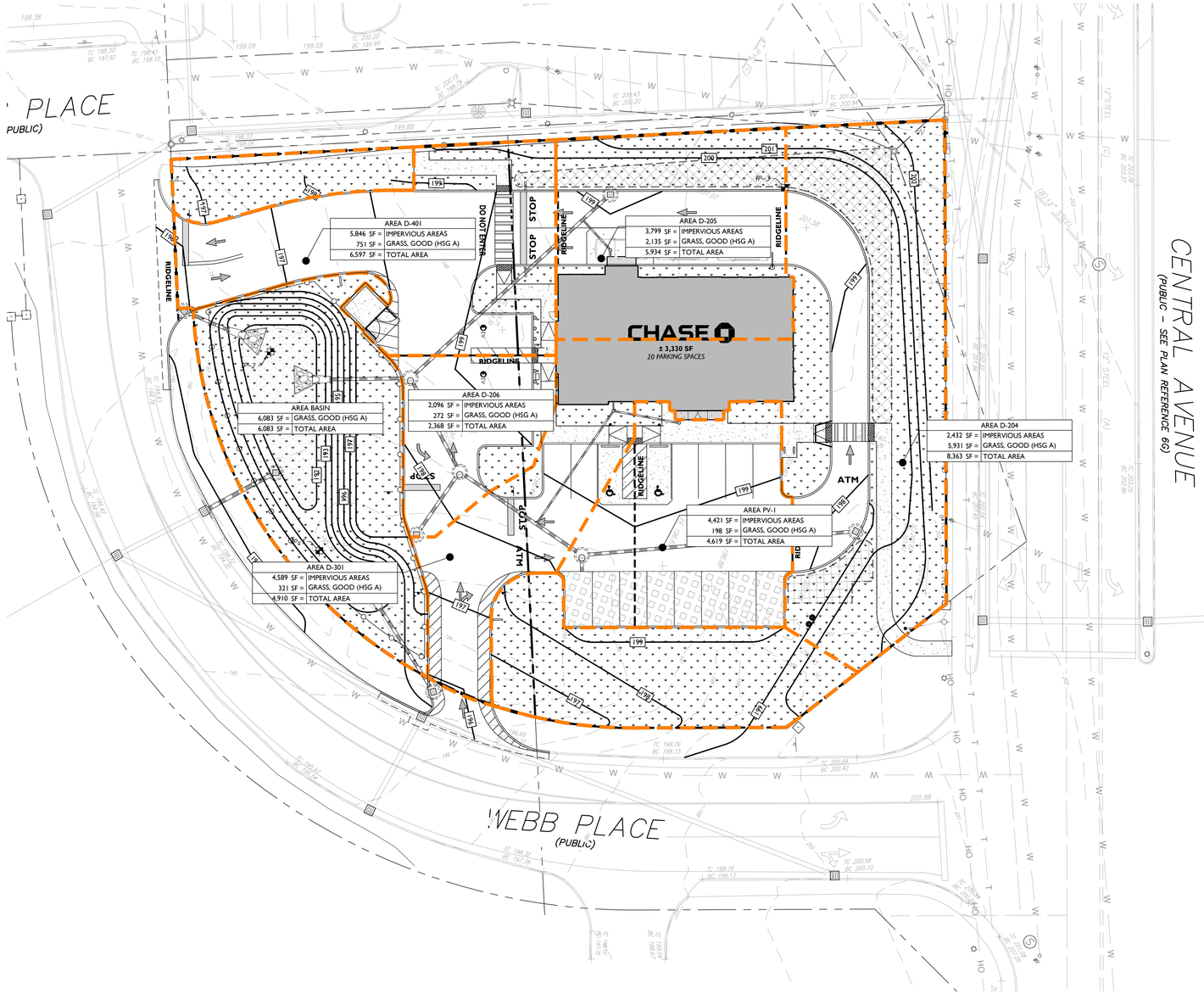

SYMBOL	DESCRIPTION
	PROPERTY LINE
	PROPOSED INLET DRAINAGE AREA
	PROPOSED INLET PERVIOUS AREA

20' 0' 20' 40'

GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
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DRAINAGE AREA MAPS

CHASE

PROPOSED BANK DRIVE-UP ATM

TAX MAP: 38, LOTS: 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STAFFORD COUNTY, NEW HAMPSHIRE

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SCALE: 1" = 20' | PROJECT ID: BOS-220137

TITLE:

INLET DRAINAGE AREA

DRAWING:

3 OF 3

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STONEFIELD

STORMWATER MANAGEMENT SYSTEMS INSPECTION & MAINTENANCE MANUAL

PROPOSED BANK WITH DRIVE-THRU ATM
TAX MAP 38, LOTS 15A & 15B
1 – 3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

PREPARED FOR:
CORE STATES GROUP

PREPARED BY:
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REPORT DATE:
JULY 31, 2023
REVISED: MARCH 14, 2024

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1.0 INTRODUCTION

This Stormwater Operations & Maintenance Plan has been prepared to identify the operational and maintenance responsibilities for the proposed stormwater facilities for the development of the parcel located at 1-3 Webb Place, City of Dover, Strafford County, New Hampshire. This Manual has been prepared in conjunction with the Site Improvement Plans and Stormwater Management Report, prepared by Stonefield Engineering & Design LLC., and in accordance with the standards and regulations set forth by City of Dover and the New Hampshire Department of Environmental Services (NHDES).

Operation and maintenance of the permanent stormwater control Best Management Practices (BMPs) shall be the responsibility of the operator of the project site at the time that the applicable maintenance is required. Stormwater management improvements associated with this development include the implementation of one (1) aboveground infiltration system, one (1) pervious paving system, and multiple deep sump catch basins with associated subsurface conveyance pipes throughout the project area. All guidelines, standards and requirements set forth in this Manual shall be implemented for all proposed stormwater infrastructure. These guidelines are not exclusive to the proposed improvements, and existing infrastructure that is to remain in post development conditions shall be maintained in accordance with this document as applicable.

A copy of this Manual shall be kept on site at all times both during and after construction. Upon reviewing agency approval, the title and date of the maintenance manual as well as the contact information of the current agent responsible for maintaining the stormwater management measures for the project shall be recorded (as deemed required).

1.1 RESPONSIBILITY

The purpose of this Stormwater Systems Inspection & Maintenance Manual is to ensure adequate inspection of the systems, removal of accumulated sediments, oils and debris, and implementation of corrective action and record keeping activities. The enclosed O&M activities will be performed by a Contract Operator for the scope of maintenance. The Contract Operator will be a professional engineer or other professional with expertise and experience with stormwater management facilities operation and maintenance. The Owner, its successors, and/or assigns shall be responsible for the maintenance of the stormwater infrastructure associated with the proposed site improvements. Adequate maintenance is defined in this document as good working condition.

The current responsible agent shall evaluate the maintenance plan for effectiveness at least annually and revise the plan, as necessary. A detailed, written log of all preventative and corrective maintenance performed for each stormwater management measure must be kept, including a record of all inspections and copies of maintenance-

related work orders. Upon request from a public entity with jurisdiction over the project area the responsible agent shall make available the maintenance plan and associate logs and other records for review.

Responsible Agent:

Name:	JP Morgan Chase & Co.
Contact:	Todd Samms
Phone:	(614) 248-3128
Email:	todd.samm@chase.com

1.2 DOCUMENTATION

Quarterly Operation and Maintenance Record Log and Schedule will be kept by the Owner summarizing inspections, maintenance, repairs and any corrective actions taken. The log will include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean-out of any sediments or debris, the location where the sediment and debris was disposed after removal will be indicated. Sample Inspection and Maintenance Logs for each stormwater BMP are enclosed. Additionally, invoices and other documentation of performance of maintenance activities (e.g., sediment disposal) shall be kept by the Owner or the legally authorized representative. The documentation will be kept on file.

The site supervisor shall be responsible for ensuring that the scheduled tasks as described in this plan are appropriately completed and recorded in the Maintenance Log. Accurate records of all inspections, routine maintenance and repairs shall be documented and these records shall be available for inspection by members of the City of Dover Engineering Department, or their designated agent, upon request.

1.3 CHANGES TO OPERATIONS & MAINTENANCE PLAN

The Owner(s) and/or Responsible Agent shall notify the designated Governing Authority of any changes to the Operations & Maintenance Plan. Amendments to the Plan include but are not limited to changes in ownership, changes in assignment of financial responsibility, change in responsible parties, and modifications to the procedures outlined herein. Changes to the Plan shall be recorded on the Amendment Log in **APPENDIX F** of this Manual.

2.0 INSPECTION & MAINTENANCE OF STORMWATER SYSTEMS

The Owner, Property Manager and maintenance staff will conduct the Operation and Maintenance program set forth in this document. The Owner or Property Manager will ensure that inspections and record keeping are timely and accurate, and that cleaning and maintenance are performed in accordance with the recommended frequency for each stormwater component. Inspection & Maintenance Log Forms (provided herein) shall include the date and the amount of the last significant storm event in excess of 2.5" of rain in a 24-hour period, physical conditions of the structures, depth of sediment in structures, evidence of overtopping or debris blockage and maintenance required of each structure.

The following areas, facilities and measures will be inspected by the Owner or Property Manager and maintained as specified below. Identified deficiencies will be corrected. Accumulated sediments and debris will be properly handled and disposed of off-site, in accordance with local, state, and federal guidelines and regulations.

2.1 DEEP SUMP CATCH BASINS

Structures: Five (5) Deep Sump Catch Basins

Description: Inspect or clean deep sump catch basins at least two (2) times per year and at the end of the foliage and snow-removal seasons. Sediments must also be removed annually or whenever the depth of deposits is greater than or equal to 50% the sump depth.

Maintenance Equipment: Vacuum trucks are the preferred method of cleaning as they remove trapped sediment and supernatant more efficiently than alternative methods such as clamshells. Vacuuming is a more time efficient process and is less likely to snap the cast iron hood within the deep sump catch basin. Alternative measures may be utilized at the discretion of the responsible party with prior approval. Precautions shall be taken to maintain the integrity of the oil trapping hoods during cleaning. Dispose of removed catch basin debris in accordance with NHDES regulation.

Maintenance Access: Access to the Deep Sump Catch basins shall be provided via the associated frame and grate. Inlet grate shall be constructed of a durable material and git tightly so as to not be dislodged by traffic however the grate must not be welded to the frame in order to provide access for maintenance personnel.

Inspection & Maintenance Summary: The table below provides a summary of inspection and maintenance actions and required frequency for Deep Sump Catch Basins:

TABLE 1: DEEP SUMP CATCH BASIN GENERAL MAINTENANCE SCHEDULE

Frequency	Operation & Maintenance Activity
• Minimum two times per year • At the end of the foliage & snow removal seasons • After Street Sweeping	Deep Sump Catch Basin Inspection • Inspect inflow and outflow pipes for leaking, cracks, clogging, or other forms of damage or indication of malfunction. • Inspect condition of frame and grate and trap hood. • Inspect overall structure for structural integrity, cracks, settlement, leaking, sediment accumulation.
• Annually at minimum • At the end of the foliage & snow removal seasons • When sediment accumulation is 50% of depth from lowest pipe invert to bottom of unit. • As needed after Street Sweeping	Preventive Maintenance Actions • Clean units / remove accumulated sediment. • Sediment and/or floatable pollutants shall be pumped from the basin and disposed of at an approved offsite facility in accordance with all applicable regulations. • During colder periods, catch basin grates must be kept free of snow and ice. • During warmer periods, catch basin grates must be kept free of leaves, litter, sand and other debris. • More frequent sweeping of paved surfaces will result in less accumulation of sediment in catch basins.
• Promptly as Needed	Corrective Maintenance Actions • Notify Owner of any structural damage or other indication of malfunction and of all system repairs needed in a timely manner. • Perform corrective maintenance activities as required on applicable system components in accordance with all applicable local and manufacturer recommendations. Responsible party shall thoroughly document all required and completed corrective actions including repair and replacement of system components.

2.2 ABOVEGROUND INFILTRATION BASIN

Structures: Aboveground Infiltration Basins **(Basin B-1)**

Description: Infiltration basins are prone to clogging and failure, so aggressive and timely maintenance is required. Entirety of contributing drainage area must be fully stabilized prior to placing infiltration basin into service. Once the basin is in use, inspect it after every major storm for the first few months to ensure it is stabilized and functioning properly and if necessary, take corrective action. Note how long water remains standing in the basin after a storm; should standing water remain within the basin after 72 hours, corrective measures may be required to ensure functionality of system. If the ponding is due to clogging, immediately address the reasons for the clogging (such as upland sediment erosion, excessive compaction of soils, or low spots). Thereafter, inspect the infiltration basin at least twice per year and after every storm exceeding 2.5 inches in 24 hours. Important items to check during the inspection include but are not limited to: Signs of differential settlement, cracking, erosion, leakage in the embankments, invasive growth on the embankments, condition of riprap outlet protection, condition of inflow & outflow structures, and sediment accumulation.

At least twice a year, mow the buffer area, side slopes, and basin bottom. Remove grass clippings and accumulated organic matter to prevent an impervious organic mat from forming. Remove trash and debris at the same time. Use deep tilling to break up clogged surfaces and revegetate immediately.

Remove sediment from the basin as necessary but wait until the floor of the basin is thoroughly dry. Use light equipment to remove the top layer so as to not compact the underlying soil. Deeply till the remaining soil and revegetate as soon as possible. Inspect and clean pretreatment devices associated with basin at least twice a year.

Maintenance Equipment: Instruments to perform visual inspection and, if required, remediation, of vegetative health, equipment to pump stormwater from the basin in the event of maintenance, vacuum truck and hose for removal of sediment from basin bottom, and necessary safety equipment. Lightweight machinery shall be used to the maximum extent practicable to protect underlying soils from compaction.

Maintenance Access: Access to Infiltration Basin B-1 is provided via the drive aisle adjacent to the system.

Inspection & Maintenance Summary: The table below provides a summary of inspection and maintenance actions and required frequency for Aboveground Infiltration Basins:

TABLE 2: ABOVEGROUND INFILTRATION BASIN GENERAL MAINTENANCE SCHEDULE

Frequency	Operation & Maintenance Activity
• Twice per year minimum • Following any rainfall event exceeding 2.5 inches in 24-hours	Infiltration Basin Inspection • Inspect soil and infiltration functionality. Ensure no standing water remains within the basin after 72 hours. • Inspect basin for signs of settlement, sediment accumulation, and erosion of side slopes or basin bottom. • Inspect health of vegetation and ensure no invasive species have taken root. • Inspect inflow & outflow devices for leaking, cracks, clogging, or other forms of damage or indication of malfunction. • Inspect embankment for signs of tree growth, leakage, erosion or settling.
• Twice per year minimum	Preventive Maintenance Actions • Mow/rake buffer area, side slopes and basin bottom. • Remove silt and sediment from basin as needed, generally when accumulation exceeds 1 inch. Wait until floor of basin is thoroughly dry prior to removal and utilize light equipment so as to not compact underlying soil. • Remove trash, debris, and other obstructions. • Remove grass clippings & accumulated organic matter. • Use deep tilling to break up clogged surfaces and revegetate immediately. • Remove and replace dead vegetation. • Stabilize eroded areas and repair damage to embankment as required. • Remove invasive vegetation as needed.
• Twice per year minimum • Following any rainfall event exceeding 2.5 inches in 24-hours	Inspect & Clean Pretreatment Devices • Deep Sump Catch Basins o Refer to Section 2.1 of this Plan for specific means and methods of operations & maintenance of deep sump catch basins.
• Promptly as Needed	Corrective Maintenance Actions • Notify Owner of any structural damage or other indication of malfunction and of all system repairs needed in a timely manner. • Perform corrective maintenance activities as required on applicable system components in accordance with all applicable recommendations. Responsible party shall thoroughly document all required and completed corrective actions including repair and replacement of system components.

2.3 POROUS PAVEMENT

Structures: Porous Asphalt **(Basin PV-1)**

Description: Porous paving systems are prone to clogging so aggressive and timely maintenance with jet washing and vacuum street sweeps is required. Care must be taken in batching and placing porous asphalt to ensure adequate infiltration capabilities. Particular care must be taken during construction to assure that preparation of subgrade, placement of aggregates and installation of pavements meet design specifications. Porous asphalt should be cleaned 2-4 times per year with the use of a vacuum sweeper. Power washing may be required prior to vacuum sweeping to dislodge trapped particles. Major clogging may necessitate replacement of pavement surface, and possibly filter course and sub-base course. No winter sanding of permeable asphalt is permitted and salt for ice control shall be minimized as much as feasible. Sanding and material stockpiles are prohibited to be located on porous pavement areas.

Maintenance Equipment: Porous paving systems shall be cleared of accumulated sediments through the use of a vacuum sweeper. Power washing may be required prior to vacuum sweeping to dislodge trapped particles. Precautions shall be taken to maintain the structural integrity of the system and associated internal equipment during cleaning.

Maintenance Access: Access to the subsurface infiltration basin shall be provided via the surface of the system.

Inspection & Maintenance Summary: The table below provides a summary of inspection and maintenance actions and required frequency for Porous Pavement Systems:

TABLE 3: POROUS PAVING GENERAL MAINTENANCE SCHEDULE

Frequency	Operation & Maintenance Activity
• 2-4 Times per Year	Infiltration Basin Inspection • Inspect annually for pavement deterioration or spalling. • Inspect for sediment, debris, trash, organic matter and other obstructions. • Inspect soil and infiltration functionality. Ensure no standing water remains within the stone reservoir after 72 hours. • Inspect internal components for signs of damage or loss of functionality.
• 2-4 Times per Year	Preventive Maintenance Actions • Remove trash, debris, organic matter and other obstructions. • Remove and replace degraded perimeter stone. • Repair damage to components as required. • Clean with vacuum sweeper and power washing as needed. • Never reseal or repave with impermeable materials. • Major clogging may necessitate replacement of pavement surface, filter course, or sub-base course.
• Promptly as Needed	Corrective Maintenance Actions • Notify Owner of any structural damage or other indication of malfunction and of all system repairs needed in a timely manner. • Perform corrective maintenance activities as required on applicable system components in accordance with all applicable local and manufacturer recommendations. Responsible party shall thoroughly document all required and completed corrective actions including repair and replacement of system components.

3.0 GENERAL SITE OPERATIONS & MAINTENANCE

3.1 ONSITE CONVEYANCE SYSTEM

STORM DRAIN PIPING

The proposed site storm drain system is comprised of a network of piping and structures discharging to the aboveground infiltration system.

- Sediments and hydrocarbons will be properly handled and disposed of off-site, in accordance with local, state and federal guidelines and regulations.

ROOF DRAIN LEADERS

Roof runoff from the proposed bank building is directed to the proposed conveyance system via roof leaders and ultimately to Basin B-1. The Property Owner shall be responsible for maintenance of all material associated with roof leaders.

- Perform routine roof drain inspections and cleanings multiple times per year as needed and at the end of the foliage and snow removal seasons.
- Keep roofs clean and free of debris.
- Keep roof drainage systems clear.
- Keep roof access limited to only those responsible for maintenance and cleaning.
- Keep gutters clear of leaves and debris.

3.2 VEGETATED AREAS

The maintenance of vegetated areas is essential in maintaining the functionality of the stormwater management system. This includes the health/density of vegetative cover and activities such as the application and disposal of lawn and garden care products, disposal of leaves and yard trimmings and proper aeration of soils.

It is the responsibility of the Property Owner to coordinate Landscape Maintenance of the onsite open space areas. Post-construction conditions shall incorporate a mix of proposed landscape features and open space. This Plan is inclusive of all vegetation, both proposed and any existing vegetation that remains in post-development conditions. At a minimum, the following maintenance and operations requirements shall met be during and after construction period:

- Inspect slopes and embankments early in the growing season to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. If erosion is evident, armor the area with an appropriate lining or riprap stone.
- Inspect planted areas on a semi-annual basis and remove any litter.
- Maintain planted areas adjacent to pavement to prevent soil washout.
- Immediately clean any soil deposited on pavement.
- Re-seed bare areas; install appropriate erosion control measures when native soil is exposed, or erosion channels are forming.
- Plant alternative mixture of grass species in the event of unsuccessful establishment.
- The grass vegetation should be cut to a height between three and four inches.
- Pesticide/Herbicide Usage – No pesticides are to be used unless a single spot treatment is required for a specific control application unless approved and applied by a licensed professional.
- No pesticides or herbicides are allowed within the 100' adjacent upland resource area property without prior approval of the Governing Authority unless approved and applied by a licensed professional.
- Fertilizer usage should be avoided. If deemed necessary, fertilizer may only be of the low nitrogen and phosphorous variety. Fertilizer may be used to begin the establishment of vegetation in bare or damaged areas but should not be applied on a regular basis unless necessary.
- Fertilizer applications shall be limited to the spring and early fall and applied per the manufacturers' specifications. Nitrogen content shall not exceed 25% with ratios for Nitrogen, Phosphorus, and Potassium at 3-1-2 or 3-1-1. It is also recommended that at least 30%-50% of total nitrogen be slow release.
- Annual application of compost amendments and aeration are recommended.

3.3 MAINTENANCE OF STREETS & PARKING AREAS

Roadways with curbs and catch basins must be swept at a minimum of once per year. Roadways with curbs and catch basins that discharge to nitrogen or phosphorus impaired waters, or their tributaries are swept at a minimum of twice per year, once in the spring and once in the fall. Sweeping on rural uncurbed roads and parking lots with no catch basins must be conducted on an as-needed basis. All street sweepings collected must be disposed of. The responsible party may temporarily store street sweepings in labor yards, but street sweepings must be disposed of offsite in a reasonable timeframe. Street sweepings may not be disposed of on parking lots or lands.

The following minimum maintenance measures shall be implemented:

- Sweep or vacuum standard asphalt pavement areas with a rotary brush sweeper (or another method approved by licensed professional) and properly dispose of removed material.

- Minimum recommended sweeping schedule:
    - October / November
    - April / May
    - More frequent sweeping of paved surfaces will result in less accumulation in catch basins, less cleaning of subsurface structures, and less disposal costs.
- Check dumpster areas frequently for spillage and/or pavement staining and clean, as necessary.
- No coal-tar, petroleum-based, or other parking lot "sealants" are permitted to be used on-site unless approved by local authority. Normal maintenance activities intended to extend the life expectancy of the pavement surfaces including the use of bitumen asphalt to seal developing cracks, asphalt repair are not subject to this special condition.

The following street and parking lot sweeping procedures shall be performed to reduce the discharge of pollutants:

Sweeping

- Street sweeping will be conducted in dry weather. Sweeping will not be conducted during or immediately after rainstorms.
- Dry cleaning methods will be used whenever possible with the exception of very fine water spray for dust control. Avoid wet cleaning or flushing of the pavement.
- When necessary, parking bans will be enacted to facilitate sweeping on busy streets.
- More frequent sweeping of paved surfaces will result in less accumulation in catch basins. Sweeping will be conducted in a manner that avoids depositing debris into storm drains. Deep sump catch basins shall be inspected and/or cleaned as needed after street sweeping is completed in accordance with the procedures set forth in this Manual.
- Sweeping shall generally be conducted with a vacuum sweeper, however alternative sweeping equipment (mechanical, regenerative air, vacuum filter, tandem sweeping) may be selected depending on the level of debris. Brush alignment, sweeper speed, rotation rate, and sweeping patterns will be set to optimate levels to manage debris.
- Sweeping equipment will be routinely inspected and maintained to reduce the potential for leaks.

Disposal

- The reuse of sweepings is permitted by NHDES. If street sweepings are reused, e.g. as anti-skid material or fill in parking lots), they will be properly filtered to remove solid waste, such as paper or trash, in accordance with their intended reuse. All reuse and/or disposal of street sweepings will be managed in accordance with current NHDES policies and regulations.

- Street sweepings can be stored for up to one year in approved temporary storage areas. Storage areas will be protected to prevent erosion and runoff and should be located away from wetland resource areas and buffer zones, surface water, or groundwater.
- Sweepings are classified as solid waste and are disposed of at solid waste disposal sites.

3.4 WINTER MAINTENANCE AND SNOW & ICE MANAGEMENT

Snow and ice removal shall be performed by a contractor certified by the "Green SnowPro" Program, or an approved equivalent. Snow and ice removal shall follow Best Management Practices for the application of deicing materials. The contractor shall maintain a deicing log to track the amount and type of deicing material applied to the site. A sample deicing log is included within **APPENDIX D** of this Manual. As the project is located within a groundwater protection district, the use of sodium chloride is strictly prohibited.

Snow and ice operations on state-owned roads and parkways must be coordinated with NHDOT. NHDOT documents their extensive snow and ice control program every 5 years in an Environmental Status and Planning Report (ESPR). NHDOT's Operational Guidelines for Snow and Ice Control Operations includes extensive measures to limit chemical usage, improve road clearing efficiency, and protect environmental resources. NHDOT's latest Operational Guidelines for Snow and Ice Control Operations can be found here: https://www.dot.nh.gov/documents/operational-guidelines-snow-removal-and-ice-control-operations.

The following winter maintenance procedures shall be performed to reduce the discharge of pollutants:

- Optimize sand and/or chemical application rates through the use, where practicable, of automated application equipment (e.g., zero velocity spreaders), anti-icing and pre-wetting techniques. Implementation of pavement management systems, and alternate chemicals. Maintain records of the application of sand, anti-icing and/or de-icing chemicals to document the reduction of chemicals to meet established goals.
- Prevent exposure of de-icing product (sand or alternative products) storage piles to precipitation by enclosing or covering the storage piles. Implement good housekeeping, diversions, containment, or other measures to minimize exposure resulting from adding to or removing materials from the pile. Store piles in such a manner as not to impact surface water resources, groundwater resources, recharge areas, and wells.
- The MS4 permit prohibits snow disposal into waters of the United States. Snow disposal activities, including selection of appropriate snow disposal sites, will adhere to the New Hampshire Department

of Environmental Services Operational Guidelines for Snow and Ice Control Operations (Effective Date: November 17, 2021), located at: https://mm.nh.gov/files/uploads/dot/remote-docs/operational-guidelines-for-snow-removal-and-ice-control-operations.pdf

- NHDES Snow Disposal Guidance for ice melting operations and skating rinks shall be followed.
- No winter sanding of permeable pavement onsite is permitted.

Snow storage and removal shall be conducted in accordance with the following minimum requirements:

- Snow will be stored in areas that do not block or hinder access to any structure or accessory facility.
- Snow shall not be stored on areas of porous pavement.
- Snow storage areas will be managed to prevent blockage of storm drain catch basins, stormwater drainage channels, porous pavement areas and on-street parking. Snow combined with sand and debris may block a storm drainage system, diminishing the drainage capacity of the system and causing localized flooding.
    - Storm drain catch basins and stormwater management systems shall be inspected and cleaned as needed at the end of the snow removal season in accordance with the procedures outlined in this Plan.
- Sand and debris deposited on vegetated or paved areas shall be cleared from the site and properly disposed of at the end of the snow season, no later than springtime.
- Snow shall not be dumped into any waterbody, pond, or wetland resource area.
- Snow shall not be dumped in sanitary landfills and gravel pits.

4.0 INVASIVE SPECIES MANAGEMENT

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.

Should invasive species be encountered on the development site at any point in time, it is essential they are managed promptly and in accordance with applicable guidelines. Invasive species that are not properly managed and disposed of will continue to burden local ecosystems and can cause significant and long-lasting damage. Methods for management and disposal of non-native invasive species can be found in **APPENDIX G** of this Manual.

5.0 INSPECTION & LOGS OF PREVENTATIVE AND CORRECTIVE MEASURES

The person responsible for maintenance shall maintain a detailed log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders.

A maintenance plan shall include a schedule of regular inspections and tasks, and detailed logs of all preventative and corrective maintenance performed on the stormwater management measure, including all maintenance-related work orders. The person with maintenance responsibility must retain and, upon request, make available the maintenance plan and associated logs and other records for review by a public entity with administrative, health, environmental, or safety authority over the site.

All inspection and maintenance activities shall be recorded to document frequency of inspection and maintenance, and implementation of corrective action. All regularly scheduled inspections, inspections following major storm events, maintenance activities, and repairs shall be recorded. General Inspection and Maintenance Logs for the Stormwater BMPs can be found in **APPENDIX E** of this Plan. The enclosed general log forms shall be considered a minimum standard for recording purposes; the Operator and Inspection/Maintenance Personnel are strongly encouraged to supplement the Log with additional notes and photos.

6.0 ANNUAL EVALUATION OF THE EFFECTIVENESS OF THE PLAN

The person responsible for maintenance shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed. The responsible party should evaluate the effectiveness of the maintenance plan by comparing the maintenance plan with the actual performance of the maintenance. The items to evaluate may include, but not limited to:

- Whether the inspections have been performed as scheduled;
- Whether the preventive maintenance has been performed as scheduled;
- Whether the frequency of preventative maintenance needs to increase or decrease;
- Whether the planned resources were enough to perform the maintenance;
- Whether the repairs were completed on time;
- Whether the actual cost was consistent with the estimated cost;
- Whether the inspection, maintenance, and repair records have been kept.

If actual performance of those items has been deviated from the maintenance plan, the responsible party should find the causes and implement solutions in a revised maintenance plan. Should modifications to the Plan be deemed necessary to ensure longevity of the site systems, the changes should be noted within the enclosed Amendment Log in **APPENDIX F**.

APPENDIX A
PROJECT FIGURES

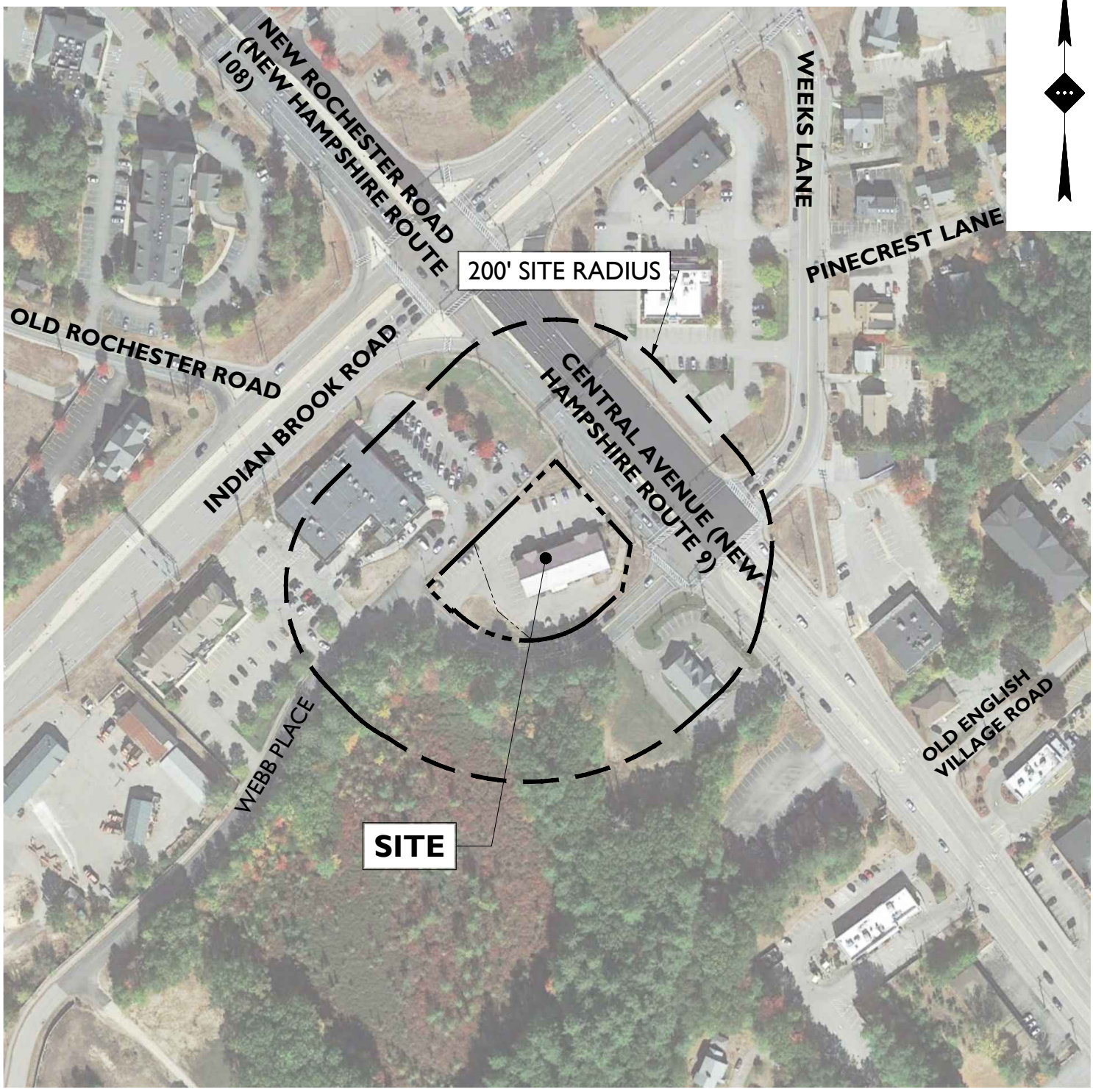
INVENTORY

FIGURE 1: USGS LOCATION MAP

FIGURE 2: AERIAL MAP

FIGURE 3: TAX & ZONING MAP

FIGURE 4: FEMA MAP



AERIAL MAP

200' 0' 200' 400'

GRAPHIC SCALE IN FEET

1"= 200'

SOURCE: GOOGLE EARTH PRO. IMAGE DATED 07/22/2022

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY. NEW HAMPSHIRE

DRAWN BY:	LMR
CHECKED BY:	MM
DATE:	06/08/2023
SCALE:	1"=200'
PROJECT ID:	BOS-220137

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Rutherford, NJ · New York, NY · Boston, MA
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com

1 Beacon Street, 15 Floor, Boston, MA 02108
Phone 617.203.2076

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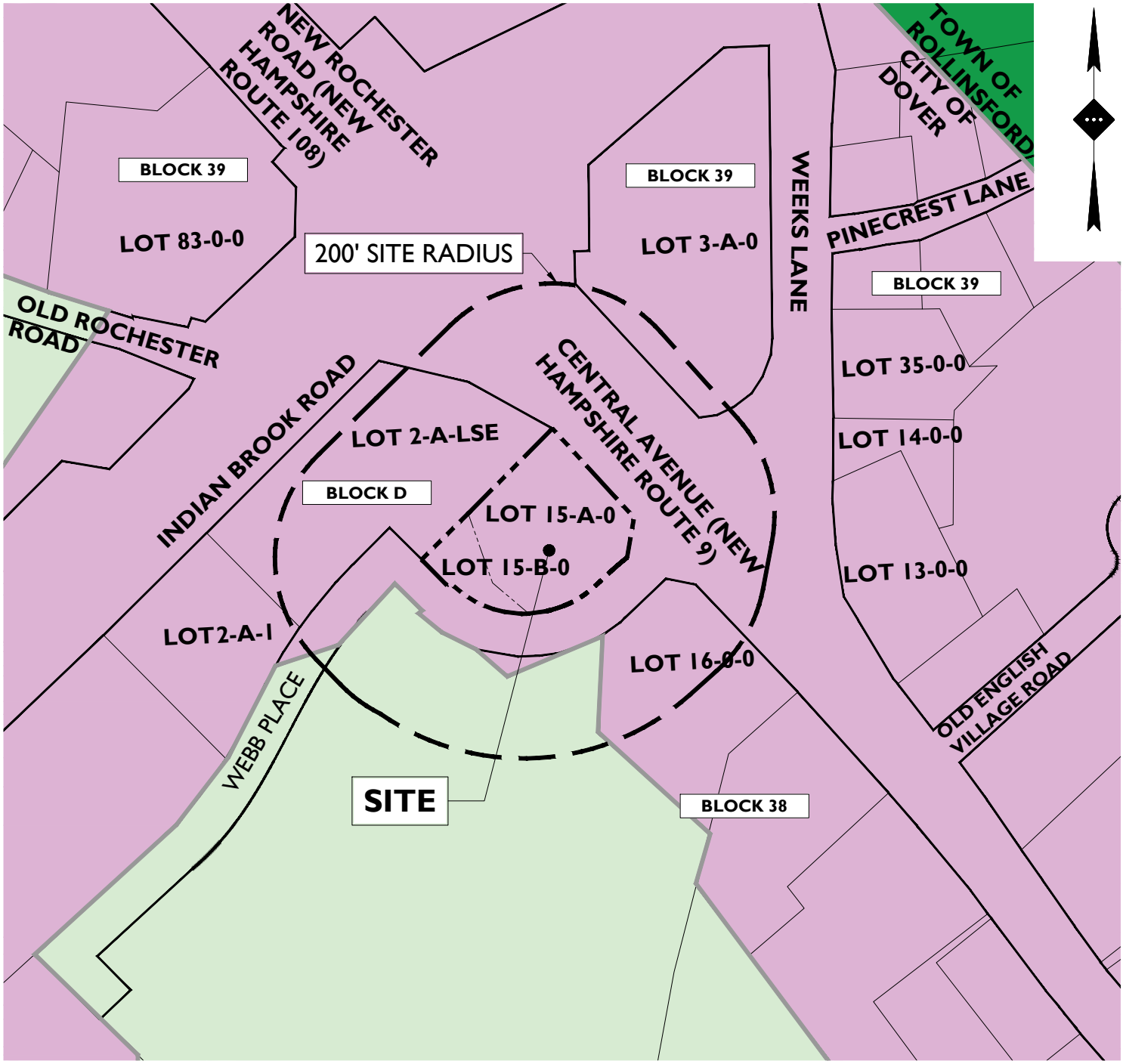

ZONING LEGEND

DOVER: ZONE C COMERCIAL | ZONE R-12 MEDIUM-DENSITY RESIDENTIAL | ROLLINSFORD: ZONE U/R URBAN RESIDENTIAL

TAX & ZONING MAP

200' 0' 200' 400'

GRAPHIC SCALE IN FEET

1"= 200'

SOURCE: TOWN OF ROLLINSFORD TAX MAP DATED 4/1/2021 AND TOWN OF ROLLINSFORD ZONING MAP DATED 11/24/2021, CITY OF DOVER ZONING MAP DATED 11/24/2021 AND CITY OF DOVER INDEX MAP DATED 3/21/2018, CITY OF SOMERSWORTH ZONING MAP DATED 12/1/2021 AND CITY OF SOMERSWORTH TAX PARCELS MAP DATED 9/1/2022

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY. NEW HAMPSHIRE

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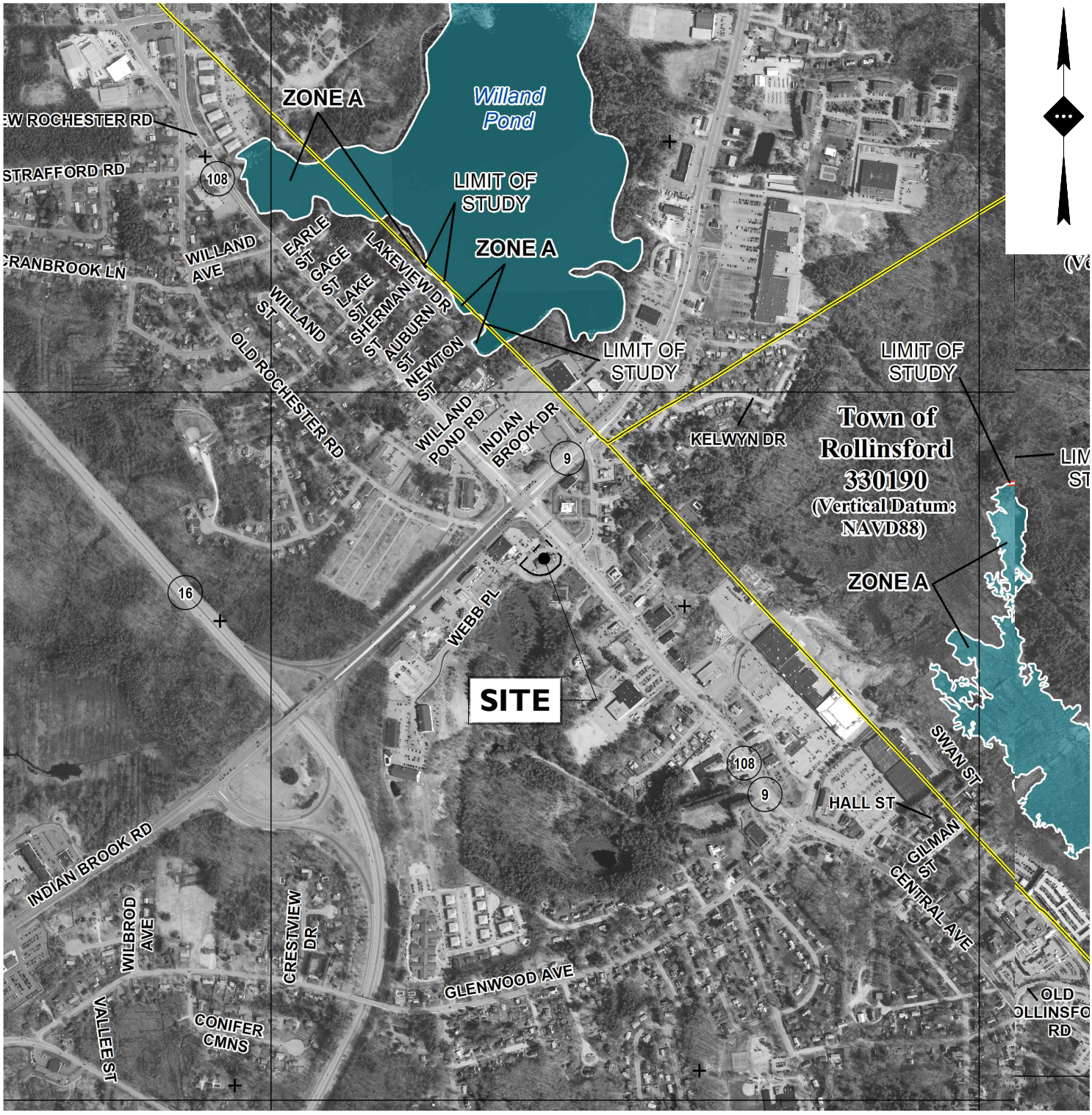

FEMA EFFECTIVE MAP

1000' 0' 1000' 2000'

GRAPHIC SCALE IN FEET

1"= 1000'

SOURCE: FLOOD INSURANCE RATE MAP, TOWN OF ROLLINSFORD AND CITY OF DOVER, NEW HAMPSHIRE, 33017C0310E & 33017C0330E, DATED 9/30/2015

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY. NEW HAMPSHIRE

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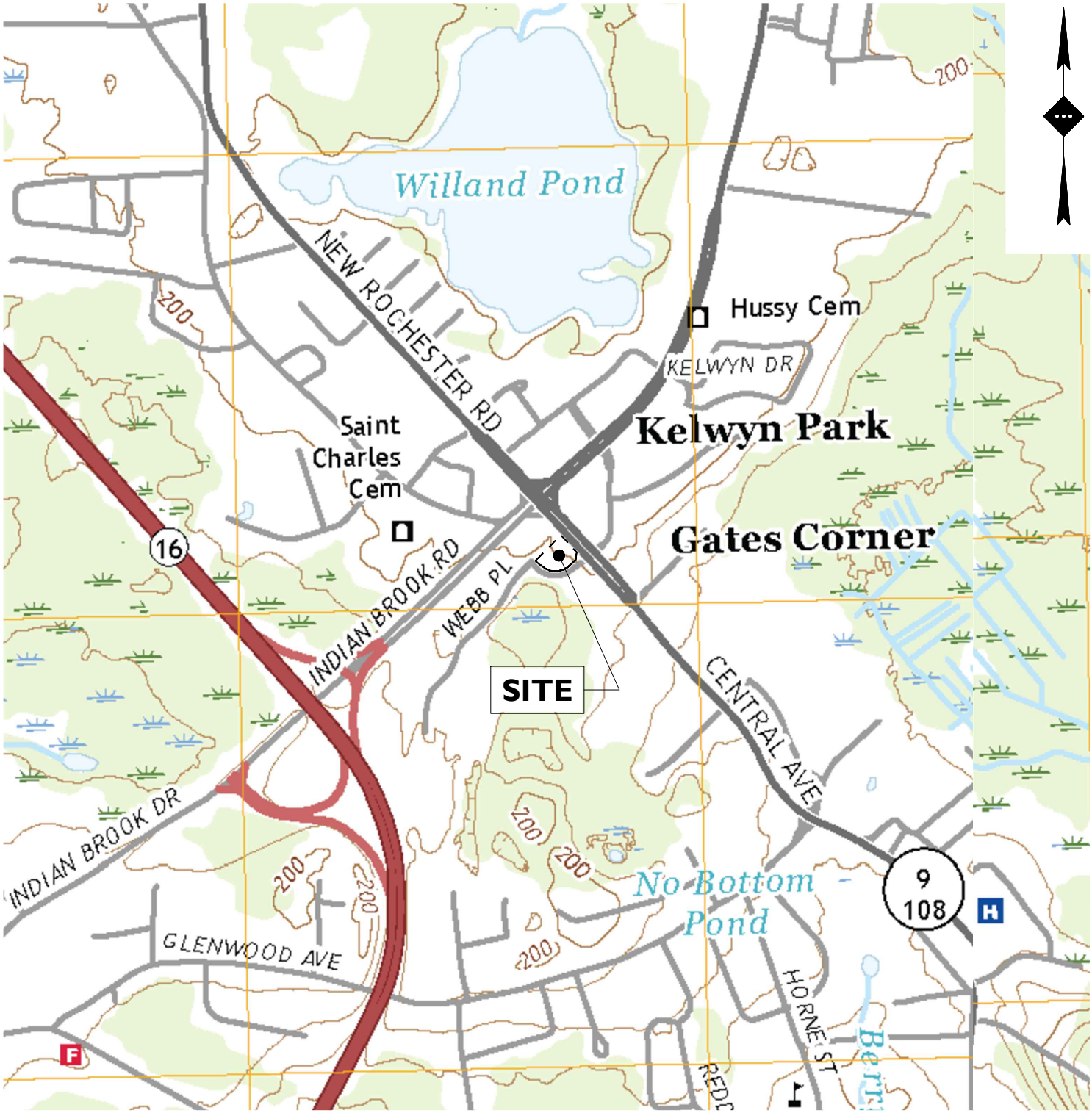

USGS QUADRANGLE MAP

1000' 0' 1000' 2000'

GRAPHIC SCALE IN FEET

1"= 1000'

SOURCE: UNITED STATES GEOLOGICAL SURVEY MAP, DOVER EAST QUADRANGLE & DOVER WEST QUADRANGLE, NEW HAMPSHIRE, 7.5 MINUTE SERIES, DATED 2021

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY. NEW HAMPSHIRE

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APPENDIX B
SITE PLAN SHEETS

INVENTORY

FIGURE 1: SITE PLAN

FIGURE 2: STORMWATER MANAGEMENT PLAN

FIGURE 3: SOIL EROSION & SEDIMENT CONTROL PLAN

FIGURE 4: LANDSCAPING PLAN

LAND USE AND ZONING

TAX MAP 38, LOTS 15A & 15B

COMMERCIAL DISTRICT (C) - SECONDARY GROUNDWATER PROTECTION DISTRICT

PROPOSED USE

BANK WITH DRIVE-THRU ATM — PERMITTED USE

ZONING REQUIREMENT	REQUIRED	EXISTING	PROPOSED
MINIMUM LOT AREA	20,000 SF	42,879 SF (0.98 AC)	42,879 SF (0.98 AC)
MAXIMUM BUILDING COVERAGE	50%	15.0% (6,445 SF)	7.8% (3,330 SF)
MINIMUM FRONTAGE	125 FT	552.3 FT	552.3 FT
MINIMUM FRONT YARD SETBACK	30 FT	28.2 FT (EN)	50.0 FT
MINIMUM ABUT A STREET SETBACK	30 FT	24.0 FT (EN)	99.5 FT
MINIMUM SIDE YARD SETBACK	12 FT	N/A	N/A
MINIMUM REAR YARD SETBACK	15 FT	65.0 FT	39.4 FT
MINIMUM ACCESSORY SETBACK	10 FT	N/A	48.5 FT
MINIMUM PRINCIPAL BUILDING HEIGHT	40 FT	< 40 FT	26.8 FT
MINIMUM PARKING SETBACK	25 FT	3.8 FT (EN)	26.4 FT
MAXIMUM LOT COVERAGE	N/S	74.7% (32,020 SF)	52.5% (22,508 SF)

(EN) EXISTING NON-CONFORMITY

OFF-STREET PARKING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 153-14.D.(1)	MAXIMUM NUMBER OF PARKING SPACES: RETAIL/SERVICE USE: 1 SPACE PER 275 SF OF GLA (3,330 SF x (1 / 275)) = 12 SPACES	20 SPACES *
§ 153-14.D.(2)	MINIMUM NUMBER OF BICYCLE RACKS: 5% OF MAXIMUM PARKING SPACES PER TABLE (20 SPACES X 0.05) = 1 BIKE RACK	2 BIKE RACKS
§ 153-14.D.(3) & § 153-14.D.(5)	MINIMUM NUMBER OF ELECTRIC VEHICLE CHARGING SPACES: 2% OF NEW PARKING SPACES + 2 FOR LOTS WHERE A CONDITIONAL USE PERMIT IS REQUESTED (20 SPACES X 0.02 + 2 SPACES) = 3 EV CHARGING SPACES	3 EV SPACES
§ 153-14.D.(6).(a)	PARKING AREA DIMENSIONAL REQUIREMENTS: MINIMUM STALL WIDTH: 9 FT MINIMUM STALL LENGTH: 18 FT MINIMUM AISLE WIDTH: 22 FT	9 FT 18 FT 24 FT
§ 153-14.D.(6).(b)	MINIMUM WIDTH OF ACCESS AISLES: 24 FT	24 FT
§ 153-14.H.(1)	NUMBER OF DRIVEWAYS PER LOT: 1 DRIVEWAY PER 125 FT OF ROAD FRONTAGE: (552.3 FT / 125 FT) = 4 DRIVEWAYS MINIMUM DRIVEWAY SPACING FROM PUBLIC STREET INTERSECTIONS: (IN A 35 MPH POSTED SPEED LIMIT): 155 FT MINIMUM SPACING BETWEEN DRIVEWAYS: (IN A 35 MPH POSTED SPEED LIMIT): 155 FT	2 DRIVEWAYS 161 FT 173 FT

(*) A CONDITIONAL USE PERMIT IS REQUESTED FOR THE INCREASE IN PARKING SPACES, PER 153-14.D.(5).

SIGNAGE REQUIREMENTS

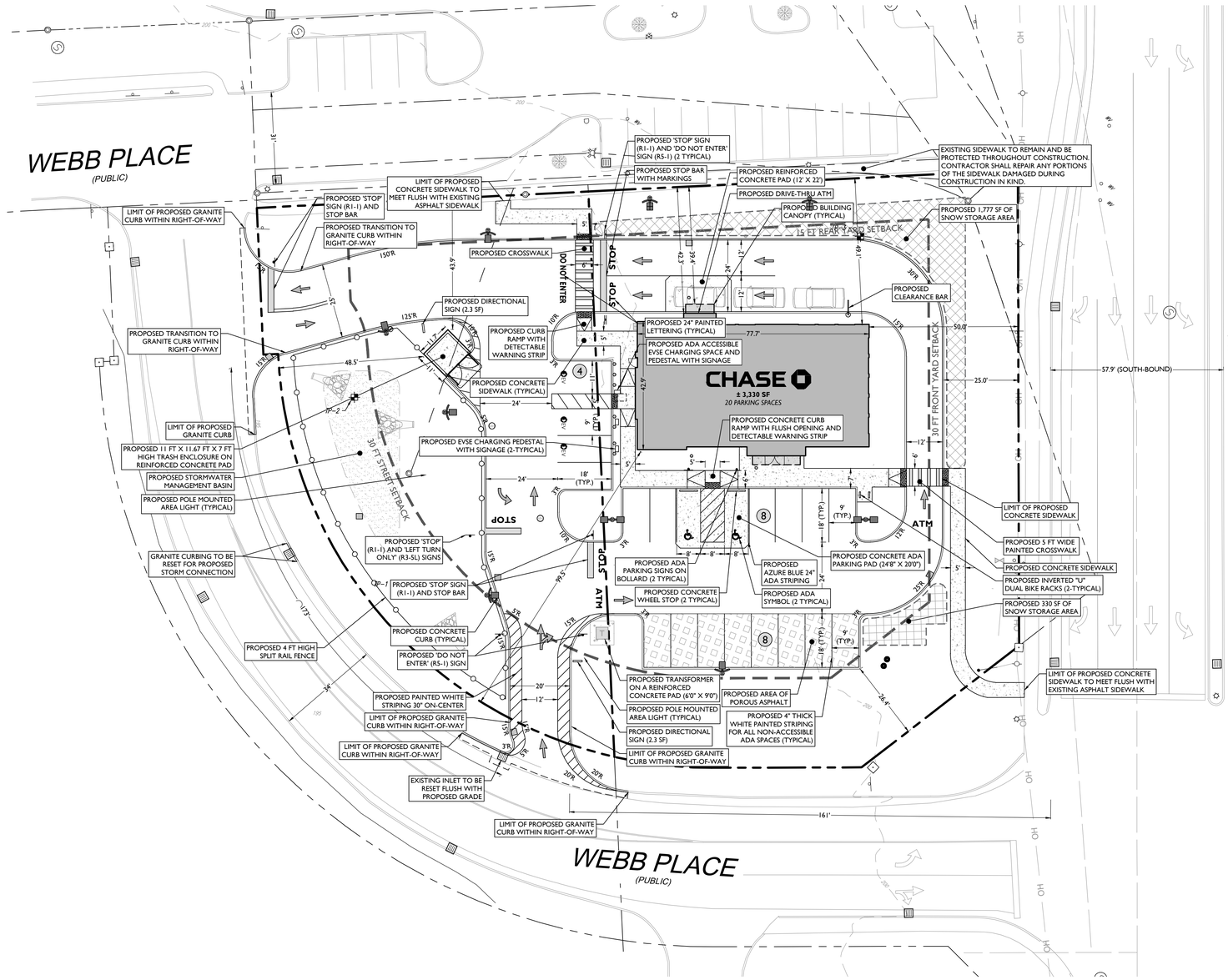
SECTION	REQUIRED (C DISTRICT)	PROPOSED
FOR ALL SIGNS	GENERAL SIGN REQUIREMENTS: TOTAL NUMBER OF SIGNS PERMITTED: 2 SIGNS PER LOT	3 SIGNS * (V)
	TOTAL SIGN AREA PERMITTED: 2 SF PER FOOT OF LOT FRONTAGE = (2 x 552 LF) = 1,104 SF	164.2 SF
FREESTANDING SIGNS	FREESTANDING SIGN REQUIREMENTS: MAXIMUM SIGN AREA = 60 SF	36.7 SF
	MAXIMUM QUANTITY: 1 SIGN PER SIDE OF FRONTAGE	1 SIGN
	PROPERTY SETBACK = 10 FT	10 FT
WALL SIGNS	WALL SIGN REQUIREMENTS: MAXIMUM SIGN AREA = 1 SF PER FOOT OF BUILDING FRONTAGE: (78.8 LF OF BUILDING FRONTAGE)= 78.8 SF SIGN AREA (43.0 LF OF BUILDING FRONTAGE)= 43 SF SIGN AREA	36.9 SF 36.9 SF

(V) VARIANCE
(*) EXCLUDES DIRECTIONAL SIGNS

SNOW STORAGE CALCULATION

- PROPOSED PARKING LOT AREA = 16,912 SF
- REQUIRED SNOW STORAGE AREA = (16,912 SF x 0.10) = 1,691 SF
- PROPOSED SNOW STORAGE AREA = 2,107 SF

EXCESS SNOW TO BE REMOVED FROM SITE IF ON-SITE STORAGE AREAS ARE FILLED.



CITY OF DOVER NOTES

1. THE INTENT OF THIS PLAN IS TO CONSTRUCT A PROPOSED FREESTANDING BANK ON THE SUBJECT PROPERTY IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
2. OWNERS OF RECORD ARE:
   DOVER RETAIL MANAGEMENT LLC
   30200 TELEGRAPH ROAD
   BINGHAM FARMS, MICHIGAN 48025

   AUTHORIZED SIGNATURE
3. THE PARCELS ARE SHOWN AS LOTS NO. 15A & 15B, MAP 38 OF THE CITY OF DOVER TAX ASSESSOR'S MAPS.
4. THE SUBJECT PARCELS CONTAIN 0.98 ACRES OR 42,879 SQ. FT. AREA OF LAND.
5. TITLE REFERENCES FOR THE PROJECT PARCELS IS THE STRAFFORD COUNTY REGISTRY OF DEEDS, BOOK NO. 880, PAGE NO. 332; BOOK NO. 4917, PAGE NO. 381; BOOK NO. 3413, PAGE NO. 90; AND BOOK NO. 3413, PAGE NO. 94.
6. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY COLLIERS ENGINEERING DATED 12/23/2022.
   A. PLAN TITLED "RW REALTY INC. PLAN OF LOTS A & B PLAZA DRIVE, DOVER, NEW HAMPSHIRE", DATED APRIL 1981, DRAWN BY G. L. DAVIS & ASSOCIATES, RECORDED IN THE S.C.R.D. PLAN NUMBER 17E-8.
   B. PLAN TITLED "SUBDIVISION LOT LINE RELOCATION PLAN FOR SOUTHWEST EQUITIES CORP", DATED JULY 2, 2001, DRAWN BY MILLETTE, SPRAGUE & COLWELL, INC. RECORDED IN THE S.C.R.D. PLAN NUMBER 67-11.
   C. PLAN TITLED "BOUNDARY LINE ADJUSTMENT PLAN, PRIME CIRCLE, LLC. & RW REALTY INC., DOVER, NEW HAMPSHIRE", DATED JUNE 14, 2006, DRAWN BY TRITECH CORP., RECORDED IN S.C.R.D. PLAN NUMBER 87-11.
   D. PLAN TITLED "BOUNDARY LINE ADJUSTMENT PLAN, PRIME CIRCLE LLC. AND RW REALTY INC., DOVER, NEW HAMPSHIRE", DATED JUNE 14, 2006, DRAWN BY TRITECH CORP., RECORDED IN THE S.C.R.D. PLAN NUMBER 87-12.
   E. PLAN TITLED "SUBDIVISION PLAN, PRIME CIRCLE, LLC., DOVER, NEW HAMPSHIRE", DATED FEBRUARY 3, 2006, DRAWN BY TRITECH CORP., RECORDED IN THE S.C.R.D. PLAN NUMBER 87-13.
   F. PLAN TITLED "ALTA-NSPS LAND TITLE SURVEY, PRIME CIRCLE, LLC., 11-17 WEBB PLACE, DOVER, NEW HAMPSHIRE, DATED MAY 3, 2017, DRAWN BY TRITECH CORP., RECORDED AT THE S.C.R.D. PLAN NUMBER 113-76.
   G. PLAN TITLED "PLANS OF PROPOSED FEDERAL AID URBAN SYSTEM PROJECT AND FEDERAL AID PRIMARY PROJECT STP-X-027-1(34), N.H. PROJECT NO. 10023-E", DATED SEPTEMBER 14, 1994, DRAWN BY CARON ENGINEERING INC. ON RECORD WITH THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION.
   H. PLAN TITLED SUBDIVISION/LOT LINE RELOCATION PLAN FOR SOUTHWEST EQUITIES CORP", DATED JULY 10, 2001, DRAWN BY MILLETTE, SPRAGUE & COLEWELL, INC. RECORDED IN THE S.C.R.D. PLAN NUMBER 67-12.
7. REFER TO SURVEY REFERENCED ABOVE FOR APPLICABLE RIGHT-OF-WAY, CONSERVATION, SLOPE, CONSTRUCTION, POWER LINE, CROSS TRAVEL, OR OTHER EASEMENTS.
8. REFER TO THE TABLE OF LAND USE & ZONING HEREON FOR CURRENT ZONING DIMENSIONAL AND DENSITY REQUIREMENTS.
9. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY COLLIERS ENGINEERING & DESIGN DATED 09/28/2023 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.
10. SUBJECT PARCEL IS NOT LOCATED WITHIN A FEDERALLY DESIGNATED FLOOD HAZARD AREA (COMMUNITY PANEL NUMBER 33017C0310E, EFFECTIVE DATE: SEPTEMBER 30, 2015).
11. AS-BUILT PLANS OF THE PROPOSED IMPROVEMENTS 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 PLAN COORDINATES NAD83 AND SHALL BE EXPRESSED IN FEET.
12. THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION AND TELEPHONE LINES SHALL BE UNDERGROUND THROUGHOUT THE SITE FOR WHICH DEVELOPMENT IS PROPOSED.
13. THE SUBJECT PARCE IS SERVED BY MUNICIPAL WATER AND SEWER.
14. 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.
15. 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.
16. 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.
17. ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS.
18. 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.
19. 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.
20. 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.
21. BUILDING ADDRESSES SHALL BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.
22. THE PROPOSED USE FOR THE SITE IS A BANK WITH A DRIVE-THRU ATM.
23. COMMERCIAL VEHICLE ROUTE DURING CONSTRUCTION SHALL CONFORM TO DOVER CITY CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR.
24. ANY FENCE TALLER THAN SEVEN FEET (7') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
25. 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
26. THE OWNER OF RECORD SHALL RECORD AT THE REGISTRY OF DEEDS DOCUMENTATION SUFFICIENT TO PROVIDE NOTICE TO ALL PERSONS/ENTITIES THAT MAY ACQUIRE ANY PROPERTY SUBJECT TO THE REQUIREMENTS AND RESPONSIBILITIES DESCRIBED IN THE APPROVED STORMWATER MANAGEMENT PLAN. THE NOTICE SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS FOR RECORDING CONTAINED IN RSA 477 AND 478. THE NOTICE NEED NOT SET FORTH THE REQUIREMENTS AT LENGTH, SO LONG AS IT IS SUFFICIENT TO PROVIDE NOTICE TO PROSPECTIVE PURCHASERS TO THE REQUIREMENTS FOR MAINTENANCE AND REPORTING.
27. FIRE DEPARTMENT ACCESS ROAD(S) SHALL BE INSTALLED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF FIRE APPARATUS IN ALL WEATHER CONDITIONS AT ALL TIMES.
28. EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 153-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.
29. TOPOGRAPHIC SURVEY PERFORMED BY COLLIERS ENGINEERING & DESIGN IN DECEMBER OF 2022 & SEPTEMBER OF 2023.
30. ELEVATIONS ARE BASED ON U.S.G.S. NVD 1988 DATUM.
31. A SECURITY SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 45, ARTICLE I, SECTION 45-2 OF THE CODE OF THE CITY OF DOVER.
32. APPROVED BACKFLOW PREVENTERS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.
33. 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.
34. 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.

