CITY OF DOVER

DOVER PLANNING BOARD – AGENDA

Meeting Type:	Regular Meeting
Meeting Location:	Council Chambers, City Hall, 288 Central Avenue, Dover, NH 03820
Meeting Date:	**Tuesday, April 8, 2025**
Meeting Time:	**7:00 pm**

1. **CITIZENS' FORUM**
2. **APPROVAL OF THE PRIOR MINUTES**
   - March 25, 2025 Regular Meeting Minutes
3. **OLD BUSINESS**
   A. Consideration and possible vote on amendments to the Planning Board Operating Rules*
4. **NEW BUSINESS**

   A. A Public Hearing for the purpose of receiving public input regarding the City's draft CDBG FY26-FY30 Consolidated Plan and FY26 Action Plan. The Consolidated Plan serves as the guiding document for identifying priority issues to be addressed through annual CDBG funding. The Action Plan identifies activities seeking funding from Dover's anticipated FY26 CDBG award. The Planning Board's decision serves as a recommendation to the City Council.*

   B. Consideration and acceptance of a Conditional Use Permit for DBS Holdings, LLC, Assessor's Map B, Lot 2, zoned R-40, located at 512 Sixth Street. (Proposal is to construct an infiltration basin, stormwater conveyance, and grading improvements to support the development of five (5) single-family dwellings resulting in approx. 2,926 s.f. of wetland buffer impacts, there are no direct wetland impacts.) *(COND-2024-0034)

   C. Consideration and acceptance of a Site Plan for DBS Holdings, LLC, Assessor's Map B, Lot 2, zoned R-40, located at 512 Sixth Street. (Proposal is to build five (5) single-family dwellings that includes three (3) units previously approved through TDR.) *(SITE-2024-0018)

   D. Consideration and possible posting on the proposed Amendments regarding Chapter 170 (Zoning Ordinance). The full text of the amendments is available in the Planning Department and at www.dover.nh.gov located under meeting materials and on the Planning Department page*.

5. **STAFF COMMENT**
6. **MEMBER COMMENTS**
7. **ADJOURNMENT**

*Indicates that if the application is accepted for discussion, the public hearing will be held the same evening. Note that some hearings will be continued from one meeting to another and some may be postponed. Since this is only a partial description of the proposal and may change, persons with questions or wishing to see the plans are invited to visit the Planning Office, Monday through Thursday from 8:30 am to 5:30 pm and Friday 8:30 am to 4:00 pm or email Dover-Planning@dover.nh.gov. You may also view materials at www.dover.nh.gov. Follow us on Twitter @DoverNHPlanning and find us on Facebook at https://www.facebook.com/DoverNHPlanning. The public is encouraged to leave comments in advance by emailing Dover-Planning@dover.nh.gov, or mailing written comments to Planning Board, Dover City Hall, 288 Central Ave., Dover, NH 03820. Messages must be received no later than 4 p.m. the day of the meeting and should identify the name and Dover address of the person leaving the message or providing the comment.

CITY OF DOVER

DOVER PLANNING BOARD – MINUTES

Meeting Type:	Regular Meeting
Meeting Location:	Council Chambers, City Hall, 288 Central Ave, Dover, NH.
Meeting Date:	**Tuesday, March 25, 2025**
Meeting Time:	**7:00 pm**

Members Present: Gina Cruikshank (Chair), Doug Glennon (Vice Chair), Ken Mavrogeorge, George DeBoer, Melina Gambino, Jeff Sanborn (Alternate), Tom Clark, Fergus Cullen (Councilor)
Members Not Present (excused): Kyle Pimental
Staff Present: Erin Bassegio, City Planner

Gina Cruikshank (Chair) called the meeting to order at 7:00p.m. and noted Jeff Sanborn would sit for Kyle Pimental.

1. CITIZENS' FORUM

Citizens Forum Open

Hilary Hamer, 91 Court st commented on proposed amendments to the zoning ordinance (minimum separation between buildings) and two concerns she has about the change: who will enforce the change, will this create an unintended barrier to development.

Scott Torr, 217 Durham rd commented on the proposed Grapevine Dr project that's in front of the TRC. The proposal is for a McDonalds with drive-thru and 24hr service. He gave information about phases of development in that area and his opposition to the proposal.

Citizens Forum Closed

2. APPROVAL OF THE PRIOR MINUTES

- March 11, 2025 Regular Meeting Minutes

Motion: F. Cullen moved to approve the regular meeting minutes of March 11, 2025. Seconded by: T. Clark. Vote: U/A

3. OLD BUSINESS

None

4. NEW BUSINESS

A. Consideration and acceptance of a Minor Subdivision for Berry Surveying & Engineering, (Owners: William G. & Julie A. Gowell) Assessor's Map B, Lot 23-B, zoned R-40, located at 39 County Farm Road. (Proposal is to subdivide one (1) lot into two (2).) *(SUBM-2025-0001)

E. Bassegio explained that the applicant is proposing to subdivide 39 County Farm Rd. (Assessor's Map B, Lot 23-B), creating one new lot. The parent parcel, Map B, Lot 23-B, is proposed as approximately 8.88 acres and the new lot, Map B, Lot 23-B-1, is proposed as approximately 0.92 acres.

As this proposal involves only a Minor Subdivision, no review was required by the Technical Review Committee.

Joe Berry, Berry Surveying and Engineering represented the application and explained the request to subdivide one lot into two lots. The proposal is to build a home on the new lot.

Motion: T. Clark moved to accept the application and declared no regional impact. Seconded by: M. Gambino. Vote: U/A

DRAFT

Public hearing opened.
Matt Silva, 31 County Farm Rd and abutter asked the board not to take action tonight on the project. He gave some historical information about the survey done/ wetlands issues and conversations with NH DES. He believes that recent disturbance on the property would warrant an NHDES Alteration of Terrain permit. He would like the parcel reviewed for disturbance on the property and check for DES compliance before action is taken on the application.

Walter Woods, friend of applicants and likely builder of subject property noted at the time of the original sale, there were options of this being a 5 or 6 lot subdivision. This proposal is much smaller than what could have been here.
Public hearing closed.

Mr. Berry addressed public comment:

- Restoration period occurred in the 5-year time period
- DES letter of compliance December 2022
- Driveway location 2019 concept plan verses current proposal reasoning
- NH AOT permit

Board discussion with applicant:

- AOT look-back timeframe and disturbance calculations
    - Applicant can do some surveying and make calculation on disturbance within a few days
    - If disturbance is less than 100,000 sf in 10 years, AOT / DES review is not necessary
- Code is not consistent here – different standards to be met whether applicant is commercial or residential in relation to disturbance and storm water

STAFF RECOMMENDATION: Minor Subdivision
The plan is consistent with §157-17 of the City of Dover's Land Subdivision Regulations, which provides for subdivision of existing lots.

The Planning Department recommends the Planning Board make findings, and vote to approve the application with the following subsequent conditions:

Subsequent Conditions to Be Met Prior to Signing of Plans:

1. Provide physical and digital copies (including CAD) of complete plan set which additionally shall include:
    1.1. Include the Planning File #SUBM-2025-0001;
    1.2. Confirmed lot numbering with City Assessor;
    1.3. Signature and stamp of LLS on the final plans;
    1.4. The owners' signatures for recording at Strafford County Registry of Deeds;
    1.5. A driveway permit must be submitted to the City of Dover for review and a driveway permit must be granted once all standards have been met;
    1.6. Add note that the new driveway would need to be designed in a way so that cars are not backing out into the ROW;
    1.7. Add note that County Farm Road cannot be completely shut down during construction or for the water line and that the applicant shall coordinate with Community Services and the Police Department;
    1.8. Provide copy of NHDES Subdivision approval;
    1.9. Remove notes 21, 22, and 23 on sheet 2 of 2;

1.10. Add note that septic system must be 75' from wetland protection district;
1.11. Provide the calculation of the disturbed area within the past 10 years.

Subsequent Conditions to Be Met Prior to Issuance of Building Permit:

2. If found applicable, an AOT permit must be sought and approval provided.

Motion: M. Gambino moved to approve the Minor Subdivision with conditions detailed by staff as it meets the criteria. Seconded by K. Mavrogeorge. Vote: U/A

The Chair announced Items B & C would be heard together.

B. Consideration and acceptance of a Lot Line Adjustment for McEneaney Survey Associates, (Owners: Waterside Land Holdings, LLC, Scheller Family Trust, Jane M. Dugas 2011 Revocable Trust, Seth Rafael Gabarro & Anthony Philip Gabarro, and N. Miles Cook, III & Amanda Cook), Assessor's Map M, Lots 91-C, 90-A-6, 90-E, 90-K, 90-D-10, and 90-A-3, zoned R-40, located at Middle Road, 10, 12, 18, 20, and 22 Isaac Lucas Circle. *(LOTA-2025-0003)

C. Consideration and acceptance of a Minor Subdivision for McEneaney Survey Associates, (Owners: Waterside Land Holdings, LLC), Assessor's Map M, Lots 91-C, zoned R-40, located at Middle Road *(Proposal is to subdivide one (1) lot into three (3) lots, one (1) with no frontage and being conserved as open space.) *(SUBM-2025-0002)

F. Cullen made a statement:
He has a professional relationship with Kevin McEneaney Survey Assoc and CivilWorks and he is a client of Mr. McEneaney's company. He does not have any financial, personal, or professional interest that would create a conflict of interest in relation to this application. His evaluation of this application is unbiased and impartial with no influence from external parties. If any member of the Planning Board objects to his participation with this application, he asked them to say so. (No one spoke)

E. Bassegio explained that the applicant is proposing a lot line adjustment to revise the lot lines between abutting properties located at 10, 12, 18, 20, and 22 Isaac Lucas Circle and a vacant parcel off of Middle Road Map M, Lot 91C, which abuts each to the rear, adding portions of Parcel M-91C to each. Following the adjustments, each of the five lots along Isaac Lucas Circle will retain their existing frontage values, with lot coverage percentages decreasing for all. Additionally, four of the five lots along Isaac Lucas Circle will go from nonconforming to conforming lot size, as required in the R-40 district.

The applicant is also proposing to subdivide the vacant lot on Middle Road to create two new lots for a total of three lots. The parent parcel, Map M, Lot 91-C, is proposed to be approximately 12.05 acres, while the new proposed lots, Map M, Lot 91-D and Map M, Lot 91-E, are proposed as having approximately 6.87 acres and 30.57 acres respectively.

The applicant has identified the proposed lot, Parcel M-91-E, as a Conservation Lot and therefore this lot does not require frontage. From discussions with the applicant and property owner, Planning Staff understand that an easement for the Conservation Lot will be drafted in coordination with staff, the Conservation Commission, and Open Lands Committee and, if applicable, will be approved by City Council and recorded with the Strafford County Registry of Deeds.

As these applications only involve a Lot Line Adjustment and Minor Subdivision, no reviews were required by the Technical Review Committee.

K. McEneaney represented the application and explained the request for lot line adjustments and 3-lot minor subdivision.

Motion: G. DeBoer moved to accept the application and declared no regional impact for both applications. Seconded by: T. Clark. Vote: U/A

Public hearing opened.
Jim McKenna, 278 Middle Rd gave a history of the property. He commended the owner for proposing to put 30 acres into conservation and suggested the board accept the offer.

Jane Dugas, 18 Isaac Lucas spoke in favor of the proposal.

Chris Stevens, 14 Isaac Lucas noted the proposed road is in violation of the covenant of Brickyard Estates. The rest of the plan looks fine, but the road should be removed.

Miles Cook, 22 Isaac Lucas, applicant spoke to address Mr. Stevens' concerns. The easement issue is not related to these proceedings tonight. The application complies with all City codes.

Summarized by staff:
-Email received from Gary and Melissa Mamigonian, 291 Middle Road
-Legal memo received from Robert J Kendall, III on behalf of Chris Stevens, 14 Isaac Lucas Circle
-Note from Brickyard Estates HOA that no legal action will be taken to stop the access
Public hearing closed.

Mr. McEneaney addressed public comment:

- The access next to 18 Isaac Lucas will be a driveway, not a road.

The board discussed the restrictive covenants:

- It does not affect the application before the board. There is another access option to the applicant if needed.

STAFF RECOMMENDATION – Lot Line Adjustment
Chapter 157-17 of the Land Subdivision Regulations of the City Code provides for the adjustment of existing lot lines between two or more lots. This plan is consistent with those regulations.

The Planning Department recommends the Planning Board make findings, and vote to approve the application with the following subsequent conditions:

Subsequent Conditions to Be Met Prior to Signing of Plans:

1. Provide physical and digital copies (including CAD) of complete plan set for recording at Strafford County Registry of Deeds which additionally shall include:
   1.1. Planning File Number #LOTA-2025-0003
   1.2. The owners' signatures;
   1.3. Add note to plan indicating total acres of parent parcel prior to adjustments;

1.4. Revised current use plan submitted to the City Assessor and current use fees are paid to the City before being sold or construction occurs.
1.5. Revised current use plan submitted to the City Assessor.

Motion: M. Gambino moved to approve the Lot Line Adjustment with subsequent conditions set by staff as it meets criteria. Seconded by: G. DeBoer. Vote: U/A

STAFF RECOMMENDATION: Minor Subdivision
The plan is consistent with §157-17 of the City of Dover's Land Subdivision Regulations, which provides for subdivision of existing lots.

The Planning Department recommends the Planning Board make findings, and vote to approve the application with the following subsequent conditions:

Subsequent Conditions to be Met Prior to Signing of Plans:
1. Approval of LOTA-2025-0003;
2. If a conservation easement is not recorded at same time as subdivision plat, a development agreement between the property owner and City shall be created regarding conservation lot and any stormwater easements;
3. Provide physical and digital copies (including CAD) of complete plan set which additionally shall include:
   3.1. Include the Planning File #SUBM-2025-0002;
   3.2. Confirm lot numbering with City Assessor;
   3.3. Signature and stamp of LLS on the final plans;
   3.4. The owners' signatures for recording at Strafford County Registry of Deeds.
   3.5. Add note that map and lot M-91E shall be conserved.

Motion: T. Clark moved to approve the Minor Subdivision with the subsequent conditions. Seconded by G. DeBoer. Vote: U/A

The Chair announced Items 4D & E would be heard together.
D. Consideration and possible adoption of amendments to Chapter 153 "Site Review" Regulations*
E. Consideration and possible adoption of amendments to Chapter 157 "Land Subdivision" Regulations*

E. Bassegio provided an overview of the proposed amendments, purpose for review and timeline and steps in the process.

Public hearing opened.
No one spoke
Public hearing closed.

Motion: T. Clark moved to adopt the amendments to Chapter 153 as previously discussed and posted. Seconded by: M. Gambino. Vote: U/A

Motion: T. Clark moved to adopt the amendments to Chapter 157 as previously discussed and posted. Seconded by: M. Gambino. Vote: U/A

F. Consideration and possible vote on amendments to the Planning Board Operating Rules*

E. Bassegio said that staff is recommending edits to one section of the Planning Board Operating Rules to reference the related state statute as well as Dover's other code and charter sections that are related to Board conflict of interests.

The Board discussed updating the title of Rules of Operation language to coincide with what's in the handbook and/or state statute for consistency.

Public hearing opened.
No one spoke
Public hearing closed.

Motion: D. Glennon moved to continue the item to April 8, 2025. Seconded by: T. Clark. Vote: U/A

5. STAFF COMMENT

- NH Office of Planning and Development conference and webinar if anyone is interested in that training.
- TDR subcommittee is meeting on April 7th at 5pm in City Hall.
- Student outreach event tomorrow for Master Plan.
- TRC items since last meeting:
    - March 13th: Site Plan, 30 Grapevine Dr., Proposal to construct a 3,694 s.f. McDonald's restaurant.
- One upcoming TRC item on March 27th:
    - Open Space Subdivision at 210 Tolend, proposal to create five lots, including one lot for the development of 29 cluster units, one lot with an existing single-family home, one buildable vacant lot, and two lots to be conserved as open space areas.

6. MEMBER COMMENTS

- M. Gambino
    - Curious about the profiles of the TDR subcommittee members
- The Chair signed the following:
    - The site plan and subdivision for Del Sol Dover, the three-lot subdivision and plan for the construction of a 9,600 square foot warehouse building along with an extension of Crosby Rd.

7. ADJOURNMENT

Motion: D. Glennon moved to adjourn at 8:03 p.m. Seconded by K. Mavrogeorge. Vote U/A

DRAFT

To: Planning Board
From: Dave Carpenter
Date: April 2, 2025
Re: FY26-FY30 Consolidated Plan & FY26 Annual Action Plan

ISSUE:
FY26-FY30 Consolidated Plan & FY26 Annual Action Plan

INTENT:
This memo will provide an overview of the draft FY26-FY30 Consolidated Plan & draft FY26 Annual Action Plan

GOAL:
Conduct a Public Hearing for the Draft FY26-FY30 Consolidated Plan & Draft FY26 Annual Action Plan &

ATTACHED:
- FY26-FY30 Consolidated Plan – Draft
- FY26 Annual Action Plan - Draft

BACKGROUND

CONSOLIDATED PLAN

Every five years Dover adopts a new Consolidated Plan for the Community Development Block Grant (CDBG) program. The Consolidated Plan serves as a strategic plan for addressing issues such as homelessness, housing, public services, community development needs and economic opportunities. These efforts are targeted towards very low, low and moderate income persons within the community. One of the functions of the Consolidated Plan is to provide direction for funding decisions made through each of the Annual Action Plans that will be adopted during the life of the Consolidated Plan. The Consolidated Plan to be adopted this spring is referred to as the FY26-FY30 Consolidated Plan.

After approval by the City Council and a subsequent 30-day public comment period, the Consolidated Plan must be sent to HUD for their review and approval.

ACTION PLAN

To implement the FY26-FY30 Consolidated Plan, the community annually adopts an Action Plan that identifies activities and projects that the community has decided to assist with CDBG funds. The Annual Action Plan serves as a means to assure that the funded activities are consistent with the Consolidated Plan and that the activities comply with one of HUD's three National Objectives.

National Objectives:

- Benefiting low- and moderate-income persons,
- Preventing or eliminating slums or blight, or
- Meeting other community development needs having a federally designated urgency because existing conditions pose a serious and immediate threat to the health or welfare of the community.

After approval by the City, and a subsequent 30-day public comment period, the Annual Action Plan must be sent to HUD for their review and approval.

This year's Annual Action Plan will be the first of five Action Plans to be adopted during the life of the new Consolidated Plan.

CONSOLIDATED PLAN & ANNUAL ACTION PLAN

FY26-FY30 CONSOLIDATED PLAN

Throughout the fall of 2024 and the winter of 2025, the City engaged in an extensive public outreach process to gather input from citizens, organizations, business community and City Departments. The outreach involved listening sessions with the general public, meetings with service provides, an online survey and a public hearing. This input was used to help shape the priorities identified in the proposed FY26-FY30 Consolidated Plan. July 1, 2025 will mark the beginning of the next 5-year Consolidated Plan cycle.

FY26 ANNUAL ACTION PLAN

Staff has compiled the applications submitted for FY26 Dover CDBG funding. See Sections 1-4 of the attached Draft FY26-FY30 Consolidated Plan and FY26 Action Plan.

Funding Categories and Proposed Allocations:

There are four funding categories identified by HUD:

- Public Services
- Public Facilities
- Economic Development
- Administration (*General Administration & Planning*; *Activity Administration*)

Funding Caps:

*Public Services***:** The maximum amount of funding that can be allocated for all Public Services combined equals fifteen percent of the *actual* funding pool.

*General Administration & Planning***:** The maximum amount of funding that can be allocated for General Administration & Planning equals twenty percent of the *actual* FY26 funding pool.

Funding Recommendations:

Please see Section 3 and the first page of Section 4 of the attached Draft FY26-FY30 Consolidated Plan and FY26 Action Plan for recommended allocations. The amount of funding requested for FY26 activities totals $586,000.00. Staff anticipates a total funding pool of $338,600.00 for FY26.

Public Services
There are ten requests for Public Services funding. The anticipated cap for Public Services funding is set at $49,000.00. Staff has provided recommended funding amounts for all ten applications.

Public Facilities
There are six requests for Pubic Facilities funding. Staff recommends approving all six applications. Staff recommends providing full funding for two of the applications and nearly full funding for a third

application. In the event that any of these three activities are cancelled or postponed, the remaining three activities will be eligible to utilize the funding.

Economic Development
Funding for the DELP loan pool and economic development activities.

Administration
This category consists of General Administration & Activity Administration.

General Administration:
Tasks associated with General Administration include development of the Action Plan; quarterly, semi-annual and annual reporting; training & legal notices. As discussed above, funding for this category is capped at 20% of the total fund pool.

Activity Administration:
Tasks associated with Activity Administration include contract development & administration, processing requests for reimbursement, site visits, subrecipient monitoring and environmental review associated with individual activities.

STAFF RECOMMENDATION

Staff recommends the following:

1. Conduct a Public Hearing to receive input regarding the proposed FY26-FY30 Consolidated Plan, FY26 Annual Action Plan and proposed FY26 CDBG allocations.

2. Approve the FY26-FY30 Consolidated Plan, FY26 Annual Action Plan and FY26 CDBG allocations.

CITY OF DOVER

PLANNING BOARD – CBDG FY26-FY30

Meeting Date: April 8, 2025

Please see link below for the FY26-FY30 Consolidated Plan and FY26 Annual Action Plan.

https://www.dover.nh.gov/government/city-operations/planning/community-development/

CITY OF DOVER

PLANNING BOARD - STAFF MEMO FILE #COND-2024-0034

Application Type:	Conditional Use Permit
Applicant(s):	DBS Holdings, LLC
Owner(s):	DBS Holdings, LLC
Location:	512 Sixth Street (Assessor's Map B, Lot 2)
Meeting Date:	April 8, 2025

INTENT: Proposal is to construct a drainage and stormwater management system, with associated grading improvements, to support the construction of five (5) single-family dwellings resulting in approx. 2,926 s.f. of wetland buffer impacts.

AGENDA ITEM #: 4-B

FILE: COND-2024-0034

APPLICANT: DBS Holdings, LLC

OWNER: DBS Holdings, LLC

LOTS/UNITS PROPOSED: Five (5) units total (including three (3) TDR units)

ACREAGE: 1.87± acres

ZONING DISTRICT: R-40

EXISTING USE: Residential

PROPOSED USE: Residential

SURROUNDING USE: Residential

ZBA ACTION: N/A

PERMITS: City of Dover Conditional Use Permit for wetland buffer impacts.

WAIVERS REQUESTED: §157-32J: request for relief due to dead-end street proposed as less than 500 feet.

APPLICATION IS COMPLETE: Yes

REGIONAL IMPACT: No

NOTICES SENT: Abutter notices were sent by certified mail to all abutters.

TRC: 12/19/2024

CONSERVATION COMMISSION: Endorsed on March 10, 2025.

ATTACHMENTS: CUP Application, Narrative

Summary of Request and Background:
The applicant is proposing the construction of five (5) new single-family dwellings on the property which utilizes the TDR program through the Zoning Ordinance (SITE-2024-0018). The scope of the project necessitates impact to approximately 2,926 s.f. of wetland buffer in order to grade the site properly. Per the applicant's application narrative, "the impact of this design of this project has been minimized to the greatest extent possible, with no building or pavement located within the buffers, impacting them only for grading purposes. During and following construction activity, care will be taken to restore any disturbed grading as much as practicable to its original state within the buffer."

The Technical Review Committee reviewed the application at their December 19, 2024 meeting. *(minutes attached)*

The Conservation Commission reviewed and endorsed the application at their March 10, 2025 meeting. *(minutes attached)*

Consistency with Land Use Regulations – CUP 170-28.F
The Wetlands Protection District ordinance §170-28.F provides for Conditional Use Permits to allow impacts to the Wetlands Protection District if standards related to demonstration that no practicable alternative is available, impact avoidance was considered, impacts were minimized, mitigation has been sought, and approval of the wetlands impact from NHDES Wetlands Bureau has been granted.

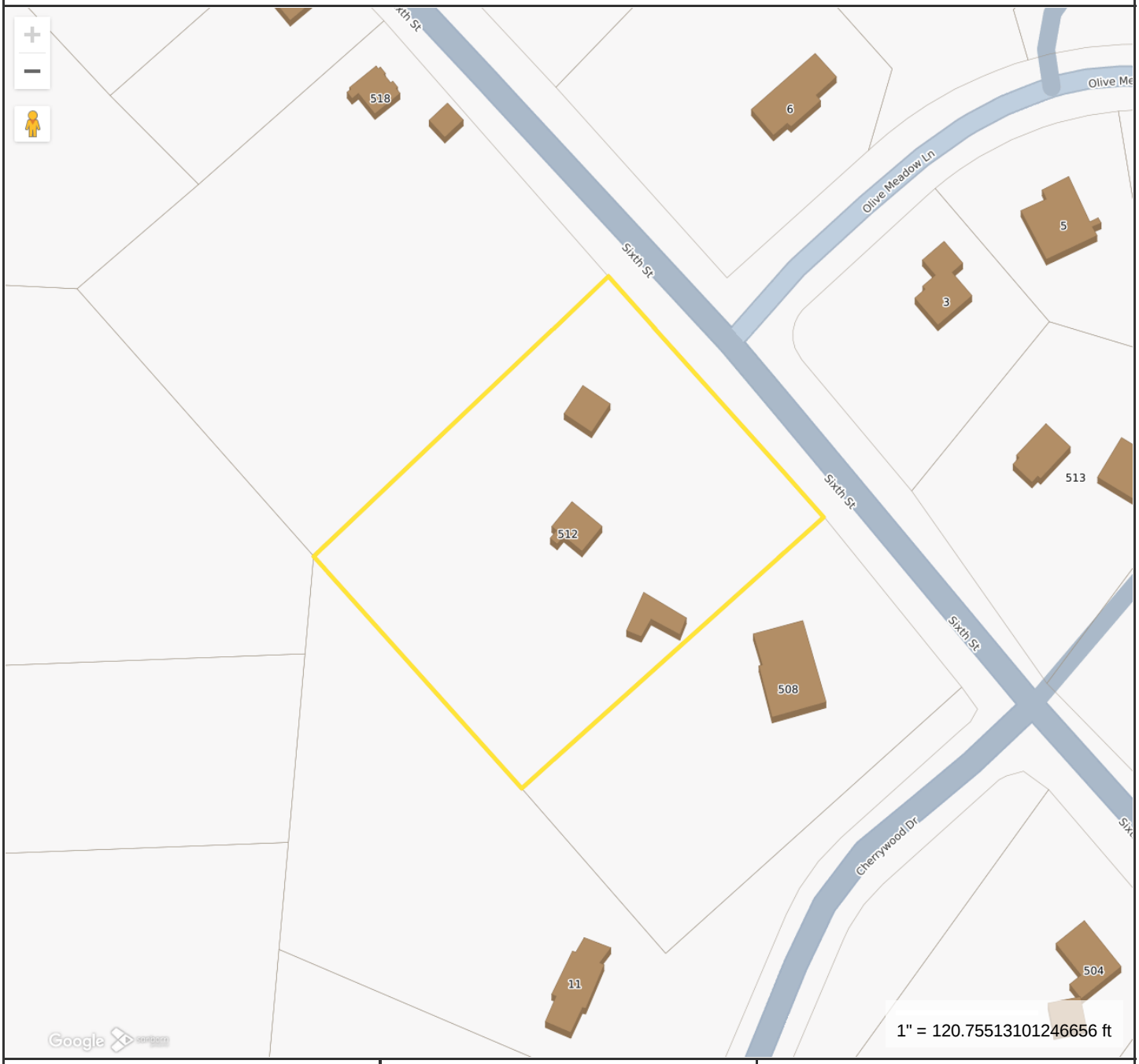
Planning Staff feels that the applicant considered and met all of the criteria as specified in §170-28.F per their narrative. The applicant sufficiently explained the nature of the disturbance (grading-only) to areas contained within the wetland buffer only (and not due to the extra density), with delineated wetlands remaining untouched. The proposal has been reviewed and endorsed by the Conservation Commission, though the proposed project does not require state mitigation and the applicant does not require approvals from the NHDES Wetlands Bureau.