SYMBOL	DESCRIPTION
	PROPERTY LINE
	SETBACK LINE
	SAWCUT LINE
	PROPOSED CURB
	PROPOSED FLUSH OPENING
	PROPOSED SIGNS / BOLLARDS
	PROPOSED BUILDING
	PROPOSED CONCRETE
	PROPOSED AREA LIGHT
	PROPOSED RETAINING WALL
	PROPOSED BUILDING DOORS
	PROPOSED FENCE
	PROPOSED POROUS ASPHALT
	PROPOSED SNOW STORAGE AREA

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY AND FAMILIARIZE THEMSELVES WITH THE EXISTING SITE CONDITIONS AND THE PROPOSED SCOPE OF WORK (INCLUDING DIMENSIONS, LAYOUT, ETC.) PRIOR TO INITIATING THE IMPROVEMENTS IDENTIFIED WITHIN THESE DOCUMENTS. SHOULD ANY DISCREPANCY BE FOUND BETWEEN THE EXISTING SITE CONDITIONS AND THE PROPOSED WORK THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. PRIOR TO THE START OF CONSTRUCTION.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ENSURE THAT ALL REQUIRED APPROVALS HAVE BEEN OBTAINED PRIOR TO THE START OF CONSTRUCTION. COPIES OF ALL REQUIRED PERMITS AND APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION.
3. ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS STONEFIELD ENGINEERING & DESIGN, LLC. AND IT'S SUB-CONSULTANTS FROM AND AGAINST ANY DAMAGES AND LIABILITIES INCLUDING ATTORNEY'S FEES ARISING OUT OF CLAIMS BY EMPLOYEES OF THE CONTRACTOR IN ADDITION TO CLAIMS CONNECTED TO THE PROJECT AS A RESULT OF NOT CARRYING THE PROPER INSURANCE FOR WORKERS COMPENSATION, LIABILITY INSURANCE AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE.
4. THE CONTRACTOR SHALL NOT DEVIATE FROM THE PROPOSED IMPROVEMENTS IDENTIFIED WITHIN THIS PLAN SET UNLESS APPROVAL IS PROVIDED IN WRITING BY STONEFIELD ENGINEERING & DESIGN, LLC.
5. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF CONSTRUCTION.
6. THE CONTRACTOR SHALL NOT PERFORM ANY WORK OR CAUSE DISTURBANCE ON A PRIVATE PROPERTY NOT CONTROLLED BY THE PERSON OR ENTITY WHO HAS AUTHORIZED THE WORK WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER OF THE PRIVATE PROPERTY.
7. THE CONTRACTOR IS RESPONSIBLE TO RESTORE ANY DAMAGED OR UNDERMINED STRUCTURE OR SITE FEATURE THAT IS IDENTIFIED TO REMAIN ON THE PLAN SET. ALL REPAIRS SHALL USE NEW MATERIALS TO RESTORE THE FEATURE TO ITS EXISTING CONDITION AT THE CONTRACTORS EXPENSE.
8. CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE SHOP DRAWINGS, PRODUCT DATA, AND OTHER REQUIRED SUBMITTALS FOR REVIEW. STONEFIELD ENGINEERING & DESIGN, LLC. WILL REVIEW THE SUBMITTALS IN ACCORDANCE WITH THE DESIGN INTENT AS REFLECTED WITHIN THE PLAN SET.
9. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
10. THE CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN THE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AUTHORITY AND SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF STREET OPENING PERMITS.
11. THE CONTRACTOR IS REQUIRED TO RETAIN AN OSHA CERTIFIED SAFETY INSPECTOR TO BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION & DEMOLITION ACTIVITIES.
12. SHOULD AN EMPLOYEE OF STONEFIELD ENGINEERING & DESIGN, LLC. BE PRESENT ON SITE AT ANY TIME DURING CONSTRUCTION, IT DOES NOT RELIEVE THE CONTRACTOR OF ANY OF THE RESPONSIBILITIES AND REQUIREMENTS LISTED IN THE NOTES WITHIN THIS PLAN SET.

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
4	03/14/2024	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
3	12/28/2023	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
2	9/15/2023	JJR	PER TECHNICAL REVIEW COMMITTEE COMMENTS
1	7/31/2023	JJR	ISSUED FOR REVIEW

NOT APPROVED FOR CONSTRUCTION

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SITE IMPROVEMENT PLAN

CHASE
PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-220137

TITLE: SITE PLAN

DRAWING: C-4

Z:\BOSTON\PROJECTS\2022\BOS-220137 CONSTATES - 13 WEBB PLACE, DOVER, NH\CAD\PLOT\PLOT-PLAN-STYLE.DWG

DRAINAGE AND UTILITY NOTES

1. THE CONTRACTOR TO PERFORM A TEST PIT PRIOR TO CONSTRUCTION (RECOMMEND 30 DAYS PRIOR) AT LOCATIONS OF EXISTING UTILITY CROSSINGS FOR STORMWATER IMPROVEMENTS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING.
2. CONTRACTOR SHALL START CONSTRUCTION OF STORM LINES AT THE LOWEST INVERT AND WORK UP-GRADIENT.
3. THE CONTRACTOR IS REQUIRED TO CALL THE APPROPRIATE AUTHORITY FOR NOTICE OF CONSTRUCTION/EXCAVATION AND UTILITY MARK OUT PRIOR TO THE START OF CONSTRUCTION IN ACCORDANCE WITH STATE LAW. CONTRACTOR IS REQUIRED TO CONFIRM THE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES IN THE FIELD. SHOULD A DISCREPANCY EXIST BETWEEN THE FIELD LOCATION OF A UTILITY AND THE LOCATION SHOWN ON THE PLAN SET OR SURVEY, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IMMEDIATELY IN WRITING.
4. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN A RECORD OF THE AS-BUILT LOCATIONS OF ALL PROPOSED UNDERGROUND INFRASTRUCTURE. THE CONTRACTOR SHALL NOTE ANY DISCREPANCIES BETWEEN THE AS-BUILT LOCATIONS AND THE LOCATIONS DEPICTED WITHIN THE PLAN SET. THIS RECORD SHALL BE PROVIDED TO THE OWNER FOLLOWING COMPLETION OF WORK.

EXCAVATION, SOIL PREPARATION, AND DEWATERING NOTES

1. THE CONTRACTOR IS REQUIRED TO REVIEW THE REFERENCED GEOTECHNICAL DOCUMENTS PRIOR TO CONSTRUCTION. THESE DOCUMENTS SHALL BE CONSIDERED A PART OF THE PLAN SET.
2. THE CONTRACTOR IS REQUIRED TO PREPARE SUBGRADE SOILS BENEATH ALL PROPOSED IMPROVEMENTS AND BACKFILL ALL EXCAVATIONS IN ACCORDANCE WITH RECOMMENDATIONS BY THE GEOTECHNICAL ENGINEER OF RECORD.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SHORING FOR ALL EXCAVATIONS AS REQUIRED. CONTRACTOR SHALL HAVE THE SHORING DESIGN PREPARED BY A QUALIFIED PROFESSIONAL. SHORING DESIGNS SHALL BE SUBMITTED TO STONEFIELD ENGINEERING & DESIGN, LLC. AND THE OWNER PRIOR TO THE START OF CONSTRUCTION.
4. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL OPEN EXCAVATIONS ARE PERFORMED AND PROTECTED IN ACCORDANCE WITH THE LATEST OSHA REGULATIONS.
5. THE CONTRACTOR IS RESPONSIBLE FOR ANY DEWATERING DESIGN AND OPERATIONS, AS REQUIRED, TO CONSTRUCT THE PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL OBTAIN ANY REQUIRED PERMITS FOR DEWATERING OPERATIONS AND GROUNDWATER DISPOSAL.

STORMWATER INFILTRATION BMP CONSTRUCTION NOTES

1. PRIOR TO THE START OF CONSTRUCTION, ANY AREA DESIGNATED TO BE USED FOR AN INFILTRATION BMP (E.G. BASIN, BIORETENTION AREA, ETC.) SHALL BE FENCED OFF AND SHALL NOT BE UTILIZED AS STORAGE FOR CONSTRUCTION EQUIPMENT OR AS A STOCKPILE AREA FOR CONSTRUCTION MATERIALS. NO ACTIVITY SHALL BE PERMITTED WITHIN THE INFILTRATION BASIN AREA UNLESS RELATED TO THE CONSTRUCTION OF THE INFILTRATION BASIN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY ALL SUBCONTRACTORS OF BASIN AREA RESTRICTIONS.
2. THE CONTRACTOR SHALL MAKE EVERY EFFORT, WHERE PRACTICAL, TO AVOID SUBGRADE SOIL COMPACTION IN THE AREAS DESIGNATED TO BE USED FOR AN INFILTRATION BMP.
3. ALL EXCAVATION WITHIN THE LIMITS OF ANY INFILTRATION BMP SHALL BE PERFORMED WITH THE LIGHTEST PRACTICAL EXCAVATION EQUIPMENT. ALL EXCAVATION EQUIPMENT SHALL BE PLACED OUTSIDE THE LIMITS OF THE BASIN WHERE FEASIBLE. THE USE OF LIGHT-WEIGHT, RUBBER-TIRED EQUIPMENT (LESS THAN 8 PSI APPLIED TO THE GROUND SURFACE) IS RECOMMENDED WITHIN THE BASIN LIMITS.
4. THE SEQUENCE OF SITE CONSTRUCTION SHALL BE COORDINATED WITH BASIN CONSTRUCTION TO ADHERE TO SEQUENCING LIMITATIONS.
5. DURING THE FINAL GRADING OF AN INFILTRATION BASIN, THE BOTTOM OF THE BASIN SHALL BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW AND THEN SMOOTHED OUT WITH A LEVELING DRAW OR EQUIVALENT GRADING EQUIPMENT. ALL GRADING EQUIPMENT SHALL BE LOCATED OUTSIDE OF THE BASIN BOTTOM WHERE FEASIBLE.
6. FOLLOWING CONSTRUCTION OF AN INFILTRATION BASIN, SOIL INFILTRATION TESTING BY A LICENSED GEOTECHNICAL ENGINEER IS REQUIRED TO CERTIFY COMPLIANCE WITH THE DESIGN INFILTRATION RATES IN ACCORDANCE WITH THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES' STORMWATER HANDBOOK, LATEST EDITION. IF THE FIELD INFILTRATION RATES ARE LOWER THAN THE RATE USED DURING DESIGN, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING IMMEDIATELY TO DETERMINE THE APPROPRIATE COURSE OF ACTION.
7. THE CONTRACTOR SHALL NOTIFY THE MUNICIPALITY TO DETERMINE IF WITNESS TESTING IS REQUIRED DURING INFILTRATION BASIN EXCAVATION AND/OR SOIL INFILTRATION TESTING.

STORMWATER UNDERGROUND BMP CONSTRUCTION NOTES

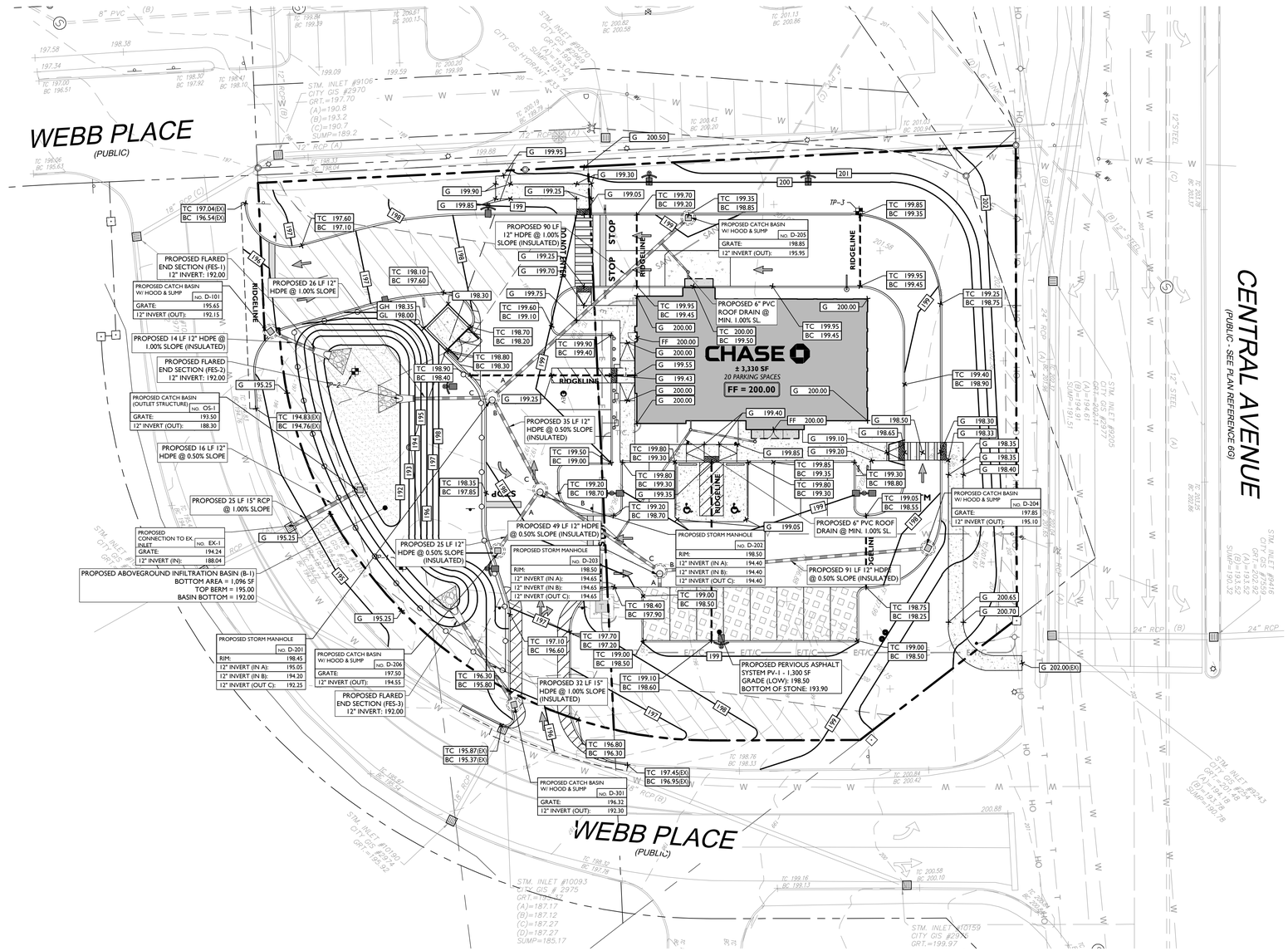
1. THE CONTRACTOR SHALL INSTALL AND BACKFILL THE UNDERGROUND BMP IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
2. UNDERGROUND BASINS SHALL UTILIZE A STONE BACKFILL WITH A MINIMUM VOID RATIO OF 40%.
3. NO CONSTRUCTION LOADING OVER UNDERGROUND BASINS IS PERMITTED UNTIL BACKFILL IS COMPLETE PER THE MANUFACTURER'S SPECIFICATIONS. NO VEHICLES SHALL BE STAGED OR OPERATE FROM A FIXED POSITION OVER THE BASIN.

GRADING NOTES

1. ALL SOIL AND MATERIAL REMOVED FROM THE SITE SHALL BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS. ANY GROUNDWATER DE-WATERING PRACTICES SHALL BE PERFORMED UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL. THE CONTRACTOR IS REQUIRED TO OBTAIN ALL NECESSARY PERMITS FOR THE DISCHARGE OF DE-WATERED GROUNDWATER. ALL SOIL IMPORTED TO THE SITE SHALL BE CERTIFIED CLEAN FILL. CONTRACTOR SHALL MAINTAIN RECORDS OF ALL FILL MATERIALS BROUGHT TO THE SITE.
2. THE CONTRACTOR IS REQUIRED TO PROVIDE TEMPORARY AND/OR PERMANENT SHORING WHERE REQUIRED DURING EXCAVATION ACTIVITIES, INCLUDING BUT NOT LIMITED TO UTILITY TRENCHES, TO ENSURE THE STRUCTURAL INTEGRITY OF NEARBY STRUCTURES AND STABILITY OF THE SURROUNDING SOILS.
3. PROPOSED TOP OF CURB ELEVATIONS ARE GENERALLY 4 INCHES TO 7 INCHES ABOVE EXISTING GRADES UNLESS OTHERWISE NOTED. THE CONTRACTOR WILL SUPPLY ALL STAKEOUT CURB GRADE SHEETS TO STONEFIELD ENGINEERING & DESIGN, LLC. FOR REVIEW AND APPROVAL PRIOR TO POURING CURBS.
4. THE CONTRACTOR IS RESPONSIBLE TO SET ALL PROPOSED UTILITY COVERS AND RESET ALL EXISTING UTILITY COVERS WITHIN THE PROJECT LIMITS TO PROPOSED GRADE IN ACCORDANCE WITH ANY APPLICABLE MUNICIPAL, COUNTY, STATE AND/OR UTILITY AUTHORITY REGULATIONS.
5. MINIMUM SLOPE REQUIREMENTS TO PREVENT PONDING SHALL BE AS FOLLOWS:
   - CURB GUTTER: 0.50%
   - CONCRETE SURFACES: 1.00%
   - ASPHALT SURFACES: 1.00%
6. A MINIMUM SLOPE OF 1.00% SHALL BE PROVIDED AWAY FROM ALL BUILDINGS. THE CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE FROM THE BUILDING IS ACHIEVED AND SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IF THIS CONDITION CANNOT BE MET.
7. FOR PROJECTS WHERE BASEMENTS ARE PROPOSED, THE DEVELOPER IS RESPONSIBLE TO DETERMINE THE DEPTH TO GROUNDWATER AT THE LOCATION OF THE PROPOSED STRUCTURE. IF GROUNDWATER IS ENCOUNTERED WITHIN THE BASEMENT AREA, SPECIAL CONSTRUCTION METHODS SHALL BE UTILIZED AND REVIEWED/APPROVED BY THE CONSTRUCTION CODE OFFICIAL. IF SUMP PUMPS ARE UTILIZED, ALL DISCHARGES SHALL BE CONNECTED DIRECTLY TO THE PUBLIC STORM SEWER SYSTEM WITH APPROVAL FROM THE GOVERNING STORM SEWER SYSTEM AUTHORITY.

ACCESSIBILITY NOTES

1. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 2.00% SLOPE IN ANY DIRECTION WITHIN THE ADA PARKING SPACES AND ACCESS AISLES.
2. THE CONTRACTOR SHALL PROVIDE COMPLIANT SIGNAGE AT ALL ADA PARKING AREAS IN ACCORDANCE WITH STATE GUIDELINES.
3. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 5.00% RUNNING SLOPE AND A MAXIMUM OF 2.00% CROSS SLOPE ALONG WALKWAYS WITHIN THE ACCESSIBLE PATH OF TRAVEL (SEE THE SITE PLAN FOR THE LOCATION OF THE ACCESSIBLE PATH). THE CONTRACTOR IS RESPONSIBLE TO ENSURE THE ACCESSIBLE PATH OF TRAVEL IS 36 INCHES WIDE OR GREATER UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
4. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 2.00% SLOPE IN ANY DIRECTION AT ALL LANDINGS. LANDINGS INCLUDE, BUT ARE NOT LIMITED TO, THE TOP AND BOTTOM OF AN ACCESSIBLE RAMP, AT ACCESSIBLE BUILDING ENTRANCES, AT AN AREA IN FRONT OF A WALK-UP ATM, AND AT TURNING SPACES IN THE ACCESSIBLE PATH OF TRAVEL. THE LANDING AREA SHALL HAVE A MINIMUM CLEAR AREA OF 60 INCHES BY 60 INCHES UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
5. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 8.33% RUNNING SLOPE AND A MAXIMUM 2.00% CROSS SLOPE ON ANY CURB RAMPS ALONG THE ACCESSIBLE PATH OF TRAVEL. WHERE PROVIDED, CURB RAMP FLARES SHALL NOT HAVE A SLOPE GREATER THAN 10.00% IF A LANDING AREA IS PROVIDED AT THE TOP OF THE RAMP. FOR ALTERATIONS, A CURB RAMP FLARES SHALL NOT HAVE A SLOPE GREATER THAN 8.33% IF A LANDING AREA IS NOT PROVIDED AT THE TOP OF THE RAMP. CURBS RAMPS SHALL NOT RISE MORE THAN 6 INCHES IN ELEVATION WITHOUT A HANDRAIL. THE CLEAR WIDTH OF A CURB RAMP SHALL BE NO LESS THAN 36 INCHES WIDE.
6. ACCESSIBLE RAMPS WITH A RISE GREATER THAN 6 INCHES SHALL CONTAIN COMPLIANT HANDRAILS ON BOTH SIDES OF THE RAMP AND SHALL NOT RISE MORE THAN 30" IN ELEVATION WITHOUT A LANDING AREA IN BETWEEN RAMP RUNS. LANDING AREAS SHALL ALSO BE PROVIDED AT THE TOP AND BOTTOM OF THE RAMP.
7. A SLIP RESISTANT SURFACE SHALL BE CONSTRUCTED ALONG THE ACCESSIBLE PATH AND WITHIN ADA PARKING AREAS.
8. THE CONTRACTOR SHALL ENSURE A MAXIMUM OF ¼ INCHES VERTICAL CHANGE IN LEVEL ALONG THE ACCESSIBLE PATH. WHERE A CHANGE IN LEVEL BETWEEN ¼ INCHES AND ½ INCHES EXISTS, CONTRACTOR SHALL ENSURE THAT THE TOP ¼ INCH CHANGE IN LEVEL IS BEVELED WITH A SLOPE NOT STEEPER THAN 1 UNIT VERTICAL AND 2 UNITS HORIZONTAL (2:1 SLOPE).
9. THE CONTRACTOR SHALL ENSURE THAT ANY OPENINGS (GAPS OR HORIZONTAL SEPARATION) ALONG THE ACCESSIBLE PATH SHALL NOT ALLOW PASSAGE OF A SPHERE GREATER THAN ½ INCH.
10. ACCESSIBLE IMPROVEMENTS SHALL COMPLY WITH APPLICABLE REGULATIONS INCLUDING ANSI 117.1 AND NH RSA 155-A:5.



20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

SYMBOL / DESCRIPTION

SYMBOL	DESCRIPTION
	PROPERTY LINE
100	PROPOSED GRADING CONTOUR
RIDGELINE	PROPOSED GRADING RIDGELINE
	PROPOSED DIRECTION OF DRAINAGE FLOW
G 100.00	PROPOSED GRADE SPOT SHOT
TC 100.50 / BC 100.00	PROPOSED TOP OF CURB / BOTTOM OF CURB SPOT SHOT
FC 100.00	PROPOSED FLUSH CURB SPOT SHOT
DC 100.12 / BC 100.00	PROPOSED DEPRESSED CURB / BOTTOM OF CURB SPOT SHOT
TW 102.00 / BW 100.00	PROPOSED TOP OF WALL / BOTTOM OF WALL SPOT SHOT

STORMWATER CERTIFICATION NOTE

AFTER CONSTRUCTION, THE DESIGN ENGINEER SHALL PROVIDE SIGNED LETTER TO THE CITY ENGINEER CERTIFYING THAT THE STORMWATER SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH APPROVED PLANS.

ISSUE	DATE	BY	DESCRIPTION
4	03/14/2024	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
3	12/28/2023	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
2	9/15/2023	JJR	PER TECHNICAL REVIEW COMMITTEE COMMENTS
1	7/31/2023	JJR	ISSUED FOR REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
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TITLE:

GRADING & DRAINAGE PLAN

DRAWING:

C-5

Z:\BOS\DWG\BOS220137 CONSTR\STEL - 1-3 WEBB PLACE, DOVER, NH\CAD\PLOTS\PLOT-05_GRAD_STRM.DWG

STABILIZATION SPECIFICATIONS:

I.A. TEMPORARY SEEDING AND MULCHING:

TIME OF PLANTING - PLANTING SHOULD PREFERABLY BE DONE BETWEEN APRIL 1 AND JUNE 30, AND SEPTEMBER 1 THROUGH SEPTEMBER 30. IF PLANTING IS DONE IN THE MONTHS OF JULY AND AUGUST, IRRIGATION MAY BE REQUIRED. IF PLANTING IS DONE BETWEEN OCTOBER 1 AND MARCH 31, MULCHING SHOULD BE APPLIED IMMEDIATELY AFTER PLANTING. IF SEEDING IS DONE DURING THE SUMMER MONTHS, IRRIGATION OF SOME SORT WILL PROBABLY BE NECESSARY.
SITE PREPARATION - BEFORE SEEDING, INSTALL NEEDED SURFACE RUNOFF CONTROL MEASURES SUCH AS GRADIENT TERRACES, INTERCEPTOR DIKES/SWALES, LEVEL SPREADERS, AND SEDIMENT BASINS.
SEEDBED PREPARATION - THE SEEDBED SHOULD BE FIRM WITH A FAIRLY FINE SURFACE. PERFORM ALL CULTURAL OPERATIONS ACROSS OR AT RIGHT ANGLES TO THE SLOPE.
LIMING AND FERTILIZATION - APPLY UNIFORMLY 2 TONS OF GROUND LIMESTONE PER ACRE (100 LBS. PER 1,000 SQ. FT.) OR ACCORDING TO SOIL TEST. APPLY UNIFORMLY 10-10-10 ANALYSIS FERTILIZER AT THE RATE OF 400 LBS. PER ACRE (14 LBS. PER 1,000 SQ. FT.) OR AS INDICATED BY SOIL TEST. FORTY PERCENT OF THE NITROGEN SHOULD BE IN ORGANIC FORM. WORK IN LIME AND FERTILIZER TO A DEPTH OF 4 INCHES USING ANY SUITABLE EQUIPMENT.
SEEDING - SELECT ADAPTED SPECIES FROM THE ACCOMPANYING TABLE IN THE MA SESC HANDBOOK. APPLY SEED UNIFORMLY ACCORDING TO THE RATE INDICATED IN THE TABLE BY BROADCASTING, DRILLING OR HYDRAULIC APPLICATION. COVER SEEDS WITH SUITABLE EQUIPMENT PER MA SESC HANDBOOK.
MULCH - USE AN EFFECTIVE MULCH, SUCH AS CLEAN GRAIN STRAW; TACKED AND/OR TIED DOWN WITH NETTING TO PROTECT SEEDBED AND ENCOURAGE PLANT GROWTH.

I.B. PERMANENT SEEDING AND MULCHING:

SEEDING GRASSES AND LEGUMES
INSTALL NEEDED SURFACE RUNOFF CONTROL MEASURES SUCH AS GRADIENT TERRACES, BERMS, DIKES, LEVEL SPREADERS, WATERWAYS, AND SEDIMENT BASINS PRIOR TO SEEDING OR PLANTING.
SEEDBED PREPARATION - IF INFERTILE OR COARSE-TEXTURED SUBSOIL WILL BE EXPOSED DURING LAND SHAPING, IT IS BEST TO STOCKPILE TOPSOIL AND RESPREAD IT OVER THE FINISHED SLOPE AT A MINIMUM 2- TO 6-INCH DEPTH AND ROLL IT TO PROVIDE A FIRM SEEDBED. IF CONSTRUCTION FILL OPERATIONS HAVE LEFT SOIL EXPOSED WITH A LOOSE, ROUGH, OR IRREGULAR SURFACE, SMOOTH WITH BLADE AND ROLL. LOOSEN THE SOIL TO A DEPTH OF 3-5 INCHES WITH SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT. AREAS NOT TO RECEIVE TOP SOIL SHALL BE TREATED TO FIRM THE SEEDBED AFTER INCORPORATION OF THE LIME AND FERTILIZER SO THAT IT IS DEPRESSED NO MORE THAN ½ - 1 INCH WHEN STEPPED ON WITH A SHOE. AREAS TO RECEIVE TOPSOIL SHALL NOT BE FIRMED UNTIL AFTER TOPSOILING AND LIME AND FERTILIZER IS APPLIED AND INCORPORATED, AT WHICH TIME IT SHALL BE TREATED TO FIRM THE SEEDBED AS DESCRIBED ABOVE. THIS CAN BE DONE BY ROLLING OR CULTIPACKING.
COOL SEASON GRASSES - COOL SEASON GRASSES GROW RAPIDLY IN THE COOL WEATHER OF SPRING AND FALL, AND SET SEED IN JUNE AND JULY. COOL SEASON GRASSES BECOME DORMANT WHEN SUMMER TEMPERATURES PERSIST ABOVE 85 DEGREES AND MOISTURE IS SCARCE.

LIME AND FERTILIZER - APPLY LIME AND FERTILIZER ACCORDING TO SOIL TEST AND CURRENT EXTENSION SERVICE RECOMMENDATIONS. IN ABSENCE OF A SOIL TEST, APPLY LIME (A PH OF 5.5 - 6.0 IS DESIRED) AT A RATE OF 2.5 TONS PER ACRE AND 10-20-20 ANALYSIS FERTILIZER AT A RATE OF 500 POUNDS PER ACRE (40 % OF N TO BE IN AN ORGANIC OR SLOW RELEASE FORM). INCORPORATE LIME AND FERTILIZER INTO THE TOP 2-3 INCHES OF SOIL.
SEEDING DATES - SEEDING OPERATIONS SHOULD BE PERFORMED WITHIN ONE OF THE FOLLOWING PERIODS:

- APRIL 1 - MAY 31
- AUGUST 1 - SEPTEMBER 10
- NOVEMBER 1 - DECEMBER 15 AS A DORMANT SEEDING (SEEDING RATES SHALL BE INCREASED BY 50% FOR DORMANT SEEDINGS)

SEEDING METHODS - SEEDING SHOULD BE PERFORMED BY ONE OF THE FOLLOWING METHODS:

- DRILL SEEDINGS (DE-AWNED OR DE-BEARDED SEED SHOULD BE USED UNLESS THE DRILL IS EQUIPPED WITH SPECIAL FEATURES TO ACCEPT AWNED SEED).
- BROADCAST SEEDING WITH SUBSEQUENT ROLLING, CULTIPACKING OR TRACKING THE SEEDING WITH SMALL TRACK CONSTRUCTION EQUIPMENT. TRACKING SHOULD BE ORIENTED UP AND DOWN THE SLOPE.
- HYDROSEEDING WITH SUBSEQUENT TRACKING. IF WOOD FIBER MULCH IS USED, IT SHOULD BE APPLIED AS A SEPARATE OPERATION AFTER SEEDING AND TRACKING TO ASSURE GOOD SEED TO SOIL CONTACT.

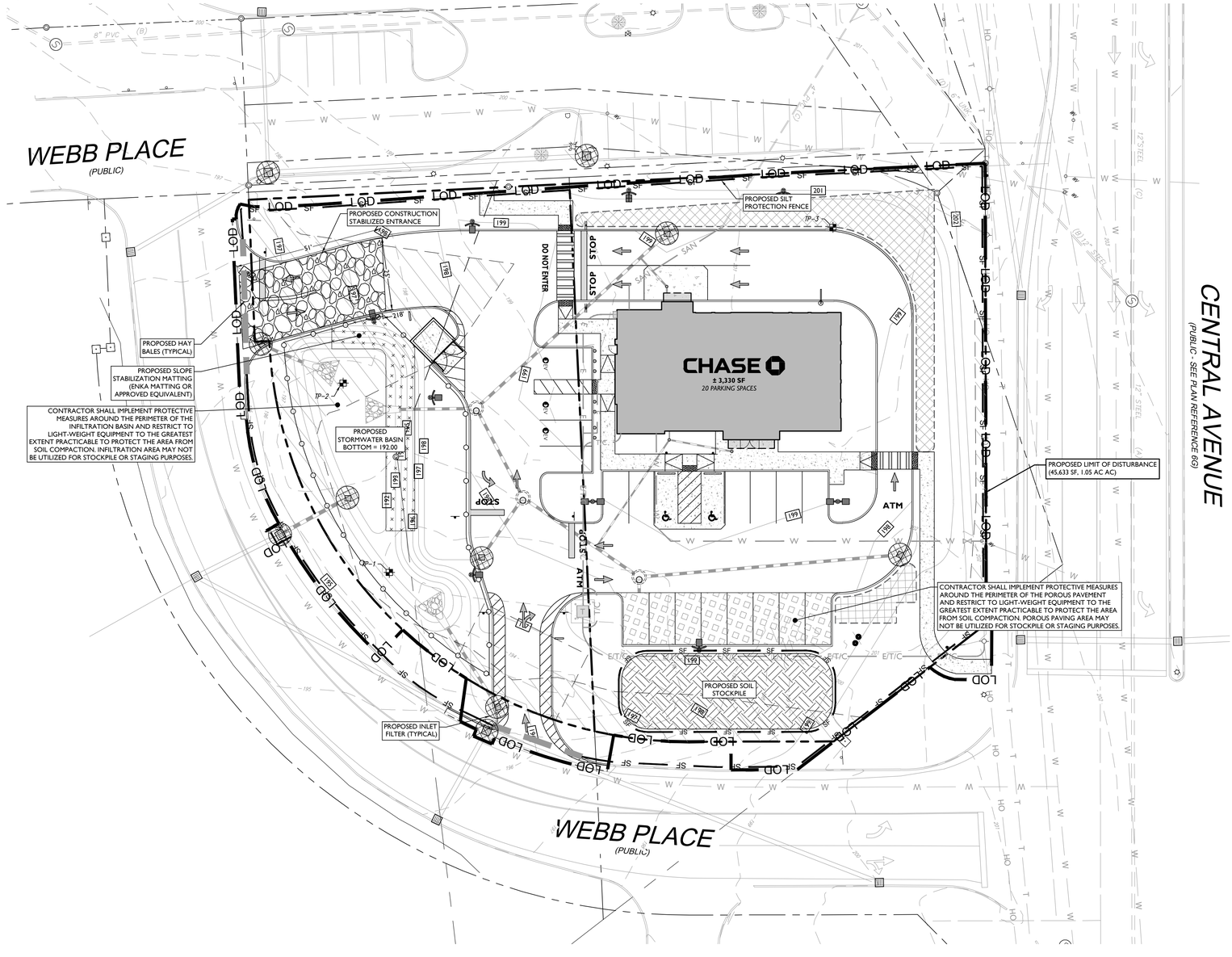
MULCH - MULCH THE SEEDINGS WITH STRAW APPLIED AT THE RATE OF ½ TONS PER ACRE.
ANCHOR THE MULCH WITH EROSION CONTROL NETTING OR FABRIC ON SLOPING AREAS.
SEED MIXTURES FOR PERMANENT COVER
RECOMMENDED MIXTURES FOR PERMANENT SEEDING ARE PROVIDED ON THE TABLE IN THE MA SESC HANDBOOK. SELECT PLANT SPECIES WHICH ARE SUITED TO THE SITE CONDITIONS AND PLANNED USE. SOIL MOISTURE CONDITIONS, OFTEN THE MAJOR LIMITING SITE FACTOR, ARE USUALLY CLASSIFIED AS FOLLOWS:

- DRY - SANDS AND GRAVELS TO SANDY LOAMS. NO EFFECTIVE MOISTURE SUPPLY FROM SEEPAGE OR A HIGH WATER TABLE.
- MOIST - WELL DRAINED TO MODERATELY WELL DRAINED SANDY LOAMS, LOAMS, AND FINER; OR COARSER TEXTURED MATERIAL WITH MODERATE INFLUENCE ON ROOT ZONE FROM SEEPAGE OR A HIGH WATER TABLE.
- WET - ALL TEXTURES WITH A WATER TABLE AT OR VERY NEAR THE SOIL SURFACE, OR WITH ENDURING SEEPAGE. WHEN OTHER FACTORS STRONGLY INFLUENCE SITE CONDITIONS, THE PLANTS SELECTED MUST ALSO BE TOLERANT OF THESE CONDITIONS.

SEQUENCE OF CONSTRUCTION

1. INSTALL CONTROL MEASURES IDENTIFYING LIMITS OF DISTURBANCE AND AREAS INTERNAL TO THE SITE THAT REQUIRE PROTECTION BEFORE START OF LAND DISTURBANCE.
2. INSTALL ALL EROSION, RUNOFF, AND SEDIMENT CONTROLS AND TEMPORARY POLLUTION PREVENTION MEASURES THAT ARE REQUIRED TO BE IN PLACE AND FUNCTIONAL BEFORE ANY EARTHWORK BEGINS. THIS SHALL BE DONE IN ACCORDANCE WITH THE MA SESC HANDBOOK AND/OR THE MA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (AS AMENDED). UPON ACCEPTABLE COMPLETION OF SITE PREPARATION AND INSTALLATION OF EROSION, RUNOFF, AND SEDIMENT CONTROLS AND TEMPORARY POLLUTION PREVENTION MEASURES, SITE CONSTRUCTION ACTIVITIES MAY COMMENCE.
3. CONSTRUCTION ACTIVITIES:
   3.1 DEMOLISH EXISTING SITE FEATURES (1 WEEK).
   3.2 ROUGH GRADING AND TEMPORARY SEEDING (2 WEEKS).
   3.3 EXCAVATE AND INSTALL UTILITY IMPROVEMENTS IN ACCORDANCE WITH LOCAL UTILITY AUTHORITY REQUIREMENTS (3 WEEKS).
   3.4 BUILDING CONSTRUCTION AND SITE IMPROVEMENTS (12 WEEKS).
   3.5 CONSTRUCT RIGHT-OF-WAY IMPROVEMENTS (2 WEEKS).
   3.6 LANDSCAPING IMPROVEMENTS AND FINAL SEEDING (1 WEEK).
4. UPON COMMENCEMENT OF SITE CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL INITIATE APPROPRIATE STABILIZATION PRACTICES ON ALL DISTURBED AREAS AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY OR PERMANENTLY CEASED.
5. PERFORM ROUTINE INSPECTIONS AND MAINTENANCE AND/OR MODIFICATION OF EROSION, RUNOFF, AND SEDIMENT CONTROLS AND TEMPORARY POLLUTION PREVENTION MEASURES WHILE EARTHWORK IS ONGOING AS REQUIRED.
6. PERFORM FINAL SITE STABILIZATION OF ANY DISTURBED AREAS AFTER EARTHWORK HAS BEEN COMPLETED.
7. REMOVE OF TEMPORARY EROSION, RUNOFF, AND SEDIMENT CONTROLS AND TEMPORARY POLLUTION PREVENTION MEASURES.

NOTE: TIME DURATIONS ARE APPROXIMATE AND ARE INTENDED TO ACT AS A GENERAL GUIDE TO THE CONSTRUCTION TIMELINE. ALL DURATIONS ARE SUBJECT TO CHANGE BY CONTRACTOR. CONTRACTOR SHALL SUBMIT CONSTRUCTION SCHEDULE TO CITY AND ENGINEER. CONTRACTOR SHALL PHASE CONSTRUCTION ACCORDINGLY



CITY OF DOVER - CONSTRUCTION INSPECTION REQUIREMENTS

1. THE COMMUNITY SERVICES DEPARTMENT OR THEIR DESIGNATED AGENT SHALL HAVE ACCESS TO THE SITE TO COMPLETE ROUTINE INSPECTIONS.
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.
3. 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.

SOIL EROSION AND SEDIMENT CONTROL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR SOIL EROSION AND SEDIMENT CONTROL IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
2. THE CONTRACTOR IS RESPONSIBLE FOR DUST CONTROL IN COMPLIANCE WITH LOCAL, STATE, AND FEDERAL AIR QUALITY STANDARDS.
3. THE CONTRACTOR IS RESPONSIBLE TO INSPECT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER A PRECIPITATION EVENT GREATER THAN 1 INCH. THE CONTRACTOR SHALL MAINTAIN AN INSPECTION LOG ON SITE AND DOCUMENT CORRECTIVE ACTION TAKEN THROUGHOUT THE COURSE OF CONSTRUCTION AS REQUIRED.

DUST CONTROL NOTES

1. VEGETATIVE COVER - FOR DISTURBED AREAS NOT SUBJECT TO TRAFFIC, VEGETATION PROVIDES THE MOST PRACTICAL METHOD OF DUST CONTROL.
2. MULCH (INCLUDING GRAVEL MULCH) - WHEN PROPERLY APPLIED, MULCH OFFERS A FAST, EFFECTIVE MEANS OF CONTROLLING DUST.
3. SPRAY-ON ADHESIVE - LATEX EMULSIONS OR RESIN IN WATER CAN BE SPRAYED ONTO MINERAL SOIL TO PREVENT PARTICLES FROM BLOWING AWAY.
4. CALCIUM CHLORIDE - CALCIUM CHLORIDE MAY NOT BE USED AS THE PROJECT IS LOCATED WITHIN THE SECONDARY GROUNDWATER PROTECTION DISTRICT.
5. SPRINKLING - THE SITE MAY BE SPRINKLED UNTIL THE SURFACE IS WET. SPRINKLING IS ESPECIALLY EFFECTIVE FOR DUST CONTROL ON HAUL ROADS AND OTHER TRAFFIC ROUTES.
6. STONE - USED TO STABILIZE CONSTRUCTION ROADS; CAN ALSO BE EFFECTIVE FOR DUST CONTROL.
7. BARRIERS - A BOARD FENCE, WIND FENCE, SEDIMENT FENCE, OR SIMILAR BARRIER CAN CONTROL AIR CURRENTS AND BLOWING SOIL. ALL OF THESE FENCES ARE NORMALLY CONSTRUCTED OF WOOD AND THEY PREVENT EROSION BY OBSTRUCTING THE WIND NEAR THE GROUND AND PREVENTING THE SOIL FROM BLOWING OFFSITE. A WIND BARRIER GENERALLY PROTECTS SOIL DOWNWARD FOR A DISTANCE OF 10 TIMES THE HEIGHT OF THE BARRIER. PERENNIAL GRASS AND STANDS OF EXISTING TREES MAY ALSO SERVE AS WIND BARRIERS.

CITY OF DOVER - EROSION CONTROL STANDARDS DURING CONSTRUCTION

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THE PROJECT SITE REMAINS IN COMPLIANCE WITH THE CITY OF DOVER SITE PLAN REVIEW REGULATION EROSION CONTROL STANDARDS THROUGHOUT CONSTRUCTION
2. CONTRACTOR SHALL PERFORM STRIPPING OF VEGETATION SHALL BE DONE IN A MANNER THAT MINIMIZES SOIL EROSION. WHENEVER PRACTICAL, NATURAL VEGETATION SHALL BE RETAINED, PROTECTED, OR SUPPLEMENTED.
3. CONTRACTOR SHALL INSTALL THE APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO ANY SOIL LAND DISTURBANCE AND MUST BE REVIEWED AND APPROVED BY THE COMMUNITY SERVICES DEPARTMENT.
4. ALL 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 FOURTEEN (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.
5. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN FUNCTIONING CONDITION UNTIL FINAL SITE STABILIZATION IS ACCOMPLISHED.
6. 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 1ST, OR AT THE DISCRETION OF THE COMMUNITY SERVICES DEPARTMENT.
7. 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 THIRTY (30) CALENDAR DAYS UNLESS CONDITIONS DICTATE OTHERWISE.

SYMBOL	DESCRIPTION
	PROPERTY BOUNDARY
	ADJACENT PROPERTY BOUNDARY
LOD	PROPOSED LIMIT OF DISTURBANCE
SF	PROPOSED SILT FENCE
	PROPOSED HAY BALES
	PROPOSED STOCKPILE & EQUIPMENT STORAGE
	PROPOSED STABILIZED CONSTRUCTION ENTRANCE
	PROPOSED INLET PROTECTION FILTER

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
4	03/14/2024	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
3	12/28/2023	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
2	9/15/2023	JJR	PER TECHNICAL REVIEW COMMITTEE COMMENTS
1	7/31/2023	JJR	ISSUED FOR REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
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Princeton, NJ · Tampa, FL · Detroit, MI
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SITE IMPROVEMENT PLAN

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 28, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

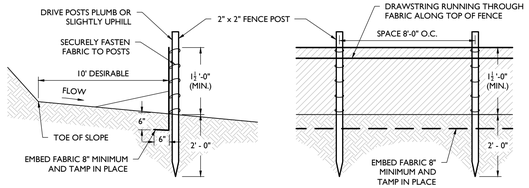
STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-220137

TITLE: SOIL EROSION & SEDIMENT CONTROL PLAN

DRAWING: C-8

Z:\BOS\DWG\BOS220137 CONSTATE - 1-3 WEBB PLACE, DOVER, NH\CAD\PLOTS\01-08-24\ESC.DWG

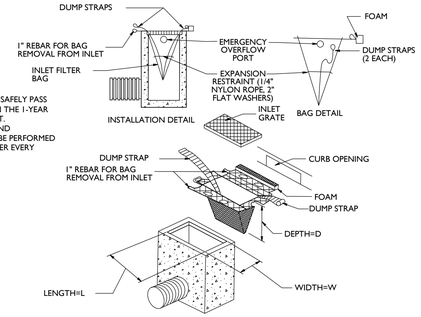


NOTES:
1. SECURELY FASTEN GEOTEXTILE TO FENCE POST BY USE OF WIRE TIES, HOG RINGS, STAPLES OR POCKETS. FOUR TO SIX FASTENERS PER POST.
2. GEOTEXTILE FABRIC TO BE EMBEDDED 8" (MIN.) AND TAMP IN PLACE.
3. SECURELY FASTEN ENDS OF INDIVIDUAL ROLLS OF GEOTEXTILE TO A POST BY WRAPPING EACH END OF THE GEOTEXTILE AROUND THE POST TWICE AND ATTACHING AS SPECIFIED IN NOTE 1 ABOVE. SPLICING OF INDIVIDUAL ROLLS SHALL NOT OCCUR AT LOW POINTS.
4. SET SILT FENCE WITHIN PROJECT LIMITS. 10'-0" IS DESIRABLE.

SILT FENCE DETAIL

NOT TO SCALE

1

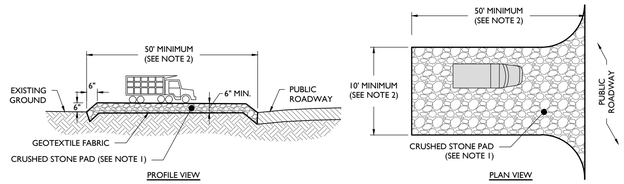


NOTES:
1. THE FILTER BAG SHALL SAFELY PASS FLOWS GREATER THAN THE 1-YEAR 24-HOUR STORM EVENT.
2. SEDIMENT REMOVAL AND MAINTENANCE SHALL BE PERFORMED FREQUENTLY AND AFTER EVERY STORM EVENT.

INLET FILTER BAG DETAIL

NOT TO SCALE

2

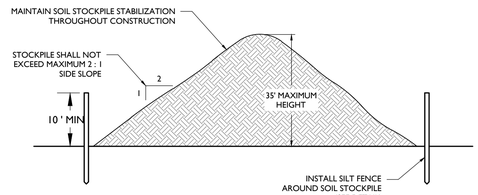


NOTES:
1. STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 3-INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT PLACED ON A STABLE FOUNDATION AS SPECIFIED IN THE PLAN.
2. THE MINIMUM LENGTH OF THE GRAVEL PAD SHALL BE 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH MAY BE USED. THE WIDTH SHALL BE 10' MINIMUM OR THE FULL WIDTH OF THE ACCESS POINT, WHICHEVER IS GREATER.
3. GEOTEXTILE FILTER FABRIC SHALL BE PLACED BETWEEN THE STONE FILL AND THE EARTH SURFACE BELOW THE PAD TO REDUCE THE MIGRATION OF SOIL PARTICLES FROM THE UNDERLYING SOIL INTO THE STONE AND VICE VERSA. FILTER CLOTH IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENCE LOT.
4. IF THE SLOPE TOWARD THE ROAD EXCEEDS 2%, CONSTRUCT A RIDGE, 6 TO 8 INCHES HIGH WITH 3:1 SIDE SLOPES, ACROSS THE FOUNDATION APPROXIMATELY 15 FEET FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE PUBLIC ROAD.
5. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHOULD 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.
6. WASHING: IF THE SITE CONDITIONS ARE SUCH THAT THE MAJORITY OF MUD IS NOT REMOVED FROM THE VEHICLE TIRES BY THE GRAVEL PAD, THEN THE TIRES SHOULD BE WASHED BEFORE THE VEHICLE ENTERS THE ROAD OR STREET. THE WASH AREA SHOULD BE A LEVEL AREA WITH 3-INCH WASHED STONE MINIMUM, OR A COMMERCIAL RACK. WASH WATER SHOULD BE DIRECTED INTO A SEDIMENT TRAP, A VEGETATED FILTER STRIP, OR OTHER APPROVED SEDIMENT TRAPPING DEVICE. SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY WATERCOURSES.
7. A FILTER FABRIC FENCE SHOULD BE INSTALLED DOWN-GRADIENT FROM THE CONSTRUCTION ENTRANCE IN ORDER TO CONTAIN ANY SEDIMENT-LADEN RUNOFF FROM THE ENTRANCE.

STABILIZED CONSTRUCTION ACCESS DETAIL

NOT TO SCALE

3



NOTES:
1. LOCATE THE TOPSOIL STOCKPILE SO THAT IT DOES NOT INTERFERE WITH WORK ON THE SITE.
2. SURROUND ALL TOPSOIL STOCKPILES WITH AN INTERCEPTOR DIKE WITH GRAVEL OUTLET AND SILT FENCE.
3. EITHER SEED OR COVER STOCKPILES WITH CLEAR PLASTIC OR OTHER MULCHING MATERIALS WITHIN 7 DAYS OF THE FORMATION OF THE STOCKPILE.

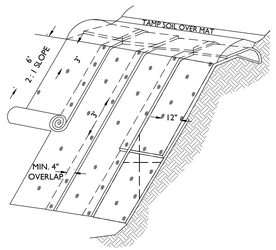
SOIL STOCKPILE DETAIL

NOT TO SCALE

4

NOTES:
1. **SITE PREPARATION:** THE SITE MUST BE GRADED TO THE DESIGN SPECIFICATIONS (GRADE, GEOMETRY, DENSITY OF SOIL, ETC.) AND THEN DRESSED TO BE FREE OF SOIL CLODS, CLUMPS, ROCKS, OR VEHICLE IMPRINTS OF ANY SIGNIFICANT SIZE THAT WOULD PREVENT ENKAMAT FROM LYING FLUSH TO SURFACE CONTOURS.
2. **ANCHOR TRENCH:** ANCHOR TRENCHES ARE REQUIRED TO SECURELY FASTEN THE ENKAMAT TO THE GROUND SURFACE. THE ENKAMAT IS INSTALLED IN TO THE BOTTOM OF THE TRENCH AND FASTENED WITH PINS SPACED 3 FEET APART. THE ANCHOR TRENCH / INTERMEDIATE CHECK SLOTS ARE THEN BACKFILLED AND COMPACTED IN A MANNER AS TO NOT DAMAGE THE ENKAMAT.
3. **ENKAMAT INSTALLATION:** ROLL THE ENKAMAT DOWN THE SLOPE OR CHANNEL. THE OVERLAP BETWEEN ROLLS IS 3 TO 4 INCHES. THE SPLICE BETWEEN ROLLS IS BETWEEN 2 AND 3 FEET. SHINGLE THE ROLL IN THE DIRECTION OF WATER FLOW. INSTALL PINS DOWN THE CENTER OF EACH MAT (MAT IS 3.25 FEET WIDE) STAGGERING THEM BETWEEN THE OUTSIDE PINS WITH A SPACING INTERVAL OF 3 TO 5 FEET. PINS PATTERNS WILL VARY DEPENDING UPON APPLICATION, SOIL TYPE, SLOPE OR CHANNEL SLOPE, GEOMETRY, ETC. A RULE OF THUMB FOR ESTIMATING THE AMOUNT OF PINS REQUIRED FOR A PROJECT IS:
1:1 TO 2:1 SLOPES: 3-4 PINS PER SQ. YD.
3:1 AND LESSER SLOPES: 2-3 PINS PER SQ. YD.

   ALWAYS INSTALL TWO ROWS OF PINS SPACED 1.5 X 1.5 FEET APART AT ALL ROLL SPLICE LOCATIONS.
4. **ANCHORING DEVICES:** TYPICALLY 11-8 GAUGE OF A 6" X 1" X 6" METAL PINS ARE USED. WHEN SURFACE SOIL CONDITIONS ARE LOOSE, USE 8" X 1" X 8" OR 12" X 1.5" X 12" METAL PINS, 8"-18" PINS WITH 1.5" DIAMETER WASHER, OR 12-30" J-SHAPE PINS (BENT REBAR) HAVING A ½" DIAMETER. DRIVE PINS OR PINS FLUSH WITH THE GROUND SURFACE.
5. **SEEDING:** FOR NON-SOIL FILLING APPLICATIONS, BROADCAST SEED OR HYDROSEED OVER THE INSTALLED ENKAMAT. MAKE SURE HYDROMULCH OCCURS AFTER SEEDING TO ENSURE THE SEED REACHES THE TOPSOIL. IF SOIL FILLING, SEED AFTER FILLING IS COMPLETED. YOU MAY ALSO SEED BEFORE AND AFTER SOIL FILLING TO CREATE A BETTER ESTABLISHED ROOT STRUCTURE AND INCREASE VEGETATION STRENGTH.



ENKAMAT DETAIL

NOT TO SCALE

5

ISSUE	DATE	BY	DESCRIPTION
4	03/14/2024	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
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SITE IMPROVEMENT PLAN

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: NO SCALE | PROJECT ID: BOS-220137

TITLE: **SOIL EROSION & SEDIMENT CONTROL DETAILS**

DRAWING: **C-9**

Z:\BOSTON\BOS\2022\BOS-220137\CONSTR\TEC - 1-3 WEBB PLACE, DOVER, NH\CAD\PLOTS\PLOT-08-09\SEC.DWG

TREE SCHEDULE

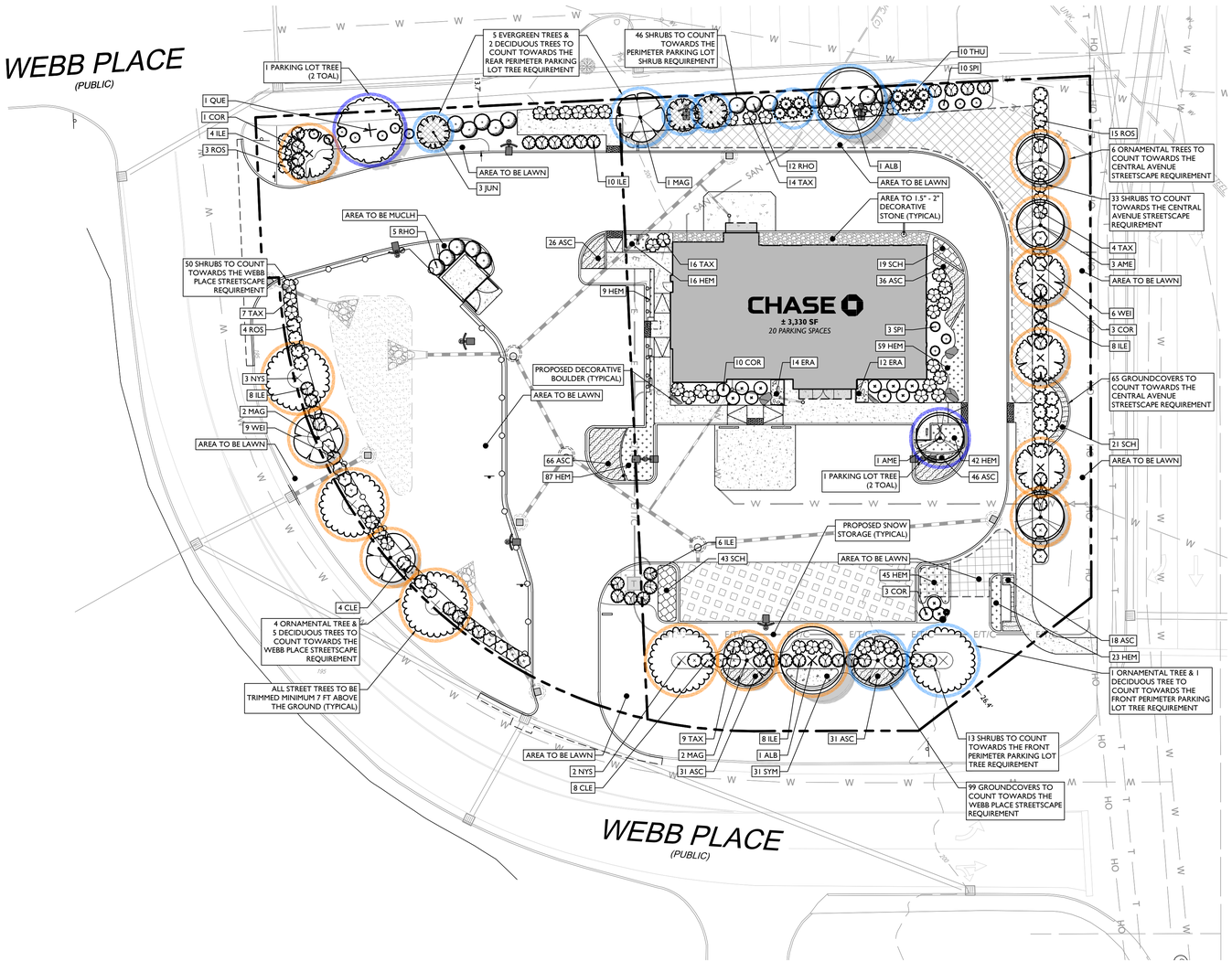
DECIDUOUS TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
	NYS	5	NYSSA SYLVATICA	TUPELO	3" - 3.5" CAL	POT	NATIVE, SALT TOLERANT
	ALB	2	QUERCUS ALBA	WHITE OAK	3" - 3.5" CAL	POT	NATIVE, SALT TOLERANT
	QUE	1	QUERCUS RUBRA	RED OAK	3" - 3.5" CAL	B&B	NATIVE, SALT TOLERANT
EVERGREEN TREES	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**CONTAINER**	**REMARKS**
	THU	10	THUJA OCCIDENTALIS 'SMARAGD'	EMERALD GREEN ARBORVITAE	5' - 6' HT	B&B	NATIVE, HARDY
	JUN	3	JUNIPERUS VIRGINIANA	EASTERN REDCEDAR	5' - 6' HT	B&B	NATIVE
ORNAMENTAL TREES	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**CONTAINER**	**REMARKS**
	AME	4	AMELANCHIER CANADENSIS	CANADIAN SERVICEBERRY	3" - 3.5" CAL	POT	NATIVE, SALT TOLERANT, DROUGHT TOLERANT
	COR	4	CORNUS FLORIDA	FLOWERING DOGWOOD	3" - 3.5" CAL	POT	NATIVE
	MAG	5	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	3" - 3.5" CAL	B&B	NATIVE, SALT TOLERANT

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN ON THE LANDSCAPE PLAN AND WITHIN THE PLANT LIST, THE PLAN SHALL DICTATE.

SHRUB & GROUNDCOVER SCHEDULE

SHRUBS	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
	WEI	15	WEIGELA FLORIDA 'BRAMWELL'	FINE WINE WEIGELA	18" - 24"	POT	HARDY, TOLERANT OF DOVER CLIMATIC CONDITIONS
	CLE	12	CLETHRA ALNIFOLIA	SUMMERSWEET	24" - 30"	POT	NATIVE, SALT TOLERANT, DROUGHT TOLERANT
	COR	13	CORNUS SERICEA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	24" - 30"	B&B	NATIVE
	ROS	22	ROSA VIRGINIANA	VIRGINIA ROSE	24" - 30"	POT	NATIVE, SALT TOLERANT
	SPI	13	SPIRAEA JAPONICA 'NEON FLASH'	NEON FLASH JAPANESE SPIREA	24" - 30"	POT	HARDY, DROUGHT TOLERANT, TOLERANT OF DOVER CLIMATIC CONDITIONS
EVERGREEN SHRUBS	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**CONTAINER**	**REMARKS**
	ILE	44	ILEX GLABRA 'COMPACTA'	COMPACT INKBERRY	24" - 30"	POT	NATIVE, SALT TOLERANT, DROUGHT TOLERANT
	RHO	17	RHODODENDRON X 'P.J.M. ELITE'	P.J.M. ELITE RHODODENDRON	24" - 30"	POT	HARDY, TOLERANT OF DOVER CLIMATIC CONDITIONS
	TAX	50	TAXUS CANADENSIS	CANADA YEW	24" - 30"	POT	NATIVE, DROUGHT TOLERANT
PERENNIALS AND GRASSES	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SPACING**	**CONTAINER**	**REMARKS**
	ASC	254	ASCLEPIAS TUBEROSA	BUTTERFLY MILKWEED	18" o.c.	1 GAL. POT	NATIVE, SALT TOLERANT, DROUGHT TOLERANT
	HEM	281	HEMEROCALLIS X 'STELLA DE ORO'	STELLA DE ORO DAYLILY	18" o.c.	1 GAL. POT	HARDY, TOLERANT OF DOVER CLIMATIC CONDITIONS
	ERA	26	ERAGROSTIS SPECTABILIS	PURPLE LOVEGRASS	18" o.c.	1 GAL. POT	NATIVE, SALT TOLERANT, DROUGHT TOLERANT
	SCH	83	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	18" o.c.	1 GAL. POT	NATIVE, SALT TOLERANT, DROUGHT TOLERANT
	SYM	31	SYMPHYOTRICHUM NOVAE-ANGLIAE	NEW ENGLAND ASTER	18" o.c.	1 GAL. POT	NATIVE, DROUGHT TOLERANT

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN ON THE LANDSCAPE PLAN AND WITHIN THE PLANT LIST, THE PLAN SHALL DICTATE.