STAFF RECOMMENDATION:
The Planning Department recommends that the Planning Board vote to accept the application and determine it not to have regional impact, open a public hearing, close the public hearing, make the necessary and supporting findings of fact, and vote to approve the site plan with the following subsequent conditions:

Subsequent Conditions to Be Met Prior to Issuance of a Conditional Use Permit:

1. Approval of SITE-2024-0018.

COND-2024-0034 512 SIXTH STREET



Property Information

Location	512 SIXTH ST
Owner	DBS HOLDINGS LLC
Land Use	101R
Zoning Code	R-40
Property Id	B0002-000000

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Dover, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 10/30/2023
Data updated Daily

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

PERMIT SNAPSHOT REPORT COND-2024-0034
FOR CITY OF DOVER, N.H.

Permit Type	Conditional Use	**Project:**		**App Date:**	11/21/2024
Work Class:	Environmental	**District:**	None	**Exp Date:**	NOT AVAILABLE
Status:	In Review	**Square Feet:**	0.00	**Completed:**	NOT COMPLETED
Valuation:	$0.00	**Assigned To:**	Blonigen, Rachel	**Approval Expire Date:**	

Description: To allow grading within wetland buffers. No wetlands will be disturbed.

Parcel: B0002-000000 Main	**Address:** 512 Sixth St Main Dover, NH	**Zone:** R-40(Residential - Rural)

Applicant
McEneaney Survey Associates
P.O. Box 1166
DOVER, NH 03821
Business: (603) 742-0911

Plan Preparer
Stephen J. Haight, PE
Business: (603) 749-0443

Owner
David Sullivan
Mobile: (603) 817-1206

Permit Custom Fields

Select Permit Type	Wetland Protection District	General Purpose	New Construction	Project Zone	Residential
What is the parcel zoned?	R-40	New Change in Impervious/Paved Area (sq ft)	7738	Work	To allow grading associated with proposed units within wetland buffers. No buildings or pavement will be within the buffers.

permitstatefed

Attachment File Name	Added On	Added By	Attachment Group	Notes
Signature_Kevin_McEneaney_11/21/2024.jpg	11/21/2024 12:12	McEneaney, Kevin		Uploaded via CSS
Permit Snapshot Report.pdf	11/21/2024 12:12	Service, EnerGov		Attached by IO - ATTACH: Initial Permit Snapshot

Invoice No.	Fee	Fee Amount	Amount Paid
INV-2025011605	Planning General Application Fee	$200.00	$0.00
	Total for Invoice INV-2025011605	**$200.00**	**$0.00**
	Grand Total for Permit	**$200.00**	**$0.00**

Submittal Name	Status	Received Date	Due Date	Complete Date	Resubmit	Completed
Conditional Use Review v.1	Approved	02/28/2025	04/14/2025	03/17/2025	No	Yes

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Planning	Planning	Bassegio, Erin	Approved	03/17/2025	03/28/2025	03/17/2025

Workflow Step / Action Name	Action Type	Start Date	End Date
Review v.1		03/17/2025 17:04	03/17/2025 17:05
Confirm application complete v.1	Generic Action		03/17/2025 17:05
Conditional Use Review v.1	Receive Submittal	03/17/2025 0:00	03/17/2025 17:05
Planning Board v.1		03/17/2025 17:05	
Planning Board Agenda v.1	Task	03/17/2025 17:05	
Invoice for Notices v.1	Task		
Send Notices v.1	Task		
Planner Creates Staff Recommendations v.1	Permit Activity		
Distribute Planning Board Materials v.1	Task		

Planning Board Hearing v.1	Hold Hearing
Planning Board Decision v.1	Permit Activity
NOD Sent to Applicant v.1	Create Report
Issue Permit v.1	
Verify Fees Prior to Permit v.1	Generic Action
Issue and Review Permit v.1	Generic Action
Print and Email Permit v.1	Generic Action
Plans uploaded to Treeno v.1	Generic Action
Internal Notification of Plan Completion v.1	Generic Action
Recording v.1	Task

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: DBS Holdings, LLC Telephone # 603-817-1206

Address of Applicant: 71 Danielle Lane Dover, NH 03820

E-Mail Address: dbsholdingsllc@gmail.com

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

Address of Property Owner:

PROPERTY INFORMATION

Assessor's Map # B Lot(s) # 2

Address of Property: 512 Sixth Street

Zoning District(s) R-40 Overlay District(s) N/A

Existing Use of Property: Residential - Single Family

CONDITIONAL USE PERMIT INFORMATION

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

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

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

The project proposes 2,926.2 SF of wetland buffer impacts for grading, stormwater conveyance, and a portion of a stormwater treatment best management practice (infiltration basin) in support of the construction of 5 single family unit residences. The project does not propose wetland impacts and there are no structures or pavement in the proposed buffer impacts.

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 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

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: 11/212024

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

Signature of Agent: _____ Date: _____

AUTHORIZATION TO ENTER SUBJECT PROPERTY

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

Signature of Property Owner: _____ Date: 11/212024

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
B	2	DBS Holdings, LLC	71 Danielle Lane Dover, NH 03820

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

DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820

November 19, 2024

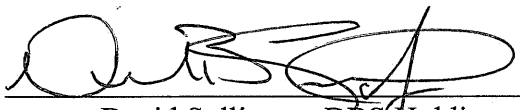
City of Dover
288 Central Avenue
Dover, NH 03820

Attn: Planning Board

Re: LETTER OF OWNER AUTHORIZATION
512 Sixth Street – Tax Map B, Lot 2

I, David Sullivan, Member of DBS Holdings, LLC, authorize Civilworks New England and McEneaney Survey Associates to represent all applications made on my behalf as (OWNER) to the City of Dover Planning Board and any other Dover Board or Committee, as well as any State of NH departments, as necessary, relative to the pursuit of approvals and permits for the development of the subject parcel.

Sincerely,



David Sullivan – DBS Holdings, LLC

COND-2025-0034 **512 SIXTH ST**

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip
A0045-001000	6 OLIVE MEADOW LN	ROBINSON WILLIAM & MODOONO JILLIAN TTS	ROBINSON FAMILY REVOCABLE TRUST 2024	6 OLIVE MEADOW LN	DOVER	NH	03820
A0045-A00001	519 SIXTH ST	RIEL JAMES E &	RIEL SAMANTHA S	519 SIXTH ST	DOVER	NH	03820
A0046-000000	513 SIXTH ST	RICHARD CODY M		513 SIXTH ST	DOVER	NH	03820
A045A-002009	3 OLIVE MEADOW LN	THOMPSEN DAVID P &	THOMPSEN LINDA M	3 OLIVE MEADOW LN	DOVER	NH	03820
B0002-C00000	508 SIXTH ST	DURELL KENETH C & DONNA M CO-TRUSTEES	DURELL FAMILY REVOCABLE TRUST OF 2018	508 SIXTH ST	DOVER	NH	03820
B0003-000000	518 SIXTH ST	CORLEY J TODD &	CORLEY DENISE M	518 SIXTH STREET	DOVER	NH	03820
B0004-060000	59 COTTONWOOD DR	DOWNS NATHAN A &	DOWNS ELIZABETH A	59 COTTONWOOD DR	DOVER	NH	03820
B0004-061000	53 COTTONWOOD DR	BARTER ANDREW P	MCADAMS KATHLEEN	53 COTTONWOOD DR	DOVER	NH	03820
B0004-062000	47 COTTONWOOD DR	BOURQUE KEVIN R & LAURA K TRUSTEES	LK EAGLE ANCESTRAL GRANTOR TRUST	47 COTTONWOOD DR	DOVER	NH	03820
B0004-068000	19 CHERRYWOOD DR	TABOR FAMILY REVOCABLE TRUST	TABOR KEITH E AND CAROL T	19 CHERRYWOOD DR	DOVER	NH	03820
B0004-069000	11 CHERRYWOOD DR	SUYDAM ROBERT L &	SUYDAM JO ANN	11 CHERRYWOOD DR	DOVER	NH	03820
B0002-000000	512 SIXTH ST	DBS HOLDINGS LLC		71 DANIELLE LANE	DOVER	NH	03820
		CIVILWORKS NEW ENGLAND	STEPHEN J. HAIGHT, PE	P.O. BOX 1166	DOVER	NH	03820
		MCENEANEY SURVEY ASSOCIATES	KEVIN MCENEANEY, LLS	P.O. BOX 1166	DOVER	NH	03820

CONDITIONAL USE PERMIT NARRATIVE
§170-27
DOVER CONSERVATION DISTRICT
for
DBS Holdings, LLC
512 Sixth Street
Tax Map B, Lot 2

C. Conditional Use Permits

(2) The undertaking of a use not otherwise permitted in the Conservation District, which may include the erection of a structure, dredging, filling, draining or otherwise altering the surface configuration of the land, provided that:

(d) A written review by the Conservation Commission of the environmental effects of the proposed use upon the area in question has been submitted. The Commission's review shall address the following, but is not limited to:

(1) Attempted avoidance of the impact:

There are no wetland impacts or disturbances proposed as part of this project. Every attempt was made to avoid disturbance of the wetland buffers. The building, road, and utility locations were situated such that they are not located in the wetland buffers. Wetland buffer impacts include fill grading for utilization of areas outside of the buffer, ditching to redirect stormwater runoff from Sixth St. to bypass developed areas and houses, and a portion of a stormwater infiltration basin that has been designed to treat and infiltrate stormwater from the proposed development.

(2) Minimization of the impacts:

The initial site design resulted in a proposed 6,231.8 SF of impact to the wetland buffer. Alternative designs were evaluated and the design that provided the least amount of impact area, 2,926.2 SF, was utilized. The design with the least disturbance decreases the proposed impact by 53% of the initial project layout. The proposed design decreases not only the area of impact but also maximizes the length of buffer retained in each location where impacts are required. The minimum buffer lengths provided are 40.4', 31.1', 44.0', 23.1', and 36.0' for buffer impact areas A – E, respectively.

(3) Planned mitigation of the effects of the impact:

The existing site is developed with 2 residential units, numerous detached sheds, a paved driveway and a gravel driveway. The buffers are currently acting as stormwater treatment for these impervious areas. The proposed condition treats all pavement and roof runoff through stormwater best management practices designed in accordance with NH DES AoT standards prior to discharging the stormwater through the wetland buffers. The site proposes temporary sediment and erosion control while the

impact areas that are disturbed will be stabilized and planted to minimize erosion runoff.

(4) Efficacy of the soil erosion and sedimentation control plan:
The area of the disturbance to the Dover Conservation District will be regraded, loamed and seeded.

CITY OF DOVER

DOVER CONSERVATION COMMISSION – MINUTES

Meeting Type:	Regular Meeting
Meeting Location:	City Council Conference Room - 288 Central Avenue, Dover, NH
Meeting Date:	Monday March 10, 2025
Meeting Time:	**5:30 pm**

MEMBERS PRESENT: Bill Hunt (Chair), Abigail Lyon, Russ Warnock (Alternate), Kristen Murphy, Brianna Group
Absent (Excused): Robert Atwood (Secretary) Steve Fellows (Vice Chair)
Absent (Unexcused): Jake Geddes
STAFF PRESENT: Makayla Edgecomb (Conservation Planner) Donna Benton (Planning Director) Chris Parker (Deputy City Manager)
OTHERS PRESENT:

1. **CALL TO ORDER AND ROLL CALL**
   The meeting was convened at 5:30 PM.

2. **CITIZENS' FORUM**
   None

3. **APPROVAL OF THE PRIOR MEETING MINUTES-** FEBRUARY 10, 2025

K. Murphy moved to approve the minutes of February 10th as submitted. A. Lyon seconded. Vote: U/A

4. **OLD BUSINESS:**
   None

5. **NEW BUSINESS**

   A. City of Dover Conditional Use Permit for DBS Holdings, LLC, Assessor's Map B, Lot 2, zoned R-40, located at 512 Sixth Street. Proposal is to construct an infiltration basin, stormwater conveyance, and grading improvements to support the development of five (5) single-family dwellings resulting in approx. 2,926 s.f. of wetland buffer impacts, there are no direct wetland impacts. *(Three (3) units previously approved by Planning Board through TDR: TRAN-2024-0006)*

Joe Griffin presented the item on behalf of DBS Holdings LLC. He described the lot as exists and the proposal to demolish all existing structures and add five single-family dwellings. He described the utilities, driveway, stormwater and impact details.

He answered questions from the committee members with additional details about the project.
Staff answered some questions about HOA maintenance enforcement.

A. Lyon moved to endorse the CUP as presented. Motion was seconded. Vote: All in favor with 0 opposed.

6. **REPORT FROM THE CHAIR**
   a. Review of Correspondence Received from NH Department of Environmental Services
None

7. **OTHER BUSINESS**
   A. Update from Forest Management Subcommittee
   - RFP criteria for landscape architecture plan for ash trees for CBD
   - Students from Great Bay Community College attended latest meeting

   B. **Purchase of Parcel, and Proposed Conservation Land**

DRAFT

C. Parker presented this item and explained the details and reason for request for purchase of land with Conservation Commission endorsement. Conservation Funds will not be used.

It was moved and seconded to endorse the purchase of the described parcel for future conservation land. Vote: U/A

C. Conservation Fund Request for Staff Administration Costs

D. Benton explained the request for additional funds required to supplement the request made and approved at the last meeting for staff administration costs.

A. Lyon moved to endorse the fund request of $120,000, replacing the previously endorsed $110,000 for the budget year. Seconded by: R. Warnock. Vote: All in favor with 0 opposed.

8. ADJOURNMENT

It was moved and seconded to adjourn. Vote: U/A
The meeting was adjourned at 6:00 PM.