LANDSCAPE MAINTENANCE SCHEDULE

MAINTENANCE TASK	WINTER			SPRING				SUMMER				FALL			
	DEC	JAN	FEB	MAR	APR	MAY	FREQ	JUN	JUL	AUG	FREQ	SEP	OCT	NOV	FREQ
SITE INSPECTION				X			ONCE PER SEASON		X		ONCE PER SEASON			X	ONCE PER SEASON
DEBRIS & WEED CONTROL				X	X	X	BI-WEEKLY	X	X	X	BI-WEEKLY	X	X		BI-WEEKLY
IRRIGATION MAINTENANCE					X		ONCE PER SEASON				N/A		X		ONCE PER SEASON
MULCHING					X		ONCE PER SEASON				N/A				N/A
SEASONAL PLANTINGS						X	ONCE PER SEASON	X	X	X	WEEKLY	X	X	X	WEEKLY
MOWING OF TURF				X	X	X	WEEKLY	X	X	X	WEEKLY	X	X	X	WEEKLY
MOWING OF WILDFLOWERS							N/A				N/A			X	ONCE PER SEASON
PRUNING				X	X		MONTHLY				N/A			X	ONCE PER SEASON
FERTILIZER & AMENDMENTS				X	X	X	MONTHLY	X	X	X	BI-WEEKLY	X	X	X	BI-WEEKLY
INSECT & DISEASE CONTROL						X	ONCE PER SEASON	X	X	X	BI-WEEKLY	X	X		N/A
PLANTING RENOVATION				X			ONCE PER SEASON				N/A		X		ONCE PER SEASON
LANDSCAPE STRUCTURES INSPECTION					X		ONCE PER SEASON				N/A				N/A
LIGHTING MAINTENANCE				X			ONCE PER SEASON				N/A		X		ONCE PER SEASON
PAVED SURFACE MAINTENANCE					X		ONCE PER SEASON				N/A				N/A

LANDSCAPING AND BUFFER REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
	LANDSCAPE REQUIREMENTS	
§ 153-14.G.(1)(e)	SCREENING SHALL BE PROVIDED AROUND WASTE DISPOSAL AND ANY OTHER DISRUPTIVE AREAS	PROVIDED
	STREETSCAPE REQUIREMENTS	
§ 153-14.G.(1)(f)	CENTRAL AVENUE: 193 FT	
	1 TREE FOR EVERY 35 LF OF FRONTAGE	
	(193 FT) * (1 TREE / 35 FT FRONTAGE) = 6 TREES	6 TREES
	1 SHRUB FOR EVERY 6 LF OF FRONTAGE	
	(193 FT) * (1 SHRUB / 6 FT FRONTAGE) = 33 SHRUBS	33 SHRUBS
	1 GROUNDCOVER FOR EVERY 3 LF OF FRONTAGE	
	(193 FT) * (1 GROUNDCOVER / 3 FT FRONTAGE) = 65 GROUNDCOVERS	65 GROUNDCOVERS
	WEBB PLACE: 295 FT	
	1 TREE FOR EVERY 35 LF OF FRONTAGE	
	(295 FT) * (1 TREE / 35 FT FRONTAGE) = 9 TREES	9 TREES
	1 SHRUB FOR EVERY 6 LF OF FRONTAGE	
	(295 FT) * (1 SHRUB / 6 FT FRONTAGE) = 50 SHRUBS	50 SHRUBS
	1 GROUNDCOVER FOR EVERY 3 LF OF FRONTAGE	
	(295 FT) * (1 GROUNDCOVER / 3 FT FRONTAGE) = 99 GROUNDCOVERS	99 GROUNDCOVERS
	INTERIOR LANDSCAPING	
§ 153-14.G.(2)(a)	PARKING LOTS WITH 0-30 SPACES: INTERIOR LANDSCAPING NOT REQUIRED	COMPLIES
§ 153-14.G.(2)(c)	MINIMUM LANDSCAPE ISLAND AREA: 250 SF	N/A
	ISLANDS SHALL INCLUDE TREES, SHRUBS, PERENNIALS, AND GROUNDCOVERS	N/A
§ 153-14.G.(3)(a)	PERIMETER LANDSCAPING	
	PARKING LOTS WITH MORE THAN 10 SPACES: 1 TREE FOR EVERY 35 LF OF PERIMETER 1 SHRUB FOR EVERY 5 LF OF PERIMETER	
	REAR BUFFER: 230 FT	
	(230 FT) * (1 TREE / 35 FT FRONTAGE) = 7 TREES	7 TREES
	1 SHRUB FOR EVERY 5 LF OF PERIMETER	
	(230 FT) * (1 SHRUB / 5 FT FRONTAGE) = 46 SHRUBS	46 SHRUBS
	FRONT BUFFER: 64 FT	
	(64 FT) * (1 TREE / 35 FT FRONTAGE) = 2 TREES	2 TREES
	1 SHRUB FOR EVERY 5 LF OF PERIMETER	
	(64 FT) * (1 SHRUB / 5 FT FRONTAGE) = 13 SHRUBS	13 SHRUBS
	PARKING LOT TREES	
§ 153-14.G.(3)(a)	1 TREE FOR EVERY 10 PARKING SPACES	
	(20 SPACES) * (1 TREE / 10 SPACES) = 2 TREES	2 TREES
	BUFFER REQUIREMENTS	
§ 153-17.C.	5 FT LANDSCAPE BUFFER REQUIRED BETWEEN PAVED AREAS AND ANY SIDE/REAR PROPERTY LINE	13.7 FT
	10 FT LANDSCAPE BUFFER REQUIRED BETWEEN PARKING AREAS AND ANY FRONT PROPERTY LINE	26.4 FT

(N/A) NOT APPLICABLE

JENNIFER L. DINOVO — LICENSED LANDSCAPE ARCHITECT — 085 — STATE OF NEW HAMPSHIRE

DESIGN WORKS
LANDSCAPE ARCHITECTURE AND CONSTRUCTION
125 WASON ROAD, HUDSON, NH 03051

SYMBOL / DESCRIPTION

- PROPOSED PARKING LOT TREES
- PROPOSED PERIMETER PARKING LOT TREES
- PROPOSED STREET TREES

Know what's **below** **Call** before you dig.

BIOLOGICAL DIVERSITY NOTE:

TO FOSTER BIOLOGICAL DIVERSITY, TREES PLANTED ALONG A GIVEN STREET SHALL USE THE 10-20-30 RULE (NO MORE THAN 10% OF THE TREES SHALL BE OF THE SAME SPECIES, NO MORE THAN 20% SHALL BE OF THE SAME GENUS, NO MORE THAN 30% SHALL BE OF THE SAME FAMILY.

IRRIGATION NOTE:

IRRIGATION CONTRACTOR TO PROVIDE A DESIGN FOR AN IRRIGATION SYSTEM SEPARATING PLANTING BEDS FROM LAWN AREA. PRIOR TO CONSTRUCTION, DESIGN IS TO BE SUBMITTED TO THE PROJECT LANDSCAPE DESIGNER FOR REVIEW AND APPROVAL. WHERE POSSIBLE, DRIP IRRIGATION AND OTHER WATER CONSERVATION TECHNIQUES SUCH AS RAIN SENSORS SHALL BE IMPLEMENTED. CONTRACTOR TO VERIFY MAXIMUM ON SITE DYNAMIC WATER PRESSURE AVAILABLE MEASURED IN PSI. PRESSURE REDUCING DEVICES OR BOOSTER PUMPS SHALL BE PROVIDED TO MEET SYSTEM PRESSURE REQUIREMENTS. DESIGN TO SHOW ALL VALVES, PIPING, HEADS, BACKFLOW PREVENTION, METERS, CONTROLLERS, AND SLEEVES WITHIN HARDSCAPE AREAS.

LANDSCAPING NOTES

1. THE CONTRACTOR SHALL RESTORE ALL DISTURBED GRASS AND LANDSCAPED AREAS TO MATCH EXISTING CONDITIONS UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
2. THE CONTRACTOR SHALL RESTORE ALL DISTURBED LAWN AREAS WITH A MINIMUM 4 INCH LAYER OF TOPSOIL AND SEED.
3. THE CONTRACTOR SHALL RESTORE MULCH AREAS WITH A MINIMUM 3 INCH LAYER OF MULCH .
4. THE MAXIMUM SLOPE ALLOWABLE IN LANDSCAPE RESTORATION AREAS SHALL BE 3 FEET HORIZONTAL TO 1 FOOT VERTICAL (3:1 SLOPE) UNLESS INDICATED OTHERWISE WITH THE PLAN SET.
5. THE CONTRACTOR IS REQUIRED TO LOCATE ALL SPRINKLER HEADS IN AREA OF LANDSCAPING DISTURBANCE PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL RELOCATE SPRINKLER HEADS AND LINES IN ACCORDANCE WITH OWNER'S DIRECTION WITHIN AREAS OF DISTURBANCE.
6. THE CONTRACTOR SHALL ENSURE THAT ALL DISTURBED LANDSCAPED AREAS ARE GRADED TO MEET FLUSH AT THE ELEVATION OF WALKWAYS AND TOP OF CURB ELEVATIONS EXCEPT UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET. NO ABRUPT CHANGES IN GRADE ARE PERMITTED IN DISTURBED LANDSCAPING AREAS.

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
4	03/14/2024	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
3	12/28/2023	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
2	9/15/2023	JJR	PER TECHNICAL REVIEW COMMITTEE COMMENTS
1	7/31/2023	JJR	ISSUED FOR REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
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120 Washington Street, Suite 201, Salem, MA 01970
Phone 617.203.2076

SITE IMPROVEMENT PLAN

CHASE
PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 28, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-220137

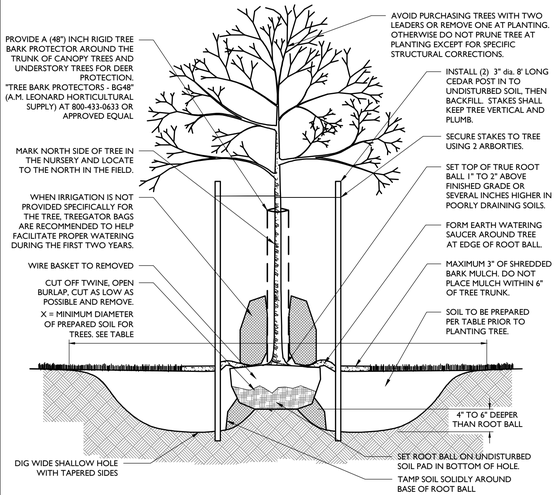
TITLE: **LANDSCAPING PLAN**

DRAWING: **C-10**

Z:\BOS\DWG\2022\BOS-220137 CONSTR\STG - 1-3 WEBB PLACE, DOVER, NH\CAD\PLOT\PDP-10-1 LANDS.DWG

NOTES:

1. FOR CONTAINER-GROWN TREES, USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
2. THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
3. SOIL AMENDMENTS:
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILDS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX



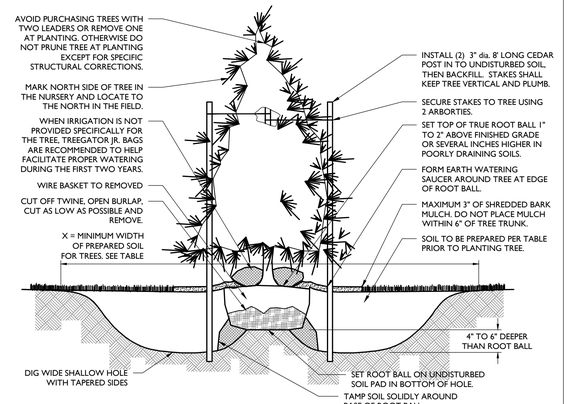
DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

1

NOTES:

1. FOR CONTAINER-GROWN TREES, USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
2. THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
3. SOIL AMENDMENTS:
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX

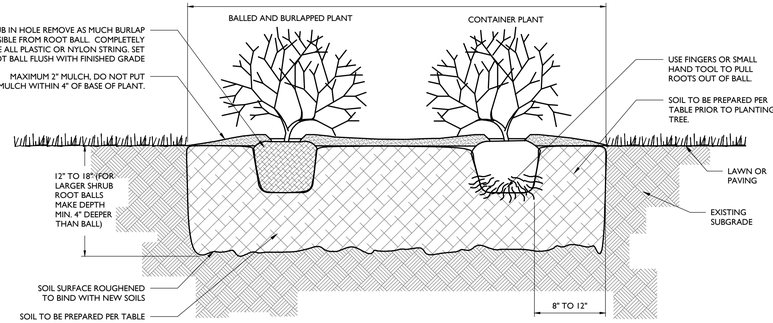


CONIFEROUS TREE PLANTING DETAIL

NOT TO SCALE

2

PREPARE SOIL IN THE ENTIRE BED USING PROCEDURES OUTLINED IN TABLE (X)



NOTES:

1. FOR THE CONTAINER-GROWN SHRUBS, USE FINGERS OR SMALL HAND TOOL TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
2. THOROUGHLY SOAK THE SHRUB ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL

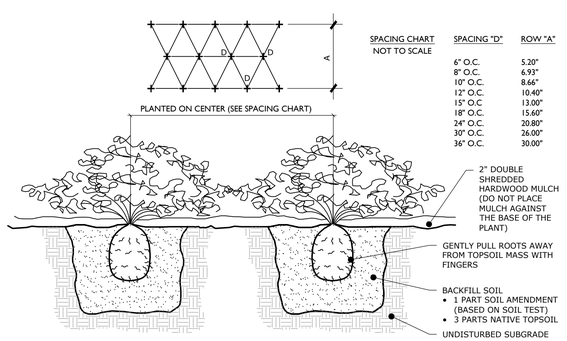
DECIDUOUS AND EVERGREEN SHRUB PLANTING DETAIL

NOT TO SCALE

3

NOTES:

1. THOROUGHLY SOAK THE GROUND COVER ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
2. SOIL AMENDMENTS:
   - MODIFY HEAVY CLAY OR SILT SOILDS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILDS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX
3. ALL GROUND COVER AREAS SHALL BE TREATED WITH A PRE-EMERGENT PER MANUFACTURER'S SPECIFICATIONS



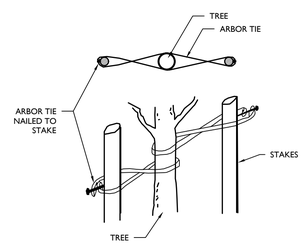
SPACING CHART
NOT TO SCALE

SPACING "D"	ROW "A"
6" O.C.	5.20"
8" O.C.	6.93"
10" O.C.	8.66"
12" O.C.	10.40"
15" O.C.	13.00"
18" O.C.	15.60"
24" O.C.	20.80"
30" O.C.	26.00"
36" O.C.	30.00"

GROUND COVER/PERENNIAL/ANNUAL PLANTING DETAIL

NOT TO SCALE

4



INSTALLATION GUIDELINES:

1. LOOP TIE AROUND TREE AND NAIL TO CEDAR STAKE.
2. REMOVE ALL STAKING AND TIES AT END OF FIRST GROWING SEASON.
3. FOLD ENDS OF ARBORTIE BACK. SECURE TO STAKES WITH 1" GALVANIZED ROOFING NAIL OR USE A KNOT.
4. CONSULT LANDSCAPE ARCHITECT FOR STAKING OF TREES LARGER THAN 6".
5. SOURCES INCLUDE:
   GEMPLERS 1-800-332-6744 or GEMPLERS.COM
   CSP OUTDOORS 1-800-592-6940 or CSPOUTDOORS.COM

ARBORTIE DETAIL

NOT TO SCALE

5

GENERAL LANDSCAPING NOTES:

1. THE LANDSCAPE CONTRACTOR SHALL FURNISH ALL MATERIALS AND PERFORM ALL WORK IN ACCORDANCE WITH THESE SPECIFICATIONS, APPROVED OR FINAL DRAWINGS, AND INSTRUCTIONS PROVIDED BY THE PROJECT LANDSCAPE DESIGNER, MUNICIPAL OFFICIALS, OR OWNER/OWNER'S REPRESENTATIVE. ALL WORK COMPLETED AND MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH THE INTENTION OF THE SPECIFICATIONS, DRAWINGS, AND INSTRUCTIONS AND EXECUTED WITH THE STANDARD LEVEL OF CARE FOR THE LANDSCAPE INDUSTRY.
2. WORK MUST BE CARRIED OUT ONLY DURING WEATHER CONDITIONS FAVORABLE TO LANDSCAPE CONSTRUCTION AND TO THE HEALTH AND WELFARE OF PLANTS. THE SUITABILITY OF SUCH WEATHER CONDITIONS SHALL BE DETERMINED BY THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL.
3. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR, BEFORE ORDERING OR PURCHASING MATERIALS, TO PROVIDE SAMPLES OF THOSE MATERIALS TO THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL FOR APPROVAL, IF SO REQUESTED.
4. IF SAMPLES ARE REQUESTED, THE LANDSCAPE CONTRACTOR IS TO SUBMIT CERTIFICATION TAGS FROM TREES, SHRUBS AND SEED VERIFYING TYPE AND PURITY.
5. UNLESS OTHERWISE AUTHORIZED BY THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL, THE LANDSCAPE CONTRACTOR SHALL PROVIDE NOTICE AT LEAST FORTY-EIGHT HOURS (48 HRS.) IN ADVANCE OF THE ANTICIPATED DELIVERY DATE OF KEY PLANT MATERIALS TO THE PROJECT SITE. A LEGIBLE COPY OF THE INVOICE, SHOWING VARIETIES AND SIZES OF MATERIALS INCLUDED FOR EACH SHIPMENT SHALL BE FURNISHED TO THE PROJECT LANDSCAPE DESIGNER, OR GOVERNING MUNICIPAL OFFICIAL.
6. THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL RESERVES THE RIGHT TO INSPECT AND REJECT PLANTS AT ANY TIME AND AT ANY PLACE.

PROTECTION OF EXISTING VEGETATION NOTES:

1. BEFORE COMMENCING WORK, ALL EXISTING VEGETATION WHICH COULD BE IMPACTED AS A RESULT OF THE PROPOSED CONSTRUCTION ACTIVITIES MUST BE PROTECTED FROM DAMAGE BY THE INSTALLATION OF TREE PROTECTION FENCING. FENCING SHALL BE LOCATED AT THE DRIP-LINE OR LIMIT OF DISTURBANCE AS DEPICTED WITHIN THE APPROVED OR FINAL PLAN SET, ESTABLISHING THE TREE PROTECTION ZONE. THE INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROVIDED "TREE PROTECTION FENCE DETAIL." NO WORK MAY BEGIN UNTIL THIS REQUIREMENT IS FULFILLED. THE FENCING SHALL BE INSPECTED REGULARLY BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
2. IN ORDER TO AVOID DAMAGE TO ROOTS, BARK OR LOWER BRANCHES, NO VEHICLE, EQUIPMENT, DEBRIS, OR OTHER MATERIALS SHALL BE DRIVEN, PARKED OR PLACED WITHIN THE TREE PROTECTION ZONE. ALL ON-SITE CONTRACTORS SHALL USE ANY AND ALL PRECAUTIONARY MEASURES WHEN PERFORMING WORK AROUND TREES, WALKS, PAVEMENTS, UTILITIES, AND ANY OTHER FIXTURES EITHER EXISTING OR PREVIOUSLY INSTALLED UNDER THIS CONTRACT.
3. IN RARE INSTANCES WHERE EXCAVATING, FILL, OR GRADING IS REQUIRED WITHIN THE DRIP-LINE OF TREES TO REMAIN, THE WORK SHALL BE PERFORMED AS FOLLOWS:
   - TRENCHING: WHEN TRENCHING OCCURS AROUND TREES TO REMAIN, THE TREE ROOTS SHALL NOT BE CUT, BUT THE TRENCH SHALL BE TUNNELED UNDER OR AROUND THE ROOTS BY CAREFUL HAND DIGGING AND WITHOUT INJURY TO THE ROOTS. NO ROOTS, LIMBS, OR WOODS ARE TO HAVE ANY PAINT OR MATERIAL APPLIED TO ANY SURFACE.
   - RAISING GRADES: WHEN THE GRADE AT AN EXISTING TREE IS BELOW THE NEW FINISHED GRADE, AND FILL NOT EXCEEDING 6 INCHES (6") IS REQUIRED, CLEAN, WASHED GRAVEL FROM ONE TO TWO INCHES (1" - 2") IN SIZE SHALL BE PLACED DIRECTLY AROUND THE TREE TRUNK. THE GRAVEL SHALL EXTEND OUT FROM THE TRUNK ON ALL SIDES A MINIMUM OF 18 INCHES (18") AND FINISH APPROXIMATELY TWO INCHES (2") ABOVE THE FINISH GRADE AT TREE. INSTALL GRAVEL BEFORE ANY EARTH FILL IS PLACED. NEW EARTH FILL SHALL NOT BE LEFT IN CONTACT WITH THE TRUNK OF ANY TREE REQUIRING FILL. WHERE FILL EXCEEDING 6 INCHES (6") IS REQUIRED, A DRY LAID TREE WELL SHALL BE CONSTRUCTED. IF APPLICABLE, TREE WELL INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROVIDED "TREE WELL DETAIL."
   - LOWERING GRADES: EXISTING TREES LOCATED IN AREAS WHERE THE NEW FINISHED GRADE IS TO BE LOWERED, SHALL HAVE RE-GRADING WORK DONE BY HAND TO THE INDICATED ELEVATION, NO GREATER THAN SIX INCHES (6"). ROOTS SHALL BE CUT CLEANLY THREE INCHES (3") BELOW FINISHED GRADE UNDER THE DIRECTION OF A LICENSED ARBORIST. WHERE CUT EXCEEDING 6 INCHES (6") IS REQUIRED, A DRY LAID RETAINING WALL SHALL BE CONSTRUCTED. IF APPLICABLE, THE RETAINING WALL INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROVIDED "TREE RETAINING WALL DETAIL."

SOIL PREPARATION AND MULCH NOTES:

1. LANDSCAPE CONTRACTOR SHALL OBTAIN A SOIL TEST OF THE IN-SITU TOPSOIL BY A CERTIFIED SOIL LABORATORY PRIOR TO PLANTING. LANDSCAPE CONTRACTOR SHALL ALLOW FOR A TWO WEEK TURNAROUND TIME FROM SUBMITTAL OF SAMPLE TO NOTIFICATION OF RESULTS.
2. BASED ON SOIL TEST RESULTS, ADJUST THE RATES OF LIME AND FERTILIZER THAT SHALL BE MIXED INTO THE TOP SIX INCHES (6") OF TOPSOIL. THE LIME AND FERTILIZER RATES PROVIDED WITHIN THE "SEED SPECIFICATION" OR "SOD SPECIFICATION" IS APPROXIMATE AND FOR BIDDING PURPOSES ONLY. IF ADDITIONAL AMENDMENTS ARE NECESSARY, ADJUST THE TOPSOIL AS FOLLOWS:
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM.
   - MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.
3. TOPSOIL SHALL BE FERTILE, FRIABLE, NATURAL TOPSOIL OF LOAMING CHARACTER, WITHOUT ADMIXTURE OF SUBSOIL MATERIAL OBTAINED FROM A WELL-DRAINED ARABLE SITE, FREE FROM ALL CLAY, LUMPS, COARSE SANDS, STONES, PLANTS, ROOTS, STICKS, AND OTHER FOREIGN MATERIAL GREATER THAN ONE INCH (1").
4. TOPSOIL SHALL HAVE A PH RANGE OF 5.0-7.0 AND SHALL NOT CONTAIN LESS THAN 6% ORGANIC MATTER BY WEIGHT.
5. OBTAIN TOPSOIL ONLY FROM LOCAL SOURCES OR FROM AREAS HAVING SIMILAR SOIL CHARACTERISTICS TO THAT FOUND AT THE PROJECT SITE.
6. CONTRACTOR SHALL PROVIDE A SIX INCH (6") DEEP LAYER OF TOPSOIL IN ALL PLANTING AREAS. TOPSOIL SHALL BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO ACHIEVE THE DESIRED COMPACTED THICKNESS. THE SPREADING OF TOPSOIL SHALL NOT BE CONDUCTED UNDER MUDDY OR FROZEN SOIL CONDITIONS.
7. UNLESS OTHERWISE NOTED IN THE CONTRACT, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL AND THE ESTABLISHMENT OF FINE-GRADING WITHIN THE DISTURBED AREA OF THE SITE.
8. LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE SUB-GRADE ELEVATION MEETS THE FINISHED GRADE ELEVATION (LESS THE REQUIRED TOPSOIL) IN ACCORDANCE WITH THE APPROVED OR FINAL GRADING PLAN.
9. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN AND UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE AS DEPICTED WITHIN THE APPROVED OR FINAL CONSTRUCTION SET UNLESS OTHERWISE DIRECTED BY THE PROJECT LANDSCAPE DESIGNER OR MUNICIPAL OFFICIAL.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER SURFACE AND SUBSURFACE PLANT BED DRAINAGE PRIOR TO THE INSTALLATION OF PLANTINGS. IF POOR DRAINAGE CONDITIONS EXIST, CORRECTIVE ACTION SHALL BE TAKEN PRIOR TO INSTALLATION. ALL PLANTING AND LAWN AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW A FREE FLOW OF SURFACE WATER.
11. DOUBLE SHREDDED HARDWOOD MULCH OR APPROVED EQUAL SHALL BE USED AS A THREE INCH (3") TOP DRESSING IN ALL SHRUB PLANTING BEDS AND AROUND ALL TREES PLANTED BY LANDSCAPE CONTRACTOR. GROUND COVER, PERENNIAL, AND ANNUAL PLANTING BEDS SHALL BE MULCHED WITH A TWO INCH (2") TOP DRESSING. SINGLE TREES OR SHRUBS SHALL BE MULCHED TO AVOID CONTACT WITH TRUNK OR PLANT STEM. MULCH SHALL BE OF SUFFICIENT CHARACTER AS NOT TO BE EASILY DISPLACED BY WIND OR WATER RUNOFF.
12. WHENEVER POSSIBLE, THE SOIL PREPARATION AREA SHALL BE CONNECTED FROM PLANTING TO PLANTING.
13. SOIL SHALL BE LOOSENED WITH A BACKHOE OR OTHER LARGE COARSE-TILING EQUIPMENT UNLESS THE SOIL IS FROZEN OR EXCESSIVELY WET. TILING THAT PRODUCES LARGE, COARSE CHUNKS OF SOIL IS PREFERABLE TO TILING THAT RESULTS IN FINE GRAINS UNIFORM IN TEXTURE. AFTER THE AREA IS LOOSENED IT SHALL NOT BE DRIVEN OVER BY ANY VEHICLE.
14. APPLY PRE-EMERGENT WEED CONTROL TO ALL PLANT BEDS PRIOR TO MULCHING. ENSURE COMPATIBILITY BETWEEN PRODUCT AND PLANT MATERIAL.
15. ALL PLANTING SOIL SHALL BE AMENDED WITH THE FOLLOWING:

MYCRO® TREE SAVER - A DRY GRANULAR MYCORRHIZAL FUNGI INOCULANT THAT IS MIXED IN THE BACKFILL WHEN PLANTING TREES AND SHRUBS. IT CONTAINS SPORES OF BOTH ECTOMYCORRHIZAL AND VA MYCORRHIZAL FUNGI (VAM), BENEFICIAL RHIZOSPHERE BACTERIA, TERRA-SORB SUPERABSORBENT HYDROGEL TO REDUCE WATER LEACHING, AND SELECTED ORGANIC MICROBIAL NUTRIENTS.

- DIRECTIONS FOR USE: USE 3-OZ PER EACH FOOT DIAMETER OF THE ROOT BALL, OR 3-OZ PER INCH CALIPER. MIX INTO THE BACKFILL WHEN TRANSPLANTING TREES AND SHRUBS. MIX PRODUCT IN A RING-SHAPED VOLUME OF SOIL AROUND THE UPPER PORTION OF THE ROOT BALL, EXTENDING FROM THE SOIL SURFACE TO A DEPTH OF ABOUT 8 INCHES, AND EXTENDING OUT FROM THE ROOT BALL ABOUT 8 INCHES INTO THE BACKFILL. APPLY WATER TO SOIL SATURATION.
- MYCOR® TREE SAVER® IS EFFECTIVE FOR ALL TREE AND SHRUB SPECIES EXCEPT RHODODENDRONS, AZALEAS, AND MOUNTAIN LAUREL, WHICH REQUIRE ERICOID MYCORRHIZAE.
- SOIL PH: THE FUNGI IN THIS PRODUCT WERE CHOSEN BASED ON THEIR ABILITY TO SURVIVE AND COLONIZE PLANT ROOTS IN A PH RANGE OF 3 TO 9.
- FUNGICIDES: THE USE OF CERTAIN FUNGICIDES CAN HAVE A DETRIMENTAL EFFECT ON THE INOCULATION PROGRAM. SOIL APPLICATION OF ANY FUNGICIDE IS NOT RECOMMENDED FOR TWO WEEKS AFTER APPLICATION.
- OTHER PESTICIDES: HERBICIDES AND INSECTICIDES DO NOT NORMALLY INTERFERE WITH MYCORRHIZAL FUNGAL DEVELOPMENT, BUT MAY INHIBIT THE GROWTH OF SOME TREE AND SHRUB SPECIES IF NOT USED PROPERLY.

HEALTHY START MACRO TABS 12-8-8

- FERTILIZER TABLETS ARE PLACED IN THE UPPER 4 INCHES OF BACKFILL SOIL WHEN PLANTING TREES AND SHRUBS.
- TABLETS ARE FORMULATED FOR LONG-TERM RELEASE BY SLOW BIODEGRADATION, AND LAST UP TO 2 YEARS AFTER PLANTING. TABLETS CONTAIN 12-8-8 NPK FERTILIZER, AS WELL AS A MINIMUM OF SEVEN PERCENT (7%) HUMIC ACID BY WEIGHT, MICROBIAL NUTRIENTS DERIVED FROM SEA KELP, PROTEIN BYPRODUCTS, AND YUCCA SCHIDIGERA, AND A COMPLEMENT OF BENEFICIAL RHIZOSPHERE BACTERIA. THE STANDARD 21 GRAM TABLET IS SPECIFIED HERE. DIRECTIONS FOR USE: FOR PLANTING BALLED & BURLAPPED (B&B) TREES AND SHRUBS, MEASURE THE THICKNESS OF THE TRUNK, AND USE ABOUT 1 TABLET (21-G) PER HALF-INCH. PLACE THE TABLETS DIRECTLY NEXT TO THE ROOT BALL, EVENLY DISTRIBUTED AROUND ITS PERIMETER, AT A DEPTH OF ABOUT 4 INCHES.

IRRIGATION DURING ESTABLISHMENT

SIZE AT PLANTING	IRRIGATION FOR VITALITY	IRRIGATION FOR SURVIVAL
< 2" CALIPER	DAILY FOR TWO WEEKS, EVERY OTHER DAY FOR TWO MONTHS, WEEKLY UNTIL ESTABLISHED	TWO TO THREE TIMES WEEKLY FOR TWO TO THREE MONTHS
2"-4 CALIPER	DAILY FOR ONE MONTH, EVERY OTHER DAY FOR THREE MONTHS, WEEKLY UNTIL ESTABLISHED	TWO TO THREE TIMES WEEKLY FOR THREE TO FOUR MONTHS
4 >" CALIPER	DAILY FOR SIX WEEKS, EVERY OTHER DAY FOR FIVE MONTHS, WEEKLY UNTIL ESTABLISHED	TWICE WEEKLY FOR FOUR TO FIVE MONTHS

TABLE NOTES:
1. AT EACH IRRIGATION, APPLY TWO TO THREE GALLONS PER INCH TRUNK CALIPER TO THE ROOT BALL SURFACE. APPLY IT IN A MANNER SO ALL WATER SOAKS THE ENTIRE ROOT BALL. DO NOT WATER IF ROOT BALL IS WET/SATURATED ON THE IRRIGATION DAY.

2. WHEN IRRIGATING FOR VITALITY, DELETE DAILY IRRIGATION WHEN PLANTING IN WINTER OR WHEN PLANTING IN COOL CLIMATES. ESTABLISHMENT TAKES THREE TO FOUR MONTHS PER INCH TRUNK CALIPER. NEVER APPLY IRRIGATION IF THE SOIL IS SATURATED.

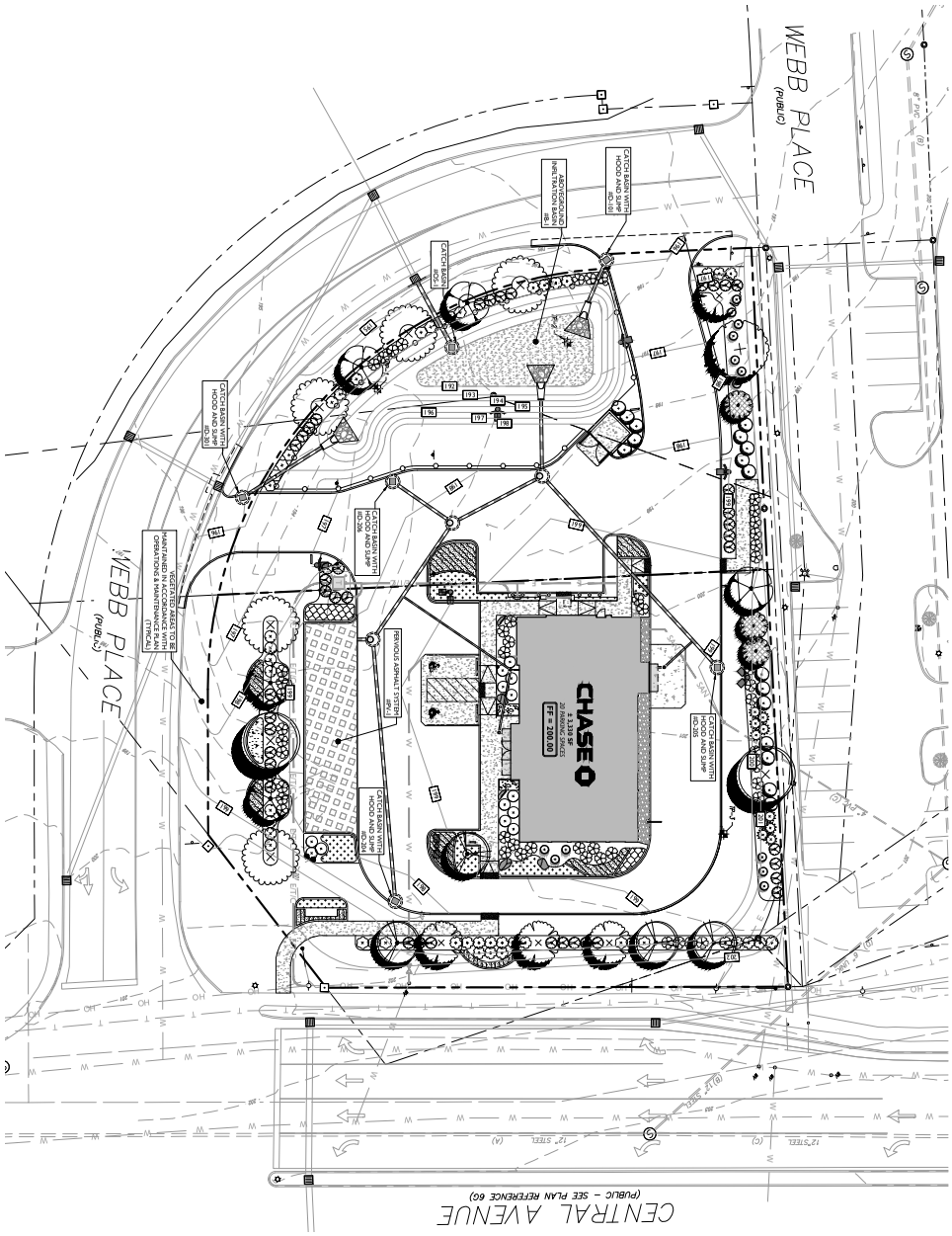
3. WHEN IRRIGATION FOR SURVIVAL, TREES TAKE MUCH LONGER TO ESTABLISH THAN REGULARLY IRRIGATED TREES. IRRIGATION MAY BE REQUIRED IN THE NORMAL HOT, DRY PORTIONS OF THE FOLLOWING YEAR.

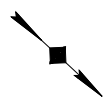
PLANT QUALITY AND HANDLING NOTES:

1. ALL PLANT MATERIAL SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-2004) OR LATEST REVISION AS PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
2. IN ALL CASES, BOTANICAL NAMES LISTED WITHIN THE APPROVED OR FINAL PLANT LIST SHALL TAKE PRECEDENCE OVER COMMON NAMES.
3. ALL PLANTS SHALL BE OF SELECTED SPECIMEN QUALITY, EXCEPTIONALLY HEAVY, TIGHTLY KNIT, SO TRAINED OR FAVORED IN THEIR DEVELOPMENT AND APPEARANCE AS TO BE SUPERIOR IN FORM, NUMBER OF BRANCHES, COMPACTNESS AND SYMMETRY. ALL PLANTS SHALL HAVE A NORMAL HABIT OR SOUND, HEALTHY, VIGOROUS PLANTS WITH WELL DEVELOPED ROOT SYSTEM. PLANTS SHALL BE FREE OF DISEASE, INSECT PESTS, EGGS OR LARVAE.
4. PLANTS SHALL NOT BE PRUNED BEFORE DELIVERY. TREES WITH ABRASION OF THE BARK, SUNSCALDS, DISFIGURING KNOTS OR FRESH CUTS OF LIMBS OVER ONE AND ONE-FOURTH INCHES (1-1/4") WHICH HAVE NOT COMPLETELY CALLOUSED SHALL BE REJECTED.
5. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH AND BE LEGIBLY TAGGED WITH THE PROPER NAME AND SIZE.
6. THE ROOT SYSTEM OF EACH PLANT SHALL BE WELL PROVIDED WITH FIBROUS ROOTS. ALL PARTS SHALL BE SOUND, HEALTHY, VIGOROUS, WELL-BRANCHED AND DENSELY FOLIATED WHEN IN LEAF.
7. ALL PLANTS DESIGNATED BALL AND BURLAP (B&B) MUST BE MOVED WITH THE ROOT SYSTEM AS SOLID UNITS WITH BALLS OF EARTH FIRMLY WRAPPED WITH BURLAP. THE DIAMETER AND DEPTH OF THE BALLS OF EARTH MUST BE SUFFICIENT TO ENCOMPASS THE FIBROUS ROOT FEEDING SYSTEMS NECESSARY FOR THE HEALTHY DEVELOPMENT OF THE PLANT. NO PLANT SHALL BE ACCEPTED WHEN THE BALL OF EARTH SURROUNDING ITS ROOTS HAS BEEN BADLY CRACKED OR BROKEN PREPARATORY TO OR DURING THE PROCESS OF PLANTING. THE BALLS SHALL REMAIN INTACT DURING ALL OPERATIONS. ALL PLANTS THAT CANNOT BE PLANTED AT ONCE MUST BE HEELED-IN BY SETTING IN THE GROUND AND COVERING THE BALLS WITH SOIL OR MULCH AND THEN WATERING. HEMP BURLAP AND TWINE IS PREFERABLE TO TREATED. IF TREATED BURLAP IS USED, ALL TWINE IS TO BE CUT FROM AROUND THE TRUNK AND ALL BURLAP IS TO BE REMOVED.
8. PLANTS TRANSPORTED TO THE PROJECT IN OPEN VEHICLES SHALL BE COVERED WITH TARPS OR OTHER SUITABLE COVERS SECURELY FASTENED TO THE BODY OF THE VEHICLE TO PREVENT INJURY TO THE PLANTS. CLOSED VEHICLES SHALL BE ADEQUATELY VENTILATED TO PREVENT OVERHEATING OF THE PLANTS. EVIDENCE OF INADEQUATE PROTECTION FOLLOWING DIGGING, CARELESSNESS WHILE IN TRANSIT, IMPROPER HANDLING OR STORAGE SHALL BE CAUSE FOR REJECTION OF PLANT MATERIAL. ALL PLANTS SHALL BE KEPT MOIST, FRESH, AND PROTECTED. SUCH PROTECTION SHALL ENCOMPASS THE ENTIRE PERIOD DURING WHICH THE PLANTS ARE IN TRANSIT, BEING HANDLED, OR ARE IN TEMPORARY STORAGE.
9. ALL PLANT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH THE CORRESPONDING LANDSCAPE PLAN AND PLANTING DETAILS.
10. LANDSCAPE CONTRACTOR SHALL MAKE BEST EFFORT TO INSTALL PLANTINGS ON THE SAME DAY AS DELIVERY. IF PLANTS ARE NOT PLANTED IMMEDIATELY ON SITE, PROPER CARE SHALL BE TAKEN TO PLACE THE PLANTINGS IN PARTIAL SHADE WHEN POSSIBLE. THE ROOT BALL SHALL BE KEPT MOIST AT ALL TIMES AND COVERED WITH MOISTENED MULCH OR LADED WOODCHIPS. PROPER IRRIGATION SHALL BE SUPPLIED SO AS TO NOT ALLOW THE ROOT BALL TO DRY OUT. PLANTINGS SHALL BE UNTIED AND PROPER SPACING SHALL BE ALLOTTED FOR AIR CIRCULATION AND TO PREVENT DISEASE, WILTING, AND LEAF LOSS. PLANTS THAT REMAIN UNPLANTED FOR A PERIOD OF TIME GREATER THAN THREE (3) DAYS SHALL BE HEALED IN WITH TOPSOIL OR MULCH AND WATERED AS REQUIRED TO PRESERVE ROOT MOISTURE.
11. NO PLANT MATERIAL SHALL BE PLANTED IN MUDDY OR FROZEN SOIL.
12. PLANTS WITH INJURED ROOTS OR BRANCHES SHALL BE PRUNED PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY DISEASED OR INJURED PLANTS SHALL BE REMOVED.
13. IF ROCK OR OTHER UNDERGROUND OBSTRUCTION IS ENCOUNTERED, THE LANDSCAPE DESIGNER RESERVES THE RIGHT TO RELOCATE OR ENLARGE PLANTING PITS OR DELETE PLANT MATERIAL FROM THE CONTRACT.
14. IF PLANTS ARE PROPOSED WITHIN SIGHT TRIANGLES, TREES SHALL BE LIMBED AND MAINTAINED TO A HEIGHT OF EIGHT FEET (8') ABOVE GRADE, AND SHRUBS, GROUND COVER, PERENNIALS, AND ANNUALS SHALL BE MAINTAINED TO A HEIGHT NOT TO EXCEED TWO FEET (2') ABOVE GRADE UNLESS OTHERWISE NOTED OR SPECIFIED BY THE GOVERNING MUNICIPALITY OR AGENCY.
15. INSTALLATION SHALL OCCUR DURING THE FOLLOWING SEASONS:
    PLANTS (MARCH 15 - DECEMBER 15)
    LAWNS (MARCH 15 - JUNE 15 OR SEPTEMBER 1 - DECEMBER 1)
16. THE FOLLO

APPENDIX C
STORMWATER BMP LOCATION EXHIBIT

Z:\BOSTON\BO3\02\BO3.02\37 CONSTATES - 1-3 WEBB PLACE, DOVER, NH\CADD\EXHIBITS\01-HYLOCATION EXHIBIT\02.4.01 - H_STORMWATER BMP LOCATION EXHIBIT.DWG





SITE IMPROVEMENT PLAN

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

STONEFIELD engineering & design

Rutherford, NJ · New York, NY · Salem, MA
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com

120 Washington Street, Suite 201, Salem, MA 01970
Phone 617.203.2076

NOT APPROVED FOR CONSTRUCTION

ISSUE	DATE	BY	DESCRIPTION
4	03/14/2024	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
3	12/28/2023	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
2	9/15/2023	JJR	PER TECHNICAL REVIEW COMMITTEE COMMENTS
1	7/31/2023	JJR	ISSUED FOR REVIEW

DRAWING: 1 OF 1

TITLE: STORMWATER BMP LOCATION EXHIBIT

SCALE: 1" = 30' | PROJECT ID: BOS-2301.37

STONEFIELD engineering & design

JOSHUA H. KEANE, P.E.
NEW HAMPSHIRE LICENSE NO. 15530
LICENSED PROFESSIONAL ENGINEER

APPENDIX D
DEICING LOG

Deicing Log

Deicing Material Used	Amount of Deicing Material Applied	Date of Application	Logged By

*** <u>DO NOT APPLY DEICING MATERIAL TO POROUS PAVEMENT.</u>**

APPENDIX E
INSPECTION & MAINTENANCE LOGS

Inspection and Maintenance Log

BMP/System Component	Date Inspected	Inspector	Cleaning/Repair Needed (list items/comments)	Date of Cleaning/Repair	Performed By

Regular Inspection and Maintenance Guidance for Permeable Pavements

Regular inspection and maintenance is critical to the effective operation of permeable pavement. It is the responsibility of the owner to maintain the pavement in accordance with the minimum design standards. This page provides guidance on maintenance activities that are typically required for these systems, along with the suggested frequency for each activity. Individual systems may have more, or less, frequent maintenance needs, depending on a variety of factors including the occurrence of large storm events, seasonal changes, and traffic conditions.

ACTIVITIES

Visual inspections are an integral part of system maintenance. This includes monitoring pavement to ensure water drainage, debris accumulation, and surface deterioration.

ACTIVITY	FREQUENCY
CLOGGING AND SYSTEM PERFORMANCE	
Adjacent vegetated areas show no signs of erosion and run-on to permeable pavement. **Remedy:** Repair or replace any damaged structural parts.	Whenever vacuuming adjacent permeable pavements
Adjacent non-permeable sections of pavement are clean of debris to prevent debris tracking. **Remedy:** Vacuuming adjacent pavement non-permeable pavement can be effective at minimizing run-on.	
Check for standing water remaining on the surface of the pavement after a precipitation event within 30 minutes. **Remedy:** Use of a power washer or compressed air blower at an angle of 30 degrees or less can be effective, particularly in combination with a vacuum or vacuum sweeper.	1-2 times per year, more frequently for high-use sites or sites with higher potential for run-on
Check for debris accumulation, particularly in the winter. **Remedy:** Loose debris such as leaves or trash can be removed using a power/leaf blower or gutter broom. Fall and spring cleanup should be accompanied by pavement vacuuming.	
Accumulation of sediment and organic debris on the pavement surface. **Remedy:** Regular use of a vacuum sweeper can remove sediment and organic debris. The sweeper may be fitted with water jets.	
PAVEMENT CONDITION	
Check for accumulation of snow or other stockpiles of materials such as sand/salt, mulch, soil, yard waste, etc. Stockpiling of these materials on permeable pavements can lead to premature clogging. **Remedy:** Remove stockpile if possible and check for clogging in storage area.	As Needed
Damage to pavement **Remedy:** Repairs should be repaired as they are identified	

CHECKLIST FOR INSPECTION OF PERMEABLE PAVEMENT

Location:
Inspector:
Date:
Time:
Site Conditions:
Date Since Last Rain Event:

Inspection Items	Satisfactory (S) or Unsatisfactory (U)	Comments/Corrective Action
1. Salt / Deicing (Winter/Spring)		
Use salt only for ice management	**S U**	
Accumulated salt removed in spring	**S U**	
2. Debris Cleanup (1-2 times per year minimum, Spring/Fall)		
Remove sediment and organic debris using vacuum street sweeper	**S U**	
Clean catch basins (if available)	**S U**	
3. Controlling Run-On		
Adjacent vegetated areas show no signs of erosion and run-on to permeable pavement	**S U**	
4. Outlet / Catch Basin Inspection (if available) (1-2 times per year, after large storm events)		
No evidence of blockage	**S U**	
Good condition, no need for cleaning/repair	**S U**	
5. Poorly Drained Pavement		
Recently cleaned and vacuumed	**S U**	
6. Pavement Condition		
No evidence of deterioration	**S U**	
7. Signage / Stockpiling (As Needed)		
No evidence of damage	**S U**	
Proper signage posted indicating usage for traffic load	**S U**	
No stockpiling of materials and other unauthorized uses	**S U**	

Corrective Action Needed	Due Date
1.	
2.	
3.	
Inspector's Signature	Date

APPENDIX F
ANNUAL EVALUATION FORMS

INVENTORY

F-1: ANNUAL EVALUATION LOG

F-2: AMENDMENT LOG

ANNUAL EVALUATION RECORD

The person responsible for maintenance shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed.

The responsible party should evaluate the effectiveness of the maintenance plan by comparing the maintenance plan with the actual performance of the maintenance. The items to evaluate may include, but not limited to,

- Whether the inspections have been performed as scheduled;
- Whether the preventive maintenance has been performed as scheduled;
- Whether the frequency of preventative maintenance needs to increase or decrease;
- Whether the planned resources were enough to perform the maintenance;
- Whether the repairs were completed on time;
- Whether the actual cost was consistent with the estimated cost;
- Whether the inspection, maintenance, and repair records have been kept.

If actual performance of those items has been deviated from the maintenance plan, the responsible party should find the causes and implement solutions in a revised maintenance plan.

Evaluator(s)	***Date of Evaluation***	***Decision***
		__Maintain current version OR __Revise current version Revision date _____ (also update the last revision date on the cover page) __Requires a new deed recording (also update the last recording information on the cover page)
		__Maintain current version OR __Revise current version Revision date _____ (also update the last revision date on the cover page) __Requires a new deed recording (also update the last recording information on the cover page)
		__Maintain current version OR __Revise current version Revision date _____ (also update the last revision date on the cover page) __Requires a new deed recording (also update the last recording information on the cover page)

Operations & Maintenance Plan Amendment Log

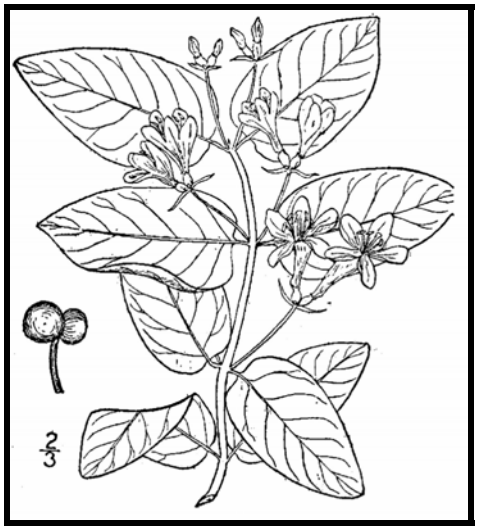
Amendment No.	Description of the Amendment	Date of Amendment	Amendment Prepared by (Name(s) and Title)

APPENDIX G
METHODS FOR DISPOSING OF NON-NATIVE INVASIVE PLANS

University of New Hampshire Cooperative Extension

Methods for Disposing Non-Native Invasive Plants

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



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

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

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

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

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

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

New Hampshire Regulations

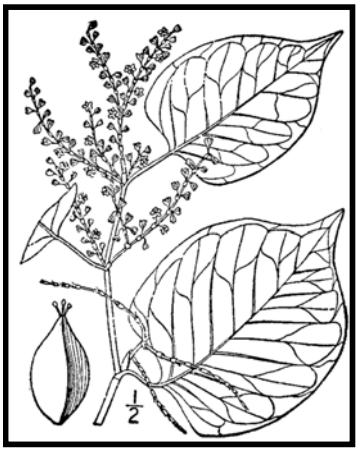
Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

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

How and When to Dispose of Invasives?

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

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



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

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

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

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

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

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

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

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

Suggested Disposal Methods for Non-Native Invasive Plants

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

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

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

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

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

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

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

January 2010

UNH Cooperative Extension programs and policies are consistent with pertinent Federal and State laws and regulations, and prohibits discrimination in its programs, activities and employment on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sex, sexual orientation, or veteran’s, marital or family status. College of Life Sciences and Agriculture, County Governments, NH Dept. of Resources and Economic Development, Division of Forests and Lands, NH Fish and Game ,and U.S. Dept. of Agriculture cooperating.

STONEFIELD

September 29, 2023
Revised: March 14, 2024

City of Dover
Planning Board
City Hall
288 Central Avenue
Dover, NH 03820

RE: Chase Bank Parking Operations Memorandum
1-3 Webb Place
Map 38, Lots 15A & 15B
City of Dover, Strafford County, New Hampshire
SE&D Job No.: BOS-220137

Dear Board Members:

Stonefield Engineering and Design ("Stonefield") has prepared this assessment in connection with the proposed 3,330-square-foot Chase bank with drive-up ATM to identify typical parking supplies for Chase banks. The City of Dover requires a maximum of one (1) parking space per 275 square feet of gross leasable area for retail/service uses. For the proposed 3,330-square-foot Chase bank, this equates to a maximum of 12 required parking spaces. The site would provide 20 total parking spaces, inclusive of two (2) ADA-accessible parking spaces, and therefore the development exceeds the maximum parking requirement. However, it is important to note that in accordance with Chapter 153, Article XIV "Site Design and Development Criteria" of the City of Dover Planning Board Regulations, a Conditional Use Permit (CUP) may be granted by the Planning Board for an increase in number of parking spaces provided that the project complies with the various outlined standards. As such, the analysis contained herein provides justification for a CUP for the requested increase in parking spaces based on these regulations.

ITE Parking Generation Manual, 5th Edition

The proposed parking supply was evaluated with respect to data published within the ITE's Parking Generation, 5th Edition, for Land Use 912 "Drive-in Bank." The 85th percentile parking demand rate during the peak weekday period for Land Use 912 "Drive-in Bank" is 6.0 vehicles per 1,000 square feet of gross floor area. For the 3,330-square-foot bank development, this equates to 20 vehicles. As such, the maximum requirement of 12 spaces is not expected to adequately support the proposed development, whereas the proposed parking supply of 20 spaces is more appropriate and would be sufficient to support the anticipated parking demand of the development.

Parking Utilization at Study Chase Bank Locations

In order to project the parking demand of the proposed Chase bank, parking utilization counts and observations were performed at an existing approximately 4,750-square-foot Chase bank located in Orangeburg, New York and operating with 45 off-street parking spaces. The study location was selected as it operates along roadways with comparable Average Annual Daily Traffic (AADT) to that along Central Avenue and operates in a region with a similar population as the City of Dover. It should be noted that the study location had drive-through lanes for ATM services similar to the proposed Chase bank.

The parking utilization counts were conducted at the study location on Friday, September 6, 2019, from 10:00 a.m. to 1:00 p.m. and 2:00 p.m. to 6:00 p.m. which is when the existing bank is experiencing peak traffic

conditions. The parking utilization data was collected in 15-minute intervals and analyzed to identify the peak parking utilization during the study period.

Based on a review of the parking utilization data, the critical existing peak parking demand at the Orangeburg location occurred during the evening peak time period at 3:30 p.m. with a total of 34 parked vehicles. The capacity and utilization observed at each study location during the critical peak period is summarized in **Table 1**.

TABLE 1 – OBSERVED EXISTING PEAK PARKING UTILIZATION

	Parking Supply	Peak Parking Demand	Peak Utilization	Reserve Capacity
Chase Orangeburg Weekday Evening Peak Period (3:30 p.m.)	45	34	76%	11

The peak parking utilization observed at the 4,750-square-foot Orangeburg location yields a parking demand rate of 7.16 vehicles per 1,000 square feet of gross floor area. This rate was used to project the parking demand of the proposed 3330-square-foot Chase bank, which was then compared to the parking rate published by ITE and the City of Dover parking requirement equivalents. These projections are summarized in **Table 2**.

TABLE 2 – PARKING DEMAND COMPARISON

	Parking Demand Rate (Per 1,000 SF of GFA)	Projected Peak Parking Demand for Proposed Dover Chase Bank
Observed Peak Parking Demand at Orangeburg Chase Bank Location	7.16	24
Peak Parking Demand ITE Land Use 912 "Drive-in Bank"	6.00	20
City of Dover Maximum Parking Requirement	**3.60**	**12**

As shown in **Table 2**, the proposed 3,330-square-foot Chase bank would be expected to generate a peak parking demand of approximately 24 vehicles. As such, the peak observed parking demand at the study locations is generally greater than the proposed parking supply of 20 spaces and both the peak observed parking demand and the parking rate associated with the proposed parking supply presented in **Table 2** are significantly greater than the parking rate as per the City of Dover's maximum parking requirement. Therefore, the parking utilization data supports the need to provide a CUP for an increase in parking supply that exceeds the maximum as outlined in the City of Dover Zoning Ordinance.

Parking Supply for Typical Chase Bank Locations

To examine the subject application with respect to the proposed parking supply, various Chase bank locations that Stonefield has consulted on were reviewed. Based on the review, the proposed parking supply is typical in comparison to other Chase bank locations in the general New England region. **Table 3** provides a summary of the location, size, and parking supply of several Chase bank developments in New England and upstate New York which are currently approved, under construction, or completed and fully operational.

TABLE 3 – CHASE BANK PARKING SUPPLIES

Chase Bank Address	Municipality / State	Adjacent Roadway AADT	Municipal Population	Building Size (SF)	Parking Supply	Parking Supply Rate (Per 1,000 SF)
520 Main Street (U.S. Route 1)	Saco / ME	24,180	20,872	4,048	35	8.65
20 Park Avenue	Clifton Park / NY	20,643	38,112	4,104	31	7.55
190 Buckland Road	Windsor / CT	18,500	26,783	3,470	27	7.78
1151 Silas Deane Highway	Wethersfield / CT	20,100	27,298	3,470	26	7.49
333 NY-303	Orangeburg / NY	19,730	48,141	4,750	45	9.47
Average of Existing Chase Bank Locations				**3,968**	**33**	**8.19**
Proposed Chase Bank		**22,429**	**33,416**	**3,330**	**20**	**6.01**

As shown in **Table 3**, the review of Chase bank locations in regions with comparable population and average daily traffic patterns within New England and upstate New York shows that Chase bank locations typically provide a minimum supply of 25 parking spaces, with as many as 45 parking spaces provided. An average parking supply of 33 spaces was calculated for the reviewed Chase Bank locations of comparable size, which equates to an average parking supply rate of 8.19 spaces per 1,000 square feet of gross floor area. Applying this rate to the proposed 3,330-square-foot development yields a parking supply of 27 spaces. Therefore, the proposed parking supply of 20 parking spaces for the subject application is lower than the parking supply typically provided for similar existing operations.

On-Street & Neighboring Parking Capabilities

It is important to note that on-street parking is not permitted along Central Avenue or Webb Place within proximity of the subject site. Therefore, a combination of on- and off-street parking is not an adequate option to support the proposed development. The proposed parking supply of 20 spaces would be a reduction from the 45 spaces currently provided for the existing commercial building on site, which will be closed and razed under the proposed condition. It should also be noted that the proposed parking supply would be constructed without impacting the neighboring properties. Further, by containing vehicles generated by the bank use entirely on the subject property, potential vehicle and parking conflicts that may arise through shared parking arrangements with adjacent developments would be avoided. As such, the proposed increase in parking spaces would not have a detrimental effect on surrounding properties.

Additional Parking Design & Construction

It is important to note that in accordance with the aforementioned City of Dover requirements for a CUP, the eight (8) parking spaces proposed in excess of the 12-space requirement will be constructed with pervious materials, and the design of the pervious pavement area will adhere to the standards outlined in the New Hampshire Stormwater Manual. As such, the proposed design satisfies the City of Dover's CUP requirement pertaining to the design and construction of additional parking storage areas.

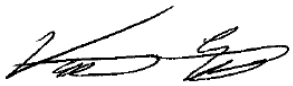
Electric Vehicle Requirements

In accordance with the aforementioned City of Dover requirements for a CUP, the proposed development will provide three (3) parking spaces with Electric Vehicle Supply Equipment (EVSE), which meets the requirement that 2.0% of the total number of new parking spaces provide Electric Vehicle Charging Readiness for non-residential projects, or the equivalent of one (1) space, plus two (2) additional EVSE spaces required for applications requesting a CUP for an increase in parking spaces. The EVSE parking spaces will be constructed in compliance with the standards outlined in the City of Dover Planning Board Regulations, thereby satisfying the criteria outlined pertaining to EVSE for a CUP for an increase in parking supply.

Conclusion

This report was prepared to evaluate the parking supply of the proposed Chase bank with drive-up ATM and provide justification that a CUP for an increase in parking supply should be granted for the proposed application. Based on industry data and typical Chase bank operations, the proposed parking supply of 20 parking spaces is generally below the range typically provided for Chase banks of comparable size and would be necessary to support the parking demand of their customer base. The parking utilization data support the need to provide a parking supply that exceeds the maximum as outlined in the City of Dover Zoning Ordinance, and the parking supply provided is generally consistent with the anticipated peak demand.

Best regards,



Joshua H. Kline, PE
Stonefield Engineering and Design

Victoria E. Epstein
Stonefield Engineering and Design

Z:\Boston\BOS\2022\BOS-220137 CoreStates - 1-3 Webb Place, Dover, NH\Calculations & Reports\Traffic\Reports\2024-03 Parking Memo\2024-03 Parking Memo.docx

June 22, 2023

I-3 Webb Place, Map 38, Lots 15A & 15B, Dover NH

ATT: Megan Ryser-Oatman
584 Broadway Suite 310. New York, NY 10012

RE: “Will Serve Letter: I-3 Webb Place, Map 38, Lots 15A & 15B, Dover NH”

Ms. Megan Ryser-Oatman,

Consolidated Communications of Northern New England Company, LLC has agreed to provide communications service to this property subject to the Tariffs and terms of NHPUC.

Please note that a payment may be required from the customer requesting service as described in NH PUC Tariff.

You may review these documents at: (copy & paste link into browser)
http://www.tariffs.net/tariffs/100115qwzx/tempNH%20Catalog%20CCNNE%20WDUTP%20FINAL%202021-09-27.pdf

Subsequent to the customer responsibilities being satisfied, Consolidated will process with construction of the services requested.