DRAFT

LOCATION PLAN
(NO SCALE)

TBM
SPIKE IN
UTILITY POLE
ELEV. = 186.58

TBM
SPIKE IN
UTILITY POLE
ELEV. = 182.09

PROPOSED IMPACT AREA

IMPACT AREA	SQUARE FEET
A	452.5
B	811.0
C	222.8
D	754.5
E	3,991
TOTAL	6,231.8

PROPOSED IMPACT AREA A=452.5 S.F.
PROPOSED IMPACT AREA B=811 S.F.
PROPOSED IMPACT AREA C=222.8 S.F.
PROPOSED IMPACT AREA D=754.5 S.F.
PROPOSED IMPACT AREA E=3,991 S.F.
PROPOSED EROSION CONTROL BARRIER
PROPOSED CONSTRUCTION ENTRANCE
PROPOSED SILTSACK
PROPOSED CHECK DAMS (TYP)
2 STORY HOUSE 1,290 S.F. FOOTPRINT ①
2 STORY HOUSE 1,290 S.F. FOOTPRINT ②
2 STORY HOUSE 1,290 S.F. FOOTPRINT ③
2 STORY HOUSE 1,290 S.F. FOOTPRINT ④
2 STORY HOUSE 1,290 S.F. FOOTPRINT ⑤
50' WETLAND BUFFER
WETLAND BUFFER PLACARDS TO BE PLACED EVERY 50' ALONG BUFFER/LINE (TYP.)
30' EXTERIOR NO CUT BUFFER (TYP.)
BUILDING SETBACK LINE (TYP.)
OPEN SPACE LINE (TYP.)
20' ABUT A ROAD SETBACK
EDGE OF PAVEMENT (TYP)
18" RCP INV. = 175.7'
18" RCP
18" RCP INV. = 176.7'
I.R.(fnd)
I.R.(tbs)
WOODEN STOCKADE FENCE
PRG
Cd

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)

PLANNING FILE NO.: SITE-2024-

IMPACT & EROSION CONTROL PLAN

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

8

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: 11-21-24
SCALE: 1"=20'
DRAWN BY: SRD
DESIGN BY: JFG
APPROVED BY:SJH
PROJECT NO: 24094
FILE: SITE.DWG

CITY OF DOVER

PLANNING BOARD - STAFF MEMO FILE #SITE-2024-0018

Application Type:	Site Plan
Applicant(s):	DBS Holdings, LLC
Owner(s):	DBS Holdings, LLC
Location:	512 Sixth Street (Assessor's Map B, Lot 2)
Meeting Date:	April 8, 2025

INTENT: Proposal is to build five (5) single-family dwellings. This proposal includes three (3) units that were previously approved through Transfer of Development Rights (TDR).

AGENDA ITEM #: 4-C

FILE: SITE-2024-0018

APPLICANT: DBS Holdings, LLC

OWNER: DBS Holdings, LLC

LOTS/UNITS PROPOSED: Five (5) units total (including three (3) TDR units)

ACREAGE: 1.87± acres

ZONING DISTRICT: R-40

EXISTING USE: Residential

PROPOSED USE: Residential

SURROUNDING USE: Residential

ZBA ACTION: N/A

PERMITS: City of Dover Conditional Use Permit for wetland buffer impacts.

WAIVERS REQUESTED: §157-32J: request for relief due to dead-end street proposed as less than 500 feet.

APPLICATION IS COMPLETE: Yes

REGIONAL IMPACT: No

NOTICES SENT: Abutter notices were sent by certified mail to all abutters.

TRC: 12/19/2024

CONSERVATION COMMISSION: Endorsed on March 10, 2025.

ATTACHMENTS: Site Plan, Application Materials.

Summary of Request and Background:
The applicant is proposing to construct five new single-family dwellings on the subject property at 512 Sixth St., Assessor's Map B, Lot 2. The proposed structures will be served by municipal water and sewer and be accessed by a shared driveway.

Three of the units being proposed were approved by the Planning Board through Transfer of Development Rights on June 11, 2024 (TRAN-2024-0006). It was determined that a manufactured home was originally on site and then in the 1970s, a single-family dwelling was built. The current Zoning Ordinance would allow for that single-family dwelling to be converted into a two-family dwelling. With this information, two units were calculated as allowable by right on the subject parcel.

The applicant proposes impact to approximately 2,926 square feet of wetland buffer for necessary site grading and stormwater conveyance. The applicant has also applied for a related City of Dover Conditional Use Permit for the proposed wetland buffer impacts. (COND-2024-0034)

The Technical Review Committee reviewed the application at their December 19, 2024 meeting. *(minutes attached)*

The Conservation Commission reviewed and endorsed the application at their March 10, 2025 meeting. *(minutes attached)*

Summary of Waiver Request:
The applicant is seeking one (1) waiver as part of this proposal. They include the following:

1. §157-32J: request for relief due to dead-end street proposed as less than 500 feet.

The applicant asserts that the private shared driveway, which is 218 feet long from Sixth Street to the last unit driveway, ensures safe access to all five proposed units. Due to parcel limitations, including depth, topography, and Conservation District wetland buffer setbacks, the applicant notes that a 500-foot driveway is not feasible for the site.

Consistency with Land Use Regulations –Waivers/Relief
§153-21 of the Site Plan Review Regulations state the "Planning Board may waive specific provisions of these regulations. The Planning Board may only grant a waiver if the Planning Board finds, by majority vote, that:

(1) Strict conformity would pose an unnecessary hardship to the applicant and the waiver would not be contrary to the spirit and intent of the regulations; or
(2) Specific circumstances relative to the subdivision, or conditions of the land in such site plan, indicate that the waiver will properly carry out the spirit and intent of the regulations."

Planning Staff believes the applicant's rational for the waivers meets criterion (1) and waiving such standards and requirements is not contrary to the spirit or intent of the ordinance.

See reverse →

CITY OF DOVER

PLANNING BOARD - STAFF MEMO FILE #SITE-2024-0018

Application Type:	Conditional Use Permit
Applicant(s):	DBS Holdings, LLC
Owner(s):	DBS Holdings, LLC
Location:	512 Sixth Street (Assessor's Map B, Lot 2)
Meeting Date:	April 8, 2025

STAFF RECOMMENDATION - Waivers/Relief:
The Planning Department recommends that the Planning Board accept the applications as complete, note they are not of regional impact, hold a public hearing, make the necessary and supporting findings of fact, and vote to grant the waiver with the following subsequent condition:

Subsequent Condition to be Met Prior to the Signing of the Plans:
1. Add a note that the Planning Board found the criteria of Chapter 153-21 have been met and the Board approved the following waivers:
   §157-32J: Dead-end streets shall not be less than 500 feet.

Consistency with Land Use Regulations – Site Plan
§153-4 of the Site Review Regulations of the City Code provides for site review by the Planning Board of new construction of various types. This plan is consistent with those regulations.

STAFF RECOMMENDATION:
The Planning Department recommends that the Planning Board makes the necessary and supporting findings of fact, and vote to approve the site plan with the following subsequent conditions:

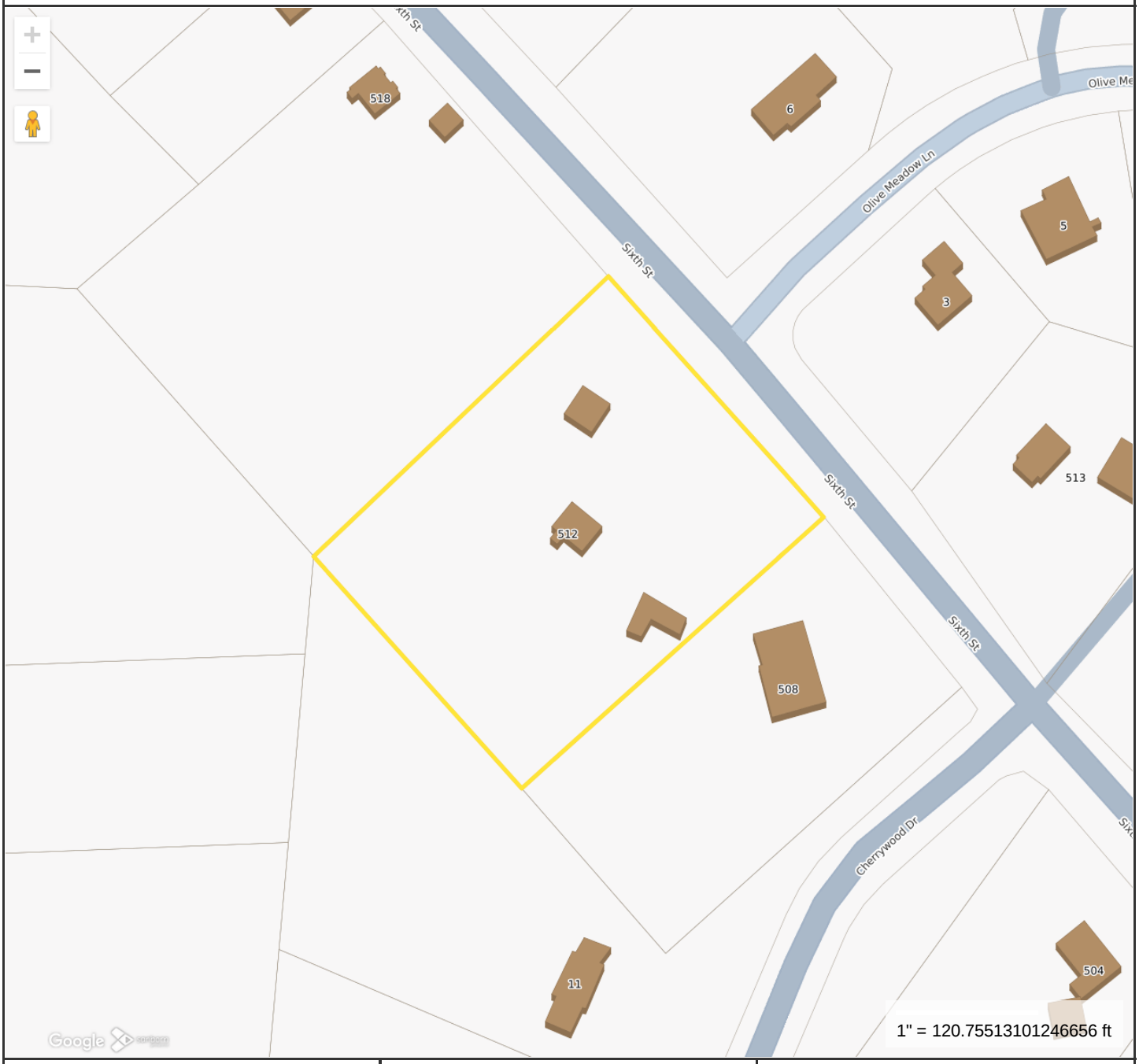
Subsequent Conditions to be Met Prior to Signing of Plans:
1. Approval of COND-2024-0034;
2. HOA documents including reserve calculation are reviewed and approved by the Director of Planning and Community Development with consultation by the City Attorney and City Engineer.
3. Provide physical and digital copies (including CAD) of complete plan set for final Planning Board signature which additionally shall include:
   3.1. Owner's signatures;
   3.2. Professional stamps and signatures;
   3.3. Include private road name as approved by the Building Official;

Subsequent Condition to Be Met Prior to Construction:
3. City's standard site construction sign with the contact information for the general contractor must be displayed in a location approved by the City Engineer or Planning Director;
4. Wetland buffer placards are installed.

Subsequent Conditions to Be Met Prior to Building Permit:
5. Payment of Water and Sewer Investment Fees if applicable at time of request of service;

Subsequent Conditions to Be Met Prior to Occupancy:
6. Issuance of Certificate of Occupancy;
7. Surety or other form of security acceptable to the City is provided for any unfinished work;
8. Wetland buffer placards are still in place or replaced per the plan;
9. Design engineer to submit a construction certification letter to the City ensuring construction was completed in accordance with the plans and specifications approved by the City of Dover.
10. Design engineer meets with homeowners regarding maintenance required and buffer expectations.

SITE-2024-0018 512 SIXTH STREET



Property Information

Location	512 SIXTH ST
Owner	DBS HOLDINGS LLC
Land Use	101R
Zoning Code	R-40
Property Id	B0002-000000

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Dover, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 10/30/2023
Data updated Daily

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

PLAN SNAPSHOT REPORT SITE-2024-0018
FOR CITY OF DOVER, N.H.