Should you have any questions, please feel free to contact me.

All the best with your project,

Craig Hollingsworth | OSP Engineer II
C:603-393-0785
Craig.Hollingsworth@consolidated.com
http://www.consolidated.com/ | NASDAQ: CNSL

EVERSOURCE ENERGY

February 14, 2024

1700 Lafayette Road
Portsmouth, NH 03801

Trevor S Emmons
603-332-7515
Trevor.emmons@eversource.com

Joshua Kline
Stonefield Engineering & Design
120 Washington Street
Salem, MA 01970

Dear Joshua Kline:

I am responding to your request to confirm the availability of electric service for the proposed 1-3 Webb Place project being constructed for/by J.P. Morgan Chase.

The proposed project consists of a 1-story building with 3,330 s/f of retail/office space at the ground level and parking below grade. The proposed development will be constructed along Webb Place & Central Avenue.

The developer will be responsible for the installation of all underground facilities and infrastructure required to service the new building. The service will be as shown on attached marked up Utility Plan C-6. The proposed building service will be fed from P. 7/2X to a new pad-mounted transformer as depicted on utility plan C-6. The developer will work with Eversource to obtain all necessary easements and licenses for the proposed underground/overhead facilities listed above.

This letter serves as confirmation that Eversource has sufficient capacity in the area to provide service to this proposed development. The cost of extending service to the aforementioned location and any associated infrastructure improvements necessary to provide service will be borne by the developer unless otherwise agreed upon.

The attached drawing titled "Utility Plan" dated 12/28/2023, shows transformer locations to service your proposed project.

Eversource approves the locations shown; assuming the final installed locations meet all clearances, physical protection, and access requirements as outlined in Eversource's "Information & Requirements For Electric Supply" (https://www.eversource.com/content/docs/default-source/pdfs/requirements-for-electric-service-connections.pdf?sfvrsn=2).

If you require additional information or I can be of further assistance please do not hesitate to contact me at our Rochester Office, 603-332-7515

Respectfully.

Trevor Emmons
Eastern Regional Engineer, Eversource

cc: Michael J. Busby, PE, Eastern Regional Engineering and Design Manager, Eversource
Thomas Boulter, Eastern Region Operations Manager, Eversource
Nickolai Kosko, Field Supervisor, Electric Design, Eversource

SITE IMPROVEMENT PLAN

FOR

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B

1 - 3 WEBB PLACE

CITY OF DOVER, STRAFFORD COUNTY, NEW HAMPSHIRE

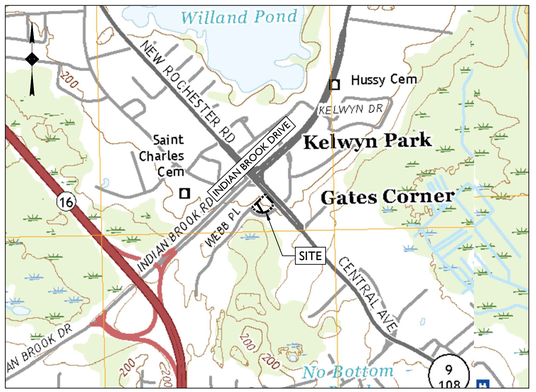
APPLICANT

CORE STATES GROUP
201 S. MAPLE AVENUE, AMBLER, PA 19002
C/O STONEFIELD ENGINEERING & DESIGN
120 WASHINGTON STREET, SUITE 201
SALEM, MA 01970
(617) 203-2076
JKLINE@STONEFIELDENG.COM

OWNER

DOVER RETAIL MANAGEMENT LLC
30200 TELEGRAPH ROAD
BINGHAM FARMS, MICHIGAN, 48025

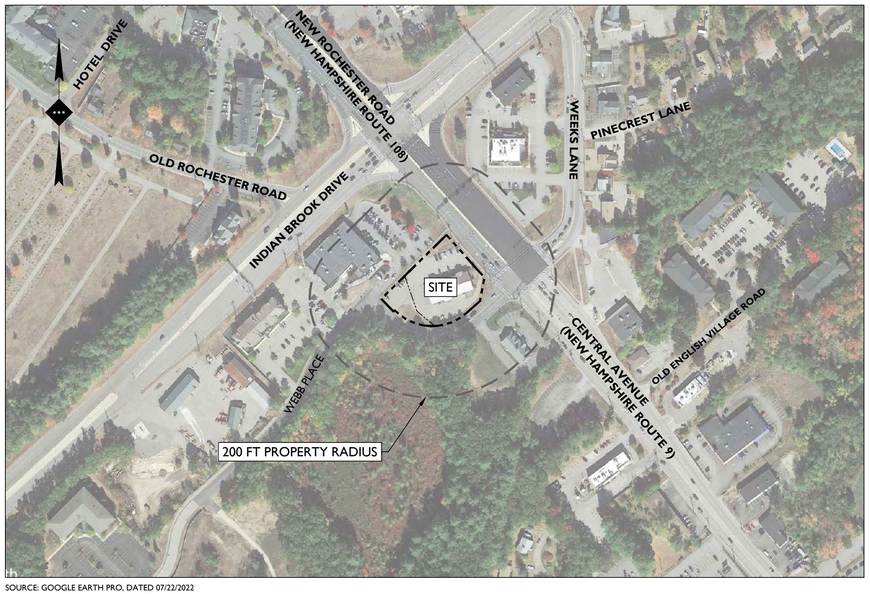
811 Know what's **below** **Call** before you dig.



SOURCE: UNITED STATES GEOLOGICAL SURVEY MAP, DOVER EAST QUADRANGLE & DOVER WEST QUADRANGLE, NEW HAMPSHIRE, 7.5 MINUTE SERIES, DATED 2021

LOCATION MAP

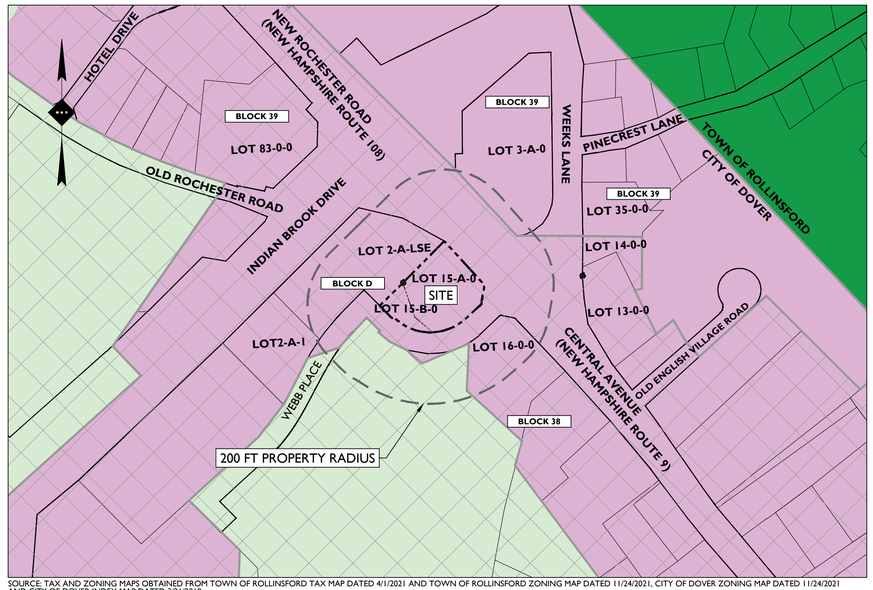
SCALE: 1" = 1000'±



SOURCE: GOOGLE EARTH PRO, DATED 07/22/2022

AERIAL MAP

SCALE: 1" = 200'±



SOURCE: TAX AND ZONING MAPS OBTAINED FROM TOWN OF ROLLINSFORD TAX MAP DATED 4/1/2021 AND TOWN OF ROLLINSFORD ZONING MAP DATED 11/24/2021, CITY OF DOVER ZONING MAP DATED 11/24/2021 AND CITY OF DOVER INDEX MAP DATED 3/21/2018

TAX / ZONING MAP

SCALE: 1" = 200'±

ZONING LEGEND:

DOVER: ZONE C - COMERCIAL; ZONE R-12 MEDIUM-DENSITY RESIDENTIAL; SECONDARY GROUNDWATER PROTECTION DISTRICT

ROLLINSFORD: ZONE I/R - URBAN RESIDENTIAL

WAIVER SUMMARY TABLE

CODE SECTION	REQUIRED	PROPOSED
§ 153-14.E.(2).(B)	MAXIMUM UNIFORMITY RATIO: 6:1	11.2 : 1
§ 153-14.E.(2).(B)	MINIMUM ILLUMINATION IN PARKNG AREA = NO LESS THAN 0.3 FC, NO MORE THAN 0.5 FC	1.0 FC

CITY DOVER 200' PROPERTY OWNERS LIST

TAX MAP	LOT	OWNER	OWNER'S ADDRESS
D	2-A-LSE	CENTERCO DOVER LLC	11 17 WEBB PLACE, DOVER, NEW HAMPSHIRE, 03820
39	3-A-0	SOURMAIDIS CHARLES & SOURMAIDIS MARIA	18 20 WEEKS LANE, DOVER, NEW HAMPSHIRE, 03820
D0002-A00LSE		CITY OF DOVER	40 42 SMITH WELL ROAD, DOVER, NEW HAMPSHIRE, 03820
D	2-A-1	EMPIRE NORTH PROPERTIES LLC	31 WEBB PLACE, DOVER, NEW HAMPSHIRE, 03820
38	16-0-0	P P D ORAZIO LLC	920 CENTRAL AVENUE, DOVER, NEW HAMPSHIRE, 03820

PLAN REFERENCE MATERIALS:

1. THIS PLAN SET REFERENCES THE FOLLOWING DOCUMENTS INCLUDING, BUT NOT LIMITED TO:
   - ALTA / NSPS LAND TITLE SURVEY PREPARED BY COLLIERS ENGINEERING & DESIGN FOR THE SUBJECT PROPERTY, DATED 09/28/2023
   - ARCHITECTURAL PLANS OBTAINED FROM CORE STATES, DATED 3/13/2024
   - ARIEL OBTAINED FROM GOOGLE EARTH PRO, DATED 07/22/2022
   - TAX AND ZONING MAPS OBTAINED FROM TOWN OF ROLLINSFORD TAX MAP DATED 4/1/2021 AND TOWN OF ROLLINSFORD ZONING MAP DATED 11/24/2021, CITY OF DOVER ZONING MAP DATED 11/24/2021 AND CITY OF DOVER INDEX MAP DATED 3/21/2018, CITY OF SOMERSWORTH ZONING MAP DATED 12/1/2021 AND CITY OF SOMERSWORTH TAX PARCELS MAP DATED 9/1/2022
   - LOCATION MAP OBTAINED FROM UNITED STATES GEOLOGICAL SURVEY MAP, DOVER EAST QUADRANGLE & DOVER WEST QUADRANGLE, NEW HAMPSHIRE, 7.5 MINUTE SERIES, DATED 2021
   - STORMWATER MANAGEMENT AREA EVALUATION, PREPARED BY WHITESTONE ASSOCIATES, DATED 1/18/2024
   - REPORT OF GEOTECHNICAL INVESTIGATION PREPARED BY WHITESTONE ASSOCIATES, DATED 3/21/2023
2. ALL REFERENCE MATERIAL LISTED ABOVE SHALL BE CONSIDERED A PART OF THIS PLAN SET AND ALL INFORMATION CONTAINED WITHIN THESE MATERIALS SHALL BE UTILIZED IN CONJUNCTION WITH THIS PLAN SET. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN A COPY OF EACH REFERENCE AND REVIEW IT THOROUGHLY PRIOR TO THE START OF CONSTRUCTION.

PLANS PREPARED BY:

STONEFIELD engineering & design

Rutherford, NJ · New York, NY · Salem, MA
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com

120 Washington Street, Suite 201, Salem, MA 01970
Phone 617.203.2076

OWNER APPROVAL

I CONSENT TO THE FILING OF THIS APPLICATION

PROPERTY OWNER — DATE 12/13/23

CITY APPROVAL

APPROVED BY THE CITY OF DOVER, NEW HAMPSHIRE PLANNING BOARD

CHAIRMAN — DATE

SECRETARY OF THE BOARD — DATE

CITY ENGINEER — DATE

SHEET INDEX

DRAWING TITLE	SHEET #
COVER SHEET	C-1
EXISTING CONDITIONS PLAN	C-2
DEMOLITION PLAN	C-3
SITE PLAN	C-4
GRADING PLAN	C-5
UTILITY PLAN	C-6
LIGHTING PLAN	C-7
SOIL EROSION & SEDIMENT CONTROL PLAN	C-8 & C-9
LANDSCAPING PLAN	C-10 & C-11
CONSTRUCTION DETAILS	C-12 - C-16
TRUCK MOVEMENT EXHIBIT	E-1 - E-3
ALTA / NSPS LAND TITLE SURVEY	SURVEY 1 - SURVEY 2
ARCHITECTURAL PLAN	A-1 - A-6

ISSUE	DATE	BY	DESCRIPTION
4	03/14/2024	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
3	12/28/2023	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
2	9/15/2023	JJR	PER TECHNICAL REVIEW COMMITTEE COMMENTS
1	7/31/2023	JJR	ISSUED FOR REVIEW

NOT APPROVED FOR CONSTRUCTION

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Princeton, NJ · Tampa, FL · Detroit, MI
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SITE IMPROVEMENT PLAN

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

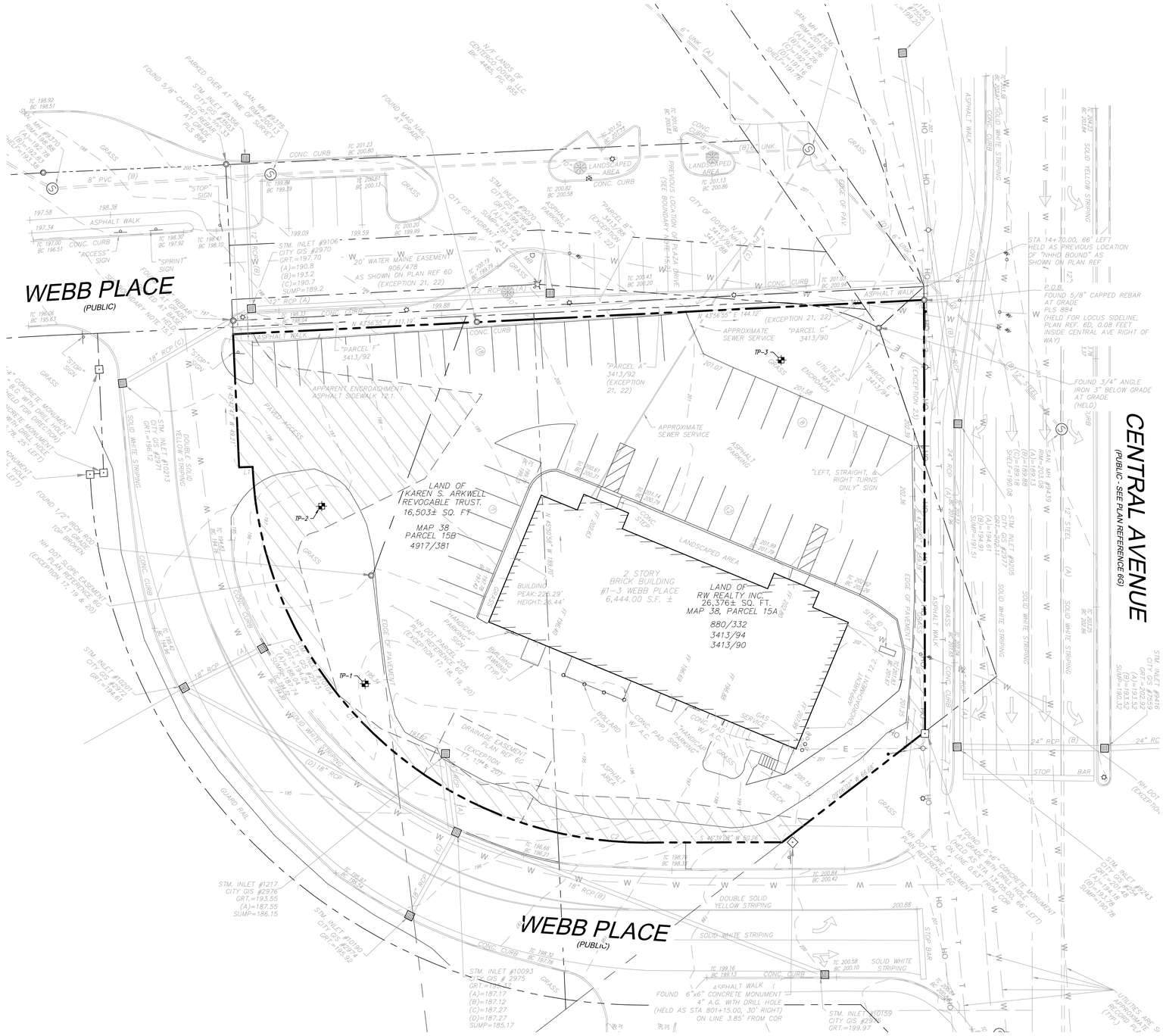
STONEFIELD engineering & design

SCALE: AS SHOWN | PROJECT ID: BOS-220137

TITLE: COVER SHEET

DRAWING: C-1

Z:\BOS\TOWN\BOS2022\BOS-220137 CORE\STATES - 1-3 WEBB PLACE, DOVER, NH\CAD\PLOT\PDF\01-COVER.DWG



SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
— — 125 — —	EXISTING CONTOUR		DEPRESSED CURB
× 123.45	EXISTING SPOT ELEVATION	Ⓔ EMH	ELECTRIC MANHOLE
× TC 123.45	EXISTING TOP OF CURB ELEVATION	Ⓢ SMH	SANITARY/SEWER MANHOLE
× TB 123.45	EXISTING BOTTOM OF CURB ELEVATION	Ⓣ TMH	TELEPHONE MANHOLE
× FF 123.45	EXISTING FINISHED DOOR ELEVATION	Ⓜ MH	UNKNOWN MANHOLE
× DS 123.45	EXISTING DOOR SILL ELEVATION	Ⓦ WMH	WATER MANHOLE
	HYDRANT	CB	CATCH BASIN OR INLET
WV	WATER VALVE		TREE & TRUNK SIZE
GV	GAS VALVE	EOP	EDGE OF PAVEMENT
EM	ELECTRIC METER	LSA	LANDSCAPED AREA
— OH —	OVERHEAD WIRES	MC	METAL COVER
— G —	APPROX. LOC. UNDERGROUND GAS LINE	(TYP)	TYPICAL
— T —	APPROX. LOC. UNDERGROUND TELE LINE	SWL	SOLID WHITE LINE
— W —	APPROX. LOC. UNDERGROUND WATER LINE	SYL	SOLID YELLOW LINE
Qd	QUALITY LEVEL D	DYL	DOUBLE YELLOW LINE
Qc	QUALITY LEVEL C	HT	HEIGHT
UP	UTILITY POLE	BLDG	BUILDING
UPLP	UTILITY POLE/LIGHT POLE	BFPA	BUILDING FOOTPRINT AREA
	SIGN	NVP	NO VISIBLE PIPE
	BOLLARD	SBDH	STONE BOUND w/ DRILL HOLE
	PAINTED ARROWS	EL	ELEVATION
CLF	CHAIN LINK FENCE	INV	INVERT ELEVATION
DC	DEPRESSED CURB	(S)	SURVEY DIMENSION
1.0'	OFFSET OF STRUCTURE AT GROUND LEVEL RELATIVE TO PROPERTY LINE	(R)	RECORD DIMENSION
10	PARKING SPACE COUNT		TITLE REPORT EXCEPTION

SURVEY NOTE:

THE SURVEY LISTED WITHIN THE PLAN REFERENCES ON THE COVER SHEET SHALL BE CONSIDERED A PART OF THIS PLAN SET AND ALL INFORMATION CONTAINED WITHIN THE SURVEY AND ASSOCIATED DOCUMENTS SHALL BE UTILIZED IN CONJUNCTION WITH THIS PLAN SET. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN A COPY OF THE SURVEY AND REVIEW IT THOROUGHLY PRIOR TO THE START OF CONSTRUCTION.

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
4	03/14/2024	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
3	12/28/2023	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
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SITE IMPROVEMENT PLAN

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-220137

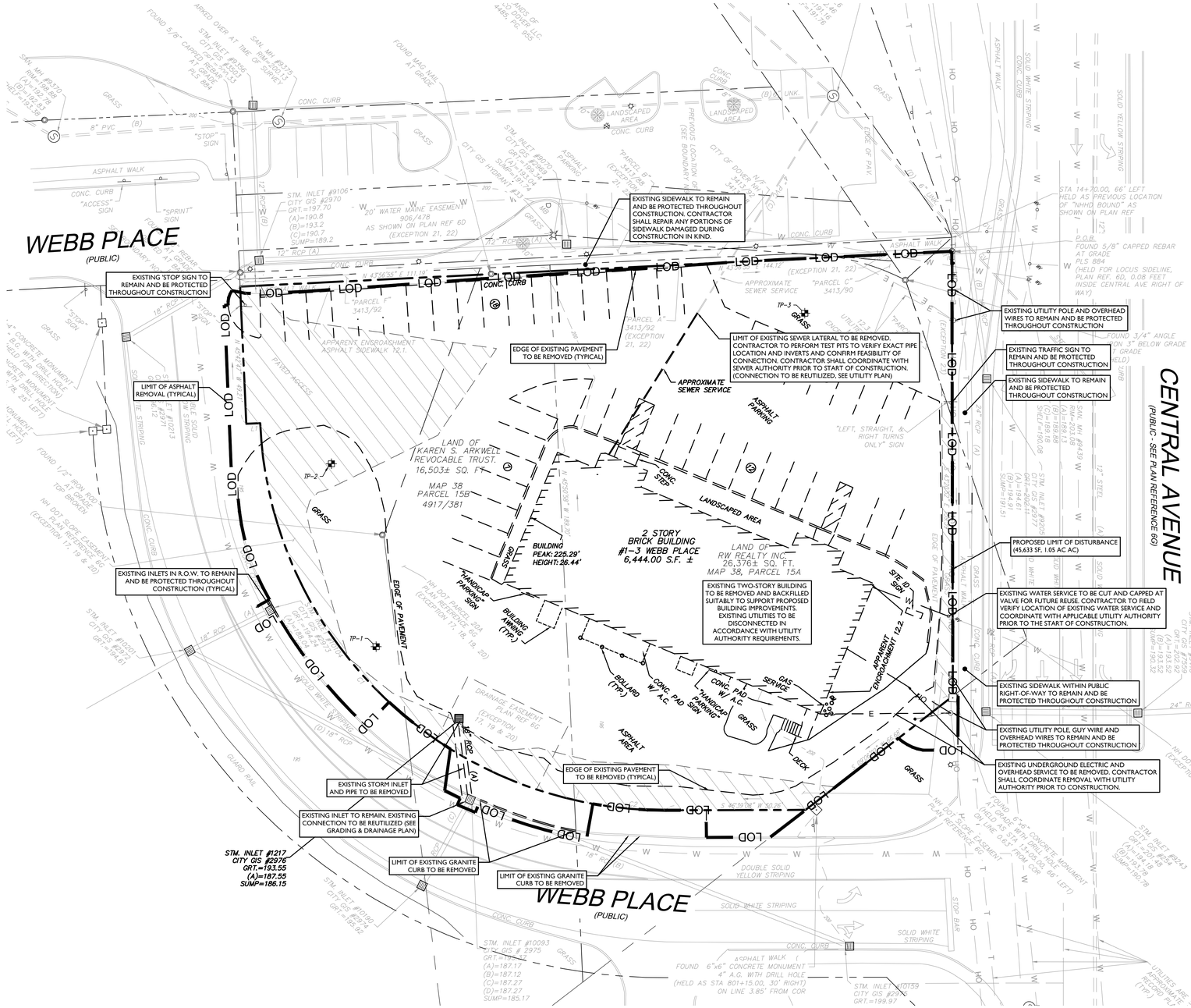
TITLE:

EXISTING CONDITIONS PLAN

DRAWING:

C-2

Z:\BOS\PDM\BOS\220137 CORESITE - 1-3 WEBB PLACE, DOVER, NH\CAD\SPLOT\PDF\01-EXIST.DWG


WEBB PLACE
(PUBLIC)
CENTRAL AVENUE
(PUBLIC - SEE PLAN REFERENCE 6G)
EXISTING 'STOP' SIGN TO REMAIN AND BE PROTECTED THROUGHOUT CONSTRUCTION
EXISTING SIDEWALK TO REMAIN AND BE PROTECTED THROUGHOUT CONSTRUCTION. CONTRACTOR SHALL REPAIR ANY PORTIONS OF SIDEWALK DAMAGED DURING CONSTRUCTION IN KIND.
EDGE OF EXISTING PAVEMENT TO BE REMOVED (TYPICAL)
LIMIT OF EXISTING SEWER LATERAL TO BE REMOVED. CONTRACTOR TO PERFORM TEST PITS TO VERIFY EXACT PIPE LOCATION AND INVERTS AND CONFIRM FEASIBILITY OF CONNECTION. CONTRACTOR SHALL COORDINATE WITH SEWER AUTHORITY PRIOR TO START OF CONSTRUCTION. (CONNECTION TO BE REUTILIZED, SEE UTILITY PLAN).
EXISTING UTILITY POLE AND OVERHEAD WIRES TO REMAIN AND BE PROTECTED THROUGHOUT CONSTRUCTION
EXISTING TRAFFIC SIGN TO REMAIN AND BE PROTECTED THROUGHOUT CONSTRUCTION
EXISTING SIDEWALK TO REMAIN AND BE PROTECTED THROUGHOUT CONSTRUCTION
LIMIT OF ASPHALT REMOVAL (TYPICAL)
LAND OF KAREN S. ARKWELL REVOCABLE TRUST. 16,503± SQ. FT. MAP 38 PARCEL 15B 4917/381
2 STORY BRICK BUILDING #1–3 WEBB PLACE 6,444.00 S.F. ±
LAND OF RW REALTY INC. 26,376± SQ. FT. MAP 38, PARCEL 15A
EXISTING TWO-STORY BUILDING TO BE REMOVED AND BACKFILLED SUITABLY TO SUPPORT PROPOSED BUILDING IMPROVEMENTS. EXISTING UTILITIES TO BE DISCONNECTED IN ACCORDANCE WITH UTILITY AUTHORITY REQUIREMENTS.
PROPOSED LIMIT OF DISTURBANCE (45,633 SF, 1.05 AC AC)
EXISTING WATER SERVICE TO BE CUT AND CAPPED AT VALVE FOR FUTURE REUSE. CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING WATER SERVICE AND COORDINATE WITH APPLICABLE UTILITY AUTHORITY PRIOR TO THE START OF CONSTRUCTION.
EXISTING SIDEWALK WITHIN PUBLIC RIGHT-OF-WAY TO REMAIN AND BE PROTECTED THROUGHOUT CONSTRUCTION
EXISTING UTILITY POLE, GUY WIRE AND OVERHEAD WIRES TO REMAIN AND BE PROTECTED THROUGHOUT CONSTRUCTION
EXISTING UNDERGROUND ELECTRIC AND OVERHEAD SERVICE TO BE REMOVED. CONTRACTOR SHALL COORDINATE REMOVAL WITH UTILITY AUTHORITY PRIOR TO CONSTRUCTION.
EXISTING INLETS IN R.O.W. TO REMAIN AND BE PROTECTED THROUGHOUT CONSTRUCTION (TYPICAL)
EXISTING STORM INLET AND PIPE TO BE REMOVED
EXISTING INLET TO REMAIN. EXISTING CONNECTION TO BE REUTILIZED (SEE GRADING & DRAINAGE PLAN)
LIMIT OF EXISTING GRANITE CURB TO BE REMOVED
LIMIT OF EXISTING GRANITE CURB TO BE REMOVED
EDGE OF EXISTING PAVEMENT TO BE REMOVED (TYPICAL)
STM. INLET #1217 CITY GIS #2976 GRT.=193.55 (A)=187.55 SUMP=186.15
LOD
CONC. CURB
ASPHALT WALK
GRASS
ASPHALT PARKING
ASPHALT AREA
LANDSCAPED AREA
BUILDING PEAK: 225.29' HEIGHT: 26.44'
"HANDICAP PARKING" SIGN
BOLLARD (TYP.)
CONC. PAD W/ A.C.
GAS SERVICE
DECK
STOP BAR
DOUBLE SOLID YELLOW STRIPING
SOLID WHITE STRIPING
"LEFT, STRAIGHT, & RIGHT TURNS ONLY" SIGN
"STOP" SIGN
"ACCESS" SIGN
"SPRINT" SIGN
TP-1
TP-2
TP-3
APPARENT ENCROACHMENT ASPHALT SIDEWALK 12.1
APPARENT ENCROACHMENT 12.2
20' WATER MAINE EASEMENT 906/478 AS SHOWN ON PLAN REF. 6D (EXCEPTION 21, 22)
NH DOT SLOPE EASEMENT AS SHOWN ON PLAN REFERENCE 6G (EXCEPTION 17, 18, 19 & 20)
DRAINAGE EASEMENT AS SHOWN ON PLAN REF. 6G (EXCEPTION 17, 18, 19 & 20)
NH DOT TAKING (EXCEPTION 17, 18,)
STA 14+70.00, 66' LEFT HELD AS "PREVIOUS LOCATION OF "NHHD BOUND" AS SHOWN ON PLAN REF.
P.O.B. FOUND 5/8" CAPPED REBAR AT GRADE PLS 884 (HELD FOR LOCUS SIDELINE, PLAN REF. 6D, 0.08 FEET INSIDE CENTRAL AVE RIGHT OF WAY)
FOUND 3/4" ANGLE IRON .3' BELOW GRADE (HELD)
FOUND 1/2" IRON ROD FLUSH TOP BROKEN
FOUND 5/8" CAPPED REBAR AT GRADE
FOUND MAG NAIL AT GRADE
FOUND 6"x6" CONCRETE MONUMENT 4" A.G. WITH DRILL HOLE (HELD AS STA. 801+15.00, 30' RIGHT) ON LINE 3.85' FROM COR
FOUND 6"x6" CONCRETE MONUMENT 4" A.G. WITH DRILL HOLE (HELD AS STA. 801+15.00, 66' LEFT) ON LINE 0.83' FROM COR
UTILITIES ARE SHOWN APPROXIMATE AS RECORDED PLANS (TYP.)
GUARD RAIL
STM. INLET #10093 CITY GIS # 2975 GRT.=193.55 (A)=187.17 (B)=187.12 (C)=187.27 (D)=187.27 SUMP=185.17
STM. INLET #10159 CITY GIS #2976 GRT.=199.97
STM. INLET #10201 CITY GIS #2972 GRT.=194.61
STM. INLET #9106 CITY GIS #2970 GRT.=197.70 (A)=190.8 (B)=193.2 (C)=190.7 SUMP=189.2
STM. INLET #9105 CITY GIS #2971 GRT.=194.24 (A)=189.24 (B)=189.24 (C)=189.24 (D)=189.24 SUMP=189.24
STM. INLET #9370 RIM=199.88 (A)=192.88 (B)=192.98 SUMP=192.58
STM. INLET #9375 RIM=199.88 (A)=193.13 (B)=193.13 SUMP=192.73
STM. INLET #9376 CITY GIS #2973 GRT.=194.91 (A)=189.91 (B)=189.91 SUMP=189.51
STM. INLET #9377 CITY GIS #2974 GRT.=194.61 (A)=189.61 (B)=189.61 SUMP=189.21
STM. INLET #9378 CITY GIS #2977 GRT.=194.91 (A)=189.91 (B)=189.91 SUMP=189.51
STM. INLET #9379 CITY GIS #2978 GRT.=194.91 (A)=189.91 (B)=189.91 SUMP=189.51
STM. INLET #9439 RIM=199.88 (A)=189.13 (B)=189.08 (C)=189.08 SUMP=188.68
STM. INLET #9440 RIM=199.88 (A)=189.13 (B)=189.08 (C)=189.08 SUMP=188.68
STM. INLET #9441 CITY GIS #2979 GRT.=194.78 (A)=189.78 (B)=189.78 (C)=189.78 SUMP=189.38
STM. INLET #9442 CITY GIS #2980 GRT.=194.78 (A)=189.78 (B)=189.78 (C)=189.78 SUMP=189.38
STM. INLET #9443 CITY GIS #2981 GRT.=194.78 (A)=189.78 (B)=189.78 (C)=189.78 SUMP=189.38
STM. INLET

LAND USE AND ZONING

TAX MAP 38, LOTS 15A & 15B

COMMERCIAL DISTRICT (C) - SECONDARY GROUNDWATER PROTECTION DISTRICT

PROPOSED USE

BANK WITH DRIVE-THRU ATM — PERMITTED USE

ZONING REQUIREMENT	REQUIRED	EXISTING	PROPOSED
MINIMUM LOT AREA	20,000 SF	42,879 SF (0.98 AC)	42,879 SF (0.98 AC)
MAXIMUM BUILDING COVERAGE	50%	15.0% (6,445 SF)	7.8% (3,330 SF)
MINIMUM FRONTAGE	125 FT	552.3 FT	552.3 FT
MINIMUM FRONT YARD SETBACK	30 FT	28.2 FT (EN)	50.0 FT
MINIMUM ABUT A STREET SETBACK	30 FT	24.0 FT (EN)	99.5 FT
MINIMUM SIDE YARD SETBACK	12 FT	N/A	N/A
MINIMUM REAR YARD SETBACK	15 FT	65.0 FT	39.4 FT
MINIMUM ACCESSORY SETBACK	10 FT	N/A	48.5 FT
MINIMUM PRINCIPAL BUILDING HEIGHT	40 FT	< 40 FT	26.8 FT
MINIMUM PARKING SETBACK	25 FT	3.8 FT (EN)	26.4 FT
MAXIMUM LOT COVERAGE	N/S	74.7% (32,020 SF)	52.5% (22,508 SF)

(EN) EXISTING NON-CONFORMITY

OFF-STREET PARKING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 153-14.D.(1)	MAXIMUM NUMBER OF PARKING SPACES: RETAIL/SERVICE USE: 1 SPACE PER 275 SF OF GLA (3,330 SF x (1 / 275)) = 12 SPACES	20 SPACES *
§ 153-14.D.(2)	MINIMUM NUMBER OF BICYCLE RACKS: 5% OF MAXIMUM PARKING SPACES PER TABLE (20 SPACES X 0.05) = 1 BIKE RACK	2 BIKE RACKS
§ 153-14.D.(3) & § 153-14.D.(5)	MINIMUM NUMBER OF ELECTRIC VEHICLE CHARGING SPACES: 2% OF NEW PARKING SPACES + 2 FOR LOTS WHERE A CONDITIONAL USE PERMIT IS REQUESTED (20 SPACES X 0.02 + 2 SPACES) = 3 EV CHARGING SPACES	3 EV SPACES
§ 153-14.D.(6).(a)	PARKING AREA DIMENSIONAL REQUIREMENTS: MINIMUM STALL WIDTH: 9 FT MINIMUM STALL LENGTH: 18 FT MINIMUM AISLE WIDTH: 22 FT	9 FT 18 FT 24 FT
§ 153-14.D.(6).(b)	MINIMUM WIDTH OF ACCESS AISLES: 24 FT	24 FT
§ 153-14.H.(1)	NUMBER OF DRIVEWAYS PER LOT: 1 DRIVEWAY PER 125 FT OF ROAD FRONTAGE: (552.3 FT / 125 FT) = 4 DRIVEWAYS MINIMUM DRIVEWAY SPACING FROM PUBLIC STREET INTERSECTIONS: (IN A 35 MPH POSTED SPEED LIMIT): 155 FT MINIMUM SPACING BETWEEN DRIVEWAYS: (IN A 35 MPH POSTED SPEED LIMIT): 155 FT	2 DRIVEWAYS 161 FT 173 FT

(*) A CONDITIONAL USE PERMIT IS REQUESTED FOR THE INCREASE IN PARKING SPACES, PER 153-14.D.(5).

SIGNAGE REQUIREMENTS

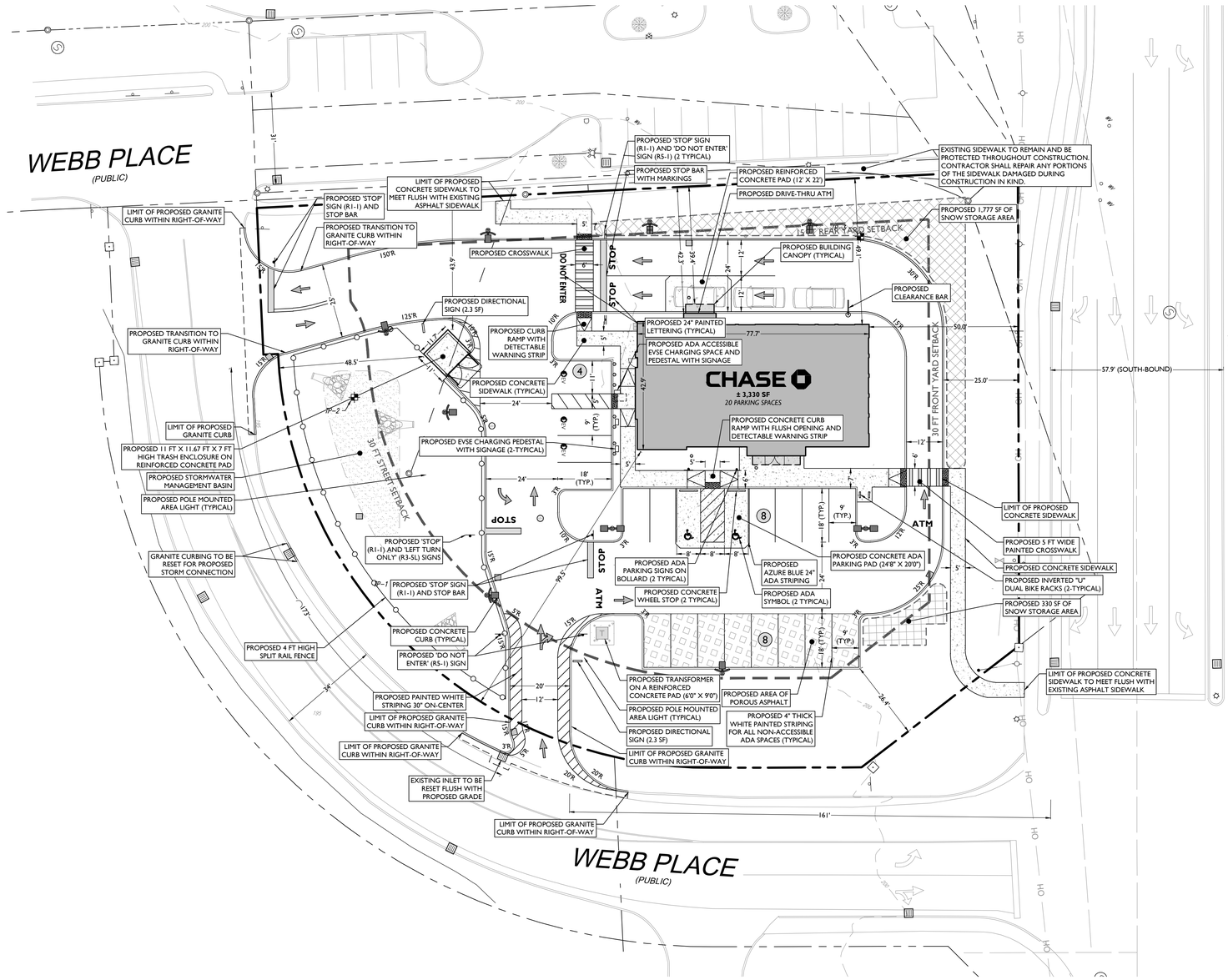
SECTION	REQUIRED (C DISTRICT)	PROPOSED
FOR ALL SIGNS	GENERAL SIGN REQUIREMENTS: TOTAL NUMBER OF SIGNS PERMITTED: 2 SIGNS PER LOT	3 SIGNS * (V)
	TOTAL SIGN AREA PERMITTED: 2 SF PER FOOT OF LOT FRONTAGE = (2 x 552 LF) = 1,104 SF	164.2 SF
FREESTANDING SIGNS	FREESTANDING SIGN REQUIREMENTS: MAXIMUM SIGN AREA = 60 SF	36.7 SF
	MAXIMUM QUANTITY: 1 SIGN PER SIDE OF FRONTAGE	1 SIGN
	PROPERTY SETBACK = 10 FT	10 FT
WALL SIGNS	WALL SIGN REQUIREMENTS: MAXIMUM SIGN AREA = 1 SF PER FOOT OF BUILDING FRONTAGE: (78.8 LF OF BUILDING FRONTAGE)= 78.8 SF SIGN AREA (43.0 LF OF BUILDING FRONTAGE)= 43 SF SIGN AREA	36.9 SF 36.9 SF

(V) VARIANCE
(*) EXCLUDES DIRECTIONAL SIGNS

SNOW STORAGE CALCULATION

- PROPOSED PARKING LOT AREA = 16,912 SF
- REQUIRED SNOW STORAGE AREA = (16,912 SF x 0.10) = 1,691 SF
- PROPOSED SNOW STORAGE AREA = 2,107 SF

EXCESS SNOW TO BE REMOVED FROM SITE IF ON-SITE STORAGE AREAS ARE FILLED.



CITY OF DOVER NOTES

1. THE INTENT OF THIS PLAN IS TO CONSTRUCT A PROPOSED FREESTANDING BANK ON THE SUBJECT PROPERTY IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
2. OWNERS OF RECORD ARE:
   DOVER RETAIL MANAGEMENT LLC
   30200 TELEGRAPH ROAD
   BINGHAM FARMS, MICHIGAN 48025

   AUTHORIZED SIGNATURE
3. THE PARCELS ARE SHOWN AS LOTS NO. 15A & 15B, MAP 38 OF THE CITY OF DOVER TAX ASSESSOR'S MAPS.
4. THE SUBJECT PARCELS CONTAIN 0.98 ACRES OR 42,879 SQ. FT. AREA OF LAND.
5. TITLE REFERENCES FOR THE PROJECT PARCELS IS THE STRAFFORD COUNTY REGISTRY OF DEEDS, BOOK NO. 880, PAGE NO. 332; BOOK NO. 4917, PAGE NO. 381; BOOK NO. 3413, PAGE NO. 90; AND BOOK NO. 3413, PAGE NO. 94.
6. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY COLLIERS ENGINEERING DATED 12/23/2022.
   A. PLAN TITLED "RW REALTY INC. PLAN OF LOTS A & B PLAZA DRIVE, DOVER, NEW HAMPSHIRE", DATED APRIL 1981, DRAWN BY G. L. DAVIS & ASSOCIATES, RECORDED IN THE S.C.R.D. PLAN NUMBER 17E-8.
   B. PLAN TITLED "SUBDIVISION LOT LINE RELOCATION PLAN FOR SOUTHWEST EQUITIES CORP", DATED JULY 2, 2001, DRAWN BY MILLETTE, SPRAGUE & COLWELL, INC. RECORDED IN THE S.C.R.D. PLAN NUMBER 67-11.
   C. PLAN TITLED "BOUNDARY LINE ADJUSTMENT PLAN, PRIME CIRCLE, LLC. & RW REALTY INC., DOVER, NEW HAMPSHIRE", DATED JUNE 14, 2006, DRAWN BY TRITECH CORP., RECORDED IN S.C.R.D. PLAN NUMBER 87-11.
   D. PLAN TITLED "BOUNDARY LINE ADJUSTMENT PLAN, PRIME CIRCLE LLC. AND RW REALTY INC., DOVER, NEW HAMPSHIRE", DATED JUNE 14, 2006, DRAWN BY TRITECH CORP., RECORDED IN THE S.C.R.D. PLAN NUMBER 87-12.
   E. PLAN TITLED "SUBDIVISION PLAN, PRIME CIRCLE, LLC., DOVER, NEW HAMPSHIRE", DATED FEBRUARY 3, 2006, DRAWN BY TRITECH CORP., RECORDED IN THE S.C.R.D. PLAN NUMBER 87-13.
   F. PLAN TITLED "ALTA-NSPS LAND TITLE SURVEY, PRIME CIRCLE, LLC., 11-17 WEBB PLACE, DOVER, NEW HAMPSHIRE, DATED MAY 3, 2017, DRAWN BY TRITECH CORP., RECORDED AT THE S.C.R.D. PLAN NUMBER 113-76.
   G. PLAN TITLED "PLANS OF PROPOSED FEDERAL AID URBAN SYSTEM PROJECT AND FEDERAL AID PRIMARY PROJECT STP-X-027-1(34), N.H. PROJECT NO. 10023-E", DATED SEPTEMBER 14, 1994, DRAWN BY CARON ENGINEERING INC. ON RECORD WITH THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION.
   H. PLAN TITLED SUBDIVISION/LOT LINE RELOCATION PLAN FOR SOUTHWEST EQUITIES CORP", DATED JULY 10, 2001, DRAWN BY MILLETTE, SPRAGUE & COLEWELL, INC. RECORDED IN THE S.C.R.D. PLAN NUMBER 67-12.
7. REFER TO SURVEY REFERENCED ABOVE FOR APPLICABLE RIGHT-OF-WAY, CONSERVATION, SLOPE, CONSTRUCTION, POWER LINE, CROSS TRAVEL, OR OTHER EASEMENTS.
8. REFER TO THE TABLE OF LAND USE & ZONING HEREON FOR CURRENT ZONING DIMENSIONAL AND DENSITY REQUIREMENTS.
9. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY COLLIERS ENGINEERING & DESIGN DATED 09/28/2023 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.
10. SUBJECT PARCEL IS NOT LOCATED WITHIN A FEDERALLY DESIGNATED FLOOD HAZARD AREA (COMMUNITY PANEL NUMBER 33017C0310E, EFFECTIVE DATE: SEPTEMBER 30, 2015).
11. AS-BUILT PLANS OF THE PROPOSED IMPROVEMENTS 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 PLAN COORDINATES NAD83 AND SHALL BE EXPRESSED IN FEET.
12. THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION AND TELEPHONE LINES SHALL BE UNDERGROUND THROUGHOUT THE SITE FOR WHICH DEVELOPMENT IS PROPOSED.
13. THE SUBJECT PARCE IS SERVED BY MUNICIPAL WATER AND SEWER.
14. 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.
15. 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.
16. 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.
17. ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS.
18. 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.
19. 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.
20. 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.
21. BUILDING ADDRESSES SHALL BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.
22. THE PROPOSED USE FOR THE SITE IS A BANK WITH A DRIVE-THRU ATM.
23. COMMERCIAL VEHICLE ROUTE DURING CONSTRUCTION SHALL CONFORM TO DOVER CITY CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR.
24. ANY FENCE TALLER THAN SEVEN FEET (7') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
25. 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
26. THE OWNER OF RECORD SHALL RECORD AT THE REGISTRY OF DEEDS DOCUMENTATION SUFFICIENT TO PROVIDE NOTICE TO ALL PERSONS/ENTITIES THAT MAY ACQUIRE ANY PROPERTY SUBJECT TO THE REQUIREMENTS AND RESPONSIBILITIES DESCRIBED IN THE APPROVED STORMWATER MANAGEMENT PLAN. THE NOTICE SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS FOR RECORDING CONTAINED IN RSA 477 AND 478. THE NOTICE NEED NOT SET FORTH THE REQUIREMENTS AT LENGTH, SO LONG AS IT IS SUFFICIENT TO PROVIDE NOTICE TO PROSPECTIVE PURCHASERS TO THE REQUIREMENTS FOR MAINTENANCE AND REPORTING.
27. FIRE DEPARTMENT ACCESS ROAD(S) SHALL BE INSTALLED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF FIRE APPARATUS IN ALL WEATHER CONDITIONS AT ALL TIMES.
28. EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 153-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.
29. TOPOGRAPHIC SURVEY PERFORMED BY COLLIERS ENGINEERING & DESIGN IN DECEMBER OF 2022 & SEPTEMBER OF 2023.
30. ELEVATIONS ARE BASED ON U.S.G.S. NVD 1988 DATUM.
31. A SECURITY SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 45, ARTICLE I, SECTION 45-2 OF THE CODE OF THE CITY OF DOVER.
32. APPROVED BACKFLOW PREVENTERS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.
33. 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.
34. 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.

SYMBOL	DESCRIPTION
	PROPERTY LINE
	SETBACK LINE
	SAWCUT LINE
	PROPOSED CURB
	PROPOSED FLUSH OPENING
	PROPOSED SIGNS / BOLLARDS
	PROPOSED BUILDING
	PROPOSED CONCRETE
	PROPOSED AREA LIGHT
	PROPOSED RETAINING WALL
	PROPOSED BUILDING DOORS
	PROPOSED FENCE
	PROPOSED POROUS ASPHALT
	PROPOSED SNOW STORAGE AREA

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY AND FAMILIARIZE THEMSELVES WITH THE EXISTING SITE CONDITIONS AND THE PROPOSED SCOPE OF WORK (INCLUDING DIMENSIONS, LAYOUT, ETC.) PRIOR TO INITIATING THE IMPROVEMENTS IDENTIFIED WITHIN THESE DOCUMENTS. SHOULD ANY DISCREPANCY BE FOUND BETWEEN THE EXISTING SITE CONDITIONS AND THE PROPOSED WORK THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. PRIOR TO THE START OF CONSTRUCTION.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ENSURE THAT ALL REQUIRED APPROVALS HAVE BEEN OBTAINED PRIOR TO THE START OF CONSTRUCTION. COPIES OF ALL REQUIRED PERMITS AND APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION.
3. ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS STONEFIELD ENGINEERING & DESIGN, LLC. AND IT'S SUB-CONSULTANTS FROM AND AGAINST ANY DAMAGES AND LIABILITIES INCLUDING ATTORNEY'S FEES ARISING OUT OF CLAIMS BY EMPLOYEES OF THE CONTRACTOR IN ADDITION TO CLAIMS CONNECTED TO THE PROJECT AS A RESULT OF NOT CARRYING THE PROPER INSURANCE FOR WORKERS COMPENSATION, LIABILITY INSURANCE, AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE.
4. THE CONTRACTOR SHALL NOT DEVIATE FROM THE PROPOSED IMPROVEMENTS IDENTIFIED WITHIN THIS PLAN SET UNLESS APPROVAL IS PROVIDED IN WRITING BY STONEFIELD ENGINEERING & DESIGN, LLC.
5. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF CONSTRUCTION.
6. THE CONTRACTOR SHALL NOT PERFORM ANY WORK OR CAUSE DISTURBANCE ON A PRIVATE PROPERTY NOT CONTROLLED BY THE PERSON OR ENTITY WHO HAS AUTHORIZED THE WORK WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER OF THE PRIVATE PROPERTY.
7. THE CONTRACTOR IS RESPONSIBLE TO RESTORE ANY DAMAGED OR UNDERMINED STRUCTURE OR SITE FEATURE THAT IS IDENTIFIED TO REMAIN ON THE PLAN SET. ALL REPAIRS SHALL USE NEW MATERIALS TO RESTORE THE FEATURE TO ITS EXISTING CONDITION AT THE CONTRACTORS EXPENSE.
8. CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE SHOP DRAWINGS, PRODUCT DATA, AND OTHER REQUIRED SUBMITTALS FOR REVIEW. STONEFIELD ENGINEERING & DESIGN, LLC. WILL REVIEW THE SUBMITTALS IN ACCORDANCE WITH THE DESIGN INTENT AS REFLECTED WITHIN THE PLAN SET.
9. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
10. THE CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN THE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AUTHORITY AND SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF STREET OPENING PERMITS.
11. THE CONTRACTOR IS REQUIRED TO RETAIN AN OSHA CERTIFIED SAFETY INSPECTOR TO BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION & DEMOLITION ACTIVITIES.
12. SHOULD AN EMPLOYEE OF STONEFIELD ENGINEERING & DESIGN, LLC. BE PRESENT ON SITE AT ANY TIME DURING CONSTRUCTION, IT DOES NOT RELIEVE THE CONTRACTOR OF ANY OF THE RESPONSIBILITIES AND REQUIREMENTS LISTED IN THE NOTES WITHIN THIS PLAN SET.

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
4	03/14/2024	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
3	12/28/2023	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
2	9/15/2023	JJR	PER TECHNICAL REVIEW COMMITTEE COMMENTS
1	7/31/2023	JJR	ISSUED FOR REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Rutherford, NJ · New York, NY · Salem, MA
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com
120 Washington Street, Suite 201, Salem, MA 01970
Phone 617.203.2076

SITE IMPROVEMENT PLAN

CHASE
PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-220137

TITLE: SITE PLAN

DRAWING: C-4

Z:\BOSTON\BOS\220137 CORE\TASKS - 1-3 WEBB PLACE, DOVER, NH\CAD\PLOT\PDF\24-SITE.DWG

DRAINAGE AND UTILITY NOTES

1. THE CONTRACTOR TO PERFORM A TEST PIT PRIOR TO CONSTRUCTION (RECOMMEND 30 DAYS PRIOR) AT LOCATIONS OF EXISTING UTILITY CROSSINGS FOR STORMWATER IMPROVEMENTS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING.
2. CONTRACTOR SHALL START CONSTRUCTION OF STORM LINES AT THE LOWEST INVERT AND WORK UP-GRADIENT.
3. THE CONTRACTOR IS REQUIRED TO CALL THE APPROPRIATE AUTHORITY FOR NOTICE OF CONSTRUCTION/EXCAVATION AND UTILITY MARK OUT PRIOR TO THE START OF CONSTRUCTION IN ACCORDANCE WITH STATE LAW. CONTRACTOR IS REQUIRED TO CONFIRM THE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES IN THE FIELD. SHOULD A DISCREPANCY EXIST BETWEEN THE FIELD LOCATION OF A UTILITY AND THE LOCATION SHOWN ON THE PLAN SET OR SURVEY, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IMMEDIATELY IN WRITING.
4. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN A RECORD OF THE AS-BUILT LOCATIONS OF ALL PROPOSED UNDERGROUND INFRASTRUCTURE. THE CONTRACTOR SHALL NOTE ANY DISCREPANCIES BETWEEN THE AS-BUILT LOCATIONS AND THE LOCATIONS DEPICTED WITHIN THE PLAN SET. THIS RECORD SHALL BE PROVIDED TO THE OWNER FOLLOWING COMPLETION OF WORK.

EXCAVATION, SOIL PREPARATION, AND DEWATERING NOTES

1. THE CONTRACTOR IS REQUIRED TO REVIEW THE REFERENCED GEOTECHNICAL DOCUMENTS PRIOR TO CONSTRUCTION. THESE DOCUMENTS SHALL BE CONSIDERED A PART OF THE PLAN SET.
2. THE CONTRACTOR IS REQUIRED TO PREPARE SUBGRADE SOILS BENEATH ALL PROPOSED IMPROVEMENTS AND BACKFILL ALL EXCAVATIONS IN ACCORDANCE WITH RECOMMENDATIONS BY THE GEOTECHNICAL ENGINEER OF RECORD.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SHORING FOR ALL EXCAVATIONS AS REQUIRED. CONTRACTOR SHALL HAVE THE SHORING DESIGN PREPARED BY A QUALIFIED PROFESSIONAL. SHORING DESIGNS SHALL BE SUBMITTED TO STONEFIELD ENGINEERING & DESIGN, LLC. AND THE OWNER PRIOR TO THE START OF CONSTRUCTION.
4. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL OPEN EXCAVATIONS ARE PERFORMED AND PROTECTED IN ACCORDANCE WITH THE LATEST OSHA REGULATIONS.
5. THE CONTRACTOR IS RESPONSIBLE FOR ANY DEWATERING DESIGN AND OPERATIONS, AS REQUIRED, TO CONSTRUCT THE PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL OBTAIN ANY REQUIRED PERMITS FOR DEWATERING OPERATIONS AND GROUNDWATER DISPOSAL.

STORMWATER INFILTRATION BMP CONSTRUCTION NOTES

1. PRIOR TO THE START OF CONSTRUCTION, ANY AREA DESIGNATED TO BE USED FOR AN INFILTRATION BMP (E.G. BASIN, BIORETENTION AREA, ETC.) SHALL BE FENCED OFF AND SHALL NOT BE UTILIZED AS STORAGE FOR CONSTRUCTION EQUIPMENT OR AS A STOCKPILE AREA FOR CONSTRUCTION MATERIALS. NO ACTIVITY SHALL BE PERMITTED WITHIN THE INFILTRATION BASIN AREA UNLESS RELATED TO THE CONSTRUCTION OF THE INFILTRATION BASIN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY ALL SUBCONTRACTORS OF BASIN AREA RESTRICTIONS.
2. THE CONTRACTOR SHALL MAKE EVERY EFFORT, WHERE PRACTICAL, TO AVOID SUBGRADE SOIL COMPACTION IN THE AREAS DESIGNATED TO BE USED FOR AN INFILTRATION BMP.
3. ALL EXCAVATION WITHIN THE LIMITS OF ANY INFILTRATION BMP SHALL BE PERFORMED WITH THE LIGHTEST PRACTICAL EXCAVATION EQUIPMENT. ALL EXCAVATION EQUIPMENT SHALL BE PLACED OUTSIDE THE LIMITS OF THE BASIN WHERE FEASIBLE. THE USE OF LIGHT-WEIGHT, RUBBER-TIRED EQUIPMENT (LESS THAN 8 PSI APPLIED TO THE GROUND SURFACE) IS RECOMMENDED WITHIN THE BASIN LIMITS.
4. THE SEQUENCE OF SITE CONSTRUCTION SHALL BE COORDINATED WITH BASIN CONSTRUCTION TO ADHERE TO SEQUENCING LIMITATIONS.
5. DURING THE FINAL GRADING OF AN INFILTRATION BASIN, THE BOTTOM OF THE BASIN SHALL BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW AND THEN SMOOTHED OUT WITH A LEVELING DRAW OR EQUIVALENT GRADING EQUIPMENT. ALL GRADING EQUIPMENT SHALL BE LOCATED OUTSIDE OF THE BASIN BOTTOM WHERE FEASIBLE.
6. FOLLOWING CONSTRUCTION OF AN INFILTRATION BASIN, SOIL INFILTRATION TESTING BY A LICENSED GEOTECHNICAL ENGINEER IS REQUIRED TO CERTIFY COMPLIANCE WITH THE DESIGN INFILTRATION RATES IN ACCORDANCE WITH THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES' STORMWATER HANDBOOK, LATEST EDITION. IF THE FIELD INFILTRATION RATES ARE LOWER THAN THE RATE USED DURING DESIGN, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING IMMEDIATELY TO DETERMINE THE APPROPRIATE COURSE OF ACTION.
7. THE CONTRACTOR SHALL NOTIFY THE MUNICIPALITY TO DETERMINE IF WITNESS TESTING IS REQUIRED DURING INFILTRATION BASIN EXCAVATION AND/OR SOIL INFILTRATION TESTING.

STORMWATER UNDERGROUND BMP CONSTRUCTION NOTES

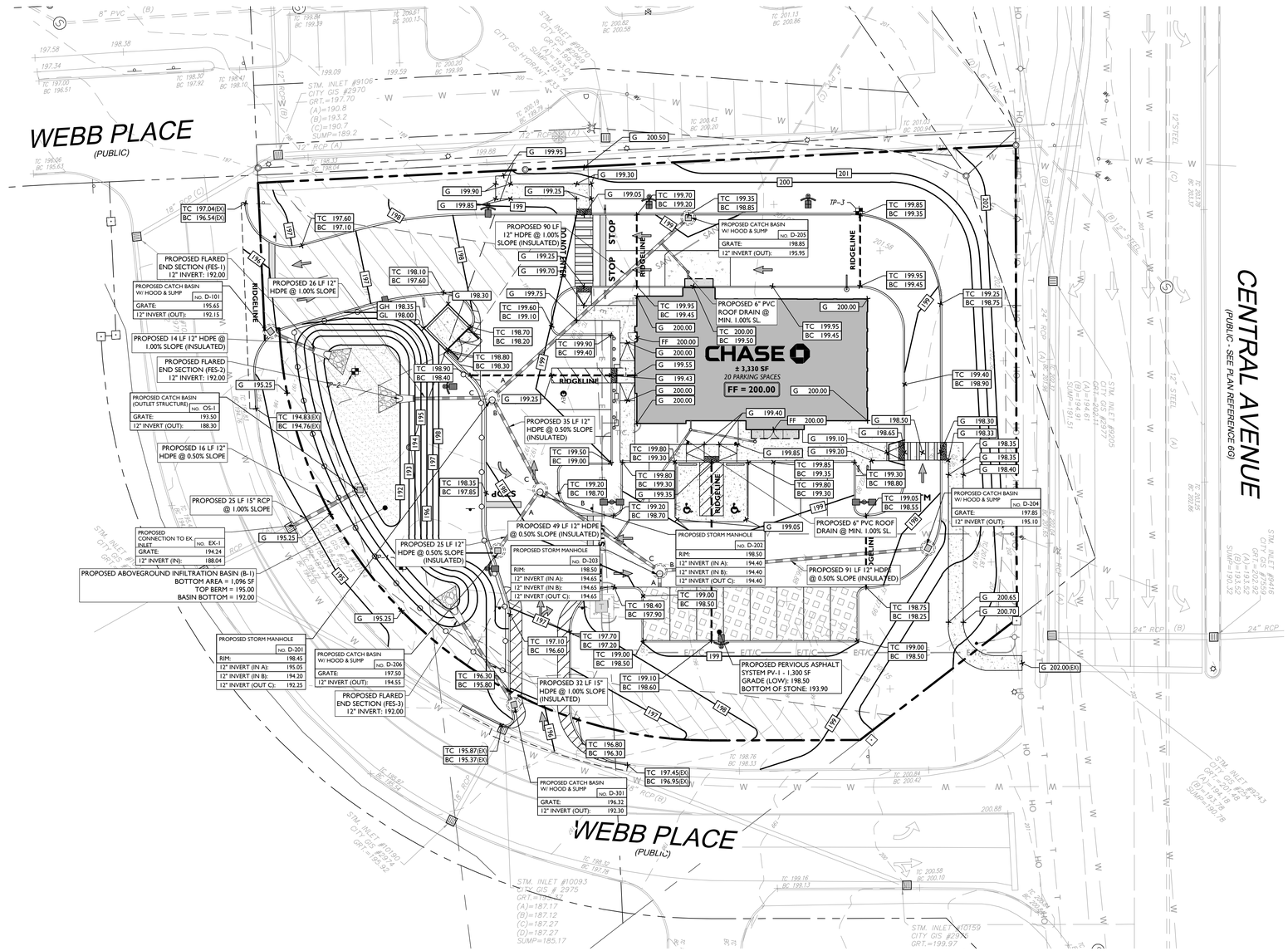
1. THE CONTRACTOR SHALL INSTALL AND BACKFILL THE UNDERGROUND BMP IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
2. UNDERGROUND BASINS SHALL UTILIZE A STONE BACKFILL WITH A MINIMUM VOID RATIO OF 40%.
3. NO CONSTRUCTION LOADING OVER UNDERGROUND BASINS IS PERMITTED UNTIL BACKFILL IS COMPLETE PER THE MANUFACTURER'S SPECIFICATIONS. NO VEHICLES SHALL BE STAGED OR OPERATE FROM A FIXED POSITION OVER THE BASIN.

GRADING NOTES

1. ALL SOIL AND MATERIAL REMOVED FROM THE SITE SHALL BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS. ANY GROUNDWATER DE-WATERING PRACTICES SHALL BE PERFORMED UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL. THE CONTRACTOR IS REQUIRED TO OBTAIN ALL NECESSARY PERMITS FOR THE DISCHARGE OF DE-WATERED GROUNDWATER. ALL SOIL IMPORTED TO THE SITE SHALL BE CERTIFIED CLEAN FILL. CONTRACTOR SHALL MAINTAIN RECORDS OF ALL FILL MATERIALS BROUGHT TO THE SITE.
2. THE CONTRACTOR IS REQUIRED TO PROVIDE TEMPORARY AND/OR PERMANENT SHORING WHERE REQUIRED DURING EXCAVATION ACTIVITIES, INCLUDING BUT NOT LIMITED TO UTILITY TRENCHES, TO ENSURE THE STRUCTURAL INTEGRITY OF NEARBY STRUCTURES AND STABILITY OF THE SURROUNDING SOILS.
3. PROPOSED TOP OF CURB ELEVATIONS ARE GENERALLY 4 INCHES TO 7 INCHES ABOVE EXISTING GRADES UNLESS OTHERWISE NOTED. THE CONTRACTOR WILL SUPPLY ALL STAKEOUT CURB GRADE SHEETS TO STONEFIELD ENGINEERING & DESIGN, LLC. FOR REVIEW AND APPROVAL PRIOR TO POURING CURBS.
4. THE CONTRACTOR IS RESPONSIBLE TO SET ALL PROPOSED UTILITY COVERS AND RESET ALL EXISTING UTILITY COVERS WITHIN THE PROJECT LIMITS TO PROPOSED GRADE IN ACCORDANCE WITH ANY APPLICABLE MUNICIPAL, COUNTY, STATE AND/OR UTILITY AUTHORITY REGULATIONS.
5. MINIMUM SLOPE REQUIREMENTS TO PREVENT PONDING SHALL BE AS FOLLOWS:
   - CURB GUTTER: 0.50%
   - CONCRETE SURFACES: 1.00%
   - ASPHALT SURFACES: 1.00%
6. A MINIMUM SLOPE OF 1.00% SHALL BE PROVIDED AWAY FROM ALL BUILDINGS. THE CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE FROM THE BUILDING IS ACHIEVED AND SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IF THIS CONDITION CANNOT BE MET.
7. FOR PROJECTS WHERE BASEMENTS ARE PROPOSED, THE DEVELOPER IS RESPONSIBLE TO DETERMINE THE DEPTH TO GROUNDWATER AT THE LOCATION OF THE PROPOSED STRUCTURE. IF GROUNDWATER IS ENCOUNTERED WITHIN THE BASEMENT AREA, SPECIAL CONSTRUCTION METHODS SHALL BE UTILIZED AND REVIEWED/APPROVED BY THE CONSTRUCTION CODE OFFICIAL. IF SUMP PUMPS ARE UTILIZED, ALL DISCHARGES SHALL BE CONNECTED DIRECTLY TO THE PUBLIC STORM SEWER SYSTEM WITH APPROVAL FROM THE GOVERNING STORM SEWER SYSTEM AUTHORITY.

ACCESSIBILITY NOTES

1. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 2.00% SLOPE IN ANY DIRECTION WITHIN THE ADA PARKING SPACES AND ACCESS AISLES.
2. THE CONTRACTOR SHALL PROVIDE COMPLIANT SIGNAGE AT ALL ADA PARKING AREAS IN ACCORDANCE WITH STATE GUIDELINES.
3. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 5.00% RUNNING SLOPE AND A MAXIMUM OF 2.00% CROSS SLOPE ALONG WALKWAYS WITHIN THE ACCESSIBLE PATH OF TRAVEL (SEE THE SITE PLAN FOR THE LOCATION OF THE ACCESSIBLE PATH). THE CONTRACTOR IS RESPONSIBLE TO ENSURE THE ACCESSIBLE PATH OF TRAVEL IS 36 INCHES WIDE OR GREATER UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
4. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 2.00% SLOPE IN ANY DIRECTION AT ALL LANDINGS. LANDINGS INCLUDE, BUT ARE NOT LIMITED TO, THE TOP AND BOTTOM OF AN ACCESSIBLE RAMP, AT ACCESSIBLE BUILDING ENTRANCES, AT AN AREA IN FRONT OF A WALK-UP ATM, AND AT TURNING SPACES ALONG THE ACCESSIBLE PATH OF TRAVEL. THE LANDING AREA SHALL HAVE A MINIMUM CLEAR AREA OF 60 INCHES BY 60 INCHES UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
5. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 8.33% RUNNING SLOPE AND A MAXIMUM 2.00% CROSS SLOPE ON ANY CURB RAMPS ALONG THE ACCESSIBLE PATH OF TRAVEL. WHERE PROVIDED, CURB RAMP FLARES SHALL NOT HAVE A SLOPE GREATER THAN 10.00% IF A LANDING AREA IS PROVIDED AT THE TOP OF THE RAMP. FOR ALTERATIONS, A CURB RAMP FLARES SHALL NOT HAVE A SLOPE GREATER THAN 8.33% IF A LANDING AREA IS NOT PROVIDED AT THE TOP OF THE RAMP. CURBS RAMPS SHALL NOT RISE MORE THAN 6 INCHES IN ELEVATION WITHOUT A HANDRAIL. THE CLEAR WIDTH OF A CURB RAMP SHALL BE NO LESS THAN 36 INCHES WIDE.
6. ACCESSIBLE RAMPS WITH A RISE GREATER THAN 6 INCHES SHALL CONTAIN COMPLIANT HANDRAILS ON BOTH SIDES OF THE RAMP AND SHALL NOT RISE MORE THAN 30" IN ELEVATION WITHOUT A LANDING AREA IN BETWEEN RAMP RUNS. LANDING AREAS SHALL ALSO BE PROVIDED AT THE TOP AND BOTTOM OF THE RAMP.
7. A SLIP RESISTANT SURFACE SHALL BE CONSTRUCTED ALONG THE ACCESSIBLE PATH AND WITHIN ADA PARKING AREAS.
8. THE CONTRACTOR SHALL ENSURE A MAXIMUM OF ¼ INCHES VERTICAL CHANGE IN LEVEL ALONG THE ACCESSIBLE PATH. WHERE A CHANGE IN LEVEL BETWEEN ¼ INCHES AND ½ INCHES EXISTS, CONTRACTOR SHALL ENSURE THAT THE TOP ¼ INCH CHANGE IN LEVEL IS BEVELED WITH A SLOPE NOT STEEPER THAN 1 UNIT VERTICAL AND 2 UNITS HORIZONTAL (2:1 SLOPE).
9. THE CONTRACTOR SHALL ENSURE THAT ANY OPENINGS (GAPS OR HORIZONTAL SEPARATION) ALONG THE ACCESSIBLE PATH SHALL NOT ALLOW PASSAGE OF A SPHERE GREATER THAN ½ INCH.
10. ACCESSIBLE IMPROVEMENTS SHALL COMPLY WITH APPLICABLE REGULATIONS INCLUDING ANSI 117.1 AND NH RSA 155-A:5.



SYMBOL / DESCRIPTION

SYMBOL	DESCRIPTION
	PROPERTY LINE
100	PROPOSED GRADING CONTOUR
RIDGELINE	PROPOSED GRADING RIDGELINE
	PROPOSED DIRECTION OF DRAINAGE FLOW
G 100.00	PROPOSED GRADE SPOT SHOT
TC 100.50 / BC 100.00	PROPOSED TOP OF CURB / BOTTOM OF CURB SPOT SHOT
FC 100.00	PROPOSED FLUSH CURB SPOT SHOT
DC 100.12 / BC 100.00	PROPOSED DEPRESSED CURB / BOTTOM OF CURB SPOT SHOT
TW 102.00 / BW 100.00	PROPOSED TOP OF WALL / BOTTOM OF WALL SPOT SHOT

STORMWATER CERTIFICATION NOTE

AFTER CONSTRUCTION, THE DESIGN ENGINEER SHALL PROVIDE SIGNED LETTER TO THE CITY ENGINEER CERTIFYING THAT THE STORMWATER SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH APPROVED PLANS.

ISSUE	DATE	BY	DESCRIPTION
4	03/14/2024	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
3	12/28/2023	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
2	9/15/2023	JJR	PER TECHNICAL REVIEW COMMITTEE COMMENTS
1	7/31/2023	JJR	ISSUED FOR REVIEW

NOT APPROVED FOR CONSTRUCTION

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Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com
120 Washington Street, Suite 201, Salem, MA 01970
Phone 617.203.2076

SITE IMPROVEMENT PLAN

CHASE
PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 28, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-220137

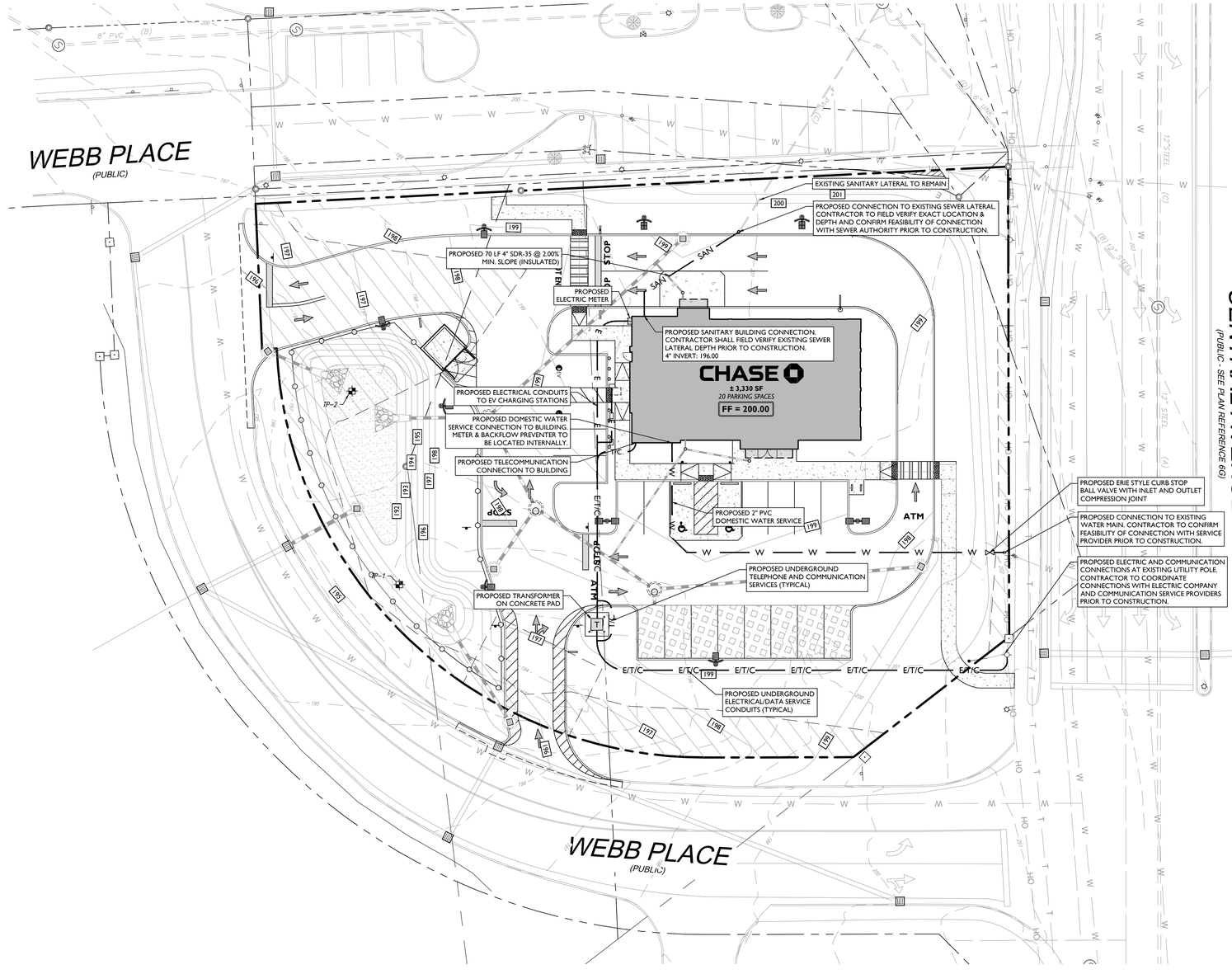
TITLE:

GRADING & DRAINAGE PLAN

DRAWING:

C-5

Z:\BOS\DWG\BOS220137\CONSTATE - 1-3 WEBB PLACE, DOVER, NH\CAD\PLOTS\PLOT-05_GRADE-STRM.DWG



SYMBOL	DESCRIPTION
	PROPERTY LINE
SAN	PROPOSED SANITARY LATERAL
W	PROPOSED DOMESTIC WATER SERVICE
E/T/C	PROPOSED ELECTRICAL/DATA CONDUITS
T/C	PROPOSED DATA CONDUITS
E	PROPOSED ELECTRIC CONDUITS
OH	PROPOSED OVERHEAD WIRES
G	PROPOSED GAS LINE
	PROPOSED VALVE
S	PROPOSED SANITARY MANHOLE / CLEANOUT
T	PROPOSED TRANSFORMER ON CONCRETE PAD WITH BOLLARDS

THE CONTRACTOR SHALL START CONSTRUCTION OF ALL GRAVITY SANITARY AND STORMWATER INFRASTRUCTURE AT THE DOWNSTREAM CONNECTION POINT (E.G. LOWEST INVERT) AND WORK UP-GRADIENT.

PRIOR TO THE START OF CONSTRUCTION (RECOMMENDED 30 DAYS PRIOR) THE CONTRACTOR SHALL PERFORM EXPLORATORY TEST PITS AT LOCATIONS OF UTILITY / DRAINAGE CROSSINGS OR CONNECTIONS WITH EXISTING UTILITY OR STORMWATER INFRASTRUCTURE. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN ANY NECESSARY ROAD OPENING PERMITS TO PERFORM SAID EXPLORATORY WORK. SHOULD A CONFLICT BE DISCOVERED WITH THE INFORMATION CONTAINED WITHIN THESE PLANS THE CONTRACTOR SHALL IMMEDIATELY NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC IN WRITING.

DRAINAGE AND UTILITY NOTES

1. THE CONTRACTOR IS REQUIRED TO CALL THE APPROPRIATE AUTHORITY FOR NOTICE OF CONSTRUCTION/EXCAVATION AND UTILITY MARK OUT PRIOR TO THE START OF CONSTRUCTION IN ACCORDANCE WITH STATE LAW. CONTRACTOR IS REQUIRED TO CONFIRM THE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES IN THE FIELD. SHOULD A DISCREPANCY EXIST BETWEEN THE FIELD LOCATION OF A UTILITY AND THE LOCATION SHOWN ON THE PLAN SET OR SURVEY, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC, IMMEDIATELY IN WRITING.
2. THE CONTRACTOR IS RESPONSIBLE TO PROTECT AND MAINTAIN IN OPERATION ALL UTILITIES NOT DESIGNATED TO BE REMOVED.
3. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO ANY EXISTING UTILITY IDENTIFIED TO REMAIN WITHIN THE LIMITS OF THE PROPOSED WORK DURING CONSTRUCTION.
4. A MINIMUM HORIZONTAL SEPARATION OF 10 FEET IS REQUIRED BETWEEN ANY SANITARY SEWER SERVICE AND ANY WATER LINES. IF THIS SEPARATION CANNOT BE PROVIDED, A CONCRETE ENCASEMENT SHALL BE UTILIZED FOR THE SANITARY SEWER SERVICE AS APPROVED BY STONEFIELD ENGINEERING & DESIGN, LLC.
5. ALL WATER LINES SHALL BE VERTICALLY SEPARATED ABOVE SANITARY SEWER LINES BY A MINIMUM DISTANCE OF 18 INCHES. IF THIS SEPARATION CANNOT BE PROVIDED, A CONCRETE ENCASEMENT SHALL BE UTILIZED FOR THE SANITARY SEWER SERVICE AS APPROVED BY STONEFIELD ENGINEERING & DESIGN, LLC.
6. THE CONTRACTOR TO PERFORM A TEST PIT PRIOR TO CONSTRUCTION (RECOMMEND 30 DAYS PRIOR) AT LOCATIONS OF EXISTING UTILITY CROSSINGS FOR WATER AND SANITARY SEWER CONNECTION IMPROVEMENTS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING.
7. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING GAS, ELECTRIC AND TELECOMMUNICATION CONNECTIONS WITH THE APPROPRIATE GOVERNING AUTHORITY.
8. CONTRACTOR SHALL START CONSTRUCTION OF ANY GRAVITY SEWER AT THE LOWEST INVERT AND WORK UP-GRADIENT.
9. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN A RECORD SET OF PLANS REFLECTING THE LOCATION OF EXISTING UTILITIES THAT HAVE BEEN CAPPED, ABANDONED, OR RELOCATED BASED ON THE DEMOLITION/REMOVAL ACTIVITIES REQUIRED IN THIS PLAN SET. THIS DOCUMENT SHALL BE PROVIDED TO THE OWNER FOLLOWING COMPLETION OF WORK.
10. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN A RECORD OF THE AS-BUILT LOCATIONS OF ALL PROPOSED UNDERGROUND INFRASTRUCTURE. THE CONTRACTOR SHALL NOTE ANY DISCREPANCIES BETWEEN THE AS-BUILT LOCATIONS AND THE LOCATIONS DEPICTED WITHIN THE PLAN SET. THIS RECORD SHALL BE PROVIDED TO THE OWNER FOLLOWING COMPLETION OF WORK.

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
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SITE IMPROVEMENT PLAN

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 28, LOTS 15A & 15B
13 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-220137

TITLE: UTILITY PLAN

DRAWING: C-6

Z:\BOS\DWG\BOS220137 CONSTATE - 13 WEBB PLACE, DOVER, NH\CAD\PLOTS\01-SITE\01-SITE.DWG

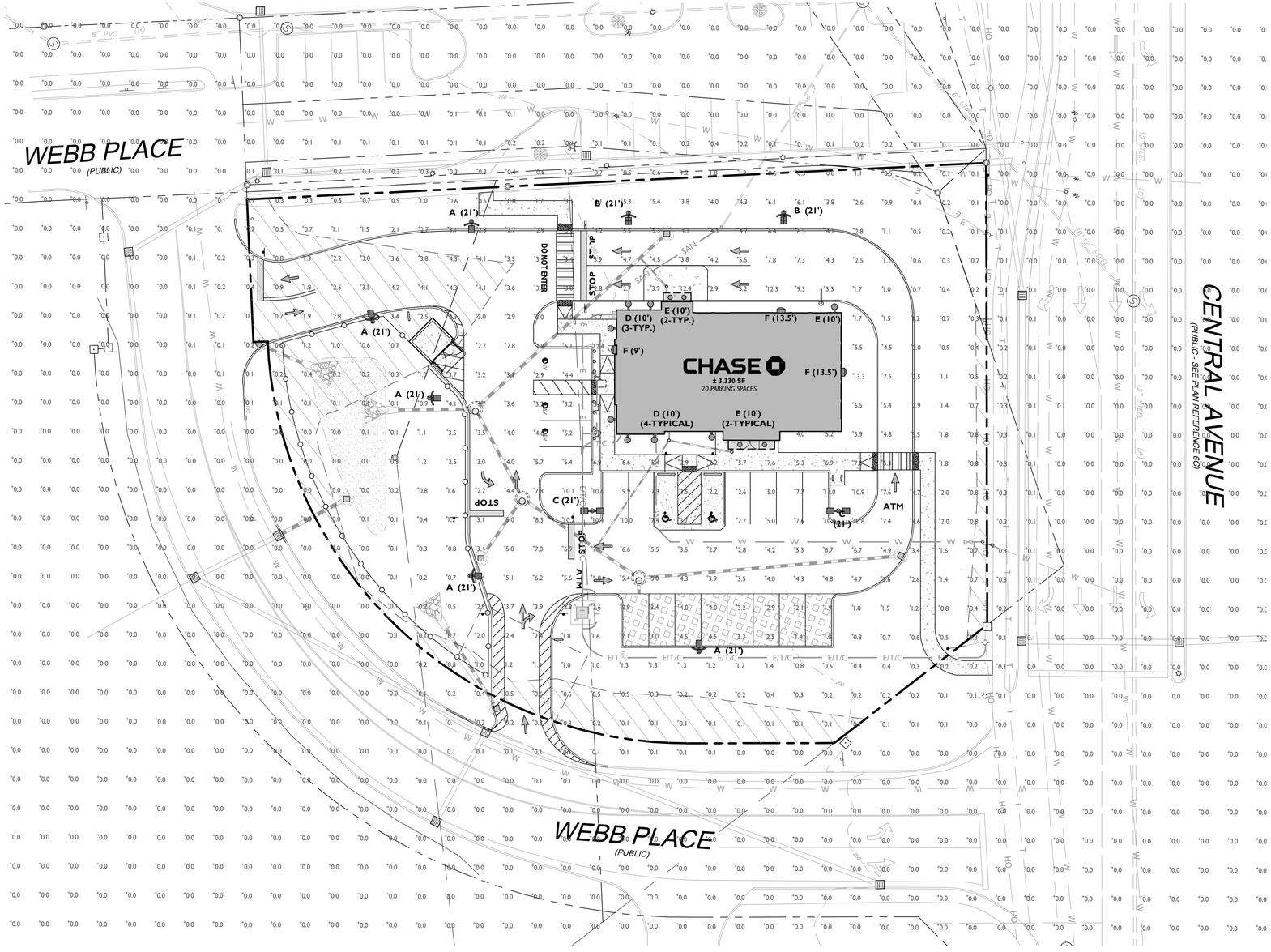
PROPOSED LUMINAIRE SCHEDULE

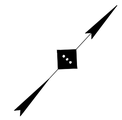
SYMBOL	LABEL	QUANTITY	LUMINAIRE	DISTRIBUTION	LLF	MANUFACTURER	IES FILE
	A	5	EVOLVE COMPACT (EACL) AREA LIGHT WITH SHIELD 55 WATTS, 4K	ASYMMETRIC WIDE (TYPE III)	0.90	GE CURRENT	EACL01_C3AW740_____-ELS-EA C-ABL-BLCK.IES
	B	2	EVOLVE COMPACT (EACL) AREA LIGHT WITH SHIELD 95 WATTS, 4K	ASYMMETRIC WIDE (TYPE III)	0.90	GE CURRENT	EACL01_E3AW740_____-ELS-EA C-ABL-BLCK.IES
	C	2	EVOLVE COMPACT (EACL) AREA LIGHT WITH SHIELD 122 WATTS, 4K	ASYMMETRIC WIDE (TYPE III)	0.90	GE CURRENT	EACL01_F3AW740_____.IES
	D	8	LANTERRA 9004 LED, WALL MOUNTED CYLINDER	DOWNLIGHT	0.90	COOPER LIGHTING	9004-W1-(RW, R1)-LED4080-W-WT-L1-UNV (1).IES
	E	4	BULLET OUTDOOR RECESSED FIXED DOWNLIGHT IP66	CANOPY	0.90	ILLUMINATION	5811-1SAT20L8040W.IES
	F	3	LUMARK XTOR CROSSTOUR MAXX LED WALL PACK	RDC	0.90	EATON	XTOR6B-W.IES

LIGHTING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 153-14.E.(2).(a)	ALL LIGHTING IN PARKING LOTS SHALL BE CUTOFF FIXTURES	COMPLIES
§ 153-14.E.(2).(b)	MAXIMUM MOUNTING HEIGHT = 25 FT	21 FT
§ 153-14.E.(2).(b)	MINIMUM ILLUMINATION IN PARKNG AREA = NO LESS THAN 0.3 FC, NO MORE THAN 0.5 FC	1.0 FC (W)
§ 153-14.E.(2).(b)	MAXIMUM LIGHTING UNIFORMITY RATIO = 6:1	11.2 : 1 (W)

(W) WAIVER





SYMBOL / DESCRIPTION

SYMBOL	DESCRIPTION
	PROPOSED CALCULATION AREA
	PROPOSED ISOMETRIC LINE
A (XX')	PROPOSED LIGHTING FIXTURE (MOUNTING HEIGHT)
+X.X	PROPOSED LIGHTING INTENSITY (FOOTCANDLES)
	PROPOSED AREA LIGHT
	PROPOSED BUILDING MOUNTED LIGHT

GENERAL LIGHTING NOTES

1. THE LIGHTING LEVELS DEPICTED WITHIN THE PLAN SET ARE CALCULATED UTILIZING DATA OBTAINED FROM THE LISTED MANUFACTURER. ACTUAL ILLUMINATION LEVELS AND PERFORMANCE OF ANY PROPOSED LIGHTING FIXTURE MAY VARY DUE TO UNCONTROLLABLE VARIABLES SUCH ARE WEATHER, VOLTAGE SUPPLY, LAMP TOLERANCE, EQUIPMENT SERVICE LIFE AND OTHER VARIABLE FIELD CONDITIONS.
2. WHERE APPLICABLE, THE EXISTING LIGHT LEVELS DEPICTED WITHIN THE PLAN SET SHALL BE CONSIDERED APPROXIMATE. THE EXISTING LIGHT LEVELS ARE BASED ON FIELD OBSERVATIONS AND THE MANUFACTURER'S DATA OF THE ASSUMED OR MOST SIMILAR LIGHTING FIXTURE MODEL.
3. UNLESS NOTED ELSEWHERE WITHIN THIS PLAN SET, THE LIGHT LOSS FACTORS USED IN THE LIGHTING ANALYSIS ARE AS FOLLOWS:
   - LIGHT EMITTING DIODES (LED): 0.90
   - HIGH PRESSURE SODIUM: 0.72
   - METAL HALIDE: 0.72
4. THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING, PRIOR TO THE START OF CONSTRUCTION, OF ANY PROPOSED LIGHTING LOCATIONS THAT CONFLICT WITH EXISTING PROPOSED DRAINAGE, UTILITY, OR OTHER IMPROVEMENTS.
5. THE CONTRACTOR IS RESPONSIBLE TO PREPARE A WIRING PLAN AND PROVIDE ELECTRIC SERVICE TO ALL PROPOSED LIGHTING FIXTURES. THE CONTRACTOR IS REQUIRED TO PREPARE AN AS-BUILT PLAN OF WIRING AND PROVIDE COPIES TO THE OWNER AND STONEFIELD ENGINEERING & DESIGN, LLC.

ATM LIGHTING NOTES:

1. THE CONTRACTOR SHALL REPLACE LAMP COVERS, RE-LAMP AND RE-BALLAST EXISTING LIGHT FIXTURES AS INDICATED WITHIN THE PLAN SET. THE EXISTING FIXTURE HEIGHT SHALL BE MAINTAINED UNLESS INDICATED OTHERWISE. THE LIGHTING DESIGN IS SUBJECT TO CHANGE IF THE EXISTING LIGHT FIXTURES ARE NOT GREATER THAN OR EQUAL TO THE FOLLOWING WATTAGE:
   FIXTURE 'X' = MINIMUM X WATTS
2. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING IF THE EXISTING LIGHT FIXTURES ARE NOT THE MINIMUM WATTAGE SPECIFIED WITHIN THE PLAN SET.
3. THE CONTRACTOR IS RESPONSIBLE TO CONFIRM THAT ANY EXISTING LIGHT POLES IDENTIFIED FOR REUSE WITH A PROPOSED LIGHT FIXTURE(S) SHALL BE IN ACCEPTABLE WORKING CONDITION AND HAVE THE CAPACITY TO SUPPORT THE PROPOSED LIGHT FIXTURE(S). ANY MOUNTING EQUIPMENT REQUIRED TO ATTACH THE PROPOSED LIGHTING FIXTURE TO THE EXISTING LIGHT POLE SHALL BE PROVIDED BY THE CONTRACTOR.
4. THE CONTRACTOR SHALL CONFIRM THAT THE LOCATION OF ANY PROPOSED BUILDING MOUNTED LIGHTING FIXTURE WILL NOT CONFLICT WITH ANY EXISTING OR PROPOSED STRUCTURAL ELEMENT (E.G. CANOPY SUPPORT BEAMS). THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING OF ANY FIXTURE CONFLICT PRIOR TO THE START OF CONSTRUCTION.
5. ALL EXISTING TREE LIMBS WITHIN THE 60 FOOT ATM RADIUS SHOWN IN THE PLAN SET SHALL BE TRIMMED TO A MINIMUM OF 6 FEET ABOVE GRADE. ALL SHRUBS WITHIN THE 60 FOOT ATM RADIUS SHALL BE TRIMMED TO A MINIMUM OF 36 INCHES ABOVE GRADE. ALL BRUSH SHALL BE REMOVED. THE CONTRACTOR SHALL CONSIDER ALL FUTURE GROWTH AND FULL BLOOM WHEN TRIMMING LANDSCAPING. EXISTING TREE LIMBS ADJACENT TO LIGHTING FIXTURES SHALL BE TRIMMED AS REQUIRED TO PREVENT LIGHT INTERFERENCE.
6. PRIOR TO BID, CONTRACTOR SHALL VERIFY EXISTING EXTERIOR LIGHTING CONDITIONS AFTER DUSK AND NOTIFY THE DEVELOPER/OWNER AND STONEFIELD ENGINEERING & DESIGN, LLC. OF DAMAGED OR INOPERABLE LIGHTS. THE CONTRACTOR SHALL REPAIR ALL INOPERABLE LIGHTS UNLESS OTHERWISE NOTED WITHIN THIS PLAN SET.
7. THE ILLUMINATION LEVELS DEPICTED WITHIN THE PLAN SET ARE BASED ON REGULATORY STATE STANDARDS FOR SAFETY LIGHTING AND ON CLIENT STANDARDS.
8. ALL LIGHTING FIXTURES, UNLESS OTHERWISE NOTED WITHIN THIS PLAN SET, HAVE THE PHOTOCELL OPTION ENABLED.
9. EXISTING LIGHTING FIXTURES CONTROLLED BY OUTSIDE ENTITIES (E.G. LANDLORD) HAVE BEEN EXCLUDED FROM THE LIGHTING ANALYSIS REFLECTED WITHIN THE PLAN SET. THE PROPOSED LIGHT LEVELS HAVE BEEN DESIGNED TO COMPLY WITH ALL APPLICABLE ATM AND SAFETY LIGHTING REQUIREMENTS INDEPENDENT OF ANY UNCONTROLLED LIGHT FIXTURES.

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
4	03/14/2024	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
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SITE IMPROVEMENT PLAN

CHASE
PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-220137

TITLE: LIGHTING PLAN

DRAWING: C-7

Z:\BOSTON\BOS\2022\BOS-220137 CHASE\TASKS - 1-3 WEBB PLACE, DOVER, NH\CAD\PLOTS\DP\LIGHT.DWG

PROPOSED LUMINAIRE SCHEDULE

SYMBOL	LABEL	QUANTITY	LUMINAIRE	DISTRIBUTION	LLF	MANUFACTURER	IES FILE
	A	5	EVOLVE COMPACT (EACL) AREA LIGHT WITH SHIELD 55 WATTS, 4K	ASYMMETRIC WIDE (TYPE III)	0.90	GE CURRENT	EACL01_C3AW740_____-ELS-EA C-ABL-BLCK.IES
	B	2	EVOLVE COMPACT (EACL) AREA LIGHT WITH SHIELD 95 WATTS, 4K	ASYMMETRIC WIDE (TYPE III)	0.90	GE CURRENT	EACL01_E3AW740_____-ELS-EA C-ABL-BLCK.IES
	C	2	EVOLVE COMPACT (EACL) AREA LIGHT WITH SHIELD 122 WATTS, 4K	ASYMMETRIC WIDE (TYPE III)	0.90	GE CURRENT	EACL01_F3AW740_____.IES
	D	8	LANTERRA 9004 LED, WALL MOUNTED CYLINDER	DOWNLIGHT	0.90	COOPER LIGHTING	9004-W1-(RW, R1)-LED4080-W-WT-L1-UNV (1).IES
	E	4	BULLET OUTDOOR RECESSED FIXED DOWNLIGHT IP66	CANOPY	0.90	ILLUMINATION	5811-1SAT20L8040W.IES
	F	3	LUMARK XTOR CROSSTOUR MAXX LED WALL PACK	RDC	0.90	EATON	XTOR6B-W.IES

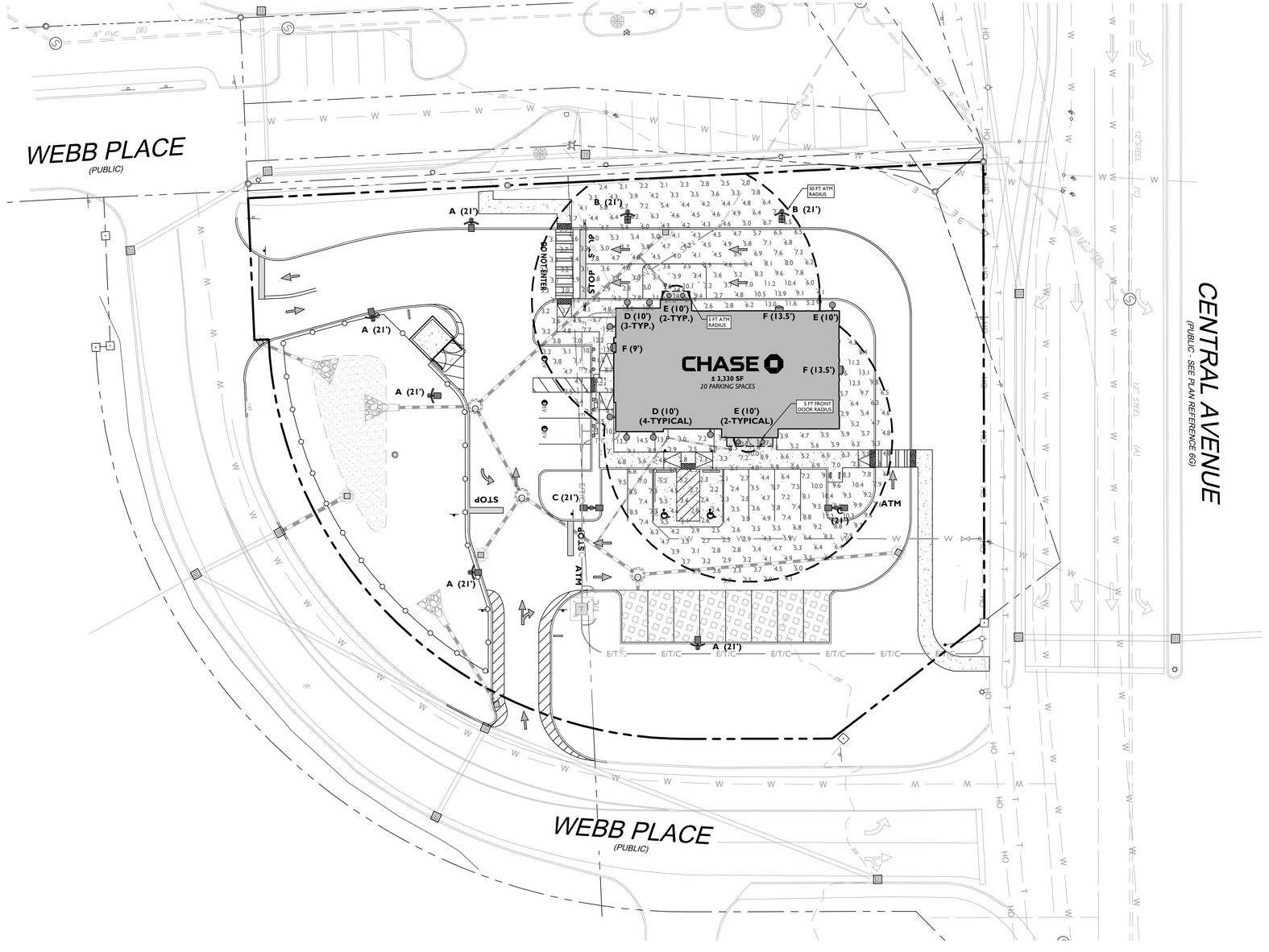
LIGHTING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 153-14.E.(2).(a)	ALL LIGHTING IN PARKING LOTS SHALL BE CUTOFF FIXTURES	COMPLIES
§ 153-14.E.(2).(b)	MAXIMUM MOUNTING HEIGHT = 25 FT	21 FT
§ 153-14.E.(2).(b)	MINIMUM ILLUMINATION IN PARKNG AREA = NO LESS THAN 0.3 FC, NO MORE THAN 0.5 FC	1.0 FC (W)
§ 153-14.E.(2).(b)	MAXIMUM LIGHTING UNIFORMITY RATIO = 6:1	11.2 : 1 (W)

(W) WAIVER

STANDARD CHASE BANK ATM / AHD REQUIREMENTS

REQUIRED	PROPOSED
MINIMUM 10 FOOTCANDLES AT FACE OF DOOR EXTENDING 5 FEET OUTWARD IN ALL DIRECTIONS MEASURED 36" ABOVE GRADE	10.2 FC
MINIMUM 10 FOOTCANDLES AT FACE OF ATM EXTENDING 5 FEET OUTWARD IN ALL DIRECTIONS MEASURED 36" ABOVE GRADE	14.4 FC
MINIMUM 2 FOOTCANDLES AT FACE OF FRONT DOOR & ATM EXTENDING 50 FEET OUTWARD IN ALL DIRECTIONS MEASURED 36" ABOVE GRADE WITHIN PATH OF ACCESS	2.0 FC



SYMBOL	DESCRIPTION
	PROPOSED CALCULATION AREA
	PROPOSED ISOMETRIC LINE
A (XX')	PROPOSED LIGHTING FIXTURE (MOUNTING HEIGHT)
+XX	PROPOSED LIGHTING INTENSITY (FOOTCANDLES)
	PROPOSED AREA LIGHT
	PROPOSED BUILDING MOUNTED LIGHT

GENERAL LIGHTING NOTES

1. THE LIGHTING LEVELS DEPICTED WITHIN THE PLAN SET ARE CALCULATED UTILIZING DATA OBTAINED FROM THE LISTED MANUFACTURER. ACTUAL ILLUMINATION LEVELS AND PERFORMANCE OF ANY PROPOSED LIGHTING FIXTURE MAY VARY DUE TO UNCONTROLLABLE VARIABLES SUCH ARE WEATHER, VOLTAGE SUPPLY, LAMP TOLERANCE, EQUIPMENT SERVICE LIFE AND OTHER VARIABLE FIELD CONDITIONS.
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3. UNLESS NOTED ELSEWHERE WITHIN THIS PLAN SET, THE LIGHT LOSS FACTORS USED IN THE LIGHTING ANALYSIS ARE AS FOLLOWS:
   - LIGHT EMITTING DIODES (LED): 0.90
   - HIGH PRESSURE SODIUM: 0.72
   - METAL HALIDE: 0.72
4. THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING, PRIOR TO THE START OF CONSTRUCTION, OF ANY PROPOSED LIGHTING LOCATIONS THAT CONFLICT WITH EXISTING/ PROPOSED DRAINAGE, UTILITY, OR OTHER IMPROVEMENTS.
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ATM LIGHTING NOTES:

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20' 0' 20' 40'
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1" = 20'

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SITE IMPROVEMENT PLAN

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 28, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 10' | PROJECT ID: BOS-220137

TITLE:
SECURITY LIGHTING PLAN

DRAWING:
C-7.1

Z:\BOS\DWG\BOS220137 CHASE\PLATES - 1-3 WEBB PLACE, DOVER, NH\CAD\PLOTS\PDF\01-LIGHT.DWG

STABILIZATION SPECIFICATIONS:

I.A. TEMPORARY SEEDING AND MULCHING:

TIME OF PLANTING - PLANTING SHOULD PREFERABLY BE DONE BETWEEN APRIL 1 AND JUNE 30, AND SEPTEMBER 1 THROUGH SEPTEMBER 30. IF PLANTING IS DONE IN THE MONTHS OF JULY AND AUGUST, IRRIGATION MAY BE REQUIRED. IF PLANTING IS DONE BETWEEN OCTOBER 1 AND MARCH 31, MULCHING SHOULD BE APPLIED IMMEDIATELY AFTER PLANTING. IF SEEDING IS DONE DURING THE SUMMER MONTHS, IRRIGATION OF SOME SORT WILL PROBABLY BE NECESSARY.
SITE PREPARATION - BEFORE SEEDING, INSTALL NEEDED SURFACE RUNOFF CONTROL MEASURES SUCH AS GRADIENT TERRACES, INTERCEPTOR DIKES/SWALES, LEVEL SPREADERS, AND SEDIMENT BASINS.
SEEDBED PREPARATION - THE SEEDBED SHOULD BE FIRM WITH A FAIRLY FINE SURFACE. PERFORM ALL CULTURAL OPERATIONS ACROSS OR AT RIGHT ANGLES TO THE SLOPE.
LIMING AND FERTILIZATION - APPLY UNIFORMLY 2 TONS OF GROUND LIMESTONE PER ACRE (100 LBS. PER 1,000 SQ. FT.) OR ACCORDING TO SOIL TEST. APPLY UNIFORMLY 10-10-10 ANALYSIS FERTILIZER AT THE RATE OF 400 LBS. PER ACRE (14 LBS. PER 1,000 SQ. FT.) OR AS INDICATED BY SOIL TEST. FORTY PERCENT OF THE NITROGEN SHOULD BE IN ORGANIC FORM. WORK IN LIME AND FERTILIZER TO A DEPTH OF 4 INCHES USING ANY SUITABLE EQUIPMENT.
SEEDING - SELECT ADAPTED SPECIES FROM THE ACCOMPANYING TABLE IN THE MA SESC HANDBOOK. APPLY SEED UNIFORMLY ACCORDING TO THE RATE INDICATED IN THE TABLE BY BROADCASTING, DRILLING OR HYDRAULIC APPLICATION. COVER SEEDS WITH SUITABLE EQUIPMENT PER MA SESC HANDBOOK.
MULCH - USE AN EFFECTIVE MULCH, SUCH AS CLEAN GRAIN STRAW; TACKED AND/OR TIED DOWN WITH NETTING TO PROTECT SEEDBED AND ENCOURAGE PLANT GROWTH.

I.B. PERMANENT SEEDING AND MULCHING:

SEEDING GRASSES AND LEGUMES
INSTALL NEEDED SURFACE RUNOFF CONTROL MEASURES SUCH AS GRADIENT TERRACES, BERMS, DIKES, LEVEL SPREADERS, WATERWAYS, AND SEDIMENT BASINS PRIOR TO SEEDING OR PLANTING.
SEEDBED PREPARATION - IF INFERTILE OR COARSE-TEXTURED SUBSOIL WILL BE EXPOSED DURING LAND SHAPING, IT IS BEST TO STOCKPILE TOPSOIL AND RESPREAD IT OVER THE FINISHED SLOPE AT A MINIMUM 2- TO 6-INCH DEPTH AND ROLL IT TO PROVIDE A FIRM SEEDBED. IF CONSTRUCTION FILL OPERATIONS HAVE LEFT SOIL EXPOSED WITH A LOOSE, ROUGH, OR IRREGULAR SURFACE, SMOOTH WITH BLADE AND ROLL. LOOSEN THE SOIL TO A DEPTH OF 3-5 INCHES WITH SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT. AREAS NOT TO RECEIVE TOP SOIL SHALL BE TREATED TO FIRM THE SEEDBED AFTER INCORPORATION OF THE LIME AND FERTILIZER SO THAT IT IS DEPRESSED NO MORE THAN ½ - 1 INCH WHEN STEPPED ON WITH A SHOE. AREAS TO RECEIVE TOPSOIL SHALL NOT BE FIRMED UNTIL AFTER TOPSOILING AND LIME AND FERTILIZER IS APPLIED AND INCORPORATED, AT WHICH TIME IT SHALL BE TREATED TO FIRM THE SEEDBED AS DESCRIBED ABOVE. THIS CAN BE DONE BY ROLLING OR CULTIPACKING.
COOL SEASON GRASSES - COOL SEASON GRASSES GROW RAPIDLY IN THE COOL WEATHER OF SPRING AND FALL, AND SET SEED IN JUNE AND JULY. COOL SEASON GRASSES BECOME DORMANT WHEN SUMMER TEMPERATURES PERSIST ABOVE 85 DEGREES AND MOISTURE IS SCARCE.

LIME AND FERTILIZER - APPLY LIME AND FERTILIZER ACCORDING TO SOIL TEST AND CURRENT EXTENSION SERVICE RECOMMENDATIONS. IN ABSENCE OF A SOIL TEST, APPLY LIME (A PH OF 5.5 - 6.0 IS DESIRED) AT A RATE OF 2.5 TONS PER ACRE AND 10-20-20 ANALYSIS FERTILIZER AT A RATE OF 500 POUNDS PER ACRE (40 % OF N TO BE IN AN ORGANIC OR SLOW RELEASE FORM). INCORPORATE LIME AND FERTILIZER INTO THE TOP 2-3 INCHES OF SOIL.
SEEDING DATES - SEEDING OPERATIONS SHOULD BE PERFORMED WITHIN ONE OF THE FOLLOWING PERIODS:

- APRIL 1 - MAY 31
- AUGUST 1 - SEPTEMBER 10
- NOVEMBER 1 - DECEMBER 15 AS A DORMANT SEEDING (SEEDING RATES SHALL BE INCREASED BY 50% FOR DORMANT SEEDINGS)

SEEDING METHODS - SEEDING SHOULD BE PERFORMED BY ONE OF THE FOLLOWING METHODS:

- DRILL SEEDINGS (DE-AWNED OR DE-BEARDED SEED SHOULD BE USED UNLESS THE DRILL IS EQUIPPED WITH SPECIAL FEATURES TO ACCEPT AWNED SEED).
- BROADCAST SEEDING WITH SUBSEQUENT ROLLING, CULTIPACKING OR TRACKING THE SEEDING WITH SMALL TRACK CONSTRUCTION EQUIPMENT. TRACKING SHOULD BE ORIENTED UP AND DOWN THE SLOPE.
- HYDROSEEDING WITH SUBSEQUENT TRACKING. IF WOOD FIBER MULCH IS USED, IT SHOULD BE APPLIED AS A SEPARATE OPERATION AFTER SEEDING AND TRACKING TO ASSURE GOOD SEED TO SOIL CONTACT.

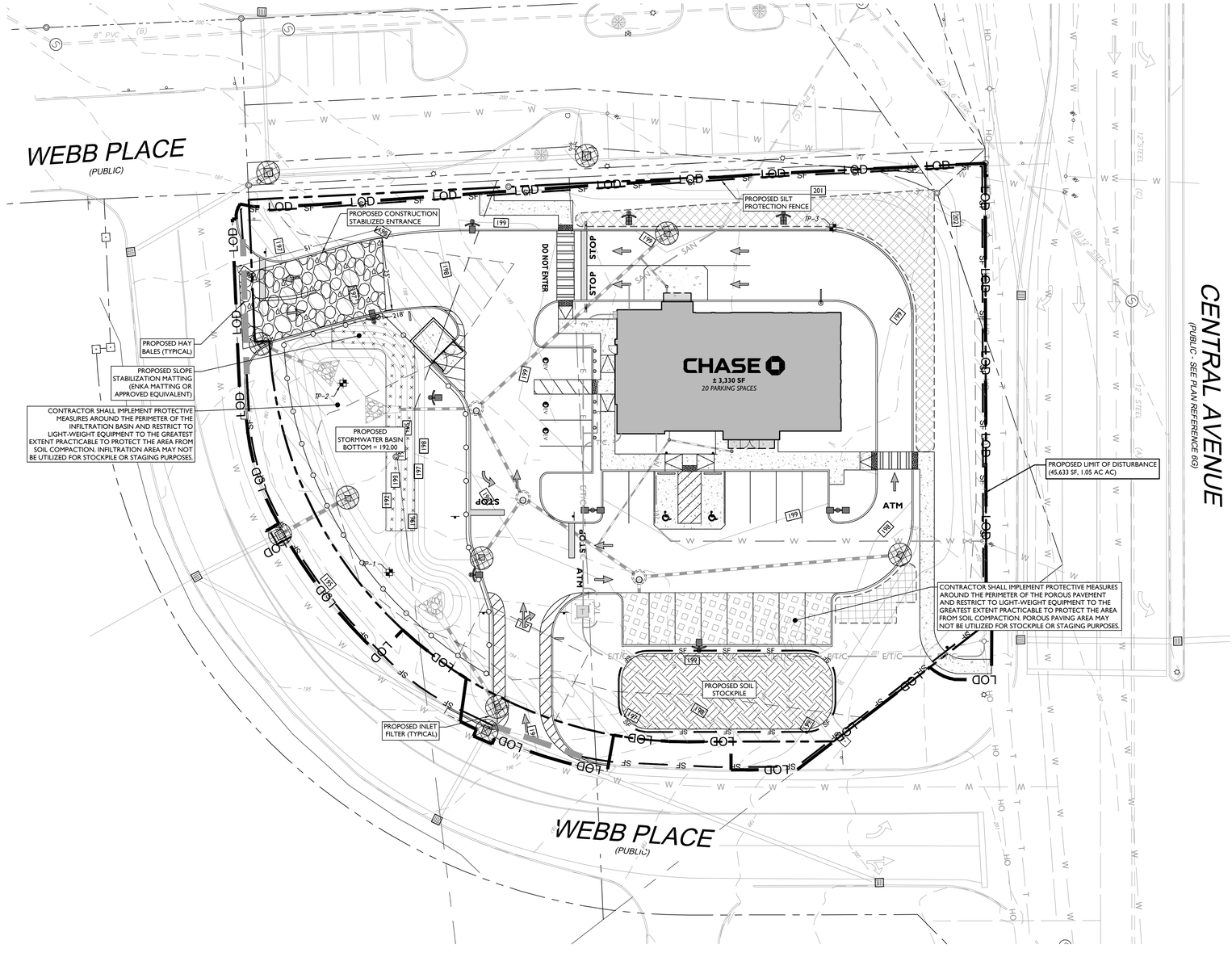
MULCH - MULCH THE SEEDINGS WITH STRAW APPLIED AT THE RATE OF ½ TONS PER ACRE.
ANCHOR THE MULCH WITH EROSION CONTROL NETTING OR FABRIC ON SLOPING AREAS.
SEED MIXTURES FOR PERMANENT COVER
RECOMMENDED MIXTURES FOR PERMANENT SEEDING ARE PROVIDED ON THE TABLE IN THE MA SESC HANDBOOK. SELECT PLANT SPECIES WHICH ARE SUITED TO THE SITE CONDITIONS AND PLANNED USE. SOIL MOISTURE CONDITIONS, OFTEN THE MAJOR LIMITING SITE FACTOR, ARE USUALLY CLASSIFIED AS FOLLOWS:

- DRY - SANDS AND GRAVELS TO SANDY LOAMS. NO EFFECTIVE MOISTURE SUPPLY FROM SEEPAGE OR A HIGH WATER TABLE.
- MOIST - WELL DRAINED TO MODERATELY WELL DRAINED SANDY LOAMS, LOAMS, AND FINER; OR COARSER TEXTURED MATERIAL WITH MODERATE INFLUENCE ON ROOT ZONE FROM SEEPAGE OR A HIGH WATER TABLE.
- WET - ALL TEXTURES WITH A WATER TABLE AT OR VERY NEAR THE SOIL SURFACE, OR WITH ENDURING SEEPAGE. WHEN OTHER FACTORS STRONGLY INFLUENCE SITE CONDITIONS, THE PLANTS SELECTED MUST ALSO BE TOLERANT OF THESE CONDITIONS.

SEQUENCE OF CONSTRUCTION

1. INSTALL CONTROL MEASURES IDENTIFYING LIMITS OF DISTURBANCE AND AREAS INTERNAL TO THE SITE THAT REQUIRE PROTECTION BEFORE START OF LAND DISTURBANCE.
2. INSTALL ALL EROSION, RUNOFF, AND SEDIMENT CONTROLS AND TEMPORARY POLLUTION PREVENTION MEASURES THAT ARE REQUIRED TO BE IN PLACE AND FUNCTIONAL BEFORE ANY EARTHWORK BEGINS. THIS SHALL BE DONE IN ACCORDANCE WITH THE MA SESC HANDBOOK AND/OR THE MA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (AS AMENDED). UPON ACCEPTABLE COMPLETION OF SITE PREPARATION AND INSTALLATION OF EROSION, RUNOFF, AND SEDIMENT CONTROLS AND TEMPORARY POLLUTION PREVENTION MEASURES, SITE CONSTRUCTION ACTIVITIES MAY COMMENCE.
3. CONSTRUCTION ACTIVITIES:
   3.1 DEMOLISH EXISTING SITE FEATURES (1 WEEK).
   3.2 ROUGH GRADING AND TEMPORARY SEEDING (2 WEEKS).
   3.3 EXCAVATE AND INSTALL UTILITY IMPROVEMENTS IN ACCORDANCE WITH LOCAL UTILITY AUTHORITY REQUIREMENTS (3 WEEKS).
   3.4 BUILDING CONSTRUCTION AND SITE IMPROVEMENTS (12 WEEKS).
   3.5 CONSTRUCT RIGHT-OF-WAY IMPROVEMENTS (2 WEEKS).
   3.6 LANDSCAPING IMPROVEMENTS AND FINAL SEEDING (1 WEEK).
4. UPON COMMENCEMENT OF SITE CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL INITIATE APPROPRIATE STABILIZATION PRACTICES ON ALL DISTURBED AREAS AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY OR PERMANENTLY CEASED.
5. PERFORM ROUTINE INSPECTIONS AND MAINTENANCE AND/OR MODIFICATION OF EROSION, RUNOFF, AND SEDIMENT CONTROLS AND TEMPORARY POLLUTION PREVENTION MEASURES WHILE EARTHWORK IS ONGOING AS REQUIRED.
6. PERFORM FINAL SITE STABILIZATION OF ANY DISTURBED AREAS AFTER EARTHWORK HAS BEEN COMPLETED.
7. REMOVE OF TEMPORARY EROSION, RUNOFF, AND SEDIMENT CONTROLS AND TEMPORARY POLLUTION PREVENTION MEASURES.

NOTE: TIME DURATIONS ARE APPROXIMATE AND ARE INTENDED TO ACT AS A GENERAL GUIDE TO THE CONSTRUCTION TIMELINE. ALL DURATIONS ARE SUBJECT TO CHANGE BY CONTRACTOR. CONTRACTOR SHALL SUBMIT CONSTRUCTION SCHEDULE TO CITY AND ENGINEER. CONTRACTOR SHALL PHASE CONSTRUCTION ACCORDINGLY



SYMBOL	DESCRIPTION
	PROPERTY BOUNDARY
	ADJACENT PROPERTY BOUNDARY
LOD	PROPOSED LIMIT OF DISTURBANCE
SF	PROPOSED SILT FENCE
	PROPOSED HAY BALES
	PROPOSED STOCKPILE & EQUIPMENT STORAGE
	PROPOSED STABILIZED CONSTRUCTION ENTRANCE
	PROPOSED INLET PROTECTION FILTER

CITY OF DOVER - CONSTRUCTION INSPECTION REQUIREMENTS

1. THE COMMUNITY SERVICES DEPARTMENT OR THEIR DESIGNATED AGENT SHALL HAVE ACCESS TO THE SITE TO COMPLETE ROUTINE INSPECTIONS.
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.
3. 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.

SOIL EROSION AND SEDIMENT CONTROL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR SOIL EROSION AND SEDIMENT CONTROL IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
2. THE CONTRACTOR IS RESPONSIBLE FOR DUST CONTROL IN COMPLIANCE WITH LOCAL, STATE, AND FEDERAL AIR QUALITY STANDARDS.
3. THE CONTRACTOR IS RESPONSIBLE TO INSPECT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER A PRECIPITATION EVENT GREATER THAN 1 INCH. THE CONTRACTOR SHALL MAINTAIN AN INSPECTION LOG ON SITE AND DOCUMENT CORRECTIVE ACTION TAKEN THROUGHOUT THE COURSE OF CONSTRUCTION AS REQUIRED.

DUST CONTROL NOTES

1. VEGETATIVE COVER - FOR DISTURBED AREAS NOT SUBJECT TO TRAFFIC, VEGETATION PROVIDES THE MOST PRACTICAL METHOD OF DUST CONTROL.
2. MULCH (INCLUDING GRAVEL MULCH) - WHEN PROPERLY APPLIED, MULCH OFFERS A FAST, EFFECTIVE MEANS OF CONTROLLING DUST.
3. SPRAY-ON ADHESIVE - LATEX EMULSIONS OR RESIN IN WATER CAN BE SPRAYED ONTO MINERAL SOIL TO PREVENT PARTICLES FROM BLOWING AWAY.
4. CALCIUM CHLORIDE - CALCIUM CHLORIDE MAY NOT BE USED AS THE PROJECT IS LOCATED WITHIN THE SECONDARY GROUNDWATER PROTECTION DISTRICT.
5. SPRINKLING - THE SITE MAY BE SPRINKLED UNTIL THE SURFACE IS WET. SPRINKLING IS ESPECIALLY EFFECTIVE FOR DUST CONTROL ON HAUL ROADS AND OTHER TRAFFIC ROUTES.
6. STONE - USED TO STABILIZE CONSTRUCTION ROADS; CAN ALSO BE EFFECTIVE FOR DUST CONTROL.
7. BARRIERS - A BOARD FENCE, WIND FENCE, SEDIMENT FENCE, OR SIMILAR BARRIER CAN CONTROL AIR CURRENTS AND BLOWING SOIL. ALL OF THESE FENCES ARE NORMALLY CONSTRUCTED OF WOOD AND THEY PREVENT EROSION BY OBSTRUCTING THE WIND NEAR THE GROUND AND PREVENTING THE SOIL FROM BLOWING OFFSITE. A WIND BARRIER GENERALLY PROTECTS SOIL DOWNWARD FOR A DISTANCE OF 10 TIMES THE HEIGHT OF THE BARRIER. PERENNIAL GRASS AND STANDS OF EXISTING TREES MAY ALSO SERVE AS WIND BARRIERS.

CITY OF DOVER - EROSION CONTROL STANDARDS DURING CONSTRUCTION

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THE PROJECT SITE REMAINS IN COMPLIANCE WITH THE CITY OF DOVER SITE PLAN REVIEW REGULATION EROSION CONTROL STANDARDS THROUGHOUT CONSTRUCTION
2. CONTRACTOR SHALL PERFORM STRIPPING OF VEGETATION SHALL BE DONE IN A MANNER THAT MINIMIZES SOIL EROSION. WHENEVER PRACTICAL, NATURAL VEGETATION SHALL BE RETAINED, PROTECTED, OR SUPPLEMENTED.
3. CONTRACTOR SHALL INSTALL THE APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO ANY SOIL LAND DISTURBANCE AND MUST BE REVIEWED AND APPROVED BY THE COMMUNITY SERVICES DEPARTMENT.
4. ALL 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 FOURTEEN (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.
5. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN FUNCTIONING CONDITION UNTIL FINAL SITE STABILIZATION IS ACCOMPLISHED.
6. 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 1ST, OR AT THE DISCRETION OF THE COMMUNITY SERVICES DEPARTMENT.
7. 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 THIRTY (30) CALENDAR DAYS UNLESS CONDITIONS DICTATE OTHERWISE.

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
4	03/14/2024	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
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SITE IMPROVEMENT PLAN

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 28, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

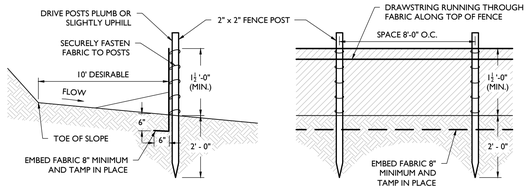
STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-220137

TITLE: SOIL EROSION & SEDIMENT CONTROL PLAN

DRAWING: C-8

Z:\BOS\DWG\BOS220137 CONSTRUCTS - 1-3 WEBB PLACE, DOVER, NH\CAD\PLOTS\01-08-24\SESC.DWG

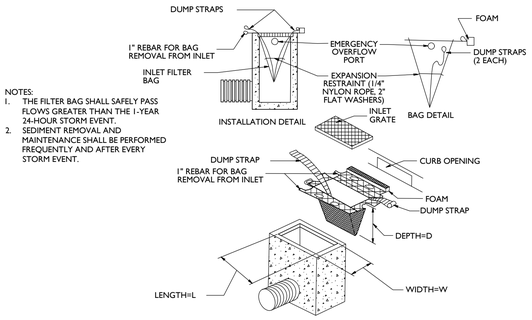


NOTES:
1. SECURELY FASTEN GEOTEXTILE TO FENCE POST BY USE OF WIRE TIES, HOG RINGS, STAPLES OR POCKETS. FOUR TO SIX FASTENERS PER POST.
2. GEOTEXTILE FABRIC TO BE EMBEDDED 8" (MIN.) AND TAMP IN PLACE.
3. SECURELY FASTEN ENDS OF INDIVIDUAL ROLLS OF GEOTEXTILE TO A POST BY WRAPPING EACH END OF THE GEOTEXTILE AROUND THE POST TWICE AND ATTACHING AS SPECIFIED IN NOTE 1 ABOVE. SPLICING OF INDIVIDUAL ROLLS SHALL NOT OCCUR AT LOW POINTS.
4. SET SILT FENCE WITHIN PROJECT LIMITS. 10'-0" IS DESIRABLE.