Plan Type:	Site Plan - Major	**Project:**		**App Date:**	11/21/2024
Work Class:	New Construction	**District:**	None	**Exp Date:**	01/25/2025
Status:	Fees Due	**Square Feet:**	0.00	**Completed:**	NOT COMPLETED
Valuation:	$0.00	**Assigned To:**		**Approval Expire Date:**	
Description:	TDR 5-Unit Residential Development				

Parcel:	B0002-000000 Main	**Address:**	512 Sixth St Dover, NH Main	**Zone:**	

Applicant
McEneaney Survey Associates
P.O. Box 1166
DOVER, NH 03821
Business: (603) 742-0911

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

Owner
David B Sullivan
71 Danielle Lane
Dover, NH 03820
Business: (603) 817-1511

Surveyor
McEneaney Survey Associates
P.O. Box 1166
DOVER, NH 03821
Business: (603) 742-0911

Soil Scientist
Damon Burt
38 garland road
Strafford, NH 03884
Home: (603) 969-5574
Business: (603) 969-5574
Mobile: (603) 969-5574

Plan Custom Fields

Total	0	Total2	0	Total3	8647
Total4	0	Total5	0	Total6	5
Total7	0	Total8	0	Total9	0
Street Classification Type	Municipal	Net Change in # Parking Spaces (+/-)	10	Water Service	Municipal
Recording Number		Sewer Service	Municipal	Total Acres (GIS)	1.87
Deed Book	5155	Total SQFT	81457.2	Deed Page	367
Deed Date		Proposed Property Use	Residential Single Family	Area of Parcel to be Developed (SQFT)	42000
Number of Parking Spaces Existing	0	Number of Parking Spaces Proposed	10	Distance to City Water	50
Distance to City Sewer	50	Type of Building to be Built	Wood Frame Residential Homes with Attached Garages	Estimated Construction Value	0.00
Refuse Removal	Private	Is there an existing Conservation Easement?	No	Existing Conservation Easement Details	
TotalImpactFeeSDTOD	0.00	TotalImpactFeeTHTOD	0.00	TotalImpactFee23FTOD	0.00
TotalImpactFeeA4TOD	0.00	TotalImpactFeeMHTOD	0.00	TotalImpactFeeADUTOD	0.00
TotalImpactFeeAONRTOD	0.00	TotalImpactFeeAR55TOD	0.00	TotalImpactFeeAR62TOD	0.00
Sub Total Residential	0.00	TotalImpactFeeRIRCTOD	0.00	TotalImpactFeeOCSTOD	0.00
TotalImpactFeeITWCTOD	0.00	TotalImpactFeeNHALTOD	0.00	TotalImpactFeeOIUTOD	0.00
TotalImpactFeeAFAOTOD	0.00	Sub Total Non-Residential	0.00	Total of Impact Fees to be Assessed	0.00

PLAN SNAPSHOT REPORT (SITE-2024-0018)

Attachment File Name	Added On	Added By	Attachment Group	Notes
Signature_Kevin_McEneaney_11/21/2024.jpg	11/21/2024 12:03	McEneaney, Kevin		Uploaded via CSS
2024.12.19_PlanningTechnicalReviewCommittee.Agenda.pdf	12/03/2024 14:48	Blonigen, Rachel		TRC Agenda
2024.12.19_PlanningTechnicalReviewCommittee.512 Sixth_SITE-2024-0018.pdf	01/16/2025 10:20	Blonigen, Rachel		Final TRC Minutes

Invoice No.	Fee	Fee Amount	Amount Paid
INV-00010076	Planning General Application Fee	$200.00	$0.00
	Total for Invoice INV-00010076	$200.00	$0.00
INV-00010081	Planning Residential Fee	$500.00	$0.00
	Total for Invoice INV-00010081	$500.00	$0.00
INV-2025011604	Planning Impervious Paved Area Fee	$605.29	$0.00
	Total for Invoice INV-2025011604	$605.29	$0.00
	Grand Total for Plan	**$1,305.29**	**$0.00**

Meeting Type	Location	Scheduled Date	Subject
Technical Review Committee Meeting v.1	City Hall, Second Floor Conference Room	12/19/2024	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	12/03/2024	12/11/2024	12/20/2024	Yes	Yes

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Business Development	Business Development	Burdin, James	Requires Re-submit	12/03/2024	12/31/2024	12/20/2024

Comments: TDR units were previously approved, and overall layout and design appears to be generally reasonable. No further comments/concerns.

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
City Engineer	Community Services - Engineering	Mavrogeorge, Kenneth	Requires Re-submit	12/03/2024	12/11/2024	12/20/2024

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Planning	Planning	Bassegio, Erin	Requires Re-submit	12/03/2024	12/31/2024	12/20/2024

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Zoning Administrator	Planning	Crouser, Paul	Requires Re-submit	12/03/2024	12/11/2024	12/20/2024

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
IS Building Official	Planning / Inspection Services	Maxfield, Jim	Requires Re-submit	12/03/2024	12/11/2024	12/19/2024

Comments: 1) Provide a proposed street name for review and approval to place on revised plans.
2) Roadways of 20' would not permit parking on either side. Provide Fire Lane No Parking signage on both sides of street.
3) Provide sign detail on detail sheet

Item Review Name	Department	Assigned User	Status	Assigned Date	Due Date	Completed Date
Traffic Coordinator	Police	Speidel, Marn	Requires Re-submit	12/03/2024	12/11/2024	12/20/2024

Workflow Step / Action Name	Action Type	Start Date	End Date
Review v.1		12/03/2024 14:27	
Confirm application complete v.1	Generic Action		12/03/2024 14:27
Technical Review Committee Meeting Agenda v.1	Task	12/03/2024 14:27	12/03/2024 14:27
Land Use Plan Technical Review v.1	Receive Submittal	12/03/2024 0:00	12/20/2024 13:32
Land Use Plan Technical Review v.2	Receive Submittal	12/20/2024 0:00	
Technical Review Committee Meeting v.1	Hold Meeting	12/03/2024 16:01	12/20/2024 13:32

PLAN SNAPSHOT REPORT (SITE-2024-0018)

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

City of Dover, New Hampshire
SITE REVIEW APPLICATION

[Revision Date: July 1, 2021]

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

APPLICANT AND OWNER INFORMATION

Name of Applicant: DBS Holdings, LLC Telephone # 603-817-1206

Address of Applicant: 71 Danielle Lane Dover, NH 03820

E-Mail Address: dbsholdingsllc@gmail.com

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

Address of Property Owner: _____

PROPERTY INFORMATION

Address of Property: 512 Sixth Street

Assessor's Map # B Lot(s) # 2

Zoning District(s) R-40 Overlay District(s) N/A

Size of Parcel: 81,270 sq. ft. 1.87 ac. Property Deed: Book 5155 Page: 367

Existing Use of Property: Single Family Residential

SITE PLAN INFORMATION

Describe Proposed Use: TDR Residential - 5 Single Family Units

Area of Parcel to be Developed: 34,100± sq. ft.

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

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

Number of Parking Spaces: Existing 0 Proposed 10

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

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

Disposition of Parcel:

Building Footprint 1290 (x5) sq. ft.

Total Building Area 6450 sq. ft.

Paved Area 8647 sq. ft.

Building Setbacks:

Front Yard 40 ft.

Rear Yard 30 ft.

Side Yard: Right 25 ft. Left 25 ft.

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

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

TRANSFER OF DEVELOPMENT RIGHTS INFORMATION

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

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

Relief sought (Check All That Apply):

□ Lot Size □ Frontage □ Setback □ 30' Buffer X Increase by 3 units

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

To increase number of units allowed by 3 (2 units by rights, 3 units to purchase)

See attached TDR Notice of Decision.

BUILDING INFORMATION

Type of Building to be Built: Typical wood frame construction.

Height of Building: 30± Finished Floor Elevation: 185'±

Number of Seats (where applicable) N/A

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

WAIVER REQUESTS

Site Review Regulations section(s) to be waived: Article IV, Section 157-32(J) - Length of Road

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

The proposed project is designed with a 30 -foot no cut perimeter buffer, and will maintain existing vegetation within this area.

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) Kevin McEneaney - 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.) N/A

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

LANDSCAPE ARCHITECT INFORMATION

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

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

SOIL SCIENTIST INFORMATION

Name of Soil Scientist and Company (Licensed in N.H.) Damon E. Burt, CWS

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

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

CONSERVATION EASEMENT HOLDER

Name of Easement Holder: N/A Telephone #_____

Address Easement Holder: _____

SIGNATURES

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

Signature of Property Owner: _____ Date: 3/12/2025

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

Signature of Agent: _____ Date: _____

AUTHORIZATION TO ENTER SUBJECT PROPERTY

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

Signature of Property Owner: _____ Date: 3/12/2025

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: 3/12/2025

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: 3/12/2025

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
B	2	DBS Holdings, LLC	71 Danielle Lane Dover, NH 03820

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS

Surveyor and/or Engineer/Professional Agent:

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

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

City of Dover, New Hampshire
SITE PLAN REVIEW SUBMISSION CHECKLIST

[Revision Date: June 4, 2019]

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

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

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

The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all site plan review requirements. Please refer to the Site Plan Review Regulations for full details.

APPLICANT: DBS Holdings, LLC File Number: _____

PROJECT TITLE: TDR 5-Unit Residential Development

PROPERTY LOCATION: 512 Sixth Street Tax Map: B Lot: 2

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

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

REVIEWED BY: _____ DATE_____ TRC DATE_____

SITE-2024-0018 **512 SIXTH STREET**

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip
A0045-001000	6 OLIVE MEADOW LN	ROBINSON WILLIAM & MODOONO JILLIAN TTS	ROBINSON FAMILY REVOCABLE TRUST 2024	6 OLIVE MEADOW LN	DOVER	NH	03820
A0045-A00001	519 SIXTH ST	RIEL JAMES E &	RIEL SAMANTHA S	519 SIXTH ST	DOVER	NH	03820
A0046-000000	513 SIXTH ST	RICHARD CODY M		513 SIXTH ST	DOVER	NH	03820
A045A-002009	3 OLIVE MEADOW LN	THOMPSEN DAVID P &	THOMPSEN LINDA M	3 OLIVE MEADOW LN	DOVER	NH	03820
B0002-C00000	508 SIXTH ST	DURELL KENETH C & DONNA M CO-TRUSTEES	DURELL FAMILY REVOCABLE TRUST OF 2018	508 SIXTH ST	DOVER	NH	03820
B0003-000000	518 SIXTH ST	CORLEY J TODD &	CORLEY DENISE M	518 SIXTH STREET	DOVER	NH	03820
B0004-060000	59 COTTONWOOD DR	DOWNS NATHAN A &	DOWNS ELIZABETH A	59 COTTONWOOD DR	DOVER	NH	03820
B0004-061000	53 COTTONWOOD DR	BARTER ANDREW P	MCADAMS KATHLEEN	53 COTTONWOOD DR	DOVER	NH	03820
B0004-062000	47 COTTONWOOD DR	BOURQUE KEVIN R & LAURA K TRUSTEES	LK EAGLE ANCESTRAL GRANTOR TRUST	47 COTTONWOOD DR	DOVER	NH	03820
B0004-068000	19 CHERRYWOOD DR	TABOR FAMILY REVOCABLE TRUST	TABOR KEITH E AND CAROL T	19 CHERRYWOOD DR	DOVER	NH	03820
B0004-069000	11 CHERRYWOOD DR	SUYDAM ROBERT L &	SUYDAM JO ANN	11 CHERRYWOOD DR	DOVER	NH	03820
B0002-000000	512 SIXTH ST	DBS HOLDINGS LLC		71 DANIELLE LANE	DOVER	NH	03820
		MCENEANEY SURVEY ASSOCIATES	KEVIN MCENEANEY	P.O. BOX 1166	DOVER	NH	03820
		CIVILWORKS NEW ENGLAND	STEPHEN J. HAIGHT, PE	P.O. BOX 1166	DOVER	NH	03830

PROJECT NARRATIVE

for

DBS Holdings, LLC

TDR Site Plan Review

5-Unit Residential Development

Tax Map B, Lot 2

PROJECT OVERVIEW & SITE CHARACTERISTICS

The proposed project is for a TDR 5-unit residential development on a 1.87-acre parcel located at 512 Sixth Street in the Low Density Residential (R-40) District. The parcel abuts Alden Woods, a residential subdivision to the rear, and has 250 feet of frontage along Sixth Street. The parcel is currently developed as residential with two existing single-family homes, detached garage, shed, landscaped and lawn areas, with each unit having its own driveway. The proposed site design includes the removal of all existing structures for the construction of five (5) detached single family residential buildings, with one shared driveway access, grading and drainage, and public utilities improvements.

The density is approved per Transfer of Development Rights granted on June 11, 2024. Zoning for this parcel allows for two residential units by rights and the TDR approval granted approval for an increase of three additional residential units.

The project site consists of the following general improvements:

- Clear the site, as necessary, for construction.
- Demolition of existing structures.
- Construction of on-site stormwater detention and treatment system, grading, and other drainage requirements.
- Construction of five (5) residential buildings, associated parking, and landscaping.
- Site utility construction & installation.
- Stabilize remaining areas with loam and seed.

DRIVEWAY AND PARKING LOT

The proposed development is designed to eliminate the two existing driveways in favor of one 24-foot-wide shared driveway. Two parking spaces per unit are provided in front of each attached two car garages.

CONSERVATION AND WETLAND SETBACK IMPACT TYPE

The proposed site has been designed to avoid impacts to the wetlands and minimize wetland buffer impacts, however there will be a total of 2,926.2 s.f. of impact to the wetland buffer (see Conditional Use Permit application). The wetland buffer impacts will be utilized for grading, stormwater conveyance, and a portion of a stormwater treatment infiltration basin. No structures or paving is proposed within the wetland buffers.

DRAINAGE

The project proposes the construction of a 5-unit residential development, with associated shared access driveways, grading and drainage, and utility improvements. The proposed drainage system incorporates three (3) infiltration basins and a total of two (2) stone drip edges around one (1) of the buildings to treat and mitigate stormwater. The proposed stormwater system captures, treats, and stores the stormwater runoff from the site and redirects it to the existing discharge points. The proposed stormwater drainage structures will be maintained by the project proponent as outlined within the Stormwater Management document.

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 the existing City of Dover water and sewer lines that have been stubbed to the property line. Electric, gas, and communication services are also located along Sixth Street. Building and utility connections will be made per the City's Community Services Utility Division and Fire Department requirements and standards.

CITY OF DOVER

TECHNICAL REVIEW COMMITTEE MINUTES – SITE-2024-0018

Application Type:	Site Review
Applicant(s):	DBS Holdings LLC
Owner(s):	DBS Holdings LLC
Location:	512 Sixth St. (Assessor's Map B, Lot 2)
Date:	December 19, 2024

INTENT: Proposal is to build five (5) single-family dwellings that include three (3) units previously approved through TDR. (SITE-2024-0018)

(Related application regarding wetland buffer impacts, see: COND-2024-0034)

UNITS PROPOSED: 5 total units (3 units approved by TDR)

AGENDA ITEM #: 1

ACREAGE: ±1.87 acres

ZONING DISTRICT: R-40

EXISTING LAND USE: Residential

PROPOSED LAND USE: Residential

SURROUNDING LAND USE: Residential

ZBA ACTION: None.

PERMITS REQUIRED:
City of Dover CUP §170-28F, 50-foot wetland buffer impacts

WAIVERS REQUESTED:
§153-13.A (12) Landscape plan

ATTENDANCE:
Donna Benton, Planning
Paul Crouser, Zoning
Jim Maxfield, Inspection Services
Marn Speidel, Police Department
Ken Mavrogeorge, Engineering
Craig Chabot, Fire Department
James Burdin, Business Development
Tom Clark, Planning Board

Others:
Erin Bassegio, City Planner
Krystian Kozlowski, Assistant City Engineer
Joe Griffins, Civilworks NE
Dave Sullivan, Owner

Approval of minutes from December 5, 2024:
J.Burdin moved to approve the December 5, 2024 minutes. Seconded by K.Mavrogeorge. Vote: U/A.