SILT FENCE DETAIL

NOT TO SCALE

1

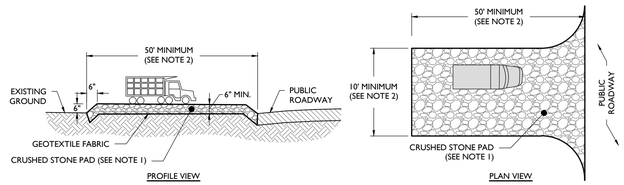


NOTES:
1. THE FILTER BAG SHALL SAFELY PASS FLOWS GREATER THAN THE 1-YEAR 24-HOUR STORM EVENT.
2. SEDIMENT REMOVAL AND MAINTENANCE SHALL BE PERFORMED FREQUENTLY AND AFTER EVERY STORM EVENT.

INLET FILTER BAG DETAIL

NOT TO SCALE

2

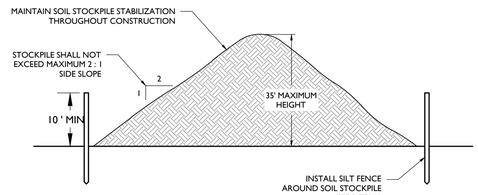


NOTES:
1. STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 3-INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT PLACED ON A STABLE FOUNDATION AS SPECIFIED IN THE PLAN.
2. THE MINIMUM LENGTH OF THE GRAVEL PAD SHALL BE 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH MAY BE USED. THE WIDTH SHALL BE 10' MINIMUM OR THE FULL WIDTH OF THE ACCESS POINT, WHICHEVER IS GREATER.
3. GEOTEXTILE FILTER FABRIC SHALL BE PLACED BETWEEN THE STONE FILL AND THE EARTH SURFACE BELOW THE PAD TO REDUCE THE MIGRATION OF SOIL PARTICLES FROM THE UNDERLYING SOIL INTO THE STONE AND VICE VERSA. FILTER CLOTH IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENCE LOT.
4. IF THE SLOPE TOWARD THE ROAD EXCEEDS 2%, CONSTRUCT A RIDGE, 6 TO 8 INCHES HIGH WITH 3:1 SIDE SLOPES, ACROSS THE FOUNDATION APPROXIMATELY 15 FEET FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE PUBLIC ROAD.
5. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHOULD 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.
6. WASHING: IF THE SITE CONDITIONS ARE SUCH THAT THE MAJORITY OF MUD IS NOT REMOVED FROM THE VEHICLE TIRES BY THE GRAVEL PAD, THEN THE TIRES SHOULD BE WASHED BEFORE THE VEHICLE ENTERS THE ROAD OR STREET. THE WASH AREA SHOULD BE A LEVEL AREA WITH 3-INCH WASHED STONE MINIMUM, OR A COMMERCIAL RACK. WASH WATER SHOULD BE DIRECTED INTO A SEDIMENT TRAP, A VEGETATED FILTER STRIP, OR OTHER APPROVED SEDIMENT TRAPPING DEVICE. SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY WATERCOURSES.
7. A FILTER FABRIC FENCE SHOULD BE INSTALLED DOWN-GRADIENT FROM THE CONSTRUCTION ENTRANCE IN ORDER TO CONTAIN ANY SEDIMENT-LADEN RUNOFF FROM THE ENTRANCE.

STABILIZED CONSTRUCTION ACCESS DETAIL

NOT TO SCALE

3



NOTES:
1. LOCATE THE TOPSOIL STOCKPILE SO THAT IT DOES NOT INTERFERE WITH WORK ON THE SITE.
2. SURROUND ALL TOPSOIL STOCKPILES WITH AN INTERCEPTOR DIKE WITH GRAVEL OUTLET AND SILT FENCE.
3. EITHER SEED OR COVER STOCKPILES WITH CLEAR PLASTIC OR OTHER MULCHING MATERIALS WITHIN 7 DAYS OF THE FORMATION OF THE STOCKPILE.

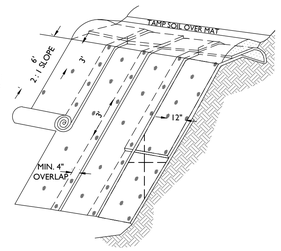
SOIL STOCKPILE DETAIL

NOT TO SCALE

4

NOTES:
1. **SITE PREPARATION:** THE SITE MUST BE GRADED TO THE DESIGN SPECIFICATIONS (GRADE, GEOMETRY, DENSITY OF SOIL, ETC.) AND THEN DRESSED TO BE FREE OF SOIL CLODS, CLUMPS, ROCKS, OR VEHICLE IMPRINTS OF ANY SIGNIFICANT SIZE THAT WOULD PREVENT ENKAMAT FROM LYING FLUSH TO SURFACE CONTOURS.
2. **ANCHOR TRENCH:** ANCHOR TRENCHES ARE REQUIRED TO SECURELY FASTEN THE ENKAMAT TO THE GROUND SURFACE. THE ENKAMAT IS INSTALLED IN TO THE BOTTOM OF THE TRENCH AND FASTENED WITH PINS SPACED 3 FEET APART. THE ANCHOR TRENCH / INTERMEDIATE CHECK SLOTS ARE THEN BACKFILLED AND COMPACTED IN A MANNER AS TO NOT DAMAGE THE ENKAMAT.
3. **ENKAMAT INSTALLATION:** ROLL THE ENKAMAT DOWN THE SLOPE OR CHANNEL. THE OVERLAP BETWEEN ROLLS IS 3 TO 4 INCHES. THE SPLICE BETWEEN ROLLS IS BETWEEN 2 AND 3 FEET. SHINGLE THE ROLL IN THE DIRECTION OF WATER FLOW. INSTALL PINS DOWN THE CENTER OF EACH MAT (MAT IS 3.25 FEET WIDE) STAGGERING THEM BETWEEN THE OUTSIDE PINS WITH A SPACING INTERVAL OF 3 TO 5 FEET. PINS PATTERNS WILL VARY DEPENDING UPON APPLICATION, SOIL TYPE, SLOPE OR CHANNEL SLOPE, GEOMETRY, ETC. A RULE OF THUMB FOR ESTIMATING THE AMOUNT OF PINS REQUIRED FOR A PROJECT IS:
1:1 TO 2:1 SLOPES: 3-4 PINS PER SQ. YD.
3:1 AND LESSER SLOPES: 2-3 PINS PER SQ. YD.

   ALWAYS INSTALL TWO ROWS OF PINS SPACED 1.5 X 1.5 FEET APART AT ALL ROLL SPLICE LOCATIONS.
4. **ANCHORING DEVICES:** TYPICALLY 11-8 GAUGE OF A 6" X 1" X 6" METAL PINS ARE USED. WHEN SURFACE SOIL CONDITIONS ARE LOOSE, USE 8" X 1" X 8" OR 12" X 1.5" X 12" METAL PINS, 8"-18" PINS WITH 1.5" DIAMETER WASHER, OR 12-30" J-SHAPE PINS (BENT REBAR) HAVING A ½" DIAMETER. DRIVE PINS OR PINS FLUSH WITH THE GROUND SURFACE.
5. **SEEDING:** FOR NON-SOIL FILLING APPLICATIONS, BROADCAST SEED OR HYDROSEED OVER THE INSTALLED ENKAMAT. MAKE SURE HYDROMULCH OCCURS AFTER SEEDING TO ENSURE THE SEED REACHES THE TOPSOIL. IF SOIL FILLING, SEED AFTER FILLING IS COMPLETED. YOU MAY ALSO SEED BEFORE AND AFTER SOIL FILLING TO CREATE A BETTER ESTABLISHED ROOT STRUCTURE AND INCREASE VEGETATION STRENGTH.



ENKAMAT DETAIL

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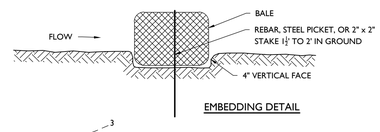
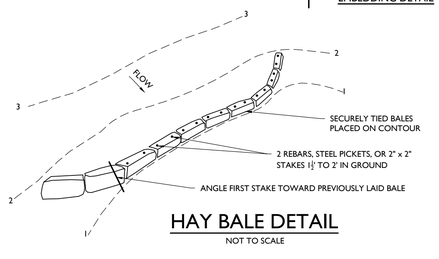


EMBEDDING DETAIL



HAY BALE DETAIL

NOT TO SCALE

6

ISSUE	DATE	BY	DESCRIPTION
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SITE IMPROVEMENT PLAN

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 30, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: NO SCALE | PROJECT ID: BOS-220137

TITLE: SOIL EROSION & SEDIMENT CONTROL DETAILS

DRAWING: C-9

Z:\BOS\DWG\BOS220137 CHASE\TASTE - 1-3 WEBB PLACE, DOVER, NH\CAD\PLOT\DP-08-PHYSEC.DWG

TREE SCHEDULE

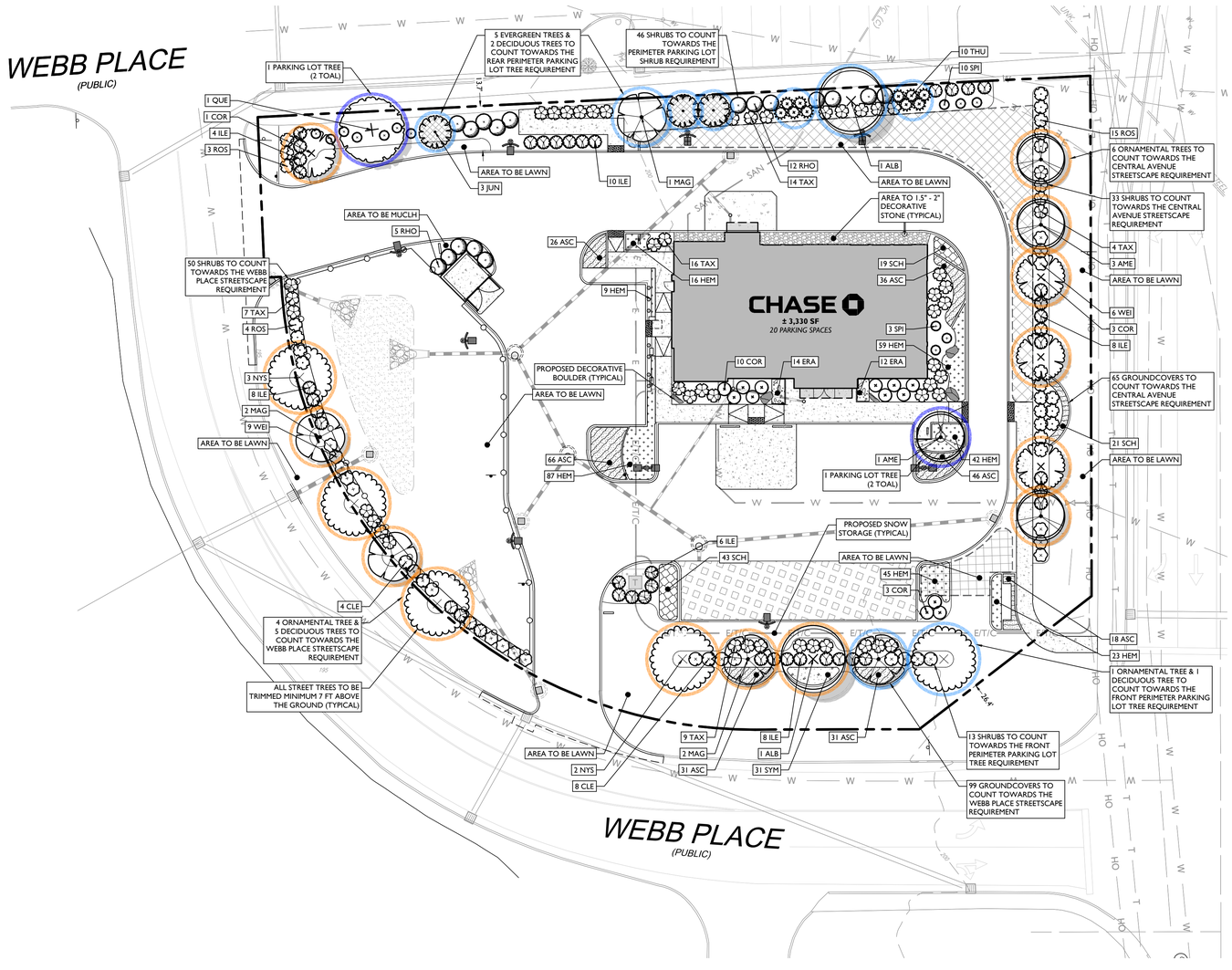
DECIDUOUS TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
	NYS	5	NYSSA SYLVATICA	TUPELO	3" - 3.5" CAL	POT	NATIVE, SALT TOLERANT
	ALB	2	QUERCUS ALBA	WHITE OAK	3" - 3.5" CAL	POT	NATIVE, SALT TOLERANT
	QUE	1	QUERCUS RUBRA	RED OAK	3" - 3.5" CAL	B&B	NATIVE, SALT TOLERANT
EVERGREEN TREES	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**CONTAINER**	**REMARKS**
	THU	10	THUJA OCCIDENTALIS 'SMARAGD'	EMERALD GREEN ARBORVITAE	5' - 6' HT	B&B	NATIVE, HARDY
	JUN	3	JUNIPERUS VIRGINIANA	EASTERN REDCEDAR	5' - 6' HT	B&B	NATIVE
ORNAMENTAL TREES	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**CONTAINER**	**REMARKS**
	AME	4	AMELANCHIER CANADENSIS	CANADIAN SERVICEBERRY	3" - 3.5" CAL	POT	NATIVE, SALT TOLERANT, DROUGHT TOLERANT
	COR	4	CORNUS FLORIDA	FLOWERING DOGWOOD	3" - 3.5" CAL	POT	NATIVE
	MAG	5	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	3" - 3.5" CAL	B&B	NATIVE, SALT TOLERANT

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN ON THE LANDSCAPE PLAN AND WITHIN THE PLANT LIST, THE PLAN SHALL DICTATE.

SHRUB & GROUNDCOVER SCHEDULE

SHRUBS	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
	WEI	15	WEIGELA FLORIDA 'BRAMWELL'	FINE WINE WEIGELA	18" - 24"	POT	HARDY, TOLERANT OF DOVER CLIMATIC CONDITIONS
	CLE	12	CLETHRA ALNIFOLIA	SUMMERSWEET	24" - 30"	POT	NATIVE, SALT TOLERANT, DROUGHT TOLERANT
	COR	13	CORNUS SERICEA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	24" - 30"	B&B	NATIVE
	ROS	22	ROSA VIRGINIANA	VIRGINIA ROSE	24" - 30"	POT	NATIVE, SALT TOLERANT
	SPI	13	SPIRAEA JAPONICA 'NEON FLASH'	NEON FLASH JAPANESE SPIREA	24" - 30"	POT	HARDY, DROUGHT TOLERANT, TOLERANT OF DOVER CLIMATIC CONDITIONS
EVERGREEN SHRUBS	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**CONTAINER**	**REMARKS**
	ILE	44	ILEX GLABRA 'COMPACTA'	COMPACT INKBERRY	24" - 30"	POT	NATIVE, SALT TOLERANT, DROUGHT TOLERANT
	RHO	17	RHODODENDRON X 'P.J.M. ELITE'	P.J.M. ELITE RHODODENDRON	24" - 30"	POT	HARDY, TOLERANT OF DOVER CLIMATIC CONDITIONS
	TAX	50	TAXUS CANADENSIS	CANADA YEW	24" - 30"	POT	NATIVE, DROUGHT TOLERANT
PERENNIALS AND GRASSES	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SPACING**	**CONTAINER**	**REMARKS**
	ASC	254	ASCLEPIAS TUBEROSA	BUTTERFLY MILKWEED	18" o.c.	1 GAL. POT	NATIVE, SALT TOLERANT, DROUGHT TOLERANT
	HEM	281	HEMEROCALLIS X 'STELLA DE ORO'	STELLA DE ORO DAYLILY	18" o.c.	1 GAL. POT	HARDY, TOLERANT OF DOVER CLIMATIC CONDITIONS
	ERA	26	ERAGROSTIS SPECTABILIS	PURPLE LOVEGRASS	18" o.c.	1 GAL. POT	NATIVE, SALT TOLERANT, DROUGHT TOLERANT
	SCH	83	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	18" o.c.	1 GAL. POT	NATIVE, SALT TOLERANT, DROUGHT TOLERANT
	SYM	31	SYMPHYOTRICHUM NOVAE-ANGLIAE	NEW ENGLAND ASTER	18" o.c.	1 GAL. POT	NATIVE, DROUGHT TOLERANT

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN ON THE LANDSCAPE PLAN AND WITHIN THE PLANT LIST, THE PLAN SHALL DICTATE.



LANDSCAPE MAINTENANCE SCHEDULE

MAINTENANCE TASK	WINTER			SPRING				SUMMER				FALL			
	DEC	JAN	FEB	MAR	APR	MAY	FREQ	JUN	JUL	AUG	FREQ	SEP	OCT	NOV	FREQ
SITE INSPECTION				X			ONCE PER SEASON		X		ONCE PER SEASON			X	ONCE PER SEASON
DEBRIS & WEED CONTROL				X	X	X	BI-WEEKLY	X	X	X	BI-WEEKLY	X	X		BI-WEEKLY
IRRIGATION MAINTENANCE					X		ONCE PER SEASON				N/A		X		ONCE PER SEASON
MULCHING					X		ONCE PER SEASON				N/A				N/A
SEASONAL PLANTINGS						X	ONCE PER SEASON	X	X	X	WEEKLY	X	X	X	WEEKLY
MOWING OF TURF				X	X	X	WEEKLY	X	X	X	WEEKLY	X	X	X	WEEKLY
MOWING OF WILDFLOWERS							N/A				N/A			X	ONCE PER SEASON
PRUNING				X	X		MONTHLY				N/A			X	ONCE PER SEASON
FERTILIZER & AMENDMENTS				X	X	X	MONTHLY	X	X	X	BI-WEEKLY	X	X	X	BI-WEEKLY
INSECT & DISEASE CONTROL						X	ONCE PER SEASON	X	X	X	BI-WEEKLY	X	X		N/A
PLANTING RENOVATION				X			ONCE PER SEASON				N/A		X		ONCE PER SEASON
LANDSCAPE STRUCTURES INSPECTION					X		ONCE PER SEASON				N/A				N/A
LIGHTING MAINTENANCE				X			ONCE PER SEASON				N/A		X		ONCE PER SEASON
PAVED SURFACE MAINTENANCE					X		ONCE PER SEASON				N/A				N/A

LANDSCAPING AND BUFFER REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
	LANDSCAPE REQUIREMENTS	
§ 153-14.G.(1)(e)	SCREENING SHALL BE PROVIDED AROUND WASTE DISPOSAL AND ANY OTHER DISRUPTIVE AREAS	PROVIDED
	STREETSCAPE REQUIREMENTS	
§ 153-14.G.(1)(f)	CENTRAL AVENUE: 193 FT	
	1 TREE FOR EVERY 35 LF OF FRONTAGE	
	(193 FT) * (1 TREE / 35 FT FRONTAGE) = 6 TREES	6 TREES
	1 SHRUB FOR EVERY 6 LF OF FRONTAGE	
	(193 FT) * (1 SHRUB / 6 FT FRONTAGE) = 33 SHRUBS	33 SHRUBS
	1 GROUNDCOVER FOR EVERY 3 LF OF FRONTAGE	
	(193 FT) * (1 GROUNDCOVER / 3 FT FRONTAGE) = 65 GROUNDCOVERS	65 GROUNDCOVERS
	WEBB PLACE: 295 FT	
	1 TREE FOR EVERY 35 LF OF FRONTAGE	
	(295 FT) * (1 TREE / 35 FT FRONTAGE) = 9 TREES	9 TREES
	1 SHRUB FOR EVERY 6 LF OF FRONTAGE	
	(295 FT) * (1 SHRUB / 6 FT FRONTAGE) = 50 SHRUBS	50 SHRUBS
	1 GROUNDCOVER FOR EVERY 3 LF OF FRONTAGE	
	(295 FT) * (1 GROUNDCOVER / 3 FT FRONTAGE) = 99 GROUNDCOVERS	99 GROUNDCOVERS
	INTERIOR LANDSCAPING	
§ 153-14.G.(2)(a)	PARKING LOTS WITH 0-30 SPACES: INTERIOR LANDSCAPING NOT REQUIRED	COMPLIES
§ 153-14.G.(2)(c)	MINIMUM LANDSCAPE ISLAND AREA: 250 SF	N/A
	ISLANDS SHALL INCLUDE TREES, SHRUBS, PERENNIALS, AND GROUNDCOVERS	N/A
	PERIMETER LANDSCAPING	
§ 153-14.G.(3)(a)	PARKING LOTS WITH MORE THAN 10 SPACES: 1 TREE FOR EVERY 35 LF OF PERIMETER 1 SHRUB FOR EVERY 5 LF OF PERIMETER	
	REAR BUFFER: 230 FT	
	(230 FT) * (1 TREE / 35 FT FRONTAGE) = 7 TREES	7 TREES
	1 SHRUB FOR EVERY 5 LF OF PERIMETER	
	(230 FT) * (1 SHRUB / 5 FT FRONTAGE) = 46 SHRUBS	46 SHRUBS
	FRONT BUFFER: 64 FT	
	(64 FT) * (1 TREE / 35 FT FRONTAGE) = 2 TREES	2 TREES
	1 SHRUB FOR EVERY 5 LF OF PERIMETER	
	(64 FT) * (1 SHRUB / 5 FT FRONTAGE) = 13 SHRUBS	13 SHRUBS
	PARKING LOT TREES	
§ 153-14.G.(3)(a)	1 TREE FOR EVERY 10 PARKING SPACES	
	(20 SPACES) * (1 TREE / 10 SPACES) = 2 TREES	2 TREES
	BUFFER REQUIREMENTS	
§ 153-17.C.	5 FT LANDSCAPE BUFFER REQUIRED BETWEEN PAVED AREAS AND ANY SIDE/REAR PROPERTY LINE	13.7 FT
	10 FT LANDSCAPE BUFFER REQUIRED BETWEEN PARKING AREAS AND ANY FRONT PROPERTY LINE	26.4 FT

(N/A) NOT APPLICABLE

JENNIFER L. DINOVO — LICENSED LANDSCAPE ARCHITECT — 085 — STATE OF NEW HAMPSHIRE

DESIGN WORKS
LANDSCAPE ARCHITECTURE AND CONSTRUCTION
125 WASON ROAD, HUDSON, NH 03051

SYMBOL	DESCRIPTION
	PROPOSED PARKING LOT TREES
	PROPOSED PERIMETER PARKING LOT TREES
	PROPOSED STREET TREES

811 Know what's **below** **Call** before you dig.

BIOLOGICAL DIVERSITY NOTE:

TO FOSTER BIOLOGICAL DIVERSITY, TREES PLANTED ALONG A GIVEN STREET SHALL USE THE 10-20-30 RULE (NO MORE THAN 10% OF THE TREES SHALL BE OF THE SAME SPECIES, NO MORE THAN 20% SHALL BE OF THE SAME GENUS, NO MORE THAN 30% SHALL BE OF THE SAME FAMILY.

IRRIGATION NOTE:

IRRIGATION CONTRACTOR TO PROVIDE A DESIGN FOR AN IRRIGATION SYSTEM SEPARATING PLANTING BEDS FROM LAWN AREA. PRIOR TO CONSTRUCTION, DESIGN IS TO BE SUBMITTED TO THE PROJECT LANDSCAPE DESIGNER FOR REVIEW AND APPROVAL. WHERE POSSIBLE, DRIP IRRIGATION AND OTHER WATER CONSERVATION TECHNIQUES SUCH AS RAIN SENSORS SHALL BE IMPLEMENTED. CONTRACTOR TO VERIFY MAXIMUM ON SITE DYNAMIC WATER PRESSURE AVAILABLE MEASURED IN PSI. PRESSURE REDUCING DEVICES OR BOOSTER PUMPS SHALL BE PROVIDED TO MEET SYSTEM PRESSURE REQUIREMENTS. DESIGN TO SHOW ALL VALVES, PIPING, HEADS, BACKFLOW PREVENTION, METERS, CONTROLLERS, AND SLEEVES WITHIN HARDSCAPE AREAS.

LANDSCAPING NOTES

1. THE CONTRACTOR SHALL RESTORE ALL DISTURBED GRASS AND LANDSCAPED AREAS TO MATCH EXISTING CONDITIONS UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
2. THE CONTRACTOR SHALL RESTORE ALL DISTURBED LAWN AREAS WITH A MINIMUM 4 INCH LAYER OF TOPSOIL AND SEED.
3. THE CONTRACTOR SHALL RESTORE MULCH AREAS WITH A MINIMUM 3 INCH LAYER OF MULCH .
4. THE MAXIMUM SLOPE ALLOWABLE IN LANDSCAPE RESTORATION AREAS SHALL BE 3 FEET HORIZONTAL TO 1 FOOT VERTICAL (3:1 SLOPE) UNLESS INDICATED OTHERWISE WITH THE PLAN SET.
5. THE CONTRACTOR IS REQUIRED TO LOCATE ALL SPRINKLER HEADS IN AREA OF LANDSCAPING DISTURBANCE PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL RELOCATE SPRINKLER HEADS AND LINES IN ACCORDANCE WITH OWNER'S DIRECTION WITHIN AREAS OF DISTURBANCE.
6. THE CONTRACTOR SHALL ENSURE THAT ALL DISTURBED LANDSCAPED AREAS ARE GRADED TO MEET FLUSH AT THE ELEVATION OF WALKWAYS AND TOP OF CURB ELEVATIONS EXCEPT UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET. NO ABRUPT CHANGES IN GRADE ARE PERMITTED IN DISTURBED LANDSCAPING AREAS.

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
4	03/14/2024	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
3	12/28/2023	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
2	9/15/2023	JJR	PER TECHNICAL REVIEW COMMITTEE COMMENTS
1	7/31/2023	JJR	ISSUED FOR REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Rutherford, NJ · New York, NY · Salem, MA
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com
120 Washington Street, Suite 201, Salem, MA 01970
Phone 617.203.2076

SITE IMPROVEMENT PLAN

CHASE
PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 28, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-220137

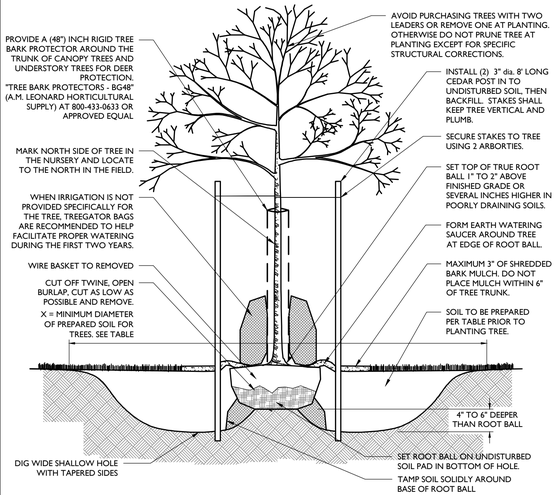
TITLE: **LANDSCAPING PLAN**

DRAWING: **C-10**

Z:\BOS\DWG\BOS\220137 CORE\TXTS - 1-3 WEBB PLACE, DOVER, NH\CAD\PLOTS\PDF-10-1 LAND.DWG

NOTES:

1. FOR CONTAINER-GROWN TREES, USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
2. THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
3. SOIL AMENDMENTS:
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILDS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX



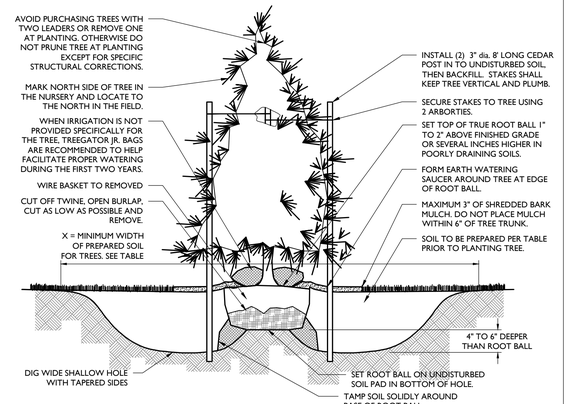
DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

1

NOTES:

1. FOR CONTAINER-GROWN TREES, USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
2. THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
3. SOIL AMENDMENTS:
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX

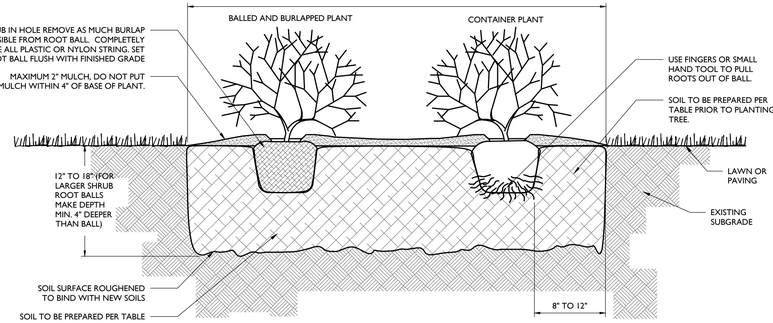


CONIFEROUS TREE PLANTING DETAIL

NOT TO SCALE

2

PREPARE SOIL IN THE ENTIRE BED USING PROCEDURES OUTLINED IN TABLE (X)



NOTES:

1. FOR THE CONTAINER-GROWN SHRUBS, USE FINGERS OR SMALL HAND TOOL TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
2. THOROUGHLY SOAK THE SHRUB ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL

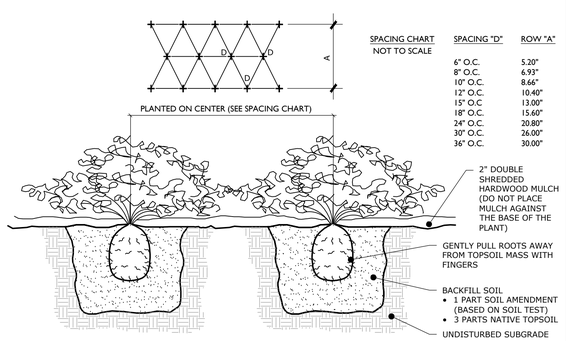
DECIDUOUS AND EVERGREEN SHRUB PLANTING DETAIL

NOT TO SCALE

3

NOTES:

1. THOROUGHLY SOAK THE GROUND COVER ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
2. SOIL AMENDMENTS:
   - MODIFY HEAVY CLAY OR SILT SOILDS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILDS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX
3. ALL GROUND COVER AREAS SHALL BE TREATED WITH A PRE-EMERGENT PER MANUFACTURER'S SPECIFICATIONS



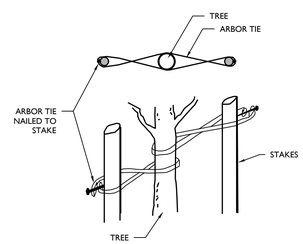
SPACING CHART
NOT TO SCALE

SPACING "D"	ROW "A"
6" O.C.	5.20"
8" O.C.	6.93"
10" O.C.	8.66"
12" O.C.	10.40"
15" O.C.	13.00"
18" O.C.	15.60"
24" O.C.	20.80"
30" O.C.	26.00"
36" O.C.	30.00"

GROUND COVER/PERENNIAL/ANNUAL PLANTING DETAIL

NOT TO SCALE

4



INSTALLATION GUIDELINES:

1. LOOP TIE AROUND TREE AND NAIL TO CEDAR STAKE.
2. REMOVE ALL STAKING AND TIES AT END OF FIRST GROWING SEASON.
3. FOLD ENDS OF ARBORTIE BACK. SECURE TO STAKES WITH 1" GALVANIZED ROOFING NAIL OR USE A KNOT.
4. CONSULT LANDSCAPE ARCHITECT FOR STAKING OF TREES LARGER THAN 6".
5. SOURCES INCLUDE:
   GEMPLERS 1-800-332-6744 or GEMPLERS.COM
   CSP OUTDOORS 1-800-592-6940 or CSPOUTDOORS.COM

ARBORTIE DETAIL

NOT TO SCALE

5

GENERAL LANDSCAPING NOTES:

1. THE LANDSCAPE CONTRACTOR SHALL FURNISH ALL MATERIALS AND PERFORM ALL WORK IN ACCORDANCE WITH THESE SPECIFICATIONS, APPROVED OR FINAL DRAWINGS, AND INSTRUCTIONS PROVIDED BY THE PROJECT LANDSCAPE DESIGNER, MUNICIPAL OFFICIALS, OR OWNER/OWNER'S REPRESENTATIVE. ALL WORK COMPLETED AND MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH THE INTENTION OF THE SPECIFICATIONS, DRAWINGS, AND INSTRUCTIONS AND EXECUTED WITH THE STANDARD LEVEL OF CARE FOR THE LANDSCAPE INDUSTRY.
2. WORK MUST BE CARRIED OUT ONLY DURING WEATHER CONDITIONS FAVORABLE TO LANDSCAPE CONSTRUCTION AND TO THE HEALTH AND WELFARE OF PLANTS. THE SUITABILITY OF SUCH WEATHER CONDITIONS SHALL BE DETERMINED BY THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL.
3. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR, BEFORE ORDERING OR PURCHASING MATERIALS, TO PROVIDE SAMPLES OF THOSE MATERIALS TO THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL FOR APPROVAL, IF SO REQUESTED.
4. IF SAMPLES ARE REQUESTED, THE LANDSCAPE CONTRACTOR IS TO SUBMIT CERTIFICATION TAGS FROM TREES, SHRUBS AND SEED VERIFYING TYPE AND PURITY.
5. UNLESS OTHERWISE AUTHORIZED BY THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL, THE LANDSCAPE CONTRACTOR SHALL PROVIDE NOTICE AT LEAST FORTY-EIGHT HOURS (48 HRS.) IN ADVANCE OF THE ANTICIPATED DELIVERY DATE OF KEY PLANT MATERIALS TO THE PROJECT SITE. A LEGIBLE COPY OF THE INVOICE, SHOWING VARIETIES AND SIZES OF MATERIALS INCLUDED FOR EACH SHIPMENT SHALL BE FURNISHED TO THE PROJECT LANDSCAPE DESIGNER, OR GOVERNING MUNICIPAL OFFICIAL.
6. THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL RESERVES THE RIGHT TO INSPECT AND REJECT PLANTS AT ANY TIME AND AT ANY PLACE.

PROTECTION OF EXISTING VEGETATION NOTES:

1. BEFORE COMMENCING WORK, ALL EXISTING VEGETATION WHICH COULD BE IMPACTED AS A RESULT OF THE PROPOSED CONSTRUCTION ACTIVITIES MUST BE PROTECTED FROM DAMAGE BY THE INSTALLATION OF TREE PROTECTION FENCING. FENCING SHALL BE LOCATED AT THE DRIP-LINE OR LIMIT OF DISTURBANCE AS DEPICTED WITHIN THE APPROVED OR FINAL PLAN SET, ESTABLISHING THE TREE PROTECTION ZONE. THE INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROVIDED "TREE PROTECTION FENCE DETAIL." NO WORK MAY BEGIN UNTIL THIS REQUIREMENT IS FULFILLED. THE FENCING SHALL BE INSPECTED REGULARLY BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
2. IN ORDER TO AVOID DAMAGE TO ROOTS, BARK OR LOWER BRANCHES, NO VEHICLE, EQUIPMENT, DEBRIS, OR OTHER MATERIALS SHALL BE DRIVEN, PARKED OR PLACED WITHIN THE TREE PROTECTION ZONE. ALL ON-SITE CONTRACTORS SHALL USE ANY AND ALL PRECAUTIONARY MEASURES WHEN PERFORMING WORK AROUND TREES, WALKS, PAVEMENTS, UTILITIES, AND ANY OTHER FIXTURES EITHER EXISTING OR PREVIOUSLY INSTALLED UNDER THIS CONTRACT.
3. IN RARE INSTANCES WHERE EXCAVATING, FILL, OR GRADING IS REQUIRED WITHIN THE DRIP-LINE OF TREES TO REMAIN, THE WORK SHALL BE PERFORMED AS FOLLOWS:
   - TRENCHING: WHEN TRENCHING OCCURS AROUND TREES TO REMAIN, THE TREE ROOTS SHALL NOT BE CUT, BUT THE TRENCH SHALL BE TUNNELED UNDER OR AROUND THE ROOTS BY CAREFUL HAND DIGGING AND WITHOUT INJURY TO THE ROOTS. NO ROOTS, LIMBS, OR WOODS ARE TO HAVE ANY PAINT OR MATERIAL APPLIED TO ANY SURFACE.
   - RAISING GRADES: WHEN THE GRADE AT AN EXISTING TREE IS BELOW THE NEW FINISHED GRADE, AND FILL NOT EXCEEDING 6 INCHES (6") IS REQUIRED, CLEAN, WASHED GRAVEL FROM ONE TO TWO INCHES (1" - 2") IN SIZE SHALL BE PLACED DIRECTLY AROUND THE TREE TRUNK. THE GRAVEL SHALL EXTEND OUT FROM THE TRUNK ON ALL SIDES A MINIMUM OF 18 INCHES (18") AND FINISH APPROXIMATELY TWO INCHES (2") ABOVE THE FINISH GRADE AT TREE. INSTALL GRAVEL BEFORE ANY EARTH FILL IS PLACED. NEW EARTH FILL SHALL NOT BE LEFT IN CONTACT WITH THE TRUNK OF ANY TREE REQUIRING FILL. WHERE FILL EXCEEDING 6 INCHES (6") IS REQUIRED, A DRY LAID TREE WELL SHALL BE CONSTRUCTED. IF APPLICABLE, TREE WELL INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROVIDED "TREE WELL DETAIL."
   - LOWERING GRADES: EXISTING TREES LOCATED IN AREAS WHERE THE NEW FINISHED GRADE IS TO BE LOWERED, SHALL HAVE RE-GRADING WORK DONE BY HAND TO THE INDICATED ELEVATION, NO GREATER THAN SIX INCHES (6"). ROOTS SHALL BE CUT CLEANLY THREE INCHES (3") BELOW FINISHED GRADE UNDER THE DIRECTION OF A LICENSED ARBORIST. WHERE CUT EXCEEDING 6 INCHES (6") IS REQUIRED, A DRY LAID RETAINING WALL SHALL BE CONSTRUCTED. IF APPLICABLE, THE RETAINING WALL INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROVIDED "TREE RETAINING WALL DETAIL."

SOIL PREPARATION AND MULCH NOTES:

1. LANDSCAPE CONTRACTOR SHALL OBTAIN A SOIL TEST OF THE IN-SITU TOPSOIL BY A CERTIFIED SOIL LABORATORY PRIOR TO PLANTING. LANDSCAPE CONTRACTOR SHALL ALLOW FOR A TWO WEEK TURNAROUND TIME FROM SUBMITTAL OF SAMPLE TO NOTIFICATION OF RESULTS.
2. BASED ON SOIL TEST RESULTS, ADJUST THE RATES OF LIME AND FERTILIZER THAT SHALL BE MIXED INTO THE TOP SIX INCHES (6") OF TOPSOIL. THE LIME AND FERTILIZER RATES PROVIDED WITHIN THE "SEED SPECIFICATION" OR "SOD SPECIFICATION" IS APPROXIMATE AND FOR BIDDING PURPOSES ONLY. IF ADDITIONAL AMENDMENTS ARE NECESSARY, ADJUST THE TOPSOIL AS FOLLOWS:
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM.
   - MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.
3. TOPSOIL SHALL BE FERTILE, FRIABLE, NATURAL TOPSOIL OF LOAMING CHARACTER, WITHOUT ADMIXTURE OF SUBSOIL MATERIAL OBTAINED FROM A WELL-DRAINED ARABLE SITE, FREE FROM ALL CLAY, LUMPS, COARSE SANDS, STONES, PLANTS, ROOTS, STICKS, AND OTHER FOREIGN MATERIAL GREATER THAN ONE INCH (1").
4. TOPSOIL SHALL HAVE A PH RANGE OF 5.0-7.0 AND SHALL NOT CONTAIN LESS THAN 6% ORGANIC MATTER BY WEIGHT.
5. OBTAIN TOPSOIL ONLY FROM LOCAL SOURCES OR FROM AREAS HAVING SIMILAR SOIL CHARACTERISTICS TO THAT FOUND AT THE PROJECT SITE.
6. CONTRACTOR SHALL PROVIDE A SIX INCH (6") DEEP LAYER OF TOPSOIL IN ALL PLANTING AREAS. TOPSOIL SHALL BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO ACHIEVE THE DESIRED COMPACTED THICKNESS. THE SPREADING OF TOPSOIL SHALL NOT BE CONDUCTED UNDER MUDDY OR FROZEN SOIL CONDITIONS.
7. UNLESS OTHERWISE NOTED IN THE CONTRACT, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL AND THE ESTABLISHMENT OF FINE-GRADING WITHIN THE DISTURBED AREA OF THE SITE.
8. LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE SUB-GRADE ELEVATION MEETS THE FINISHED GRADE ELEVATION (LESS THE REQUIRED TOPSOIL) IN ACCORDANCE WITH THE APPROVED OR FINAL GRADING PLAN.
9. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN AND UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE AS DEPICTED WITHIN THE APPROVED OR FINAL CONSTRUCTION SET UNLESS OTHERWISE DIRECTED BY THE PROJECT LANDSCAPE DESIGNER OR MUNICIPAL OFFICIAL.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER SURFACE AND SUBSURFACE PLANT BED DRAINAGE PRIOR TO THE INSTALLATION OF PLANTINGS. IF POOR DRAINAGE CONDITIONS EXIST, CORRECTIVE ACTION SHALL BE TAKEN PRIOR TO INSTALLATION. ALL PLANTING AND LAWN AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW A FREE FLOW OF SURFACE WATER.
11. DOUBLE SHREDDED HARDWOOD MULCH OR APPROVED EQUAL SHALL BE USED AS A THREE INCH (3") TOP DRESSING IN ALL SHRUB PLANTING BEDS AND AROUND ALL TREES PLANTED BY LANDSCAPE CONTRACTOR. GROUND COVER, PERENNIAL, AND ANNUAL PLANTING BEDS SHALL BE MULCHED WITH A TWO INCH (2") TOP DRESSING. SINGLE TREES OR SHRUBS SHALL BE MULCHED TO AVOID CONTACT WITH TRUNK OR PLANT STEM. MULCH SHALL BE OF SUFFICIENT CHARACTER AS NOT TO BE EASILY DISPLACED BY WIND OR WATER RUNOFF.
12. WHENEVER POSSIBLE, THE SOIL PREPARATION AREA SHALL BE CONNECTED FROM PLANTING TO PLANTING.
13. SOIL SHALL BE LOOSENED WITH A BACKHOE OR OTHER LARGE COARSE-TILING EQUIPMENT UNLESS THE SOIL IS FROZEN OR EXCESSIVELY WET. TILING THAT PRODUCES LARGE, COARSE CHUNKS OF SOIL IS PREFERABLE TO TILING THAT RESULTS IN FINE GRAINS UNIFORM IN TEXTURE. AFTER THE AREA IS LOOSENED IT SHALL NOT BE DRIVEN OVER BY ANY VEHICLE.
14. APPLY PRE-EMERGENT WEED CONTROL TO ALL PLANT BEDS PRIOR TO MULCHING. ENSURE COMPATIBILITY BETWEEN PRODUCT AND PLANT MATERIAL.
15. ALL PLANTING SOIL SHALL BE AMENDED WITH THE FOLLOWING:

MYCRO® TREE SAVER - A DRY GRANULAR MYCORRHIZAL FUNGI INOCULANT THAT IS MIXED IN THE BACKFILL WHEN PLANTING TREES AND SHRUBS. IT CONTAINS SPORES OF BOTH ECTOMYCORRHIZAL AND VA MYCORRHIZAL FUNGI (VAM), BENEFICIAL RHIZOSPHERE BACTERIA, TERRA-SORB SUPERABSORBENT HYDROGEL TO REDUCE WATER LEACHING, AND SELECTED ORGANIC MICROBIAL NUTRIENTS.

- DIRECTIONS FOR USE: USE 3-OZ PER EACH FOOT DIAMETER OF THE ROOT BALL, OR 3-OZ PER INCH CALIPER. MIX INTO THE BACKFILL WHEN TRANSPLANTING TREES AND SHRUBS. MIX PRODUCT IN A RING-SHAPED VOLUME OF SOIL AROUND THE UPPER PORTION OF THE ROOT BALL, EXTENDING FROM THE SOIL SURFACE TO A DEPTH OF ABOUT 8 INCHES, AND EXTENDING OUT FROM THE ROOT BALL ABOUT 8 INCHES INTO THE BACKFILL. APPLY WATER TO SOIL SATURATION.
- MYCOR® TREE SAVER® IS EFFECTIVE FOR ALL TREE AND SHRUB SPECIES EXCEPT RHODODENDRONS, AZALEAS, AND MOUNTAIN LAUREL, WHICH REQUIRE ERICOID MYCORRHIZAE.
- SOIL PH: THE FUNGI IN THIS PRODUCT WERE CHOSEN BASED ON THEIR ABILITY TO SURVIVE AND COLONIZE PLANT ROOTS IN A PH RANGE OF 3 TO 9.
- FUNGICIDES: THE USE OF CERTAIN FUNGICIDES CAN HAVE A DETRIMENTAL EFFECT ON THE INOCULATION PROGRAM. SOIL APPLICATION OF ANY FUNGICIDE IS NOT RECOMMENDED FOR TWO WEEKS AFTER APPLICATION.
- OTHER PESTICIDES: HERBICIDES AND INSECTICIDES DO NOT NORMALLY INTERFERE WITH MYCORRHIZAL FUNGAL DEVELOPMENT, BUT MAY INHIBIT THE GROWTH OF SOME TREE AND SHRUB SPECIES IF NOT USED PROPERLY.

HEALTHY START MACRO TABS 12-8-8

- FERTILIZER TABLETS ARE PLACED IN THE UPPER 4 INCHES OF BACKFILL SOIL WHEN PLANTING TREES AND SHRUBS.
- TABLETS ARE FORMULATED FOR LONG-TERM RELEASE BY SLOW BIODEGRADATION, AND LAST UP TO 2 YEARS AFTER PLANTING. TABLETS CONTAIN 12-8-8 NPK FERTILIZER, AS WELL AS A MINIMUM OF SEVEN PERCENT (7%) HUMIC ACID BY WEIGHT, MICROBIAL NUTRIENTS DERIVED FROM SEA KELP, PROTEIN BYPRODUCTS, AND YUCCA SCHIDIGERA, AND A COMPLEMENT OF BENEFICIAL RHIZOSPHERE BACTERIA. THE STANDARD 21 GRAM TABLET IS SPECIFIED HERE. DIRECTIONS FOR USE: FOR PLANTING BALLED & BURLAPPED (B&B) TREES AND SHRUBS, MEASURE THE THICKNESS OF THE TRUNK, AND USE ABOUT 1 TABLET (21-G) PER HALF-INCH. PLACE THE TABLETS DIRECTLY NEXT TO THE ROOT BALL, EVENLY DISTRIBUTED AROUND ITS PERIMETER, AT A DEPTH OF ABOUT 4 INCHES.

IRRIGATION DURING ESTABLISHMENT

SIZE AT PLANTING	IRRIGATION FOR VITALITY	IRRIGATION FOR SURVIVAL
< 2" CALIPER	DAILY FOR TWO WEEKS, EVERY OTHER DAY FOR TWO MONTHS, WEEKLY UNTIL ESTABLISHED	TWO TO THREE TIMES WEEKLY FOR TWO TO THREE MONTHS
2"-4 CALIPER	DAILY FOR ONE MONTH, EVERY OTHER DAY FOR THREE MONTHS, WEEKLY UNTIL ESTABLISHED	TWO TO THREE TIMES WEEKLY FOR THREE TO FOUR MONTHS
4 >" CALIPER	DAILY FOR SIX WEEKS, EVERY OTHER DAY FOR FIVE MONTHS, WEEKLY UNTIL ESTABLISHED	TWICE WEEKLY FOR FOUR TO FIVE MONTHS

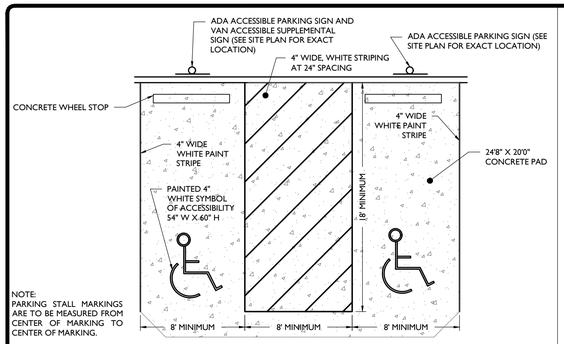
TABLE NOTES:
1. AT EACH IRRIGATION, APPLY TWO TO THREE GALLONS PER INCH TRUNK CALIPER TO THE ROOT BALL SURFACE. APPLY IT IN A MANNER SO ALL WATER SOAKS THE ENTIRE ROOT BALL. DO NOT WATER IF ROOT BALL IS WET/SATURATED ON THE IRRIGATION DAY.

2. WHEN IRRIGATING FOR VITALITY, DELETE DAILY IRRIGATION WHEN PLANTING IN WINTER OR WHEN PLANTING IN COOL CLIMATES. ESTABLISHMENT TAKES THREE TO FOUR MONTHS PER INCH TRUNK CALIPER. NEVER APPLY IRRIGATION IF THE SOIL IS SATURATED.

3. WHEN IRRIGATION FOR SURVIVAL, TREES TAKE MUCH LONGER TO ESTABLISH THAN REGULARLY IRRIGATED TREES. IRRIGATION MAY BE REQUIRED IN THE NORMAL HOT, DRY PORTIONS OF THE FOLLOWING YEAR.

PLANT QUALITY AND HANDLING NOTES:

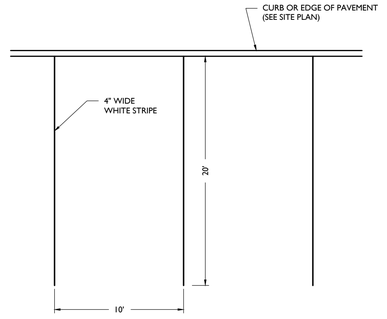
1. ALL PLANT MATERIAL SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-2004) OR LATEST REVISION AS PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
2. IN ALL CASES, BOTANICAL NAMES LISTED WITHIN THE APPROVED OR FINAL PLANT LIST SHALL TAKE PRECEDENCE OVER COMMON NAMES.
3. ALL PLANTS SHALL BE OF SELECTED SPECIMEN QUALITY, EXCEPTIONALLY HEAVY, TIGHTLY KNIT, SO TRAINED OR FAVORED IN THEIR DEVELOPMENT AND APPEARANCE AS TO BE SUPERIOR IN FORM, NUMBER OF BRANCHES, COMPACTNESS AND SYMMETRY. ALL PLANTS SHALL HAVE A NORMAL HABIT OR SOUND, HEALTHY, VIGOROUS PLANTS WITH WELL DEVELOPED ROOT SYSTEM. PLANTS SHALL BE FREE OF DISEASE, INSECT PESTS, EGGS OR LARVAE.
4. PLANTS SHALL NOT BE PRUNED BEFORE DELIVERY. TREES WITH ABRASION OF THE BARK, SUNSCALDS, DISFIGURING KNOTS OR FRESH CUTS OF LIMBS OVER ONE AND ONE-FOURTH INCHES (1-1/4") WHICH HAVE NOT COMPLETELY CALLOUSED SHALL BE REJECTED.
5. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH AND BE LEGIBLY TAGGED WITH THE PROPER NAME AND SIZE.
6. THE ROOT SYSTEM OF EACH PLANT SHALL BE WELL PROVIDED WITH FIBROUS ROOTS. ALL PARTS SHALL BE SOUND, HEALTHY, VIGOROUS, WELL-BRANCHED AND DENSELY FOLIATED WHEN IN LEAF.
7. ALL PLANTS DESIGNATED BALL AND BURLAP (B&B) MUST BE MOVED WITH THE ROOT SYSTEM AS SOLID UNITS WITH BALLS OF EARTH FIRMLY WRAPPED WITH BURLAP. THE DIAMETER AND DEPTH OF THE BALLS OF EARTH MUST BE SUFFICIENT TO ENCOMPASS THE FIBROUS ROOT FEEDING SYSTEMS NECESSARY FOR THE HEALTHY DEVELOPMENT OF THE PLANT. NO PLANT SHALL BE ACCEPTED WHEN THE BALL OF EARTH SURROUNDING ITS ROOTS HAS BEEN BADLY CRACKED OR BROKEN PREPARATORY TO OR DURING THE PROCESS OF PLANTING. THE BALLS SHALL REMAIN INTACT DURING ALL OPERATIONS. ALL PLANTS THAT CANNOT BE PLANTED AT ONCE MUST BE HEELED-IN BY SETTING IN THE GROUND AND COVERING THE BALLS WITH SOIL OR MULCH AND THEN WATERING. HEMP BURLAP AND TWINE IS PREFERABLE TO TREATED. IF TREATED BURLAP IS USED, ALL TWINE IS TO BE CUT FROM AROUND THE TRUNK AND ALL BURLAP IS TO BE REMOVED.
8. PLANTS TRANSPORTED TO THE PROJECT IN OPEN VEHICLES SHALL BE COVERED WITH TARPS OR OTHER SUITABLE COVERS SECURELY FASTENED TO THE BODY OF THE VEHICLE TO PREVENT INJURY TO THE PLANTS. CLOSED VEHICLES SHALL BE ADEQUATELY VENTILATED TO PREVENT OVERHEATING OF THE PLANTS. EVIDENCE OF INADEQUATE PROTECTION FOLLOWING DIGGING, CARELESSNESS WHILE IN TRANSIT, IMPROPER HANDLING OR STORAGE SHALL BE CAUSE FOR REJECTION OF PLANT MATERIAL. ALL PLANTS SHALL BE KEPT MOIST, FRESH, AND PROTECTED. SUCH PROTECTION SHALL ENCOMPASS THE ENTIRE PERIOD DURING WHICH THE PLANTS ARE IN TRANSIT, BEING HANDLED, OR ARE IN TEMPORARY STORAGE.
9. ALL PLANT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH THE CORRESPONDING LANDSCAPE PLAN AND PLANTING DETAILS.
10. LANDSCAPE CONTRACTOR SHALL MAKE BEST EFFORT TO INSTALL PLANTINGS ON THE SAME DAY AS DELIVERY. IF PLANTS ARE NOT PLANTED IMMEDIATELY ON SITE, PROPER CARE SHALL BE TAKEN TO PLACE THE PLANTINGS IN PARTIAL SHADE WHEN POSSIBLE. THE ROOT BALL SHALL BE KEPT MOIST AT ALL TIMES AND COVERED WITH MOISTENED MULCH OR LADED WOODCHIPS. PROPER IRRIGATION SHALL BE SUPPLIED SO AS TO NOT ALLOW THE ROOT BALL TO DRY OUT. PLANTINGS SHALL BE UNTIED AND PROPER SPACING SHALL BE ALLOTTED FOR AIR CIRCULATION AND TO PREVENT DISEASE, WILTING, AND LEAF LOSS. PLANTS THAT REMAIN UNPLANTED FOR A PERIOD OF TIME GREATER THAN THREE (3) DAYS SHALL BE HEALED IN WITH TOPSOIL OR MULCH AND WATERED AS REQUIRED TO PRESERVE ROOT MOISTURE.
11. NO PLANT MATERIAL SHALL BE PLANTED IN MUDDY OR FROZEN SOIL.
12. PLANTS WITH INJURED ROOTS OR BRANCHES SHALL BE PRUNED PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY DISEASED OR INJURED PLANTS SHALL BE REMOVED.
13. IF ROCK OR OTHER UNDERGROUND OBSTRUCTION IS ENCOUNTERED, THE LANDSCAPE DESIGNER RESERVES THE RIGHT TO RELOCATE OR ENLARGE PLANTING PITS OR DELETE PLANT MATERIAL FROM THE CONTRACT.
14. IF PLANTS ARE PROPOSED WITHIN SIGHT TRIANGLES, TREES SHALL BE LIMBED AND MAINTAINED TO A HEIGHT OF EIGHT FEET (8') ABOVE GRADE, AND SHRUBS, GROUND COVER, PERENNIALS, AND ANNUALS SHALL BE MAINTAINED TO A HEIGHT NOT TO EXCEED TWO FEET (2') ABOVE GRADE UNLESS OTHERWISE NOTED OR SPECIFIED BY THE GOVERNING MUNICIPALITY OR AGENCY.
15. INSTALLATION SHALL OCCUR DURING THE FOLLOWING SEASONS:
    PLANTS (MARCH 15 - DECEMBER 15)
    LAWNS (MARCH 15 - JUNE 15 OR SEPTEMBER 1 - DECEMBER 1)
16. THE FOLLO



ACCESSIBLE PARKING STALL MARKINGS

NOT TO SCALE

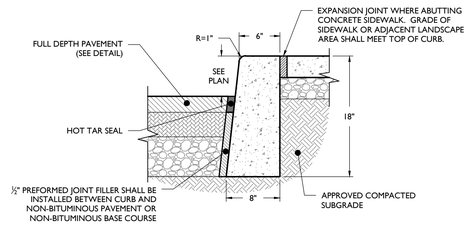
1



PARKING STALL MARKINGS

NOT TO SCALE

2

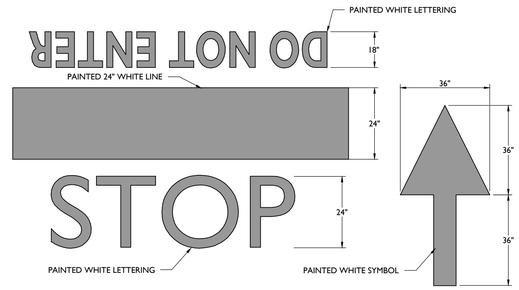


CONCRETE CURB DETAIL

NOT TO SCALE

NOTES:
1. CONCRETE SHALL BE 3500 PSI AT 28 DAYS, AIR-ENTRAINED.
2. TRANSVERSE EXPANSION JOINTS SHALL BE PROVIDED AT 20 FOOT INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED ½" FROM SURFACE.
3. HALF DEPTH CONTRACTION JOINTS SHALL BE PROVIDED AT 10 FOOT INTERVALS.
4. 18" CURB DEPTH SHALL BE MAINTAINED AT DEPRESSED OR FLUSH CURBED AREAS.

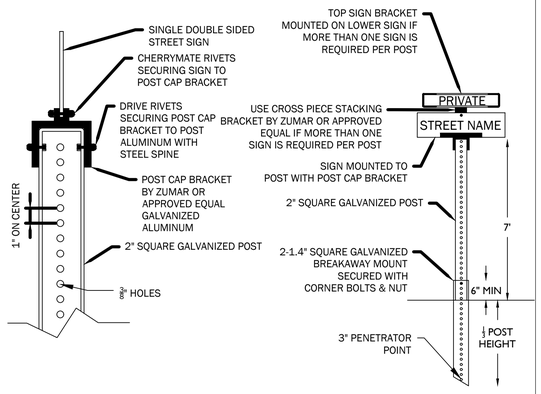
3



STOP BAR & ARROW DETAILS

NOT TO SCALE

4



SIGN POST DETAIL

NOT TO SCALE

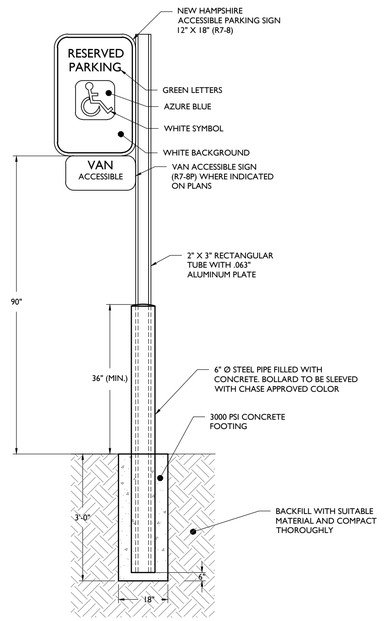
M.U.T.C.D. NUMBER	TEXT	COLOR		SIZE OF SIGN (WIDTH X HEIGHT)	TYPE OF MOUNT
		LEGEND	BACKGROUND		
STOP SIGN (R1-1)	STOP	RED	WHITE	36"x36"	GROUND
NO LEFT TURN (R3-2)		CIRCLE AND DIAGONAL: RED LEGEND: BLACK	WHITE	24"x24"	GROUND
DO NOT ENTER (R5-1)	DO NOT ENTER	RED	WHITE	30"x30"	GROUND
MANDATORY MOVEMENT LANE CONTROL-LEFT (R3-5L)	ONLY	BLACK	WHITE	30"x36"	GROUND

NOTE:
1. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), EXCEPT AS NOTED.
2. ALL SIGNS SHALL BE MOUNTED AS TO NOT OBSTRUCT THE SHAPE OF "STOP" (R1-1) AND "YIELD" (R1-2) SIGNS.

SIGN DATA TABLE

NOT TO SCALE

5

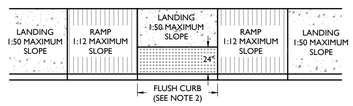


ACCESSIBLE PARKING SIGN DETAIL

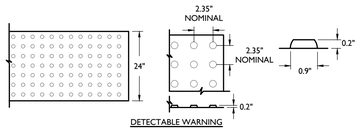
NOT TO SCALE

NOTES:
1. ALL EXPOSED PAINTED SURFACES SHALL BE COATED WITH MATTHEWS #282-2085P VOC GLOSS CLEAR, WITH MINIMUM 2 MILS DRY FILM THICKNESS (DFT) PER MATTHEWS APPLICATIONS SPECIFICATIONS.
2. EMBEDDED PORTION OF POST SHALL BE PRIMED AND PAINTED FOR CORROSION PROTECTION

6



TRANSITION RAMP WITH DETECTABLE WARNING



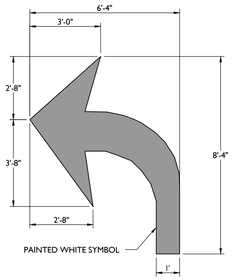
DETECTABLE WARNING

TRANSITION RAMP DETAIL

NOT TO SCALE

NOTES:
1. CROSS SLOPE ON RAMP SHALL NOT EXCEED 2%
2. A FLUSH CURB SHALL HAVE A MINIMUM WIDTH OF 36". SEE PLAN FOR EXACT WIDTH.
3. DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
4. VISUAL CONTRAST: THERE SHALL BE A MINIMUM OF 70% CONTRAST IN LIGHT REFLECTANCE BETWEEN THE DETECTABLE WARNING AND AN ADJOINING SURFACE.
5. DETECTABLE WARNING STRIP REQUIRED WHERE RAMP DIRECTS PEDESTRIAN TRAFFIC TOWARDS VEHICLE TRAVEL WAY. WARNING STRIP SHALL BE CAST-IN-PLACE.
6. RAMP SHALL HAVE A MAXIMUM RISE OF 6" WITHOUT A HANDRAIL

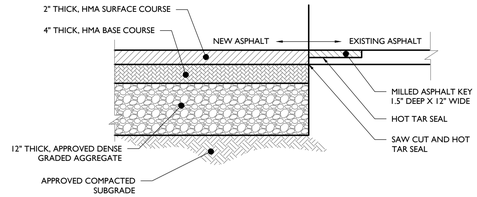
11



TURN ARROW DETAIL

NOT TO SCALE

7

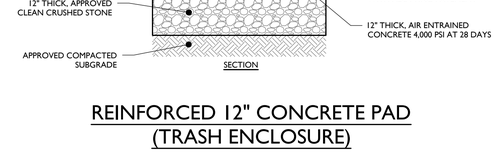


FULL DEPTH ASPHALT PAVEMENT DETAIL

NOT TO SCALE

NOTE:
HMA MIX AND DENSE GRADED AGGREGATE SHALL CONFORM TO STATE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.

8



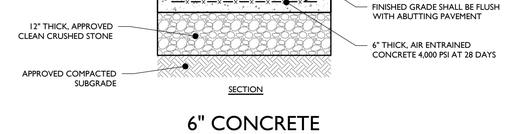
SECTION

REINFORCED 12" CONCRETE PAD (TRASH ENCLOSURE)

NOT TO SCALE

NOTES:
1. ½" EXPANSION JOINTS WITH WATER SEAL SHALL BE PROVIDED AT 12' INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED ¼" FROM THE SURFACE. LONGITUDINAL REBAR TO BE CUT AT EXPANSION JOINTS.
2. 1" DEEP BY ¼" WIDE, TOOLED CONTRACTION JOINTS SHALL BE PROVIDED AT MID-POINT BETWEEN EXPANSION JOINTS OR 6' INTERVALS MAX.
3. CONCRETE SHALL RECEIVE BROOM FINISH.
4. ALL EXPOSED CORNERS TO HAVE 12" CHAMFER.

9



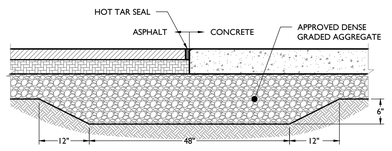
SECTION

6" CONCRETE (ATM AND ADA PARKING SPACE)

NOT TO SCALE

NOTES:
1. ½" EXPANSION JOINTS WITH WATER SEAL SHALL BE PROVIDED AT 12' INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED ½" FROM THE SURFACE.
2. 1" DEEP BY ½" WIDE, TOOLED CONTRACTION JOINTS SHALL BE PROVIDED AT MID-POINT BETWEEN EXPANSION JOINTS OR 6' INTERVALS MAX.
3. CONCRETE SHALL RECEIVE BROOM FINISH.
4. ALL EXPOSED CORNERS TO HAVE 12" CHAMFER.

10



CONCRETE TO ASPHALT TRANSITION DETAIL

NOT TO SCALE

12

ISSUE	DATE	BY	DESCRIPTION
4	03/14/2024	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
3	12/28/2023	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
2	9/15/2023	JJR	PER TECHNICAL REVIEW COMMITTEE COMMENTS
1	7/31/2023	JJR	ISSUED FOR REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Rutherford, NJ · New York, NY · Salem, MA
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com
120 Washington Street, Suite 201, Salem, MA 01970
Phone 617.203.2076

SITE IMPROVEMENT PLAN

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 28, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: AS SHOWN | PROJECT ID: BOS-220137

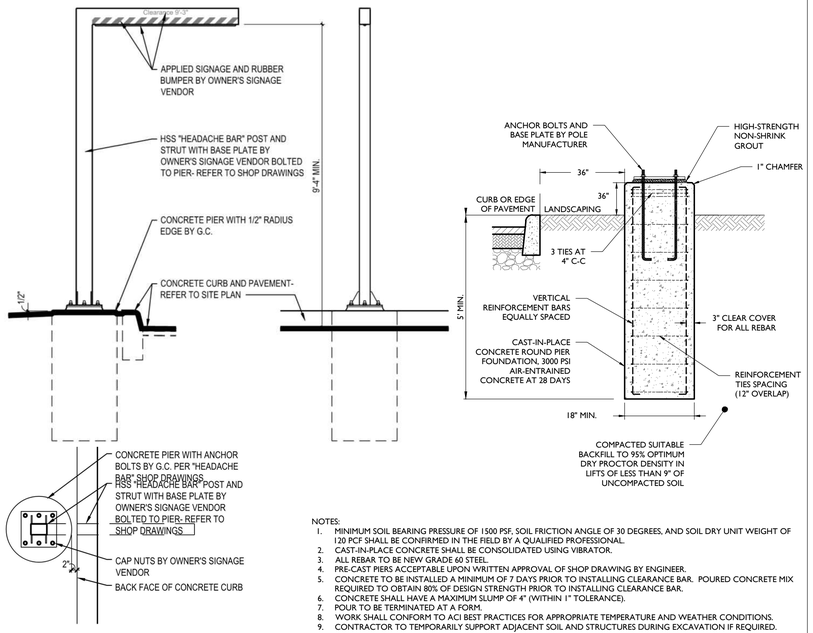
TITLE:

CONSTRUCTION DETAILS

DRAWING:

C-12

Z:\BOS\PROJECTS\2022\BOS-220137 CONSTASTE - 1-3 WEBB PLACE, DOVER, NH\CAD\PLOT\PLOT-12.DWG, DWG

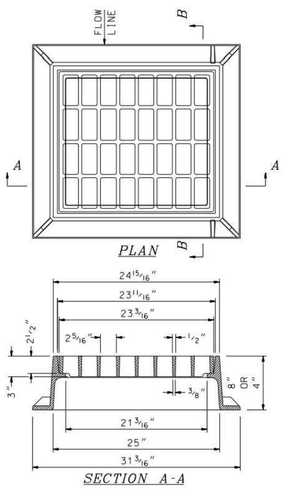


NOTES:
1. MINIMUM SOIL BEARING PRESSURE OF 1500 PSF, SOIL FRICTION ANGLE OF 30 DEGREES, AND SOIL DRY UNIT WEIGHT OF 120 PCF SHALL BE CONFIRMED IN THE FIELD BY A QUALIFIED PROFESSIONAL.
2. CAST-IN-PLACE CONCRETE SHALL BE CONSOLIDATED USING VIBRATOR.
3. ALL REBAR TO BE NEW GRADE 60 STEEL.
4. PRE-CAST PIERS ACCEPTABLE UPON WRITTEN APPROVAL OF SHOP DRAWING BY ENGINEER.
5. CONCRETE TO BE INSTALLED A MINIMUM OF 7 DAYS PRIOR TO INSTALLING CLEARANCE BAR. POURED CONCRETE MIX REQUIRED TO OBTAIN 80% OF DESIGN STRENGTH PRIOR TO INSTALLING CLEARANCE BAR.
6. CONCRETE SHALL HAVE A MAXIMUM SLUMP OF 4" (WITHIN 1" TOLERANCE).
7. POUR TO BE TERMINATED AT A FORM.
8. WORK SHALL CONFORM TO ACI BEST PRACTICES FOR APPROPRIATE TEMPERATURE AND WEATHER CONDITIONS.
9. CONTRACTOR TO TEMPORARILY SUPPORT ADJACENT SOIL AND STRUCTURES DURING EXCAVATION IF REQUIRED.

CLEARANCE BAR DETAIL

NOT TO SCALE

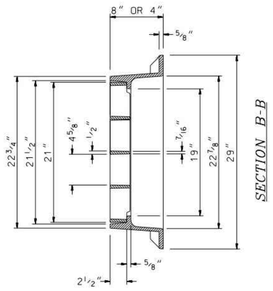
1



TYPE 'B' INLET GRATE & FRAME DETAIL

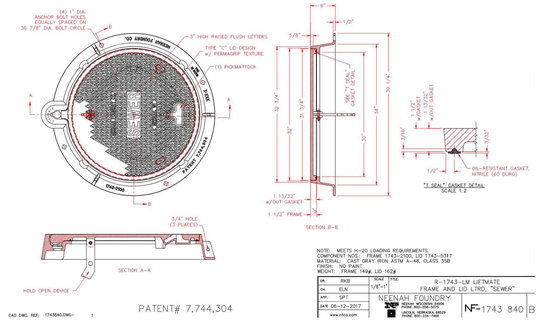
NOT TO SCALE

2



GENERAL NOTES

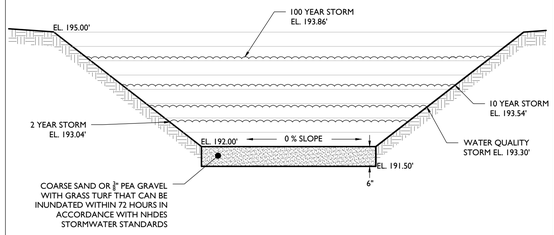
1. ALL DIMENSIONS ARE NOMINAL.
2. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
   A. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
   B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING 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.



MANHOLE COVER & FRAME DETAIL

NOT TO SCALE

3

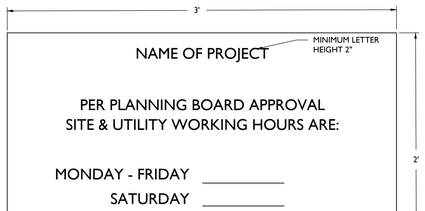


INFILTRATION BASIN DETAIL

NOT TO SCALE

NOTES:
BASIN CONSTRUCTION MUST NOT COMPACT SOILS BELOW BASIN BOTTOM.

4

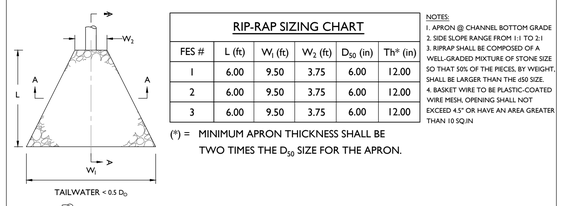


NOTES:
1. SIGN SHALL HAVE BLACK LETTERS ON A WHITE BACKGROUND
2. SIGN SHALL BE WEATHER RESISTANT AND SECURED TO THE GROUND
3. HOURS ON THE SIGN SHALL COMPLY WITH ALL PLANNING BOARD CONDITIONS OF APPROVAL.

CONSTRUCTION SIGN DETAIL

NOT TO SCALE

5



RIP-RAP SIZING CHART					
FES #	L (ft)	W_1 (ft)	W_2 (ft)	D_{50} (in)	Th* (in)
1	6.00	9.50	3.75	6.00	12.00
2	6.00	9.50	3.75	6.00	12.00
3	6.00	9.50	3.75	6.00	12.00

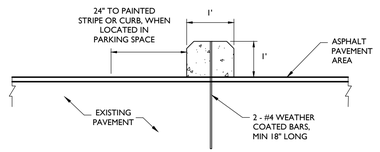
(*) = MINIMUM APRON THICKNESS SHALL BE TWO TIMES THE D_{50} SIZE FOR THE APRON.

NOTES:
1. APRON @ CHANNEL BOTTOM GRADE
2. SIDE SLOPE RANGE FROM 1:1 TO 2:1
3. RIPRAP SHALL BE COMPOSED OF A WELL-GRADED MIXTURE OF STONE SIZE SO THAT 50% OF THE PIECES, BY WEIGHT, SHALL BE LARGER THAN THE d50 SIZE.
4. BASKET WIRE TO BE PLASTIC-COATED WIRE MESH, OPENING SHALL NOT EXCEED 4.5" OR HAVE AN AREA GREATER THAN 10 SQ.IN

RIP-RAP PAD

NOT TO SCALE

7

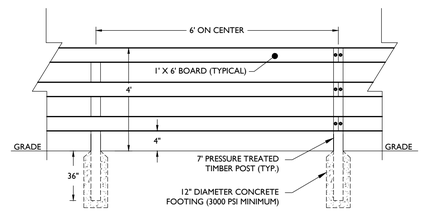


CONCRETE WHEEL STOP DETAIL

NOT TO SCALE

NOTES:
1. ON CONCRETE PAVEMENT, SECURE WHEEL STOP WITH EPOXY BONDING AGENT.
2. WHEEL STOP SHALL BE 6' LONG.
3. WHEEL STOP SHALL BE PREFABRICATED CONCRETE.
4. WHEEL STOP MINIMUM FROST DEPTH SHALL BE 4 FT BELOW GRADE.

9

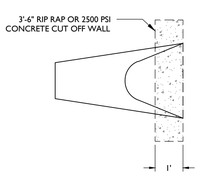


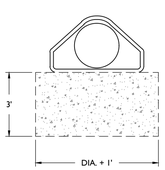
WOODEN POST & THREE RAIL FENCE DETAIL

NOT TO SCALE

NOTE:
1. ALL WOOD TO BE PRESSURE TREATED

10

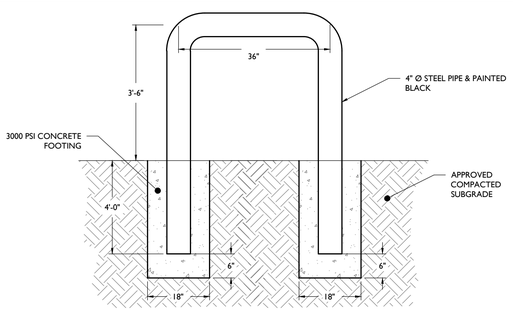




FLARED END SECTION (FES-1, FES-2 & FES-3) DETAIL

NOT TO SCALE

6

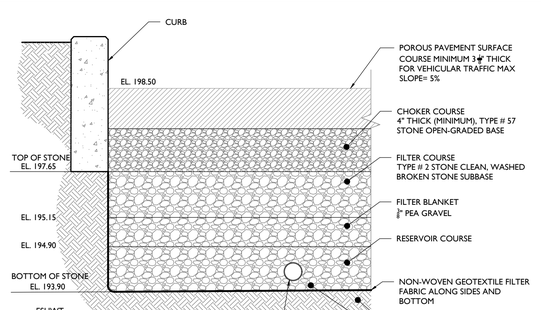


U-BOLLARD BICYCLE RACK DETAIL

NOT TO SCALE

8

NOTES:
1. PERMEABLE PAVEMENT MUST BE IN ACCORDANCE WITH NJ STORMWATER BEST MANAGEMENT PRACTICES MANUAL, CHAPTER 9.6
2. FILTER FABRIC IS REQUIRED ALONG THE SIDES AND BOTTOM OF THE SYSTEM TO PREVENT MITIGATION OF FINES FROM THE SURROUNDING SOIL.
3. THE STORAGE BED IN THIS TYPE OF SYSTEM CONSISTS OF AN AGGREGATE LAYER AND AN UNDERDRAIN, WHICH IS A NETWORK OF PIPES THAT COLLECT RUNOFF AND TRANSPORT IT TO THE OUTFLOW SECTION OF THE SYSTEM.
   3.1. THE AGGREGATE LAYER MUST HAVE SUFFICIENT DEPTH TO PROVIDE AT LEAST 3 INCHES OF AGGREGATE ABOVE AND BELOW THE PIPE NETWORK. IT MUST CONSIST OF CLEAN, WASHED, OPEN-GRADED AASHTO NO. 2 BROKEN STONE.
   3.2. WITHIN THE AGGREGATE LAYER, THE NETWORK OF PIPES MUST BE ABLE TO WITHSTAND THE DESIGN LOADS.
   3.3. THE MANIFOLD OR OTHER MECHANISMS USED TO COLLECT FLOW FROM THE PERMEABLE PAVEMENT SYSTEM MUST BE NON-PERFORATED.
   3.4. ALL JOINTS MUST BE SECURE AND WATERTIGHT.
   3.5. THE CAPACITY OF THE UNDERDRAIN MUST BE SUFFICIENT TO ALLOW THE SYSTEM TO DRAIN WITHIN 72 HOURS.
4. THE SEASONAL HIGH WATER TABLE (SHWT) OR BEDROCK MUST BE AT LEAST 1 FOOT BELOW THE BOTTOM OF THE STORAGE BED. *(DESIGNER NOTE: IF UNDERDRAINED, 2 FT IF INFILTRATION)*
5. AT LEAST ONE INSPECTION PORT, WITH A REMOVABLE CAP, MUST BE PROVIDED AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE PERFORATED SECTION OF THE NETWORK OF PIPES AND BE FLUSH WITH THE SURFACE OF THE SURFACE LAYER AND EACH LOCATION DENOTED IN THE MAINTENANCE PLAN. EACH INSPECTION PORT MUST BE PLACED AT LEAST 3 FEET FROM ANY EDGE. THE SIZE OF THE INSPECTION PORT MUST BE LARGE ENOUGH TO ALLOW FOR MAINTENANCE ACTIVITIES. ADDITIONALLY, EACH INSPECTION PORT MUST EXTEND DOWN TO THE UNDERDRAIN PIPE NETWORK.
6. CONCRETE PAVERS MUST CONFORM TO ASTM C936 AND HAVE A MINIMUM THICKNESS OF 3.125 INCHES WHEN SUBJECT TO VEHICULAR TRAFFIC.
7. PAVER UNITS MUST BE INSTALLED OVER A BEDDING COURSE CONSISTING OF CLEAN, WASHED OPEN-GRADED AASHTO NO. 8 BROKEN STONE.
8. THE MINIMUM CHOKER COURSE THICKNESS IS 4 INCHES.
9. STORAGE BED AGGREGATE MUST BE CLEAN, WASHED AND OPEN-GRADED AASHTO NO. 2 BROKEN STONE.
10. POST-CONSTRUCTION TESTING OF THE PERMEABLE PAVEMENT SURFACE COURSE IS REQUIRED AND MUST CONFORM TO THE METHODS OF ASTM C1781: STANDARD TEST METHOD FOR SURFACE INFILTRATION RATE OF PERMEABLE PAVEMENT SYSTEMS.
11. PERMEABLE PAVEMENT MAY ACCEPT ADDITIONAL INFLOW FROM A MAXIMUM AREA OF 3 TIMES THE AREA OF THE PERMEABLE PAVEMENT SYSTEM.
12. SEASONAL HIGH GROUNDWATER TABLE NOT ENCOUNTERED.



POROUS PAVEMENT DETAIL (PV-1)

NOT TO SCALE

11

ISSUE	DATE	BY	DESCRIPTION
4	03/14/2024	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
3	12/28/2023	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
2	9/15/2023	JJR	PER TECHNICAL REVIEW COMMITTEE COMMENTS
1	7/31/2023	JJR	ISSUED FOR REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Rutherford, NJ · New York, NY · Salem, MA
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com
120 Washington Street, Suite 201, Salem, MA 01970
Phone 617.203.2076

SITE IMPROVEMENT PLAN

CHASE
PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

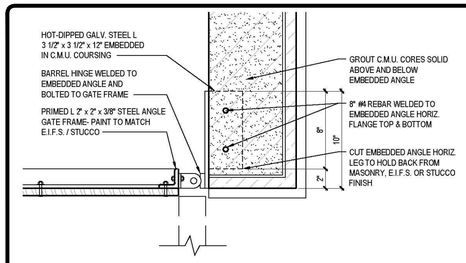
STONEFIELD engineering & design

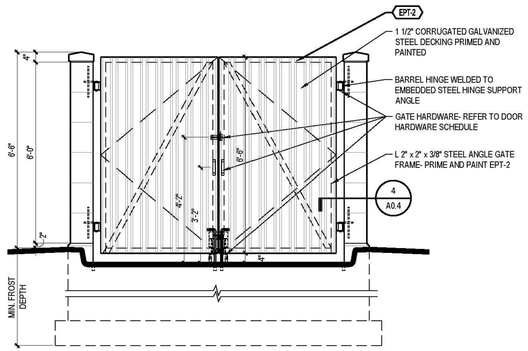
SCALE: AS SHOWN | PROJECT ID: BOS-220137

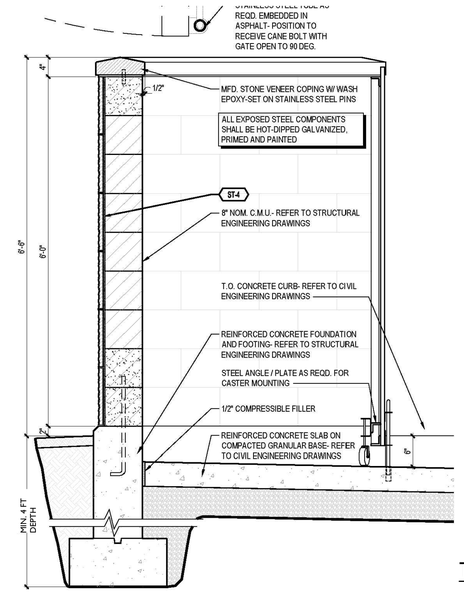
TITLE:
CONSTRUCTION DETAILS

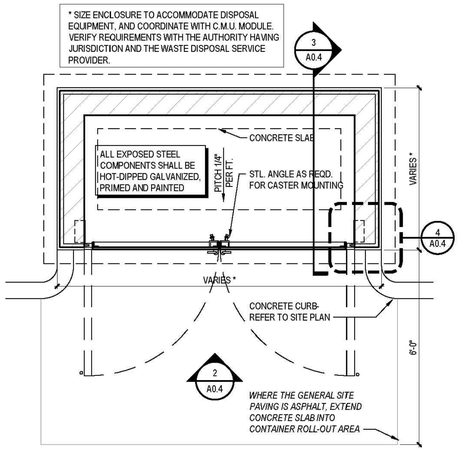
DRAWING:
C-13

Z:\BOS\PROJECTS\2022\BOS-220137 CHASE\CAD\TITLE - 1-3 WEBB PLACE, DOVER, NH\CAD\PLOTS\DP-1 (2-D).DWG





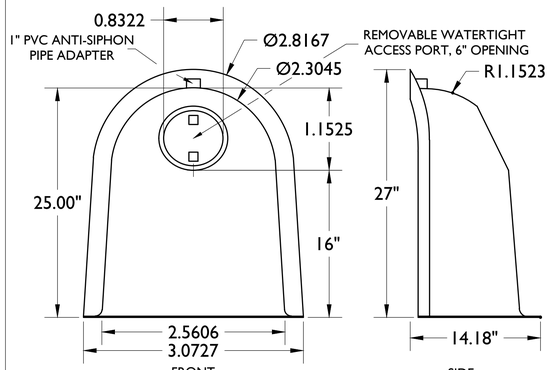


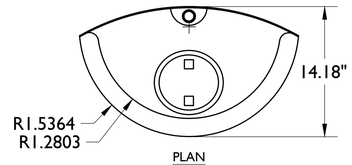


TRASH ENCLOSURE DETAIL

NOT TO SCALE

1





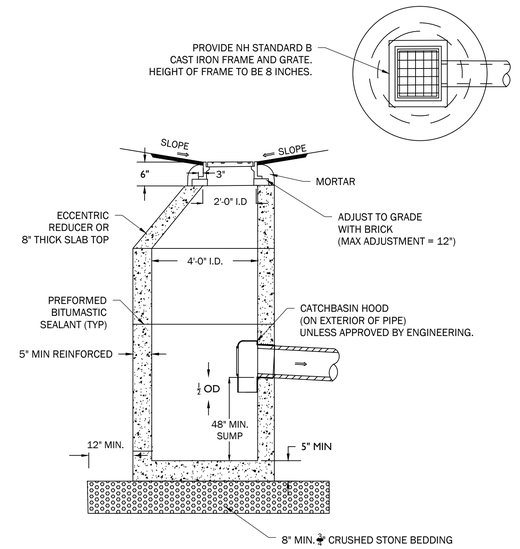
DESIGNED TO FIT
48"-60" DIAM.
STRUCTURES

RECOMMENDED SUMP DEPTH 2.5 TO
3X OUTLET PIPE I.D.

BMP 18R OIL SEPARATOR HOOD DETAIL

NOT TO SCALE

2



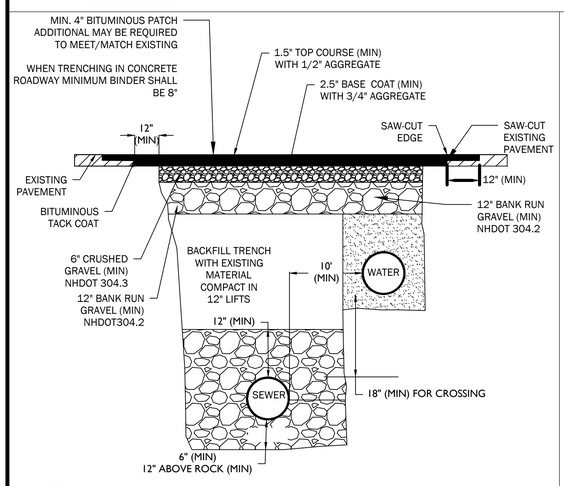
NOTES:

1. ENTIRE STRUCTURE SHALL BE H-20 LOAD RATED. PROVIDE MANUFACTURER REINFORCEMENT DETAILS TO THE CITY ENGINEER UPON REQUEST.

CATCH BASIN DETAIL

NOT TO SCALE

3



NOTES:

1. TRENCH SHALL BE COMPACTED TO 95% OPTIMUM DENSITY.

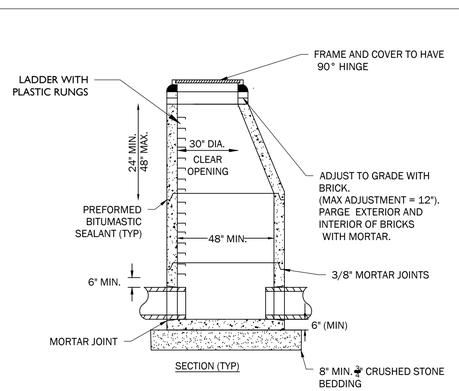
2. ALL WORK SHALL COMPLY WITH THE CITY OF DOVER CONSTRUCTION GUIDELINES AND PROCEDURES

3. 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.

TYPICAL TRENCH DETAIL

NOT TO SCALE

4



SECTION (TYP)

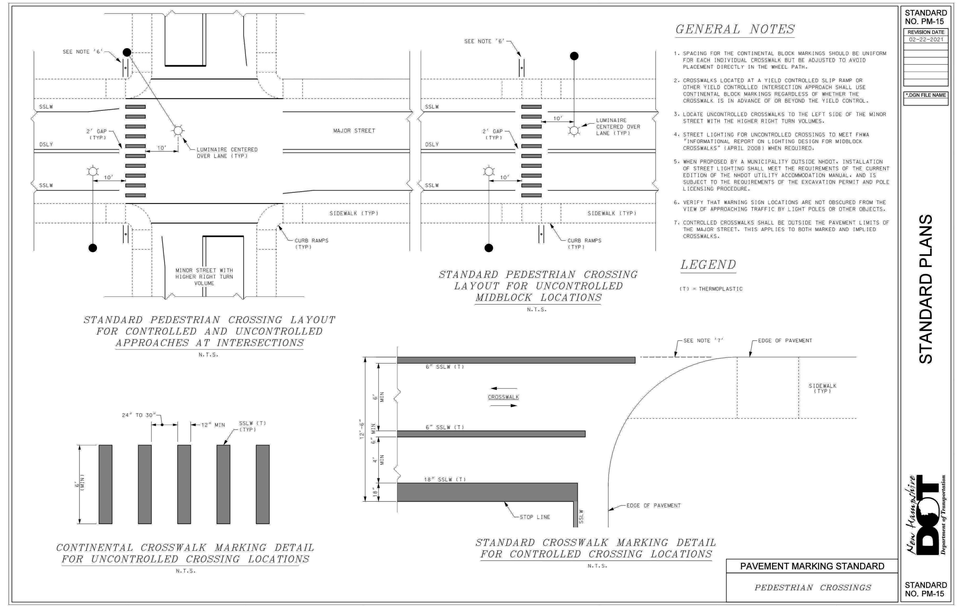
NOTES:

1. CORINGS TO BE SEPARATED BY 6" (MINIMUM) OF MONOLITHIC SECTION

DRAIN MANHOLE DETAIL

NOT TO SCALE

5



NHDOT CROSSWALK DETAIL

NOT TO SCALE

6

ISSUE	DATE	BY	DESCRIPTION
4	03/14/2024	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
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SITE IMPROVEMENT PLAN

CHASE

PROPOSED BANK WITH
DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

STANDARD PLANS

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: AS SHOWN | PROJECT ID: BOS-220137

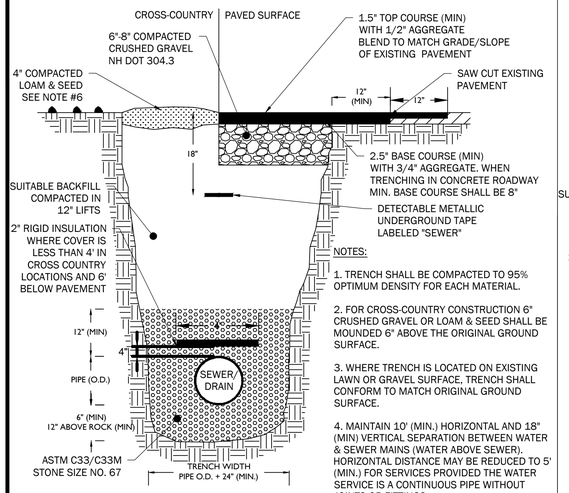
TITLE:

CONSTRUCTION DETAILS

DRAWING:

C-14

Z:\BOS\TOWN\BOS\2023\BOS-220137 CONSTATE - 1-3 WEBB PLACE, DOVER, NH\CAD\PLOTS\DP-1 (2-DET).DWG



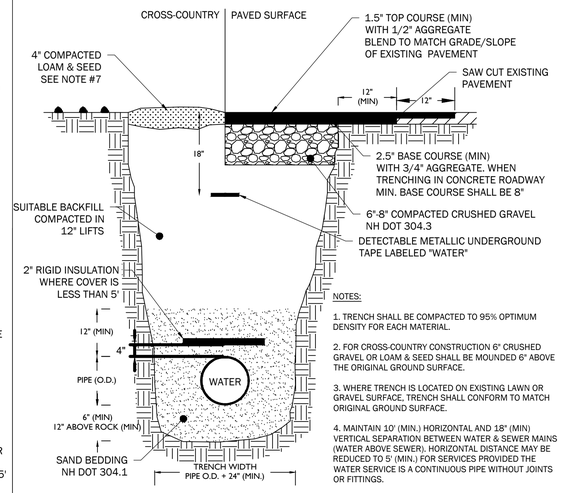
NOTES:

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.

SEWER TRENCH DETAIL

NOT TO SCALE

1



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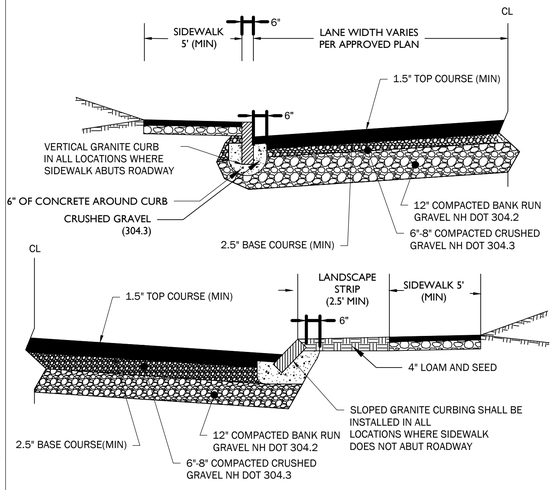
6. PROVIDE MINIMUM 5' OF COVER. ENGINEERING APPROVAL REQUIRED FOR LESS THAN 5' OF COVER.
7. LOAM AND SEED SHOULD BE IN COMPLIANCE WITH NH DOT 641, 642, 643, 644 AND 645.

WATER TRENCH DETAIL

NOT TO SCALE

2



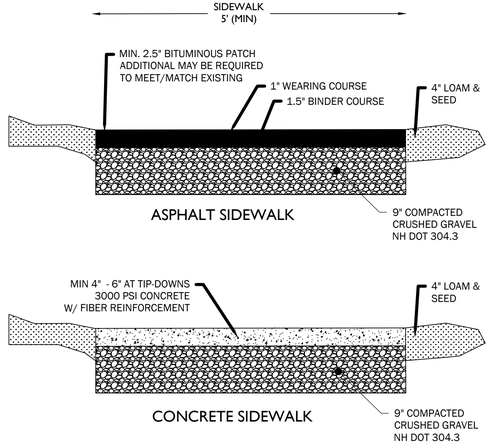
NOTES:

1. THIS DETAIL IS FOR GENERAL REVIEW PURPOSES ONLY, FINAL DESIGN SHALL BE BASED ON SPECIFIC SITE CONDITIONS AND APPROVED PLANS.
2. SIDEWALK LOCATION AND MATERIAL SHALL BE AS APPROVED BY THE CITY OF DOVER.

ROADWAY CROSS SECTION DETAIL

NOT TO SCALE

3



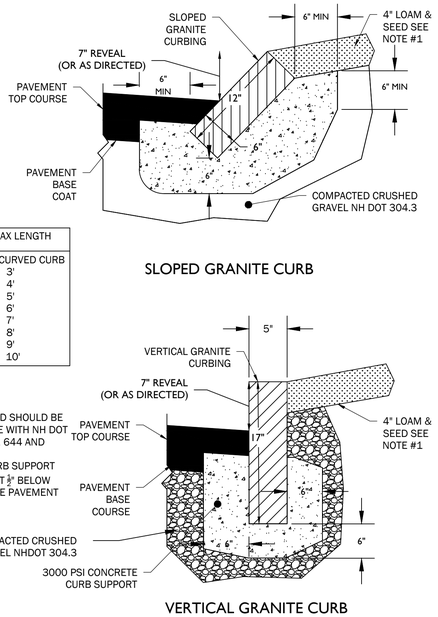
NOTES:

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 AND CONCRETE SIDEWALK DETAIL

NOT TO SCALE

4



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'

SLOPED GRANITE CURB

VERTICAL GRANITE CURB

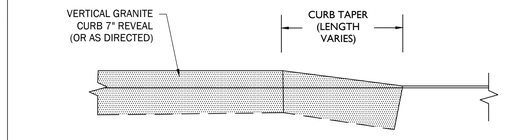
NOTES:

1. LOAM AND SEED SHOULD BE IN COMPLIANCE WITH NH DOT 641, 642, 643, 644 AND 645.
2. CONCRETE CURB SUPPORT SHOULD BE SET ⅜" BELOW THE TOP OF THE PAVEMENT BASE COURSE.

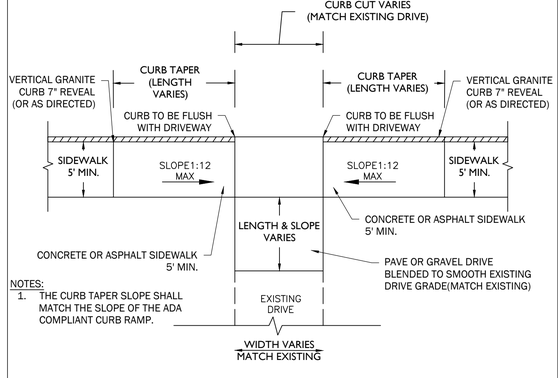
GRANITE CURB DETAIL

NOT TO SCALE

5



GRANITE CURB TRANSITION AT TIP DOWN



NOTES:

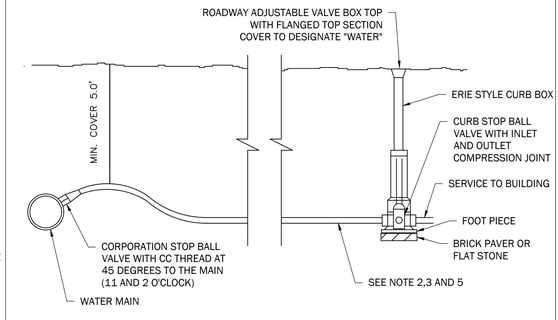
1. THE CURB TAPER SLOPE SHALL MATCH THE SLOPE OF THE ADA COMPLIANT CURB RAMP.

DRIVEWAY PLAN WITH SIDEWALK TIP DOWNS

SIDEWALK TIP DOWN AT DRIVEWAY DETAIL

NOT TO SCALE

6



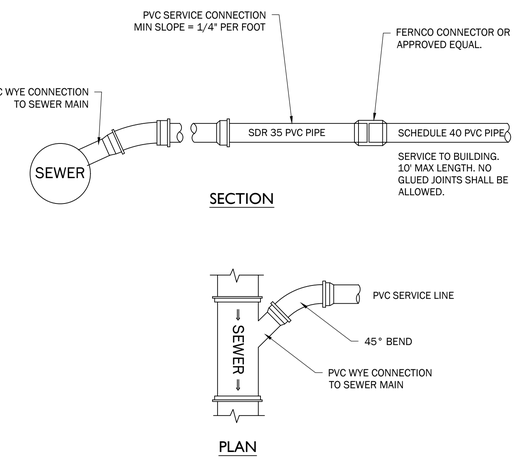
NOTES:

1. ALL WATER LINES 4" OR GREATER SHALL BE DUCTILE IRON WITH AN 8 MIL POLYETHYLENE WRAP, INCLUDING TEE AND OTHER CONNECTIONS.
2. WATER SERVICE LINES SHALL BE COPPER TUBING (TYPE K) BETWEEN MAIN AND CURB STOP.
3. SERVICE BETWEEN CURB STOP AND BUILDING MAY BE (BLUE OR BLACK) CTS SDR 9 PLASTIC POLYETHYLENE RATED FOR 250 psi.
4. CAM-LOCK REQUIRED FOR CTS OR IPS, MJ ADAPTER REQUIRED FOR HDPE
5. ¾"- COPPER, CTS
   1"- COPPER, CTS
   2"- CTS, HDPE, IPS

WATER SERVICE CONNECTION DETAIL

NOT TO SCALE

7



NOTES:

1. TRENCHING AND BEDDING REQUIREMENTS PER CITY SEWER TRENCH DETAIL (D-3).
2. SERVICE LATERAL DIAMETER VARIES PER APPLICATION. REVIEW SIZE WITH CITY ENGINEER PRIOR TO INSTALLATION.
3. SDR 35 SHALL NOT EXTEND INTO THE BUILDING

SEWER SERVICE CONNECTION DETAIL

NOT TO SCALE

8

ISSUE	DATE	BY	DESCRIPTION
4	03/14/2024	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
3	12/28/2023	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
2	9/15/2023	JJR	PER TECHNICAL REVIEW COMMITTEE COMMENTS
1	7/31/2023	JJR	ISSUED FOR REVIEW

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Rutherford, NJ · New York, NY · Salem, MA
Princeton, NJ · Tampa, FL · Detroit, MI
www.stonefieldeng.com
120 Washington Street, Suite 201, Salem, MA 01970
Phone 617.203.2076

SITE IMPROVEMENT PLAN

CHASE
PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38 LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

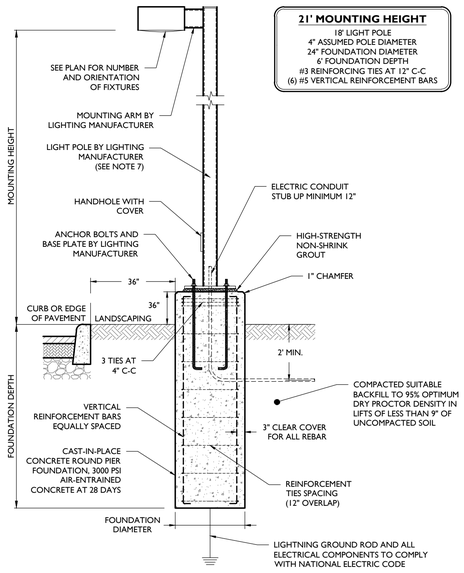
STONEFIELD engineering & design

SCALE: AS SHOWN | PROJECT ID: BOS-220137

TITLE: **CONSTRUCTION DETAILS**

DRAWING: **C-15**

Z:\BOS\DWG\BOS220137\CONSTATES - 1-3 WEBB PLACE, DOVER, NH\CAD\PLOTS\PDF-1-3 DETS.DWG



LIGHT POLE INSTALLATION DETAIL

NOT TO SCALE

NOTES:
1. MINIMUM SOIL BEARING PRESSURE OF 1500 PSF, SOIL FRICTION ANGLE OF 30 DEGREES, AND SOIL DRY UNIT WEIGHT OF 120 PCF SHALL BE CONFIRMED IN THE FIELD BY A QUALIFIED PROFESSIONAL.
2. CAST-IN-PLACE CONCRETE SHALL BE CONSOLIDATED USING VIBRATOR.
3. ALL REBAR TO BE NEW GRADE 60 STEEL.
4. PRE-CAST PIERS ACCEPTABLE UPON WRITTEN APPROVAL OF SHOP DRAWING BY ENGINEER.
5. CONCRETE TO BE INSTALLED A MINIMUM OF 7 DAYS PRIOR TO INSTALLING LIGHT POLE. POURED CONCRETE MIX REQUIRED TO OBTAIN 80% OF DESIGN STRENGTH PRIOR TO INSTALLING LIGHT POLE.
6. CONCRETE SHALL HAVE A MAXIMUM SLUMP OF 4" (WITHIN 1" TOLERANCE).
7. POLE SHALL BE RATED FOR 10 MPH HIGHER THAN MAXIMUM WIND SPEED 33FT ABOVE GROUND FOR THE AREA BASED ON ANSI/ASCE 7-93.
8. POUR TO BE TERMINATED AT A FORM.
9. WORK SHALL CONFORM TO ACI BEST PRACTICES FOR APPROPRIATE TEMPERATURE AND WEATHER CONDITIONS.
10. CONTRACTOR TO TEMPORARILY SUPPORT ADJACENT SOIL AND STRUCTURES DURING EXCAVATION IF REQUIRED.

EVOLVE

EACL® Series

LED Area Light/Compact Low Wattage

CUSTOMER NAME _____
PROJECT NAME _____
DATE _____ TYPE _____
CATALOG NUMBER _____

Ordering Information

EACL 01 _____ 7 _____

PROD. ID	GEN	VOLTAGE	OPTIC CODE	DISTRIBUTION	CRI (MIN)	CCT	DIMMING[3]	CONTROLS	MOUNTING ARM	COLOR	OPTIONS
E - Evolve	01	D - 120-277V	Av-3000 lm	AF - Asymmetric Forward	7 - 70	30 - 3000K	N - Dimming thru PE receptacle	1 - None	CY - Integral Slip-fitter for 2-3/8" - 2-7/8" (.058in. OD - 2.378 in. OD)[4]	GRAY - Gray	F - Fusing
AC - Compact Area Light		H - 347-480V	Bv-5000 lm	AW - Asymmetric Wide		40 - 4000K	D - External Dimming RED-3ft. cable	A - ANSI 7-pin PE receptacle (no control)	DT - Universal mounting arm, fitted for round or square pole mounting[4]	BLCK - Black	HI - Motion Sensor w/ LightGrid
L - Low Voltage		1 - 120V	Cv-7500 lm	AW1 - Asymmetric Narrow/Auto		50 - 5000K	X - No External Dimming Leads	D - ANSI 7-pin PE receptacle with shorting cap provided	KT - Knuckle Slipfitter for 1.9 in - 2.3in. OD Tenon[4]	DKBZ - Dark Bronze	H2 - Motion Sensor Elsentwo[5]
		2 - 208V	Dv-10000 lm					E - ANSI C136.41 7-pin with Non-Dimming PE Control[3]	ST - Knuckle Slipfitter for 2.3in. - 3.0in OD Tenon[4]	WHTE - White	H4 - Motion Sensor (Wattstopper)
		3 - 240V	Dx-10000 lm						YT - Knuckle - Wall Mount[4]		J - cULCanada
		4 - 277V	Ev-12500 lm								L - Tool-Less Entry
		5 - 480V	Fv-15000 lm								R - Enhanced Surge Protection (TOV/SVA)
		0 - 347V	Hv-20000 lm								U - DALI dimming[1]
											V - 3-Position Terminal Block
											Y - Coastal Finish[6]
											XXX - Special Options

[1] Not Available with Fusing, Must Choose a Discrete Voltage with "F" Option Code
[2] Note Standard Dimming is 0-10V
[3] PE Control only available for 120-277V, 347V or 480V Discrete Voltage.
[4] Supplied with 3ft leads
[5] Supplied with 10/3 ft Cable
[6] Restricted Aiming Angle of 0-45°

[7] Compatible with LightGrid+™ Wireless Control Nodes, Not Compatible with Motion Sensor Control
[8] H2 Sensor is not available in High Voltage (347V, 480V or 347-480V)
[9] Recommended for installations within 750 feet from coast. Lead time varies, check with factory.
[10] Select 3000K CCT for ISA approved fixtures.

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Page 2 of 10
(Rev 01/01/24)
OLP3167_R11

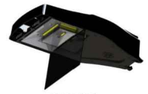
AREA LIGHT FIXTURE 'A' & 'B' & 'C' SPECIFICATION

NOT TO SCALE

EACL SERIES SHIELDED FIXTURE EXAMPLES*

Front Shield

Left/Right Side Shield



Back Shield

TYPE IV SHIELDING

Shield Orientation	Cutoff Distance	Shield Order Logic
Front	1.5	ELS-EACL-RF3-BLCK
	2	ELS-EACL-RF4-BLCK
Side	1	ELS-EACL-RS2-BLCK
Back	Long	ELS-EACL-RBL-BLCK

TYPE III SHIELDING

Shield Orientation	Cutoff Distance	Shield Order Logic
Front	1.5	ELS-EACL-RF3-BLCK
Side	1	ELS-EACL-RS2-BLCK
Back	Long	ELS-EACL-RBL-BLCK

TYPE II SHIELDING

Shield Orientation	Cutoff Distance	Shield Order Logic
Side	1	ELS-EACL-RS2-BLCK
Back	Long	ELS-EACL-RBL-BLCK

*All shields listed on this page are "BLACK" in color.

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Page 2 of 2
(Rev 04/06/23)
OLP3207-Evolve-EACL-Series-Area-Light-Shielding_R01

AREA LIGHT FIXTURE 'A' & 'B' & 'C' SHIELDING SPECIFICATION

NOT TO SCALE

Lumiere

Catalog #		Type	
Project			
Comments		Date	
Prepared by			

DESCRIPTION

Lanterra 9004-W1 (Up or Down) and 9004-W2 (Up and Down) are 4.25" O.D., line voltage cylinder fixtures with dimmable LED. The luminaire comes in various mountings, surface mount with integral driver in the housing, remote driver mount with round and square wall plates and square wall integral driver, all of which can be mounted over standard 4 inch j-box. The luminaire also comes with various field replaceable optics. It also comes with various lens, louvers and colors or dichroic filters, which can combine up to two at once to create multiple lighting effects. The fixture may be used indoors or outdoors and carries IP66 rating.

SPECIFICATION FEATURES

Material
Housing, hood and mounting stem are precision-machined from corrosion resistant billet stock 6061-T6 aluminum.

Finish
Fixtures constructed from 6061-T6 aluminum are double protected by an ROHS compliant chemical film undercoating and polyester powder coat paint finish, surpassing the rigorous demands of the outdoor environment. A variety of standard colors are available.

Hood
Hood is removable and accepts up to two internal accessories at once (lenses, louvers and filters) to achieve multiple lighting effects. Weep holes prevents water and mineral stains from collecting on the lens, even in the straight up position. The flush lens design reduces fixture height, minimizes debris collection and prevents water and mineral stains from collecting on the lens.

Gasket
Housing and hood are sealed with a high temperature silicone O-ring gasket to prevent water intrusion.

Lens
Tempered glass lens, factory sealed with high temperature silicone O-ring to prevent water intrusion and breakage due to thermal stock.

Hardware
Stainless steel hardware is standard to provide maximum corrosion resistance.

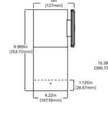
Electrical
Long life LED system coupled with electronic driver (120-277V/50-60Hz) is compatible with TRIAC (Trailing Edge), ELV (Forward phase) and 0-10V dimming to deliver optical performance. Light can be dimmed from 100-1% while maintaining constant CCT. It will operate in -30°C to 50°C unless noted otherwise. The driver incorporates surge protection. LEDs are available in 2700K, 3000K, 3500K at 80CRI and 97CRI, 4000K at 80CRI and 97CRI, 5000K at 80CRI and are industry leading high output with 87% lumen maintenance at 60,000hrs.

Compliance
Components are UL recognized and luminaires are cULus listed for 50°C ambient environments unless noted otherwise, wet location listed, and ROHS compliant. IP66 Rated. DesignLights Consortium® Qualified and classified for both DLC Standard and DLC Premium, refer to www.designlights.org for details.

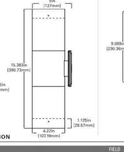
Warranty
Lumiere warrants the Lanterra series of fixtures against defects in material and workmanship for five (5) years. Auxiliary equipment such as LED drivers carries the original manufacturer's warranty.

DIMENSIONS

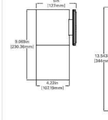
9004-W1-RW



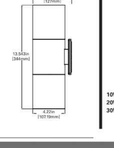
9004-W2-RW



9004-W1-FL



9004-W2-FL



ORDERING INFORMATION

SERIES	DIRECTION	HOOD	LED CCT & CRI	FIELD REPLACEABLE OPTIC 1	FIELD REPLACEABLE OPTIC 2	FINISH	LIGHT LEVEL	VOLTAGE	MOUNTING	OPTIONS
9004	W1 - Up or Down W2 - Up and Down	HOO - Standard Recessed Lens with no weep holes - Indoor RI - Recessed Lens with no weep holes - Indoor FL - Flush lens hood	**Standard CRI** LED2700 - 2700K, 90 CRI LED 3000 - 3000K, 90 CRI LED 3500 - 3500K, 90 CRI LED 4000 - 4000K, 90 CRI LED 5000 - 5000K, 90 CRI **Premium CRI** LED 2797 - 2700K, 97 CRI LED 3097 - 3000K, 97 CRI LED 3597 - 3500K, 97 CRI LED 4097 - 4000K, 97 CRI	S - Spot M - Medium F - Flood WF - Wide Flood	S - Spot M - Medium F - Flood WF - Wide Flood	**Standard Paint Finish** BK - Black AT - Grey Antero WH - White	L1 - Light Level 1 (500) L2 - Light Level 2 (1000) L3 - Light Level 3 (1500)	120V - 120-277V	Surface Mount / Wall, Ceiling, Ground RSM - Round Surface Mount- mounts directly to junction box Thermal Limitations (unless otherwise noted IND): 9004-W1 can 6 (120-240) 4 (277) 9004-W2 can 4 (120-277) 9004-W1 can 4 (120-277) 9004-W2 can 3 (120-277) Remote Driver Housing WRM* - Remote Driver Housing - Round Wall Plate WRS* - Remote Driver Housing - Square Wall Plate Thermal Limitations (unless otherwise noted IND): 9004-W1 can 6 (120-240) 4 (277) 9004-W2 can 4 (120-277) 9004-W1 can 4 (120-277) 9004-W2 can 3 (120-277) Integral Driver Mount WSI** - Wall Integral Driver Plate Thermal Limitations (unless otherwise noted IND): 9004-W1 can 4 (120-277) 9004-W2 can 3 (120-277)	SVP20* - Standalone integral sensor

Notes: 1. Only available for double hood option (HOO). 2. 9004-W1 not available in L3. 3. 9004-W2 not available in L2, L3. 4. Only available for Single head, Up or down (W1) with RSM only. 5. WD studies: Input wattage listed. 6. Remote Driver distance up to 80', For 62.5DMO remote distance up to 15'

Specifications and dimensions subject to change without notice.

TD506002SEN
11-28-18

COOPER Lighting Solutions

AREA LIGHT FIXTURE 'D' SPECIFICATIONS

NOT TO SCALE

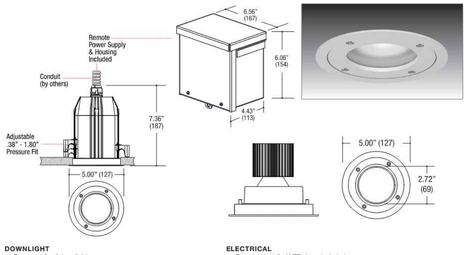
ILLUMINATION

BULLET

OUTDOOR RECESSED FIXED DOWNLIGHT

WET LOCATION - IP66 **LED**

PROJECT	TYPE	CATALOG NUMBER



DOWNLIGHT
- Recessed fixed downlight
- Die-cast aluminum trim
- Powder coat finish

HOUSING
- Extruded aluminum central housing
- Powder coat finish
- Dust and water jet tight sealed
- **Ceiling Cut-Out - Ø4.65"**

LED SOURCE
- Field-changeable optic
- 20W / 1670lm, 80CRI / 3000K

ELECTRICAL
- Remotely installed LED driver included
- Separated primary wiring compartment with power supply
- Double cable entry for through wiring
- Superpure aluminum reflector
- Dimmable

MOUNTING
- Swing out pressure fit mounting clips
- Adjustable up to 1.80" max. ceiling thickness

LABELS
- Suitable for wet location
- IP66 rated

5 YEAR WARRANTY Limited

ORDERING INFO

SERIES	WATTAGE	CRI / COLOR	BEAM	DRIVER	VOLTAGE	FINISH	OPTIONS
5811-1SA-T **BULLET Recessed** Die-Cast Aluminum Trim Fixed Downlight Trimmed Fixture	**20L** 1670 LED 1670 lm nom.	**8027** 80CRI / 2700K **8030** 80CRI / 3000K **8035** 80CRI / 3500K **8040** 80CRI / 4000K **9027** 90CRI / 2700K **9030** 90CRI / 3000K **9727** 97CRI / 2700K **9730** 97CRI / 3000K	**N** Narrow 25° **M** Medium 40° **W** Wide 56°	**DM** Dimming Multiple Forward/Reverse (**B** 120V only) 0-10V Wires Present (**B** 120-277V only) **D3** Lutron Hi-Lume® Forward Phase (2 wire 1% (120V only) **DE** Lutron Hi-Lume® EcoSystem® 1% w/Soft On, Fade-to-Black, 1% (120-277V only)	**U** 120-277V	**SS** Silver	**EM** Remotely Mounted Emergency LED Inverter (Field wiring required)

Ordering Example: **5811-1SA-T-20L-8030-M-DM-U-SS**

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We reserve the right to change or withdraw specifications without prior notice.

HEADQUARTERS
9200 Deering Avenue
Chatsworth CA 91311

Telephone: 818-885-1335
Toll Free: 855-885-1335
Fax: 818-576-1335

www.lfillumination.com
rev: 120419

AREA LIGHT FIXTURE 'E' SPECIFICATIONS

NOT TO SCALE

Lumark

Catalog #		Type	
Project			
Comments		Date	
Prepared by			

DESCRIPTION

The patented Lumark Crosstour™ MAXX LED wall pack series of luminaries provides low-profile architectural style with super bright, energy-efficient LEDs. The rugged die-cast aluminum construction, back box with secure lock hinges, stainless steel hardware along with a sealed and gasketed optical compartment make Crosstour impervious to contaminants. The Crosstour MAXX wall luminaire is ideal for wall/surface, inverted mount for facade/canopy illumination, perimeter and site lighting. Typical applications include pedestrian walkways, building entrances, multi-use facilities, industrial facilities, perimeter parking areas, storage facilities, institutions, schools and loading docks.

SPECIFICATION FEATURES

Construction
Low-profile LED design with rugged one-piece, die-cast aluminum back box and hinged removable door. Matching housing styles incorporate both a full cutoff and reflective lens design. Full cutoff and reflective lens models are available in 58W, 81W and 102W. Patent pending secure lock hinge feature allows for safe and easy tool-less electrical connections with the supplied push-in connectors. Back box includes four 1/2" NPT threaded conduit entry points. The back box is secured by four lag bolts (supplied by others). External fin design extracts heat from the fixture surface. One-piece silicone gasket seals door and back box. Not recommended for car wash applications.

Optical
Silicone sealed optical LED chamber incorporates a custom engineered reflector providing high-efficiency illumination. Full cutoff models integrate an impact-resistant molded refractive prism optical lens assembly meeting requirements for Dark Sky compliance. Refractive lens models incorporate a molded lens assembly designed for maximum forward throw. Solid state LED Crosstour MAXX luminaries are thermally optimized with eight lumen packages in cool 5000K, neutral 4000K, or warm 3000K LED color temperature (CCT).

Electrical
LED driver is mounted to the die-cast aluminum housing for optimal heat sinking. LED thermal management system incorporates both conduction and natural convection to transfer heat rapidly away from the LED source. 58W, 81W and 102W models operate in -40°C to 40°C (-40°F to 104°F). High ambient 50°C (122°F) models available in 58W and 81W models only. Crosstour MAXX luminaires maintain greater than 85% of initial light output after 72,000 hours of operation. Four half-inch NPT threaded conduit entry points allow for thru-branch wiring. Back box is an authorized electrical wiring compartment. Integral LED electronic driver incorporates surge protection. 120-277V 50/60Hz, 480V 60Hz, or 347V 60Hz electrical operation. 480V is compatible for use with 480Y Wye systems only.

Emergency Egress
Optional integral cold weather battery emergency egress includes emergency operation at once (available in 58W and 81W models only), an AC-ON indicator light and a premium extended rated sealed maintenance-free nickal-metal hydride battery pack. The separate emergency lighting LEDs are wired to provide redundant emergency lighting. Listed to UL Standard 924, Emergency Lighting.

Area and Site Pole Mounting
Optional extruded aluminum 6-1/2" arm features internal bolt guides for supplied twin support rods, allowing for easy positioning of the fixture during installation to pole. Supplied with round plate adapter plate. Optional tenon adapter fits 2-3/8" or 3-1/2" O.D. Tenon.

Finish
Crosstour MAXX is protected with a super TGIC carbon bronze or summit white polyester powder coat paint. Super TGIC powder coat paint finishes withstand extreme climate conditions while providing optimal color and gloss retention of the installed life.

Warranty
Five-year warranty.

XTOR
CROSSTOUR MAXX LED

APPLICATIONS:
WALL / SURFACE
INVERTED
SITE LIGHTING

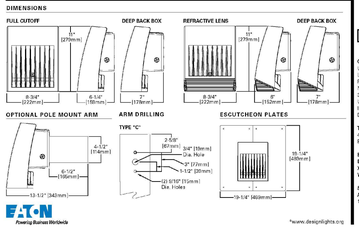
CERTIFICATION DATA
UL/cUL Wet Location Listed
IP66 Rated
ROHS Compliant
NOM Compliant Models
3G Vibration Tested
UL924 Listed (CSP Models)
IP66 Rated
DesignLights Consortium® Qualified*

TECHNICAL DATA
40°C Ambient Temperature
External Supply Wiring 90°C Minimum

EPA
Effective Projected Area (Sq. Ft.)
XTOR6B, XTOR8B, XTOR12B=0.54
With Pole Mount Arm=0.93

SHIPPING DATA:
Approximate Net Weight:
13.15 lbs. (5.4-6.8 kgs.)