PLAN REVIEW:
Planning:

- Reminder: Water and sewer investment fees
- Explain CUP requests and how they relate to the TDR request in terms of additional units granted.
- Waiver from §157-32J needed for private road length of less than 500'.
- Recommend reducing unit count to allow more usable backyards for residents and to get further away from the wetland buffers.
- Add buffer placards to plan.
- Waiver request noted for a landscape plan- could not find narrative.
- Lighting plan required- would need to be provided or a waiver request would need to be submitted.
- CUP request needed for proposed stormwater detention pond in wetland buffer.
- Snow storage is too close to stormwater detention pond and wetland buffer.
- What is the ownership structure? HOA/COA docs would need to be reviewed if applicable.
- Two trees being proposed for removal are in or partially in the City ROW.
- Will this be a private drive- have street names been considered?
- Transformer pad requires screening.
- Private drive/internal roadway is required to be 24' in width so waiver is required.
- Pave gravel turnaround as discussed at TRC
- City requires letters to serve, no need to submit the requests.

Engineering:

- General Comment:
  - 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/cit

y-operations/1form/community-services/engineering/engineering-documents/Construction%20Guidelines.pdf

- Provide landscape and lighting plans
- Show limits of repaving of Sixth St based on the proposed work within Sixth St. Repairs should extend across the full width of Sixth St. with the centerline being restored after paving.
- The City recommends that the applicant source out ductile iron piping, which is the City preferred material, in advance commencing construction.

- Existing Conditions Plan:
  - Show existing utilities to the site including all valves.
- Sheet 3:
  - Aerial image is blurry. Provide clearer image.
- Sheet 5:
  - Show limits of sawcut and pavement to be removed in Sixth Street.
  - Check spelling in plans. Multiple spelling errors noted including "conopy" rather than "canopy"
  - Please check references to proposed treelines as multiple notes appears to be pointing to lines that do not exist.
- Sheet 6:
  - Provide confirmation that USPS has approved the mailbox location.
  - Please align the proposed driveway and Olive Meadow Lane.
  - Provide street sign on the proposed stop sign. Please provide proposed names for private drive.
  - Comment on whether the 30 foot exterior buffer is applicable since the lot is not subdivided.
- Sheet 9:
  - External cleanouts outside of the building are not permitted.
  - Where is the street lighting?
  - Move the culvert onto the private property and note that the maintenance and ownership of the culvert will be the responsibility of the private HOA.
  - Bring a new water service back to the main with an 8 inch line rather than reusing the 6 inch.
  - Label pole that power comes from as proposed or existing.
  - Proposed water services should be 1" minimum.
- Sheet 15:
  - Provide foundation detail for mail kiosk.
- Sheet 16:
  - Is there a rebar layout for the headwall?
- Sheet 17:
  - Note that the infiltration test results be provided to the engineering office of community services.
- Sheet 18:
  - Add note that all water valves and hydrants shall open left (counterclockwise).

Police:

- The driveway access needs a private street name, provide some proposed names.
- Confirm through Community Services Department that curbside trash pickup on Sixth Street is appropriate for a private road.
- Sheet 9 (Utility Plan) shows proposed electrical coming from a utility pole. Label this pole as existing or proposed new.
- Sight distance analysis should be based on 85th percentile speed.

Inspection Services:

- Sheet 9 – utilities may not want to be crossed.
- Provide a proposed street name for review and approval to place on revised plans.
- Roadways of 20' would not permit parking on either side. Provide Fire Lane No Parking signage on both sides of street.
- Provide sign detail on detail sheet

Fire Department:

- Would the driveway access have a new street name or will these units have Sixth St. addresses?

Business Development:

- TDR units were previously approved, and overall layout and design appears to be generally reasonable. No further comments/concerns.

Planning Board:

- Relief requested via CUP presented after TDR application

Next Steps: Revise plans per comments above and resubmit for second TRC.

Adjournment: P. Crouser moved to adjourn the meeting at 10:57 a.m. Seconded by M.Speidel. Vote: U/A.

CIVILWORKS NEW ENGLAND

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

March 13, 2025

Dover Planning Board
288 Central Avenue
Dover, NH 03820

Attn: Technical Review Committee

Re: Technical Review Committee minutes – SITE-2024-0018 dated December 19, 2024
512 Sixth Street – Assessor's Map B, Lot 2

Dear Planning Board:

In response to Technical Review Committee minutes – SITE-2024-0018, by TRC dated December 19, 2024, we submit the following responses in bold beneath the review comments in italic.

Planning

1. *Reminder: Water and sewer investment fees*
   Acknowledged.

2. *Explain CUP requests and how they relate to the TDR request in terms of additional units granted.*
   A Conditional Use Permit is required as there will be minimal disturbance to the wetland buffers in support of grading, stormwater conveyance, and stormwater treatment. Wetland buffer impacts were minimized to the greatest extent practicable and do not include structures or impervious surfaces.

3. *Waiver from §157-32J needed for private road length of less than 500'.*
   A waiver has been requested.

4. *Recommend reducing unit count to allow more usable backyards for residents and to get further away from the wetland buffers.*
   Wetland buffer impacts were minimized to the greatest extent practicable, do not include structures or impervious surfaces, and with the site reconfiguration the proposed impacts were reduced by 53%. No reduction in the number of units is proposed.

5. *Add buffer placards to plan.*
   Buffer placard locations are identified on the Site Plan.

6. *Waiver request noted for a landscape plan- could not find narrative.*
   The waiver request for submitting a Landscape Plan has been withdrawn. A Landscape Plan and Landscape O&M are included in the submittal.

7. *Lighting plan required- would need to be provided or a waiver request would need to be submitted.*
   The Lighting Plan has been created and added to plan set.

8. *CUP request needed for proposed stormwater detention pond in wetland buffer.*
   The CUP narrative was updated to include stormwater detention in the wetland buffer.

9. *Snow storage is too close to stormwater detention pond and wetland buffer.*
   Snow storage locations ensure that snowmelt is treated through the stormwater BMP's prior to discharge from site. The Stormwater I&M documents require the use of Green SnowPro contractors that utilize salt minimization techniques. The proposed snow storage areas do not have large contributing watersheds that would cause the transport of snowmelt sedimentation. The snowmelt sediment will be removed from the snow storage areas annually as part of the implementation of the Stormwater I&M Plan.

10. *What is the ownership structure? HOA/COA docs would need to be reviewed if applicable.*
    The ownership structure will be HOA and draft documents will be provided for review by the City.

11. *Two trees being proposed for removal are in or partially in the City ROW.*
    Two trees will be removed as discussed with Engineering and Planning in support of realigning the private drive with Olive Meadow Lane and the installation of utilities.

12. *Will this be a private drive- have street names been considered?*
    This will be a private drive. Street names have been provided to the City for review and approval.

13. *Transformer pad requires screening.*
    The Landscape Plan identifies the screening provided for the proposed transformer.

14. *Private drive/internal roadway is required to be 24' in width so waiver is required.*
    The private driveway is proposed to be 24' wide.

15. *Pave gravel turnaround as discussed at TRC.*
    The proposed turnaround will be paved.

16. *City requires letters to serve, no need to submit the requests.*
    Letters to serve have been submitted.

Engineering

General

17. *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
    Acknowledged.

18. *Provide landscape and lighting plans.*
    A Lighting Plan and the associated details have been provided in the plan set.

19. *Show limits of repaving of Sixth St based on the proposed work within Sixth St. Repairs should extend across the full width of Sixth St. with the centerline being restored after paving.*
    The plans have been updated accordingly.

20. *The City recommends that the applicant source out ductile iron piping, which is the City preferred material, in advance commencing construction.*
    Acknowledged.

Existing Conditions Plan

21. *Show existing utilities to the site including all valves.*
    The plans have been updated accordingly.

Sheet 3

22. *Aerial image is blurry. Provide clearer image.*
    The plans have been updated accordingly.

Sheet 5

23. *Show limits of sawcut and pavement to be removed in Sixth Street.*
    The plans have been updated accordingly.

24. *Check spelling in plans. Multiple spelling errors noted including "conopy" rather than "canopy"*
    The plans have been updated accordingly.

25. *Please check references to proposed treelines as multiple notes appears to be pointing to lines that do not exist.*
    The plans have been updated accordingly.

Sheet 6

26. *Provide confirmation that USPS has approved the mailbox location.*
    The proposed kiosk type and location have been provided to Dover USPS for confirmation.

27. *Please align the proposed driveway and Olive Meadow Lane.*
    The proposed private driveway has been relocated to align with Olive Meadow Lane.

28. *Provide street sign on the proposed stop sign. Please provide proposed names for private drive.*
    The street sign details have been added to the plan set. Street names have been provided to the City for review and approval.

29. *Comment on whether the 30 foot exterior buffer is applicable since the lot is not subdivided.*
    The planning department has indicated that the 30 foot exterior buffer is not required as the project is a Site application as opposed to a Subdivision application. However, the 30 foot buffer was included in, and approved through, the TDR process. The project proponent will maintain the proposed buffer in good faith of the approved TDR.

Sheet 9

30. *External cleanouts outside of the building are not permitted.*

Acknowledged, sewer manholes have been provided per discussion.

31. *Where is the street lighting?*
The plans have been updated to include a lighting plan and associated details.

32. *Move the culvert onto the private property and note that the maintenance and ownership of the culvert will be the responsibility of the private HOA.*
The proposed private driveway has been relocated to align with Olive Meadow Lane and as such the design no longer requires the catch basin and cross culvert.

33. *Bring a new water service back to the main with an 8 inch line rather than reusing the 6 inch.*
The proposed water service ties into an existing 8 inch DI water line that runs from the property line back to the service main in Sixth Street.

34. *Label pole that power comes from as proposed or existing.*
The plans have been updated accordingly.

35. *Proposed water services should be 1" minimum.*
The plans have been updated accordingly.

Sheet 15

36. *Provide foundation detail for mail kiosk.*
The detail has been included in the plan set.

Sheet 16

37. *Is there a rebar layout for the headwall?*
Structural design of the headwall will be provided prior to construction. The detail has been updated with a note that shop drawings with a rebar layout shall be stamped by a professional engineer and provided prior to construction.

Sheet 17

38. *Note that the infiltration test results be provided to the engineering office of community services.*
A note indicating that soil test results will be provided to the City of Dover Engineering Office of Community Services has been added to the detail.

Sheet 18

39. *Add note that all water valves and hydrants shall open left (counterclockwise).*
The water connection and hydrant details have been updated accordingly.

Police

31. *The driveway access needs a private street name, provide some proposed names.*
Street names have been provided to the City for review and approval.

32. *Confirm through Community Services Department that curbside trash pickup on Sixth Street is appropriate for a private road.*

A note has been added to the Dover Notes section of the Notes Sheet indicating that refuse removal shall be onsite by private contractor. The HOA documents will identify private rubbish removal as well.

33. *Sheet 9 (Utility Plan) shows proposed electrical coming from a utility pole. Label this pole as existing or proposed new.*
    The plans have been updated accordingly.

34. *Sight distance analysis should be based on 85th percentile speed.*
    A revised Traffic Assessment Memo has been provided that analyzes the sight distance based off from the 85th percentile.

Inspection Services

35. *Sheet 9 – utilities may not want to be crossed.*
    The proposed design minimizes utility crossings to the greatest extent practicable.

36. *Provide a proposed street name for review and approval to place on revised plans.*
    Street names have been provided to the City for review and approval.

37. *Roadways of 20' would not permit parking on either side. Provide Fire Lane No Parking signage on both sides of street.*
    The private driveway is proposed to be 24' wide.

38. *Provide sign detail on detail sheet*
    The street sign details have been added to the plan set.

Fire Department

39. *Would the driveway access have a new street name or will these units have Sixth St. addresses?*
    The private driveway will have a new street name. Street names have been provided to the City for review and approval and street sign details have been added to the plan set.

Business Development

40. *TDR units were previously approved, and overall layout and design appears to be generally reasonable. No further comments/concerns.*
    Acknowledged.

Planning Board

41. *Relief requested via CUP presented after TDR application*
    Acknowledged.