DIMENSIONS



*www.designlights.org

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AREA LIGHT FIXTURE 'F' SPECIFICATIONS

NOT TO SCALE

page 2 **XTOR** CROSSTOUR MAXX LED

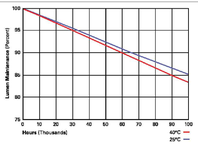
POWER AND LUMENS BY FIXTURE MODEL

58W Series						
LED Information	**XTOR6B**	**XTOR6BRL**	**XTOR6B-W**	**XTOR6BRL-W**	**XTOR6B-Y**	**XTOR6BRL-Y**
Delivered Lumens	8,119	8,255	8,038	8,133	8,811	8,836
B.U.G. Rating	B1-U0-G1	B2-U4-G3	B1-U0-G1	B2-U4-G3	B1-U0-G1	B2-U4-G3
CCT (Kelvin)	5000K	5000K	4000K	4000K	3000K	3000K
CRI (Color Rendering Index)	70	70	70	70	70	70
Power Consumption (Watts)	58W	58W	58W	58W	58W	58W
81W Series						
LED Information	**XTOR8B**	**XTOR8BRL**	**XTOR8B-W**	**XTOR8BRL-W**	**XTOR8B-Y**	**XTOR8BRL-Y**
Delivered Lumens	8,502	8,635	8,373	8,504	7,746	8,079
B.U.G. Rating	B2-U0-G1	B2-U4-G3	B2-U0-G1	B2-U4-G3	B2-U3-G1	B2-U4-G3
CCT (Kelvin)	5000K	5000K	4000K	4000K	3000K	3000K
CRI (Color Rendering Index)	70	70	70	70	70	70
Power Consumption (Watts)	81W	81W	81W	81W	81W	81W
102W Series						
LED Information	**XTOR12B**	**XTOR12BRL**	**XTOR12B-W**	**XTOR12BRL-W**	**XTOR12B-Y**	**XTOR12BRL-Y**
Delivered Lumens	13,728	13,458	12,539	13,258	11,961	12,586
B.U.G. Rating	B2-U0-G1	B2-U4-G3	B2-U0-G1	B2-U4-G3	B2-U3-G1	B2-U4-G3
CCT (Kelvin)	5000K	5000K	4000K	4000K	3000K	3000K
CRI (Color Rendering Index)	70	70	70	70	70	70
Power Consumption (Watts)	102W	102W	102W	102W	102W	102W

IGRESS Information	XTOR6B, XTOR8B and XTOR12B Full Cutoff CSP Egress LED	XTOR6B, XTOR8B and XTOR12B Refractive Lens CSP Egress LED
Delivered Lumens	509	468
B.U.G. Rating	N.A.	N.A.
CCT (Kelvin)	4000K	4000K
CRI (Color Rendering Index)	65	65
Power Consumption (Watts)	1.8W	1.8W

LUMEN MAINTENANCE

Ambient Temperature	TM-21 Lumen Maintenance (77,000 Hours)	Theoretical L70 (Hours)
XTOR6B Model		
25°C	> 90%	245,000
40°C	> 88%	212,000
50°C	> 88%	201,000
XTOR8B Model		
25°C	> 89%	215,000
40°C	> 87%	*95,000
50°C	> 86%	*81,000
XTOR12B Model		
25°C	> 89%	222,000
40°C	> 87%	*98,000



CURRENT DRAW

Voltage	Model Series				
	XTOR6B	XTOR8B	XTOR12B	XTOR8B-CSP (Fixture/Battery)	XTOR8B-CSP (Fixture/Battery)
120V	0.51	0.71	0.91	0.81/0.23	0.82/0.25
208V	0.31	0.39	0.52	--	--
240V	0.25	0.35	0.45	--	--
277V	0.22	0.31	0.39	0.36/0.21	0.56/0.21
347V	0.18	0.25	0.33	--	--
480V	0.14	0.19	0.24	--	--

Eaton
1121 Highway 74 South
Peachtree City, GA 30269
P: 770-632-4800
www.eaton.com/lighting

Specifications and dimensions subject to change without notice.

TD514005EN
September 17, 2019 3:03 PM

ISSUE	DATE	BY	DESCRIPTION
4	03/14/2024	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
3	12/28/2023	JV	PER TECHNICAL REVIEW COMMITTEE COMMENTS
2	9/15/2023	JJR	PER TECHNICAL REVIEW COMMITTEE COMMENTS
1	7/31/2023	JJR	ISSUED FOR REVIEW

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Phone 617.203.2076

SITE IMPROVEMENT PLAN

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38 LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

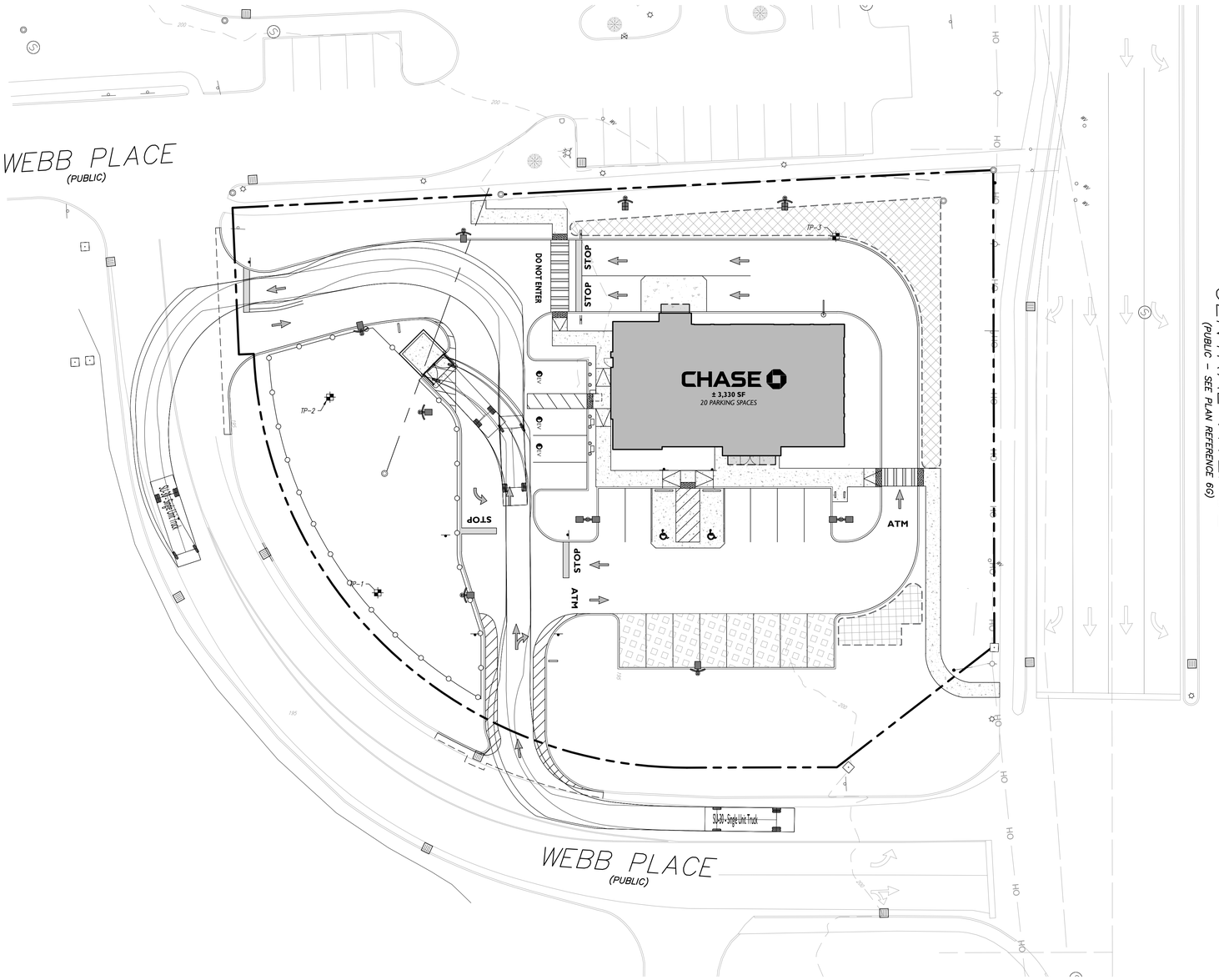
STONEFIELD engineering & design

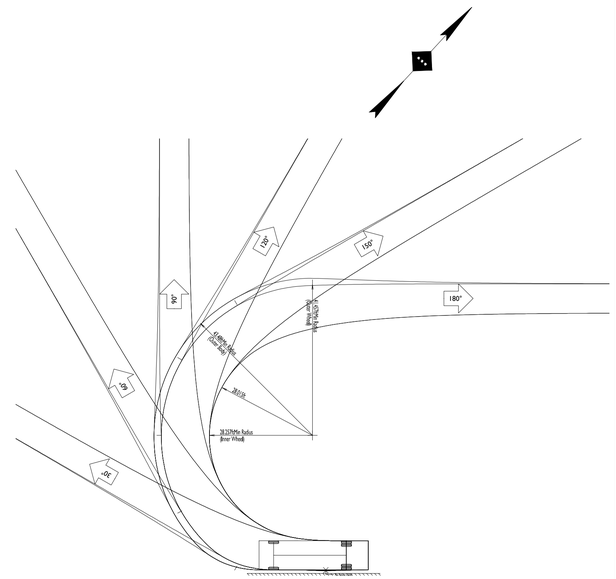
SCALE: AS SHOWN | PROJECT ID: BOS-220137

TITLE:
CONSTRUCTION DETAILS

DRAWING:
C-16

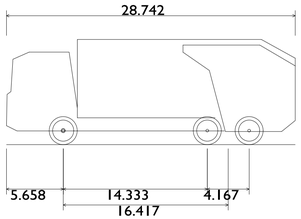
Z:\BOS\Projects\2022\BOS-220137 CONSTATES - 1-3 WEBB PLACE, DOVER, NH\CAD\PLOT\PLOT-1-DETS.DWG





SU-30 - Single Unit Truck

Overall Length	30.000ft
Overall Width	8.000ft
Overall Body Height	13.500ft
Min Body Ground Clearance	1.367ft
Track Width	8.000ft
Lock-to-lock time	5.00s
Max Steering Angle (Virtual)	31.80°



Mack TerraPro Low Entry 6x4 LEU 613

Overall Length	28.742ft
Overall Width	8.000ft
Overall Body Height	10.481ft
Min Body Ground Clearance	1.311ft
Track Width	8.000ft
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	34.000ft

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
2	03/14/2024	JV	ISSUED FOR REVIEW
1	12/28/2023	JV	ISSUED FOR REVIEW

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SITE PLAN SET

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

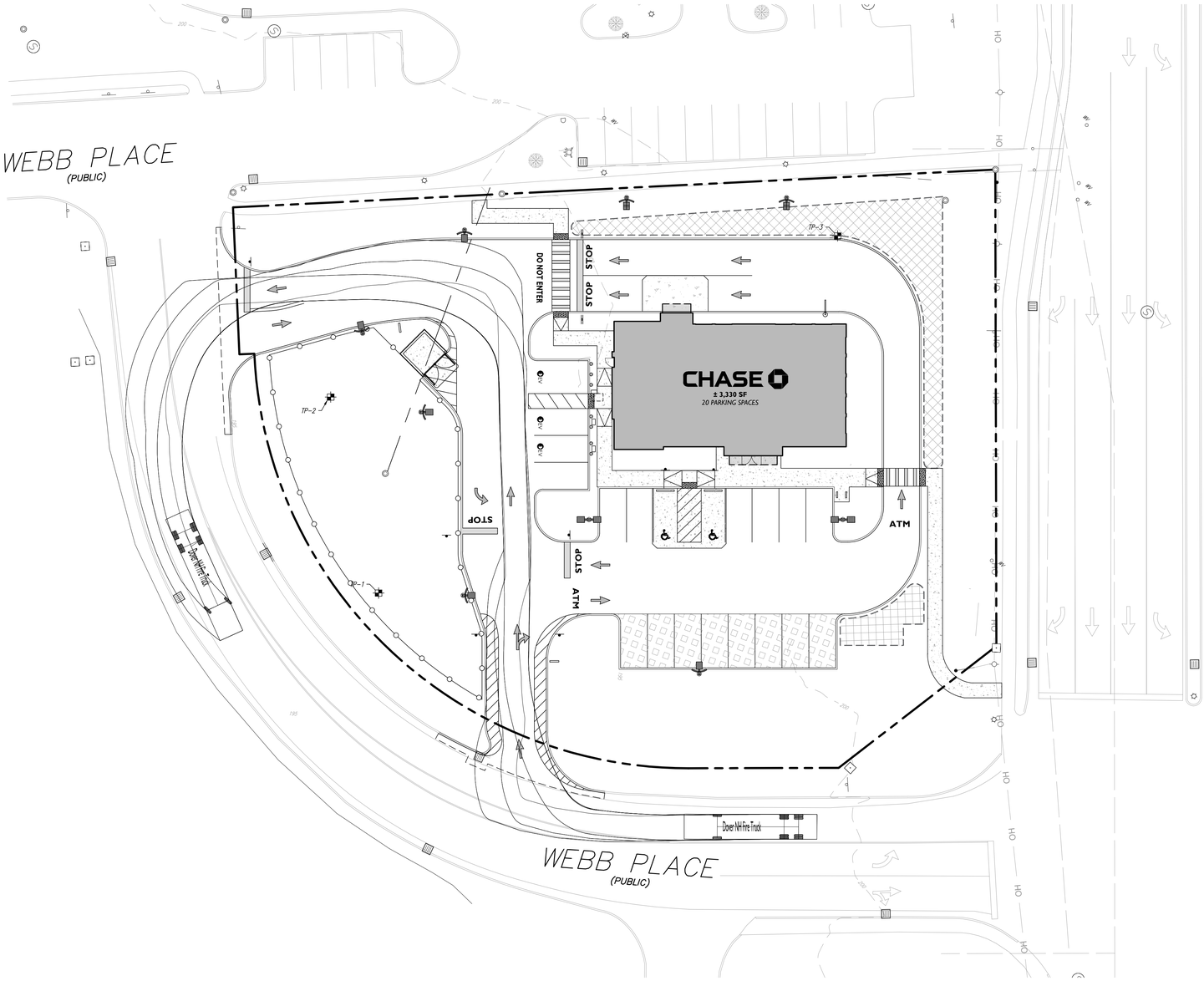
STONEFIELD engineering & design

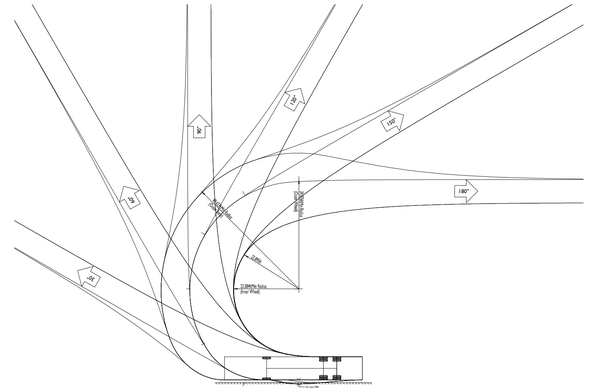
SCALE: 1" = 20' | PROJECT ID: BOS-220137

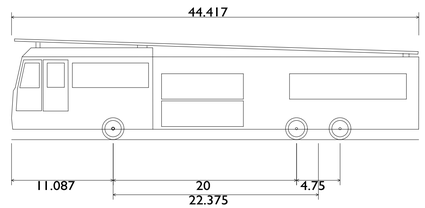
TITLE:
TRUCK MOVEMENT EXHIBIT (SU-30)

DRAWING:
E-1

Z:\BOSTON\BOS\2022\BOS-220137 CONSTATES - 1-3 WEBB PLACE, DOVER, NH\CAD\DGN\BIT\TRUCK TURN EXHIBIT\20240313 - E_TRUCK MOVEMENT EXHIBIT.DWG







Dover NH Fire Truck	
Overall Length	44.417ft
Overall Width	8.333ft
Overall Body Height	11.000ft
Min Body Ground Clearance	1.130ft
Track Width	6.833ft
Lock-to-lock time	6.00s
Max Wheel Angle	44.00°

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
2	03/14/2024	JV	ISSUED FOR REVIEW
1	12/28/2023	JV	ISSUED FOR REVIEW

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SITE PLAN SET

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-220137

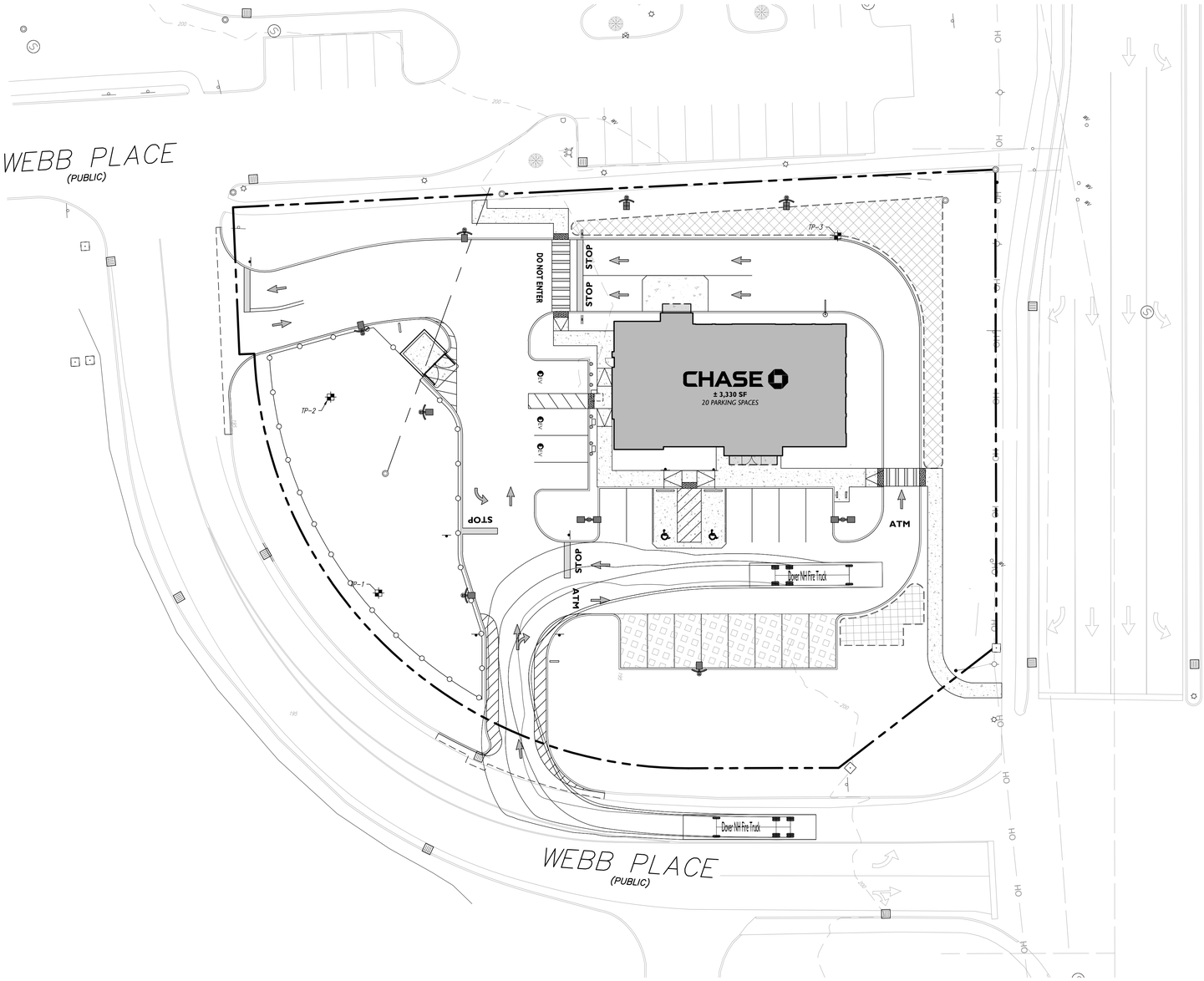
TITLE:

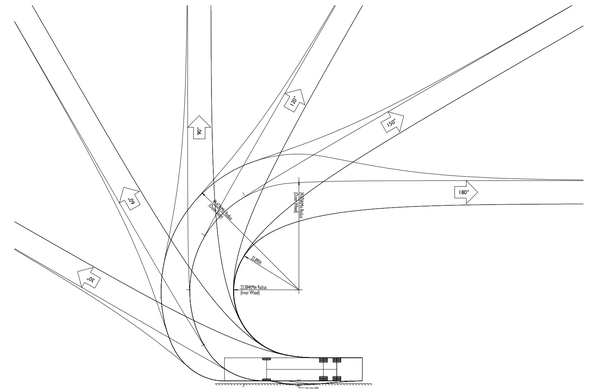
FIRE TRUCK MOVEMENT EXHIBIT

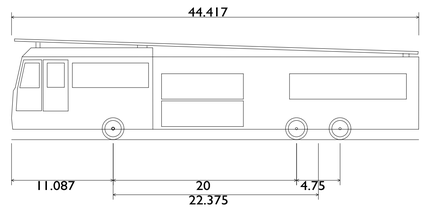
DRAWING:

E-2

Z:\BOS\DWG\2022\BOS-220137 CONSTA TES - 1-3 WEBB PLACE, DOVER, NH\CAD\SIGNBITS\TRUCK_TURN EXHIBIT\2024-03-14_TRUCK MOVEMENT EXHIBIT.DWG







Dover NH Fire Truck	
Overall Length	44.417ft
Overall Width	8.333ft
Overall Body Height	11.000ft
Min Body Ground Clearance	1.130ft
Track Width	6.833ft
Lock-to-lock time	6.00s
Max Wheel Angle	44.00°

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
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1	12/28/2023	JV	ISSUED FOR REVIEW

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SITE PLAN SET

CHASE

PROPOSED BANK WITH DRIVE-THRU ATM

TAX MAP 38, LOTS 15A & 15B
1-3 WEBB PLACE
CITY OF DOVER
STRAFFORD COUNTY, NEW HAMPSHIRE

JOSHUA H. KLINE, P.E.
NEW HAMPSHIRE LICENSE No. 16530
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-220137

TITLE:

FIRE TRUCK MOVEMENT EXHIBIT

DRAWING:

E-3

Z:\BOS\DWG\2022\BOS-220137 CONSTA\TES - 1-3 WEBB PLACE, DOVER, NH\CAD\SHEET\TRUCK TURN EXHIBIT\20240314 - E_TRUCK MOVEMENT EXHIBIT.DWG

PARCEL CURVE SEGMENTS			
SEGMENT	LENGTH	DELTA	RADIUS
C3	221.78	087°37'59"	145.00

CENTRAL AVENUE
(PUBLIC - SEE PLAN REFERENCE 6G)

WEBB PLACE
(PUBLIC - SEE PLAN REF. 6G)

WEBB PLACE
(PUBLIC - SEE PLAN REF. 6G)

OLD ROCHESTER ROAD (DISCONTINUED) 3374/177

N/F LANDS OF CENTERCO DOVER LLC. BK. 4485, PG. 955

N/F CITY OF DOVER NH 3413/92 3413/88

PREVIOUS LOCATION OF PLAZA DRIVE (SEE BOUNDARY NOTE 15.2) 40.7' (SEE PLAN REF 6G)

"PARCEL A" 3413/92 (EXCEPTION 7)

"PARCEL B" 3413/88 (EXCEPTION 7)

"PARCEL C" 3413/90 SEE ALSO 1870/668 (EXCEPTION 11, 13) SEE BOUNDARY NOTE 16.3

"PARCEL E" 3413/94 (EXCEPTION 12)

"PARCEL F" 3413/92 (EXCEPTION 7)

12.3 UTILITIES MAY ENCROACH (EXCEPTION 8)

APPROXIMATE SEWER SERVICE

APPARENT ENCROACHMENT ASPHALT SIDEWALK 12.1.

APPARENT ENCROACHMENT 12.2'

LAND OF DOVER RETAIL MANAGEMENT 42,879± SQ. FT. MAP 38, PARCEL 15A & B 5122/646

2 STORY BRICK BUILDING #1-3 WEBB PLACE 6,444.00 S.F. ±

BUILDING FEATURES 25.29' HIGH, 25.44'

N/F LANDS OF STATE OF NH 1768/504

N/F LANDS OF PPD ORAZIO LLC. MAP 38 PARCEL 16 BK 3064, PG 81

NH DOT PARCEL 20A PLAN REFERENCE 6G

NH DOT TAKING PARCEL 20A & 20A-1 1768/504(EXCEPTION 10)

NH DOT SLOPE EASEMENT PLAN REFERENCE 6G (EXCEPTION 9)

NH DOT TAKING PARCEL 20 1768/500 (EXCEPTION 10)

NH DOT TAKING PARCEL 20-1 & 20-2 1768/500 (EXCEPTION 10)

NH DOT SLOPE EASEMENT PLAN REFERENCE 6G (EXCEPTION 9 & 10)

DRAINAGE EASEMENT PLAN REF. 6G (EXCEPTION 10)

20' WATER MAIN EASEMENT AS SHOWN ON PLAN REF 6D (EXCEPTION 8)

STA 14+70.00, 66' LEFT HELD AS PREVIOUS LOCATION OF "NHHD BOUND" AS SHOWN ON PLAN REF

P.O.B. FOUND 5/8" CAPPED REBAR AT GRADE PLS 884 (HELD FOR LOCUS SIDELINE, PLAN REF. 6D, 0.08 FEET INSIDE CENTRAL AVE RIGHT OF WAY)

FOUND 3/4" ANGLE IRON 3" BELOW GRADE (HELD)

FOUND 5/8" CAPPED REBAR AT GRADE

FOUND 5/8" REBAR AT GRADE LOCATED AT BASE HELD, SEE BOUNDARY NOTE 15.1

FOUND 1/2" IRON ROD AT GRADE TOP BROKEN

FOUND MAG NAIL AT GRADE

FOUND 4"x4" CONCRETE MONUMENT 1" B.G. WITH DRILL HOLE (HELD FOR DIRECTION)

FOUND 6"x6" CONCRETE MONUMENT AT GRADE WITH DRILL HOLE (HELD AS STA 804+36.78, 25' LEFT)

FOUND 6"x6" CONCRETE MONUMENT AT GRADE WITH DRILL HOLE (HELD AS STA 804+36.78, 30' LEFT)

FOUND 6"x6" CONCRETE MONUMENT AT GRADE WITH DRILL HOLE (HELD AS STA 13+05.00, 66' LEFT) ON LINE 0.63' FROM COR

FOUND 4"x4" CONCRETE MONUMENT AT GRADE WITH DRILL HOLE

FOUND 6"x6" CONCRETE MONUMENT 4" A.G. WITH DRILL HOLE (HELD AS STA 801+15.00, 30' RIGHT) ON LINE 3.85' FROM COR

FOUND 6"x6" CONCRETE MONUMENT 3" A.G. WITH DRILL HOLE

UTILITIES ARE SHOWN AS APPROXIMATE FROM RECORD PLANS (TYP.)

STM. INLET #1140 GRT.=199.20

TEL. MH RIM: 200.23

SAN. MH #1136 RIM=201.06 (A)=191.26 (B)=191.26 (C)=192.46 (D)=191.16 SHELF=191.76

STM. INLET #9070 GRT.=199.34 (A)=193.04 SUMP=191.74

STM. INLET #9356 GRT.=200.33

SAN. MH #9375 RIM=200.13 PARKED OVER AT TIME OF SURVEY

STM. INLET #9106 GRT.=197.70 (A)=192.8 (B)=192.2 SUMP=189.2

SAN. MH #9370 RIM=198.88 (A)=192.78 (B)=192.83 SHELF=193.38

STM. INLET #10013 GRT.=196.12

STM. INLET #10104 GRT.=194.24 (A)=188.04 SUMP=187.74

STM. INLET #10201 GRT.=194.61

STM. INLET #10093 GRT.=195.37 (A)=187.17 (B)=188.12 (C)=187.27 (D)=187.27 SUMP=185.17

STM. INLET #1217 GRT.=193.55 (A)=187.55 SUMP=186.15

STM. INLET #10190 GRT.=195.92

STM. INLET #9439 RIM=203.09 (A)=193.19 (B)=188.88 (C)=188.68 SHELF=190.08

STM. INLET #9025 GRT.=202.1 (A)=194.91 (B)=194.91 SUMP=191.51

STM. INLET #9416 GRT.=202.92 (A)=194.52 (B)=194.52 SUMP=190.42

STM. INLET #9243 GRT.=201.48 (A)=194.18 (B)=193.78 SUMP=190.78

STM. INLET #10159 GRT.=199.97

STM. INLET #10118 GRT.=201.13

SAN. MH #10140 RIM=201.53 (A)=192.93 (B)=192.93 SQUIER PUMP STATION?

SAN. MH #10227 RIM=202.30 (A)=188.45 (B)=188.45 SHELF=189.65

SITE ID SIGN

GAS SERVICE

DECK

CONC. PAD W/ A.C.

"HANDICAP PARKING" SIGN

BOLLARD (TYP.)

BUILDING AWNING (TYP.)

CONC. STEP

LANDSCAPED AREA

ASPHALT PARKING

ASPHALT AREA

"LEFT, STRAIGHT, & RIGHT TURNS ONLY" SIGN

"STOP" SIGN

"ACCESS" SIGN

"SPRINT" SIGN

GUARD RAIL

S 43°05'52" E 199.39'

N 43°56'55" E 255.31'

N 51°42'47" W 92.21'

S 44°20'05" W 5.00'

S 09°08'02" W 66.68'

S 46°39'08" W 50.26'

SOLID YELLOW STRIPING

SOLID WHITE STRIPING

DOUBLE SOLID YELLOW STRIPING

CONC. CURB

EDGE OF PAVEMENT

STOP BAR

12" RCP (B)

18" RCP (A)

18" RCP (B)

18" RCP

24" RCP (A)

24" RCP

12" STEEL

6" STEEL

8" PVC

6" UNK.

(B) 6" UNK.

(D) 6" UNK.

4" PVC (C)

SCALE : 1" = 20'

LEGEND

- TRAVERSE LINE, CENTER LINE OR BASELINE
- RIGHT OF WAY LINE
- PROPERTY LINE
- EDGE OF PAVEMENT
- CURB LINE (FACE / BACK)
- TRAFFIC FLOW
- MAILBOX
- CAPPED REBAR SET
- TELEPHONE MANHOLE
- SANITARY MANHOLE
- MAJOR CONTOUR
- MINOR CONTOUR
- SPOT ELEVATION
- TOP OF CURB ELEV.
- BOTTOM OF CURB ELEV.
- U/G TELEPHONE LINE
- U/G ELECTRIC LINE
- OVERHEAD WIRE
- WATER MAIN
- GAS MAIN
- SAN. SEWER MAIN
- STORM PIPE
- TREE
- ROADWAY SIGNS
- UTILITY POLE
- GUY WIRE
- FIRE HYDRANT
- WATER VALVE
- GAS VALVE
- CONCRETE MONUMENT
- CAPPED REBAR/IRON PIPE
- STORM INLET TYPE 'A'

ABBREVIATIONS

D.C. = DEPRESSED CURB
BC = BOTTOM OF CURB
TC = TOP OF CURB
BOL = BOLLARD
GRT = GRATE
MB = MAILBOX
FF = FINISH FLOOR
U/K = UNKNOWN VALVE
MH = MANHOLE

VICINITY MAP

U.S.G.S. QUANDRANGLE MAP
DOVER, NH - PANEL (2021)
SCALE: 1"=2000'

Central Park, Willand Pond, Kelsyn Park, Gates Corner, SITE, Long Hill Rd, Dover Point Rd, Locust St, Glenwood Ave, Garrison Hill, Orchard St, Central Ave, Chestnut St, Cemetery Ln, Library Way, Pleasant Hill Park, Saint Charles Cemetery

Colliers Engineering & Design
www.colliersengineering.com

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REV	DATE	DRAWN BY	DESCRIPTION

DRAFT

ALTA/NSPS
LAND TITLE SURVEY

FOR

STONEFIELD ENGINEERING & DESIGN LLC.

TAX MAP 38
LOTS 15A & 15B
1-3 WEB PLACE
DOVER
STRAFFORD COUNTY
NEW HAMPSHIRE

Colliers Engineering & Design
BRUNSWICK
41 Church Road
Brunswick, ME 04011
Phone: 207.481.7080
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	9/28/23	JRE	SPP

PROJECT NUMBER: 22011300B
DRAWING NAME: 22011300B-WEBB PLACE DOVER NH-LTS

SHEET TITLE: ALTA/NSPS LAND TITLE SURVEY

SHEET NUMBER: 1 of 2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

I:\2022\01\22011300B-Webb Place Dover NH\LTS\dwg\XX-SURVEY By: SEAN.PIERCE

FOR REGISTRY USE ONLY

GENERAL NOTES:

1. AS OF THE DATE OF THIS SURVEY, THE RECORD OWNER OF THE PARCEL IS :

   DOVER RETAIL MANAGEMENT LLC , BY VIRTUE OF DEED FROM KAREN S. ARKWELL REVOCABLE TRUST OF 2020. DATED JUNE 27, 2023, AND RECORDED IN THE STRAFFORD COUNTY REGISTRY OF DEEDS IN BOOK 5122, PAGE 646.

2. THE PROPERTY IS SHOWN AS LOT 15A&B ON THE CITY OF DOVER, NEW HAMPSHIRE'S TAX MAP 38, AND IS LOCATED IN THE COMMERCIAL (C) DISTRICT.

   LAND USE REGULATIONS ARE AS FOLLOWS:

MINIMUM LOT SIZE:	20,000 SQ. FT.
MINIMUM LOT ROAD FRONTAGE:	125 FT.
MINIMUM FRONT YARD:	30 FT. *
MINIMUM SIDE YARD:	12 FT. *
MINIMUM REAR YARD:	15 FT. *
MAXIMUM LOT COVERAGE:	50%
MAXIMUM BUILDING HEIGHT:	40 FT.

   * SEE ORDINANCE FOR MORE PARTICULAR INFORMATION. SETBACK AND DIMENSIONAL STANDARDS LISTED AND SHOWN HEREON ARE FOR PLANNING PURPOSES ONLY, AND MUST BE VERIFIED WITH THE APPROPRIATE REGULATORY PRIOR TO ANY CONSTRUCTION.

   **A REPORT OF ZONING WAS NOT PROVIDED TO THIS SURVEYOR, THEREFORE NO CERTIFICATION IS MADE TO TABLE A 6A OR 6B.

3. TOTAL AREA OF PARCEL IS APPROXIMATELY 42,879± SQ. FT OR 0.98± ACRES.

   PARCEL A: 26,376± SQ. FT.

   PARCEL B: 16,503± SQ. FT

4. BOUNDARY & TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED UPON ON THE GROUND FIELD SURVEY COMPLETED BY COLLIERS ENGINEERING & DESIGN, INC. IN DECEMBER OF 2022 & SEPTEMBER OF 2023.

5. BOOK AND PAGE REFERENCES SHOWN HEREON ARE IN REFERENCE TO THE STRAFFORD COUNTY REGISTRY OF DEEDS (S.C.R.D.).

6. PLAN REFERENCES:

   A. PLAN TITLED "RW REALTY INC. PLAN OF LOTS A & B PLAZA DRIVE, DOVER, NEW HAMPSHIRE", DATED APRIL 1981, DRAWN BY G. L. DAVIS & ASSOCIATES, RECORDED IN THE S.C.R.D. PLAN NUMBER 17E-8.

   B. PLAN TITLED "SUBDIVISION LOT LINE RELOCATION PLAN FOR SOUTHWEST EQUITIES CORP", DATED JULY 2, 2001, DRAWN BY MILLETTE, SPRAGUE & COLWELL, INC. RECORDED IN THE S.C.R.D. PLAN NUMBER 67-11.

   C. PLAN TITLED "BOUNDARY LINE ADJUSTMENT PLAN, PRIME CIRCLE, LLC. & RW REALTY INC., DOVER, NEW HAMPSHIRE", DATED JUNE 14, 2006, DRAWN BY TRITECH CORP., RECORDED IN S.C.R.D. PLAN NUMBER 87-11.

   D. PLAN TITLED "BOUNDARY LINE ADJUSTMENT PLAN, PRIME CIRCLE LLC. AND RW REALTY INC., DOVER, NEW HAMPSHIRE", DATED JUNE 14, 2006, DRAWN BY TRITECH CORP., RECORDED IN THE S.C.R.D. PLAN NUMBER 87-12.

   E. PLAN TITLED "SUBDIVISION PLAN, PRIME CIRCLE, LLC., DOVER, NEW HAMPSHIRE", DATED FEBRUARY 3, 2006, DRAWN BY TRITECH CORP., RECORDED IN THE S.C.R.D. PLAN NUMBER 87-13.

   F. PLAN TITLED "ALTA-NSPS LAND TITLE SURVEY, PRIME CIRCLE, LLC., 11-17 WEBB PLACE, DOVER, NEW HAMPSHIRE, DATED MAY 3, 2017, DRAWN BY TRITECH CORP., RECORDED AT THE S.C.R.D. PLAN NUMBER 113-76.

   G. PLAN TITLED "PLANS OF PROPOSED FEDERAL AID URBAN SYSTEM PROJECT AND FEDERAL AID PRIMARY PROJECT STP-X-027-1(34), N.H. PROJECT NO. 10023-E", DATED SEPTEMBER 14, 1994, DRAWN BY CARON ENGINEERING INC. ON RECORD WITH THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION.

   H. PLAN TITLED SUBDIVISION/LOT LINE RELOCATION PLAN FOR SOUTHWEST EQUITIES CORP", DATED JULY 10, 2001, DRAWN BY MILLETTE, SPRAGUE & COLEWELL, INC. RECORDED IN THE S.C.R.D. PLAN NUMBER 67-12.

7. BEARINGS SHOWN HEREON ARE IN REFERENCE TO GRID NORTH, NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM. ELEVATIONS DEPICTED HEREON ARE IN REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), BASED ON GPS OBSERVATIONS.

8. UTILITY INFORMATION DEPICTED HEREON IS COMPILED USING PHYSICAL SURFACE EVIDENCE LOCATED IN THE FIELD IN CONJUNCTION WITH ANY RECORD INFORMATION AVAILABLE AT THE TIME OF THIS SURVEY (SUE LEVEL C), AND MAY NOT NECESSARILY REPRESENT ALL EXISTING UTILITIES. CONTRACTORS AND/OR DESIGNERS NEED TO CONTACT DIG-SAFE SYSTEMS, INC. (1-888-DIG-SAFE) AND FIELD VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION AND/OR EXCAVATION.

   A. UTILITY MAPPING WAS NOT PROVIDED TO THIS SURVEYOR PURSUANT TO TABLE A ITEM 11A AND THEREFORE NO CERTIFICATION IS MADE.

   B. ALL UTILITIES (WATER, GAS, ELECTRIC, TELEPHONE SEWER AND STORM DRAINAGE) THAT SURVEYOR WAS ABLE TO SOURCE THROUGH AVAILABLE MAPPING APPEAR TO ENTER THE PREMISES THROUGH ADJOINING PUBLIC STREETS OR THROUGH APPURTENANT OR PUBLIC EASEMENTS WHICH ARE SHOWN ON THE SURVEY.

9. THE LOCUS PROPERTY AS DEPICTED HEREON DOES NOT FALL WITHIN A SPECIAL FLOOD HAZARD AREA AS DELINEATED ON THE FLOOD INSURANCE RATE MAP FOR DOVER NEW HAMPSHIRE, STRAFFORD COUNTY, COMMUNITY-PANEL NUMBER 33017C0310E, HAVING AN EFFECTIVE DATE OF SEPTEMBER 30, 2015. THE LOCUS FALLS WITHIN AN AREA IDENTIFIED AS ZONE X, AREAS OF MINIMAL FLOOD HAZARD.

10. A WETLAND DELINEATION WAS NOT PERFORMED ON THIS PROJECT SITE.

11. NO EVIDENCE OF RECENT EARTHWORK WAS OBSERVED DURING THE COURSE OF THE SURVEY.

12. EVIDENCE OF ENCROACHMENTS WERE OBSERVED DURING THE COURSE OF THE SURVEY, AS NOTED HEREON.

    12.1. SIDEWALK LIES WITHIN LOCUS PARCEL

    12.2. BUILDING LIES WITHIN SETBACK

    12.3. UTILITIES MAY ENCROACH

13. THE SURVEYED PROPERTY HAS DIRECT ACCESS TO WEBB PLACE, A PUBLIC WAY, AS SHOWN HEREON.

14. NUMBER OF PARKING SPACES:

    14.2. HANDICAP: 2 SPACES (NOT DELINEATED)
    14.3. REGULAR: 45 SPACES

15. THE PROPERTY SHOWN HEREON IS THE SAME AS DESCRIBED IN TITLE COMMITMENT FILE NUMBER 2371-25003 ISSUED BY CHICAGO TITLE INSURANCE COMPANY, WITH A COMMITMENT DATE OF JANUARY 20, 2023 AT 4:30 P.M. THE PARCEL FORMS A MATHEMATICALLY CLOSED FIGURE, WHICH CONSTITUTES ONE CONTIGUOUS PARCEL OF LAND WITHOUT GAPS, GORES OR OVERLAPS.

16. BOUNDARY NOTES

    16.1. IRON HELD AS BEING 2.36 FEET FROM ORIGINAL PROPERTY LINE OF LOCUS PARCEL AS SHOWN ON PLAN REF 6D. AFOREMENTIONED IRON BEING 0.30 FEET OUTSIDE OF WEBB PLACE LIMITS.

    16.2 SEE DEEDS RECORDED IN S.C.R.D. BOOK 1870, PAGE 667 & BOOK 1870, PAGE 668 WHICH DESCRIBE THIS PORTION OF PLAZA DRIVE TO PRIME CIRCLE LLC. NO RECORDS OF ACCEPTANCE AND/OR DISCONTINUANCE/ABANDONMENT WERE FOUND. THIS PORTION OF PLAZA DRIVE MAY BE SUBJECT TO RIGHTS OF OTHERS.

    16.2 ALL SLOPE EASEMENTS HAVE BE SCALED OFF PLAN REFERENCE 6G.

    16.3 POSSIBLE ACCESS RIGHTS OVER PARCEL C EXIST, SEE DEED BOOK 1870, PAGE 668, PARAGRAPH 5.

17. NO EVIDENCE OF THE SITE BEING UTILIZED AS A SOLID WASTE DUMP, SUMP, OR SANITARY LANDFILL WAS OBSERVED DURING THE COURSE OF THE SURVEY.

SCHEDULE A: RECORD LEGAL DESCRIPTION:

TRACT 1:

A TRACT OR LAND WITH THE BUILDINGS THEREON, ON THE SOUTHERLY SIDE OF PLAZA DRIVE, DOVER, STRAFFORD COUNTY, NEW HAMPSHIRE BEING LOT B ON TAMPOSI-NASH-LEHOULLIER LOT A AND B GARRISON PLAZA DOVER NEW HAMPSHIRE DATED SEPTEMBER 1970 AND RECORDED AS PLAN 43 POCKET 2, FOLDER 18, AND BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT AN IRON PIN OR STEEL STAKE ON THE SOUTHERLY SIDE OF PLAZA DRIVE AT THE NORTHEASTERLY CORNER OF THE PARCEL HEREIN CONVEYED WHICH POINT IS ALSO THE NORTHWESTERLY CORNER OF OTHER LAND NOW OR FORMERLY OF R W REALTY, INC.; THENCE RUNNING S 30° 09' W , A DISTANCE OF 257.2 FEET TO A STEEL STAKE AT LAND NOW OR FORMERLY OF LORIMER SENTER; THENCE TURNING AND RUNNING S 24° 48' W, A DISTANCE OF 137 FEET TO AN IRON PIN AT LAND OF THE CITY OF DOVER; THENCE TURNING AND RUNNING N42° 33' W, 137.3 FEET; N 58° 30' W, 199.1 FEET; N 83° 55' W 34.6 FEET TO AN IRON PIN ON THE SOUTHERLY SIDE OF PLAZA DRIVE; THENCE TURNING AND RUNNING IN AN EASTERLY DIRECTION BY PLAZA DRIVE ON A CURVE TO THE RIGHT HAVING A RADIUS OF 600 FEET A DISTANCE OF 85.6 FEET TO AN IRON PIN; THENCE RUNNING N 59° 51' E BY PLAZA DRIVE A DISTANCE OF 178.8 FEET TO THE POINT OF BEGINNING.

EXCEPTING AND RESERVING PARCELS CONVEYED TO THE STATE OF NEW HAMPSHIRE BY DEED DATED SEPTEMBER 19, 1994 AND RECORDED AT BOOK 1768, PAGE 504.

EXCEPTING AND RESERVING PARCEL F CONVEYED TO CITY OF DOVER BY DEED DATED JULY 26, 2006 AND RECORDED AT BOOK 3413, PAGE 92.

TRACT 2:
A TRACT OR LAND WITH THE BUILDINGS THEREON, ON THE SOUTHERLY SIDE OF PLAZA DRIVE, DOVER, STRAFFORD COUNTY, NEW HAMPSHIRE BEING LOT A ON TAMPOSI-NASH-LEHOULLIER LOT A AND B GARRISON PLAZA DOVER NEW HAMPSHIRE DATED SEPTEMBER 1970 AND RECORDED AS PLAN 43 POCKET 2, FOLDER 18.

EXCEPTING AND RESERVING PARCELS CONVEYED TO THE STATE OF NEW HAMPSHIRE BY DEED DATED SEPTEMBER 19, 1994 AND RECORDED AT BOOK 1768, PAGE 500.

EXCEPTING AND RESERVING PARCEL A CONVEYED TO CITY OF DOVER BY DEED DATED JULY 26, 2006 AND RECORDED AT BOOK 3413, PAGE 92.

TRACT 3:

A TRACT OF LAND WITH THE BUILDINGS THEREON, AT OR NEAR CENTRAL AVENUE AND SHOWN AS PARCEL "C" ON A PLAN PREPARED BY TRITECH ENGINEERING CORPORATION ENTITLED "BOUNDARY LINE ADJUSTMENT PLAN, PRIME CIRCLE, LLC AND RQ REALTY, INC., CENTRAL AVENUE & INDIAN BROOK DRIVE, DOVER, NEW HAMPSHIRE" DATED JUNE 14, 2006 AND RECORDED WITH THE STRAFFORD COUNTY REGISTRY OF DEEDS AS PLAN BOOK 87, PAGE 11 AND 12.

TRACT 4:

A TRACT OF LAND WITH THE BUILDINGS THEREON, AT OR NEAR CENTRAL AVENUE AND SHOWN AS PARCEL "E" ON A PLAN PREPARED BY TRITECH ENGINEERING CORPORATION ENTITLED "BOUNDARY LINE ADJUSTMENT PLAN, PRIME CIRCLE, LLC AND RQ REALTY, INC., CENTRAL AVENUE & INDIAN BROOK DRIVE, DOVER, NEW HAMPSHIRE" DATED JUNE 14, 2006 AND RECORDED WITH THE STRAFFORD COUNTY REGISTRY OF DEEDS AS PLAN BOOK 87, PAGE 11 AND 12.

SCHEDULE B-II EXCEPTIONS:

1. - 6. INTENTIONALLY OMITTED.
7. MATTERS SHOWN ON THE FOLLOWING PLANS: PLAN 87-11,12,13, AND PLAN 43 POCKET 2 FOLDER 18

   SURVEY FINDINGS: DOES ENCUMBER THE LOCUS PARCEL, ALL PERTINENT FACTS SHOWN HEREON, SHOWN HEREON
8. WATER LINE EASEMENT AND AGREEMENT WITH CITY OF DOVER DATED JUNE 10, 1972 AND RECORDED AT BOOK 906, PAGE 478.

   SURVEY FINDINGS: DOES ENCUMBER THE LOCUS PARCEL, SHOWN HEREON.
9. SLOPE AND EMBANKMENT RIGHTS RETAINED IN DEED DATED NOVEMBER 1, 1994 AND RECORDED AT BOOK 1776, PAGE 784

   SURVEY FINDINGS: DOES ENCUMBER THE LOCUS PARCEL, SHOWN HEREON.
10. SLOPE AND EMBANKMENT RIGHTS IN DEED DATED SEPTEMBER 19, 1994 AND RECORDED AT BOOK 1768, PAGE 500 & 504

    SURVEY FINDINGS: DOES ENCUMBER THE LOCUS PARCEL, SHOWN HEREON.
11. RIGHTS RESERVED IN DEED DATED APRIL 18, 1996 AND RECORDED AT BOOK 1870, PAGE 668.

    SURVEY FINDINGS: DOES ENCUMBER THE LOCUS PARCEL, RIGHTS RETAINED FOR ACCESS OVER FORMER PLAZA DRIVE, SEE PARCEL C SHOWN HEREON.
12. UTILITY EASEMENT RESERVED IN DEED DATED JULY 26, 2006 AND RECORDED AT BOOK 3413, PAGE 94.

    SURVEY FINDINGS: DOES ENCUMBER THE LOCUS PARCEL, SHOWN HEREON AS PARCEL E.
13. RIGHTS OF OTHERS IN AND TO PORTIONS OF PLAZA DRIVE CONVEYED BY DEEDS AT BOOK 3413, PAGE 90 AND BOOK 3413, PAGE 94.

    SURVEY FINDINGS: DOES ENCUMBER THE LOCUS PARCEL, SEE PARCEL C FOR THE PORTION OF PLAZA DRIVE SHOWN HEREON.

AS-SURVEYED LEGAL DESCRIPTION:

A CERTAIN PARCEL OF LAND SITUATED ON THE WESTERLY SIDE OF CENTRAL AVENUE, AND THE NORTHERLY SIDE OF WEBB PLACE, SO CALLED, IN THE CITY OF DOVER, COUNTY OF STRAFFORD, AND STATE OF NEW HAMPSHIRE, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING (P.O.B.) AT A POINT ON THE WESTERLY SIDELINE OF CENTRAL AVENUE NEAR A 5/8-INCH CAPPED REBAR MARKED "LLS 884", BEING THE NORTHERLY MOST CORNER OF THE LAND DESCRIBED HEREIN AND THE EASTERLY CORNER OF LAND NOW OR FORMERLY OF CENTERCO DOVER, LLC (DEED REF: 4485, PG. 955);

THENCE BY THE WESTERLY SIDELINE OF CENTRAL AVE, S 43°20'52" E, 159.39 FEET TO A POINT AT THE INTERSECTION WITH THE NORTHERLY SIDELINE OF WEBB PLACE, BEING 0.63 FEET FROM A 6"X6" CONCRETE MONUMENT AT NHDOT STA. 13+05.00, 66 FEET LEFT;

THENCE BY THE NORTHERLY LINE OF WEBB PLACE, S 9°06'02" W, 66.68 FEET TO A POINT BEARING S 46°39'08" W 50.26 FEET FROM A 6"X6" CONCRETE MONUMENT AT NHDOT STA. 801+15.00, 30 FEET RIGHT;

THENCE CONTINUING BY THE NORTHERLY LINE OF WEBB PLACE THE FOLLOWING COURSES:

1. S 46°39'08" W, 50.26 FEET TO A POINT OF CURVATURE;
2. BY A TANGENTIAL CURVE TO THE RIGHT, HAVING A RADIUS OF 145.00 FEET, DELTA ANGLE OF 87°37'59", AND AN ARC LENGTH OF 221.78 FEET TO A POINT;
3. S 44°20'05" W, 5.00 FEET PERPENDICULAR TO THE LAST COURSE, TO A POINT;
4. N 45°42'47" W, 49.21 FEET TO A POINT AND LAND NOW OR FORMERLY OF THE CITY OF DOVER (DEED REF: BK. 3413, PG. 88 & 92), BEARING S 45°42'47" E, 2.64 FEET FROM A 5/8-INCH REBAR AT LAND OF THE SAID CENTERCO DOVER, LLC;

THENCE BY LAND OF THE CITY OF DOVER, N 43°56'55" E, 255.31 FEET TO THE POINT OF BEGINNING.

CONTAINING 42,879 SQUARE FEET, MORE OR LESS.

MEANING AND INTENDING TO DESCRIBE THE PERIMETER OF TWO CONTIGUOUS PARCELS OF LAND, BEING THE SAME DESCRIBED IN A DEED TO R.W. REALTY, INC. FROM RICHARDSON - WEBB INC. DATED JANUARY 15, 1971, AND RECORDED IN THE STRAFFORD COUNTY REGISTRY OF DEED IN BOOK 880, PAGE 332. SHOWN AS LOT 15B ON THE CITY OF DOVER, NEW HAMPSHIRE'S TAX MAP 38., AND BY DEED TO KAREN S. ARKWELL, TRUSTEE OF THE KAREN S. ARKWELL REVOCABLE TRUST OF 2020, FROM KAREN S. ARKWELL DATED APRIL 13, 2021, AND RECORDED IN THE STRAFFORD COUNTY REGISTRY OF DEEDS IN BOOK 4917, PAGE 381. SHOWN AS LOT 15A ON THE CITY OF DOVER, NEW HAMPSHIRE'S TAX MAP 38.

SURVEYORS CERTIFICATION:

TO: TBD
TITLE COMMITMENT ISSUED BY CHICAGO TITLE INSURANCE COMPANY WITH A COMMITMENT DATE AND TIME: JANUARY 30, 2023, 4:30 PM
THIS IS TO STATE THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 5, 7 (A) (B1) (C), 8, 9, 13, 14, 16, 17, 18, 19 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED BY COLLIERS ENGINEERING & DESIGN IN DECEMBER OF 2022 & SEPTEMBER OF 2023.

SEAN P. PIERCE, NH LS 1032 DATE

Colliers Engineering & Design

www.colliersengineering.com

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REV	DATE	DRAWN BY	DESCRIPTION

DRAFT

ALTA/NSPS
LAND TITLE SURVEY

FOR

STONEFIELD ENGINEERING & DESIGN LLC.

TAX MAP 38
LOTS 15A & 15B
1-3 WEB PLACE
DOVER
STRAFFORD COUNTY
NEW HAMPSHIRE

Colliers Engineering & Design
BRUNSWICK
41 Church Road
Brunswick, ME 04011
Phone: 207.481.7080
COLLIERS ENGINEERING & DESIGN, INC.
DOING BUSINESS AS MASER CONSULTING

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	9/28/23	JRE	SPP

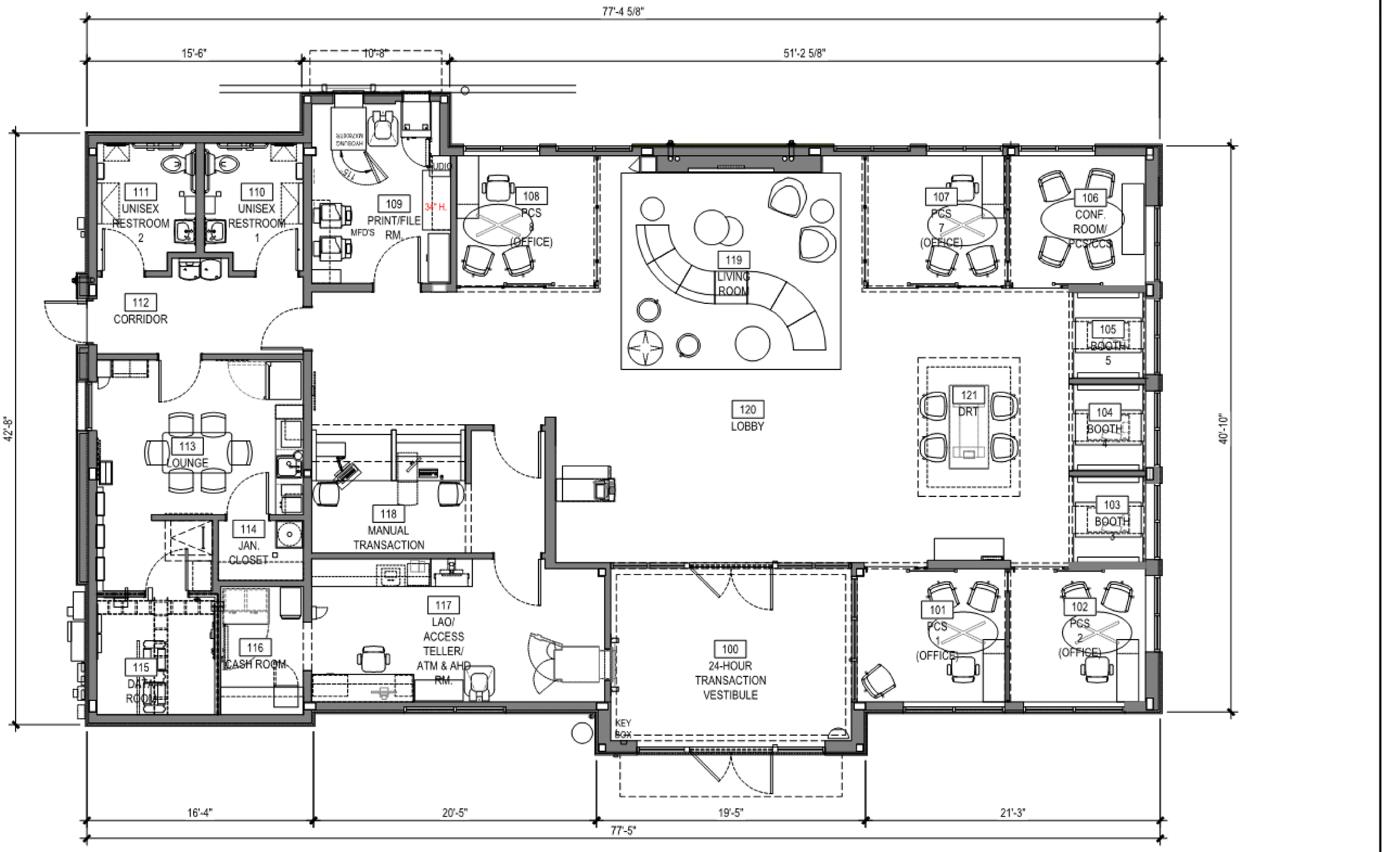
PROJECT NUMBER: 22011300B
DRAWING NAME: 22011300B-WEBB PLACE DOVER NH-LTS

SHEET TITLE: ALTA/NSPS LAND TITLE SURVEY

SHEET NUMBER: 2 of 2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

13008\DWG\22013008-Webb Place Dover NH LTS.dwg\SURVEY NOTES PG 1 By: SEAN.PIERCE



CHASE

DOVER WEBB PLACE, NH
1 WEBB PLACE,
DOVER, NH 03820

FLOOR PLAN

MARCH 13th, 2024

220 BURLINGTON MALL RD
STE 102
BURLINGTON, MD 01803
Contact: Jose Sanchez
jsanchez@core-states.com

CORE STATES GROUP

END ELEVATION (NORTH - FACING CENTRAL AVE)

MAIN ENTRY ELEVATION (EAST - FACING WEEKS LN)

STOREFRONT/ CANOPY
APPLICATION: EXTERIOR
COLOR: BLACK ANODIZED

TRIM
APPLICATION: EXTERIOR
COLOR: PAINTED WHITE

CLAP-BOARD SIDING
APPLICATION: EXTERIOR
COLOR: PAINTED SW7064 "PASSIVE"

BRICK
APPLICATION: EXTERIOR
BELDEN BRICK COMPANY
COLOR: "ADMIRAL RED VELOUR"

ROOF
APPLICATION: EXTERIOR - ASPHALT SHINGLES
COLOR: "BLACK"

CHASE

DOVER WEBB PLACE, NH
1 WEBB PLACE,
DOVER, NH 03820

PROPOSED EXTERIOR ELEVATIONS

FEBRUARY 13, 2024

220 BURLINGTON MALL RD
STE 102
BURLINGTON, MD 01803
Contact: Jose Sanchez
jsanchez@core-states.com

CORE STATES GROUP

B.O.H. ELEVATION (SOUTH - FACING WEBB PLACE)

REAR ELEVATION (WEST - FACING BROOK RD.)

CHASE

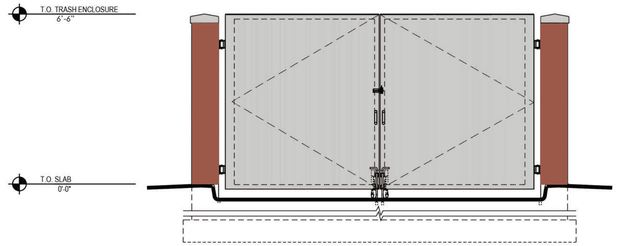
DOVER WEBB PLACE, NH
1 WEBB PLACE,
DOVER, NH 03820

PROPOSED EXTERIOR ELEVATIONS

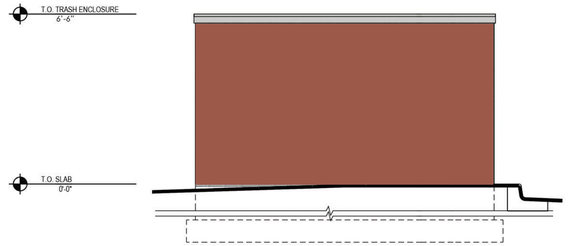
FEBRUARY 13, 2024

220 BURLINGTON MALL RD
STE 102
BURLINGTON, MD 01803
Contact: Jose Sanchez
jsanchez@core-states.com

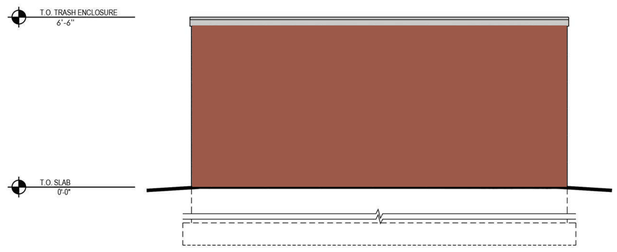
CORE STATES GROUP



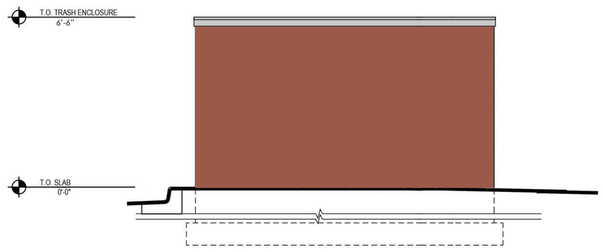
EAST ELEVATION (FRONT)



SOUTH ELEVATION (SIDE)



WEST ELEVATION (REAR)



NORTH ELEVATION (SIDE)

PAINT
APPLICATION: CORRUGATED METAL GATES
COLOR: PAINTED SW7064 "PASSIVE"

BRICK
APPLICATION: EXTERIOR
BELDEN BRICK COMPANY
COLOR: "ADMIRAL RED VELOUR"

CHASE

DOVER WEBB PLACE, NH
1 WEBB PLACE,
DOVER, NH 03820

PROPOSED TRASH ENCLOSURE

FEBRUARY 13, 2024

220 BURLINGTON MALL RD
STE 102
BURLINGTON, MD 01803
Contact: Jose Sanchez
jsanchez@core-states.com

CORE STATES GROUP

CHASE

DOVER WEBB PLACE, NH
1 WEBB PLACE,
DOVER, NH 03820

VIEW FROM WEBB PLACE & CENTRAL AVE. RT 9

MARCH 13th, 2024

220 BURLINGTON MALL RD
STE 102
BURLINGTON, MD 01803
Contact: Jose Sanchez
jsanchez@core-states.com

CORE STATES GROUP

CHASE

DOVER WEBB PLACE, NH
1 WEBB PLACE,
DOVER, NH 03820

VIEW FROM CENTRAL AVE. RT 9

MARCH 13th, 2024

220 BURLINGTON MALL RD
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