CIVILWORKS NEW ENGLAND
Sincerely,

Stephen J Haight, PE

SITE DEVELOPMENT DESIGN CRITERIA NARRATIVE
§153-14
STORMWATER MANAGEMENT
for
512 Sixth Street
Tax Map B, Lot 2

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 City of Dover's Stormwater management regulations to include the treatment of stormwater runoff utilizing infiltration basins and stone drip edges.**

(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 City of Dover's Stormwater management regulations to include the treatment of stormwater runoff utilizing, infiltration basins and stone drip edges.**

(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 mitigates the runoff from the 2, 10, 25, & 50 year storm events.**

(d) Encouraging the use of low-impact development (LID) strategies. **The project proposes the use of three (3) infiltration basins and two (2) stone drip edges around one (1) of the proposed buildings 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.**

(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 is requesting a Conditional Use Permit for proposed disturbances within the wetland buffer setbacks.**

[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.**

[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 City of Dover's Stormwater management regulations to include the treatment of stormwater runoff utilizing infiltration basins and stone drip edges.**

(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 three (3) infiltration basins and two (2) stone drip edges for treatment of impervious areas on site. The proposed stormwater management system provides an effective removal rate of 85% TSS, 56% TN, and 61% TP per the NH Stormwater Manual and the City of Dover's stormwater regulations. See the drainage report for the supporting calculations.**

[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 2, 10, 25, & 50-year storm events.**

[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 proposed stormwater measures are designed to infiltrate stormwater runoff. The drainage analysis indicates that stormwater runoff does not exceed the predevelopment runoff volume.**

[5] Infiltration rates for designing groundwater recharge practices shall be determined in accordance with Section Env-Wq 1504.14. **Infiltration test logs are provided, see drainage report.**

[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 stormwater management system.**

[9] Seasonal high-water table elevations must be accounted for in all BMP design criteria. **Test pit information logs are provided, see drainage report.**

[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 maintained by the association. 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. **The project maintains a 30' no cut buffer along the property line. Internal areas shall be loamed and seeded and must meet 85% vegetative growth in accordance with NH DES AoT requirements as identified in the erosion control notes sheet.**

(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. **A Conditional Use Permit has been requested and the perimeter site controls in wetland buffer setbacks are placed at the limits of the proposed work in the buffer disturbed areas.**

[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: **This information is provided in the drainage report and throughout the plan set and details.**

[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. **This information is provided in the drainage report and throughout the plan set and details.**

[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. **This information is provided in the drainage report and throughout the plan set and details.**

[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. **This information is provided in the drainage report and throughout the plan set and details.**

[d] Description of existing drainage patterns, receiving water bodies or drainage infrastructure and soil types for recharge potential. **This information is provided in the drainage report and throughout the plan set and details.**

[e] Watershed area limits, including any off-site and upstream areas contributing flow to shared drainage channels and/or infrastructure. **This information is provided in the drainage report and throughout the plan set and details.**

[f] Description of proposed changes in impervious cover areas and any changes in pre- and post-development drainage patterns. **This information is provided in the drainage report and throughout the plan set and details.**

[g] Methods and assumptions used to calculate pre- and post-development runoff volume, peak discharge, and discharge velocity for the specified design storm events. **This information is provided in the drainage report and throughout the plan set and details.**

[h] Methods and assumptions used to calculate the pollutant load removal. **This information is provided in the drainage report and throughout the plan set and details.**

[i] Description of LID measures that are proposed to limit the development footprint, preserve existing vegetation and mimic existing hydrology to the extent feasible. **This information is provided in the drainage report and throughout the plan set and details.**

[j] If not used, provide rationale why LID measures are not practical for the site. **N/A**

[k] Describe measures and calculations for proposed practices used to achieve no net increase in runoff volumes leaving the site. **This information is provided in the drainage report and throughout the plan set and details.**

[l] Provide calculations for the infiltration or exfiltration system. **This information is provided in the drainage report and throughout the plan set and details.**

[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. **No increase in post-development runoff volume is anticipated. This information is provided in the drainage report and throughout the plan set and details.**

[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. **This information is provided in the drainage report and throughout the plan set and details.**

[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. **N/A**

[p] Proposed schedule for the inspection and maintenance of all erosion control measures on site prior to achieving final site stabilization. **This information is provided in the drainage report and throughout the plan set and details.**

[q] Describe procedures for removing temporary erosion control measures and removal of accumulated sediment captured by such measures. **This information is provided in the drainage report and throughout the plan set and details.**

[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.**

WAIVER REQUEST

for

SITE REVIEW APPLICATION

DBS Holdings, LLC

Tax Map B, Lot 2 - 512 Sixth Street

March 13, 2025

Article VII, Section 157-32. J. Dead-end streets (culs-de-sac).

Unless topography indicates a need for an alternative length, streets shall not be less than 500 feet nor exceed 1,000 feet in length and shall terminate in a cul-de-sac. The exact form of the cul-de-sac shall be aesthetically pleasing as well as functional. The right-of-way limits at the cul-de-sac shall be as necessary to ensure adequate property within which to properly maintain the area. The exact configuration and dimension of the cul-de-sac shall be approved by the Planning Board. Temporary dead-end streets, such as in phased construction, may require temporary turnaround facilities. Hammerhead designed dead-end streets are not acceptable for public roadways.

Per TRC comments, we are seeking a waiver from the above referenced Regulation. This private (shared) driveway, as designed, is approximately 218 feet from the curb cut at Sixth Street to the beginning of the last unit driveway. The private (shared) driveway serving these five TDR units is not a public road. Parcel limitations including depth and topography of the parcel and the location of Conservation District wetland buffer setbacks preclude the ability to provide a 500' private driveway on this project. The private driveway length of 218 feet provides appropriate and safe access to the five proposed residences, minimizes new impervious areas, and prevents the need for additional impacts to wetland buffer setbacks. The private driveway was designed to best meet the City's regulations as a whole.

DONNA P. BENTON, AICP
Director of Planning and
Community Development
d.benton@dover.nh.gov

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

City of Dover, New Hampshire

DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT

NOTICE OF DECISION

June 12, 2024

DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820

Re: Transfer of Development Rights Plan for DBS Holdings, LLC, Assessor's Map B, Lot 2, zoned R-40, located at 512 Sixth Street. (Proposal is to purchase three (3) non-restricted TDR units to allow a total of five (5) on the site.) (TRAN-2024-0006)

Dear Mr. Sullivan:

Please be advised that on Tuesday, June 11, 2024 the Dover Planning Board voted to conditionally approve the request to grant five (5) Transfer of Development Rights (TDR) units using the HUD Fair Market Rent Restriction and found the criteria of 170-27.2-G(8) have been met. **The specific subsequent conditions are included with this letter.**

In addition to the subsequent conditions of approval, please provide the following to the Planning Office:

☐ Two (2) full size plans and One (1) 11" x 17" plan (plus any additional plans for the applicant or owner)

☐ One (1) PDF digital version of the plat

If you have any questions, please do not hesitate to contact my office.

Sincerely,

Donna Benton

Donna Benton, AICP
Director of Planning & Community Development

EC: Inspection Services Office
Engineering Office
Assessing Office
McEneaney Survey Associates

TDR: Conditions to Be Met Prior to Granting of TDR:	**Submitted**	**Received**
1. Approval of future Site Plan.	☐	☐
1.1 Indicate size restriction of unit 5 and placement further away from wetland buffer.		
1.2 Add owner's signature.		
1.3 Add PE and LLS stamp and signature.		
1.4 Add note about TDR units and restriction.		
1.5 Note open space calculations.	☐	☐
2. Payment of TDR fees.	☐	☐
3. Site plan reviewed by Planning Board and TRC.	☐	☐

DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820

November 19, 2024

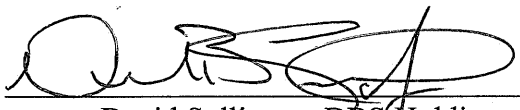
City of Dover
288 Central Avenue
Dover, NH 03820

Attn: Planning Board

Re: LETTER OF OWNER AUTHORIZATION
512 Sixth Street – Tax Map B, Lot 2

I, David Sullivan, Member of DBS Holdings, LLC, authorize Civilworks New England and McEneaney Survey Associates to represent all applications made on my behalf as (OWNER) to the City of Dover Planning Board and any other Dover Board or Committee, as well as any State of NH departments, as necessary, relative to the pursuit of approvals and permits for the development of the subject parcel.

Sincerely,



David Sullivan – DBS Holdings, LLC

EVERSOURCE ENERGY

1700 Lafayette Road
Portsmouth, NH 03801

Trevor S Emmons
603-332-7515
Trevor.emmons@eversource.com

November 21, 2024

Mark E. Beaudry, PE
Civilworks New England
181 Watson Road, P.O. Box 1166
Dover, NH 03821

Dear Mark:

I am responding to your request to confirm the availability of electric service for the proposed residential project being constructed for/by DBS Holdings, LLC at 512 Sixth Street in Dover, NH at Tax Map B, Lot 2.

The project consists of the construction of five (5) new detached single-family residences after demolition of the two existing residential homes on the property resulting in a net gain of three residential dwellings.

The developer will be responsible for the installation of all underground/overhead facilities and infrastructure required to service the new building. The service will be as shown on the attached Utility Plan. The proposed building service will be fed from the utility pole along Sixth Street to be determined by Eversource Engineering as depicted on the utility plan. 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 11/21/2024 prepared by Civilworks New England for DBS Holdings, LLC shows the location, site layout of the buildings, and anticipated utility services and transformer locations (subject to final electrical system design) to service the 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 Portsmouth Office, 603-332-7515

Respectfully.

Trevor Emmons
NH Eastern Regional Engineer, Eversource

cc: (via e-mail)
Thomas Boulter, Eastern Region Operations Manager, Eversource
Nickolai Kosko, Field Supervisor, Electric Design, Eversource

Unitil
Northern Utilities, Inc.

November 22nd, 2024

DBS Holdings LLC
512 Sixth Street
Dover, NH

Natural Gas to Residential Development at 512 Sixth Street, Dover NH

To Whom it May Concern,

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 development at 512 Sixth Street in Dover, NH.

Please note this property will be served from our intermediate -pressure gas main and our gas service pressure can be either 7" Water Column or 2 PSI.

If you have any questions, please contact me at 603-264-2033.

Sincerely,

Josh Wilk
Senior Business Development Rep
Unitil
T 603.227.4628
M 603.264.2033
F 603.294.5264
Email wilkj@unitil.com

From: Mark Beaudry
Sent: Thursday, November 21, 2024 10:15 AM
To: Mavrogeorge, Kenneth <K.Mavrogeorge@dover.nh.gov>
Cc: Steve Haight <shaight@civilworksne.com>; Joseph Griffin <jgriffin@civilworksne.com>; Cheryl Andreason <cheryl@surveynh.com>; Nadeau, Mike <mike.nadeau@dover.nh.gov>; Benton, Donna <d.benton@dover.nh.gov>; Chambers, Jordan <J.Chambers@dover.nh.gov>; Maxfield, Jim <J.Maxfield@dover.nh.gov>
Subject: RE: CNE#24094 – DBS Holdings LLC – 512 Sixth Street, Dover

Thanks for the quick response and feedback Ken. We will address these comments at the appropriate time/next issuance of the plans and get back to you with any questions.

Mark

From: Mavrogeorge, Kenneth <K.Mavrogeorge@dover.nh.gov>
Sent: Thursday, November 21, 2024 10:08 AM
To: Mark Beaudry <mbeaudry@civilworksne.com>
Cc: Steve Haight <shaight@civilworksne.com>; Joseph Griffin <jgriffin@civilworksne.com>; Cheryl Andreason <cheryl@surveynh.com>; Nadeau, Mike <mike.nadeau@dover.nh.gov>; Benton, Donna <d.benton@dover.nh.gov>; Chambers, Jordan <J.Chambers@dover.nh.gov>; Maxfield, Jim <J.Maxfield@dover.nh.gov>
Subject: RE: CNE#24094 – DBS Holdings LLC – 512 Sixth Street, Dover
Importance: High

Mark,

The city can provide water and sewer in this location. Please note the following comments on this design.

- A sewer connection permit from the NHDES is required as the design is proposing to serve more than one building (Env-Wq 703.07(a)(6)). Please submit digital materials to my attention along with a check for the sewer connection review fee ($50).
- External sewer cleanouts are not permitted in Dover.
- Any change in direction of an 8 inch main needs to have a sewer manhole.

Construction on this development shall not proceed until the above are addressed.

Please let me know if you have any questions.

Regards,

Ken

Ken Mavrogeorge, PE
City Engineer
City of Dover, NH
271 Mast Rd.
Dover, NH 03820-4169
e: k.mavrogeorge@dover.nh.gov
p: 603.516.6454 | f: 603.516.6463

Dover: First in New Hampshire, First with you!
http://www.dover.nh.gov

From: Mark Beaudry <mbeaudry@civilworksne.com>
Sent: Thursday, November 21, 2024 10:00 AM
To: Mavrogeorge, Kenneth <K.Mavrogeorge@dover.nh.gov>
Cc: Steve Haight <shaight@civilworksne.com>; Joseph Griffin <jgriffin@civilworksne.com>; Cheryl Andreason <cheryl@surveynh.com>
Subject: CNE#24094 – DBS Holdings LLC – 512 Sixth Street, Dover

Security Notice: External sender. Use caution with hyperlinks or attachments.

Hello Ken: As required per the City's site review permit process, we are reaching out as part of the process to provide "will serve" letters stating that utilities are available for our proposed project. Our client is proposing a 5-unit residential development located at 512 Sixth Street (Tax Map B, Lot 2).

The project consists of the construction of five (5) new detached single family residences after demolition of the two existing residential homes on the property resulting in a net gain of three residential dwellings. Each of the five homes are anticipated to have its own water supply and sewer connection off the single water line and sewer pipe connections to and from the sewer and water pipe "stubs" from the mains in the road that were recently constructed to the property. Attached is the utility plan for reference.

The project total design flow is estimated as follows:

- Single family 3 bedroom residence = 300 GPD for 1st 2 bedrooms + 150 GPD for 3rd bedroom = 450 GPD per unit

- 5 residences x 450 GPD/residence = 2,250 GPD = Total estimated design flow

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

As required by the City, could you please provide us with a letter acknowledging that the city can provide water and sewer service to this proposed development.

Thank you for your assistance on this project. If you have any questions or require more information, please do not hesitate to get back to us.

Mark

_____

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

CIVILWORKS NEW ENGLAND

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

November 20, 2024, Updated January 23, 2025

TRAFFIC ASSESSMENT MEMORANDUM

INTRODUCTION

Civilworks New England has prepared this traffic-assessment memorandum (TAM) regarding the residential development project proposed at Tax Map B, Lot No. 2, which is otherwise known as 512 Sixth Street in Dover, NH. The TAM is being updated to include findings related to the 85th percentile speed as reported by the City of Dover Police Department.

This TAM includes:

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

This TAM concludes that:

- relevant sight distance at the intersection of the proposed development access driveway with Sixth Street 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 westerly side of Sixth Street just south of Olive Meadow Lane (on the east side of Sixth Street)
- has a lot size of 6.74 acres.
- contains two residential homes one of which has a detached garage.
- Each home has an existing driveway within the property (with the two driveways being connected near the houses).

PROPOSED PROJECT DESCRIPTION

The project will provide a total of five single family detached residential housing units serviced by a single "dead ended" roadway. The two homes existing on the property will be removed. Therefore, the net increase will be only three homes. The two existing driveways to the houses will be replaced with the project roadway located between the two existing driveways.

ROAD DESCRIPTION

Sixth Street in the vicinity of the project:

- is under the jurisdiction of the City of Dover
- has a posted speed limit of 30 MPH
- Dover Police report the 85th percentile speed to be 45 MPH
- is oriented southeast – northwest with a straight/linear horizontal alignment.
- has very limited vertical grade change.

- has bituminous concrete pavement in overall good condition.
- has marked pavement consisting of double yellow centerline striping and white lane "fog" side lines
- has two travel lanes each 10 feet in width and pavement approximately 18 inches in width beyond the fog line for a total pavement width of approximately 23 feet.
- has no sidewalks on either side.
- Is located in a no-passing zone passing and no streetside parking has been observed although not specifically prohibited by signage).
- has a total average daily traffic (ADT) volume of 9,152 vehicles (total both directions) measured at a point between Indian Brook Drive and Heather Lane as reported by the NHDOT for 2023.
- includes existing utility services.

PUBLIC TRANSIT

Collaborative Alliance for Seacoast Transportation (COAST) Route 33 provides bus service in the area. Service is on Mondays through Saturdays, except holidays. A bus stop is located on Sixth Street between Venture Drive and Production Drive. Route 33 connects with:

- Strafford County Courthouse
- Central Avenue
- Dover Transportation Center / Amtrak

SIGHT DISTANCES

The project site is on a relatively straight section of Sixth Street that has limited elevation change, optimizing sight distance in both directions. Several subdivision roadways and residential driveways exist along this stretch of roadway.

The American Association of State Highway and Transportation Officials (AASHTO) has established authoritative policy for appropriate sight distances including stopping sight distance (SSD) for vehicles on the main road reacting to traffic or other obstructions. For a roadway with vehicles traveling at the 45 MPH 85th percentile speed, AASHTO has established the SSD to be 360 feet, as referenced in the City's Subdivision Regulations, and ISD to be 500 feet. The available sight distance to the east and west at the proposed project roadway has been determined to be in excess of 500 feet, which is suitable for SSD at 55 miles per hour and ISD at 45 miles per hour.

Therefore, ample sight distance is provided and is adequate to provide a safe means of egress. Sight distance from the access drive should not be impeded by streetside parking. This in combination with the relatively unobstructed nature of the streetside, will provide the opportunity to maintain these sightlines throughout the year.

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 single-family residential development of detached dwelling units in a general urban/suburban area; which is known in the ITE *Trip Generation Manual* as Land Use Code 210 (LUC). For this LUC, trip data is based on the number of dwelling units.

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

CIVILWORKS NEW ENGLAND
181 WATSON ROAD
P.O. BOX 1166
DOVER, NH 03821-1166
PHONE: 603.749.0443

The project will provide five total single family detached homes/units. However, as mentioned in the Project Description section above, two single-family detached homes already exist on the property so the *net increase in trips will be that from only three single-family homes*.

Table 1 and Table 2 show calculated vehicle trip ends associated with the proposed development project. Table 1 data applies to the five total single-family detached homes where Table 2 data relates to the two existing single-family detached houses on the property. Then the total net increase in vehicle trips along can be determined by deducting the existing trips from the proposed total.

Table 1: Trip Generation - Single-Family Detached Housing (5 Total Units)

			Vehicle Trips*		
Weekday Period	Avg. Trips	Proposed Units	Total	In	Out
Daily	See Equation	5	64.1	32.0	32.1
AM Peak Hour of Generator	See Equation	5	10.8	2.8	8.0
PM Peak Hour of Generator	See Equation	5	6.4	4.1	2.3
AM Peak Hour of Adjacent Street Traffic	See Equation	5	1.6	0.4	1.2
PM Peak Hour of Adjacent Street Traffic	See Equation	5	5.9	3.7	2.2

* ITE, *Trip Generation Manual,* Single-Family Detached Housing - Land Use Code 210

Weekday Trips = Ln(T) = 0.92 Ln(Units) + 2.68 (50% entering, 50% exiting)
AM Trips - Generator = T = 0.71(Units) + 7.23 (26% entering, 74% exiting)
PM Trips - Generator = Ln(T) = 0.93 Ln(Units) + 0.36 (64% entering, 36% exiting)
AM Trips - A.S.T. = Ln(T) = 0.91 Ln(Units) + 0.12 (26% entering, 74% exiting)
PM Trips - A.S.T. = Ln(T) = 0.94 Ln(Units) + 0.27 (63% entering, 37% exiting)

Table 2: Trip Generation - Single-Family Detached Housing (2 Existing Units)

			Vehicle Trips*		
Weekday Period	Avg. Trips	Proposed Units	Total	In	Out
Daily	See Equation	2	27.6	13.8	13.8
AM Peak Hour of Generator	See Equation	2	8.7	2.2	6.5
PM Peak Hour of Generator	See Equation	2	2.7	1.7	1.0
AM Peak Hour of Adjacent Street Traffic	See Equation	2	2.1	0.5	1.6
PM Peak Hour of Adjacent Street Traffic	See Equation	2	2.5	1.6	0.9

* ITE, *Trip Generation Manual,* Single-Family Detached Housing - Land Use Code 210

Weekday Trips = Ln(T) = 0.92 Ln(Units) + 2.68 (50% entering, 50% exiting)
AM Trips - Generator = T = 0.71(Units) + 7.23 (26% entering, 74% exiting)
PM Trips - Generator = Ln(T) = 0.93 Ln(Units) + 0.36 (64% entering, 36% exiting)
AM Trips - A.S.T. = Ln(T) = 0.91 Ln(Units) + 0.12 (26% entering, 74% exiting)
PM Trips - A.S.T. = Ln(T) = 0.94 Ln(Units) + 0.27 (63% entering, 37% exiting)

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DOVER, NH 03821-1166
PHONE: 603.749.0443

TRIP DISTRIBUTION/ASSIGNMENT

All project-related trips will access the site from Sixth Street. The calculated vehicle trip generation for the development project is so low, especially at peak hours, that area traffic operations are not sensitive to trip distribution/assignment of project vehicle trips.

POTENTIAL TRAFFIC IMPACTS

The AM and PM peak hour vehicle trip calculations show higher numbers based on those of the traffic generator vs. that of the adjacent street traffic. Therefore, the total generation and increase in peak hour vehicle trips to be generated by the project are estimated on that basis.

Accordingly, the calculations show total vehicle trips to be generated by the project, along with the anticipated *increase* in trips to be as follows:

- Daily (weekday) = 64.1 total trips (32.0 in and 32.1 out) *[5 total homes]*
  Less 27.6 existing trips (13.8 in and 13.8 out) *[2 existing homes]*
  Net Increase = 36.5 trips (18.2 in and 18.3 out)

- AM peak hour = 10.8 total trips (2.8 in and 8.0 out)
  Less 8.7 existing trips (2.2 in and 6.5 out)
  Net Increase = 2.1 trips (0.6 in and 1.5 out)

- PM peak hour = 6.4 total trips (4.1 in and 2.3 out)
  Less 2.7 existing trips (1.7 in and 1.0 out)
  Net Increase = 3.7 trips (2.4 in and 1.3 out)

The increase in weekday trips represents only 0.7 percent of the current ADT on Sixth Street as measured near Venture Drive. Therefore, the proposed project is not anticipated to add significant new traffic to the surrounding area, nor impact such.

CONCLUSION

In conclusion:

- Stopping sight distances at the Sixth Street/proposed development roadway 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

STATE OF NEW HAMPSHIRE – STEPHEN J HAIGHT No. 7978 LICENSED PROFESSIONAL ENGINEER – 5/12/15

Stormwater Management System Inspection & Maintenance Plan

Prepared for:

TDR SITE PLAN
5 UNIT RESIDENTIAL
Map B, Lot 2

512 Sixth Street
Dover, New Hampshire
Strafford County

November 2024
Revised: March 2025

Owner of Record:

DBS HOLDINGS, LLC
71 Danielle Lane
Dover, New Hampshire 03820

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 **DBS Holdings, 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 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:

DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820

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

Contact / Responsible Party:

DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820

Dave Sullivan
Phone: (603) 743-4284
Email: dbsholdingsllc@gmail.com

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

Management Company:

DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820

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

Inspection Schedule / Record Retention

Inspection frequency should, at a minimum, be in accordance with New Hampshire Stormwater Manual, Volume 2, latest edition, as updated by 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
- Grass Lined Conveyance Swales
- Infiltration Basins
- Stone Drip Edges
- 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:

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

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.

INFILTRATION BASIN:

- Inspect and remove any debris from inlet and outlet structures.
- Remove any accumulated sediment.
- Inspect and repair outlet structures and appurtenances.
- Inspection of infiltration components 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.
- Periodic mowing of basin and embankments.
- Removal of woody vegetation from basin and embankments.
- Inspection and repair of embankments and spillways.
- If an infiltration system does not drain within 72 hours following a rainfall event, then a qualified professional should assess the condition of the facility to determine measures required to restore infiltration function, including but not limited to removal of accumulated sediments or reconstruction of the infiltration bottom.

STONE DRIP EDGES:

- Inspect twice annually and following any rainfall event exceeding 2.5 inches in a 24-hour period.
- If system does not drain within 72-hours following a rainfall event, a qualified engineer should inspect the system and determine measures required to restore the condition of the facility.
- Follow the University of New Hampshire's "Methods for Disposing Non-Native Invasive Plants" for disposing of invasive species (Attached).
- There shall be no use of chemical herbicides or pesticides, except for wildlife habitat management and then only in coordination with the New Hampshire Fish and Game Nongame and Endangered Wildlife Program. Herbicides or pesticides are absolutely prohibited within wetlands or wetland buffer setbacks.

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	Annually	• Check for clogging • Check for sediment accumulation	Remove when noticed Clean when necessary
Grass Lined Conveyance Swale	Annually	• Check for sediment accumulation • Check for erosion • Ensure swale is stabilized • Maintain healthy stand of veg., min 4” • Inspect for invasive species	≥ 1 in. sediment Repair immediately Restore vegetation in-kind Mow twice per year Remove/Dispose of accordingly
Infiltration Basin	Bi-Annually	• Check for sediment accumulation • Check for debris • Inspect for woody vegetation • Maintain healthy stand of veg., 4” minimum • Inspect for invasive species • Check for water draining	Remove any accumulated Sediment Remove from inlet/outlet structures Remove Immediately Mow twice per year (applies to IB1 and IB2) Remove/Dispose of accordingly 72 hours after a 2.5 inch storm event in a 24 hour period
Stone Drip Edges	Bi-Annually	• Check for sediment accumulation • Check for woody vegetation growth • Check for debris	Remove/Dispose of accordingly Remove Immediately 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

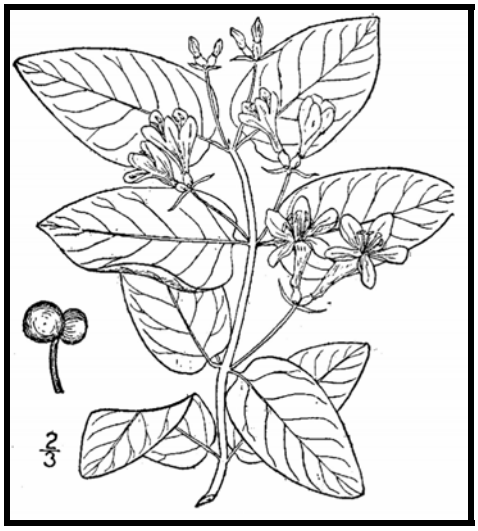
Deicing Salt Quantity Use Log

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

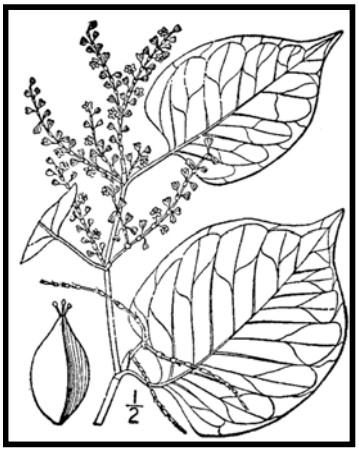
Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

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>

Non-Woody Plants	Method of Reproducing	Methods of Disposal
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)*	**Fruits and Seeds** 	**Prior to flowering** Depends on scale of infestation Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material. **During and following flowering** Do nothing until the following year or remove flowering heads and bag and let rot. Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material.
common reed (*Phragmites australis*) Japanese knotweed *(Polygonum cuspidatum)* Bohemian knotweed *(Polygonum x bohemicum)*	**Fruits, Seeds, Plant Fragments** Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn't materially influence disposal activities.	**Small infestation** ▪ Bag all plant material and let rot. ▪ Never pile and use resulting material as compost. ▪ Burn. **Large infestation** ▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile. ▪ Monitor and remove any sprouting material. ▪ Pile, let dry, and burn.

January 2010

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Landscape Best Management Practices
Operations and Maintenance Plan

Residential Site

Sixth Street
Dover, New Hampshire 03820

Prepared for:

Joseph Griffin
Civilworks New England
181 Watson Road
PO Box 1166
Dover, NH 03821

Prepared by:

Terrain Planning & Design, LLC
311 Kast Hill Road
Hopkinton, NH 03229



Landscape Maintenance

Introduction:

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

Weekly Tasks:

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

Annual Tasks

Early Spring:

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

Monthly Tasks

June:

No additional items

July:

No additional items

August:

No additional items

September:

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

October:

1. Winterize irrigation system.

November:

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

December:

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

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

Stormwater Detention Facilities

Introduction:

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

Erosion:

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

Sediment Accumulation & Clogging:

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

Outlet Structure Maintenance:

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

Debris & Litter:

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

Plant Maintenance:

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

Snow Storage:

Snow shall not be dumped directly onto the facility.

Chlorides:

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

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

DRAINAGE ANALYSIS

TDR SITE PLAN
5 UNIT RESIDENTIAL
512 SIXTH STREET
TAX MAP B, LOT 2
DOVER, NH

November 2024
Revised: March 2025

Prepared For:

DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820

Prepared By:

Civilworks NE
PO Box 1166
181 Watson Road
Dover, NH 03821



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- Drainage Diagram, Area, and Soil Listings
- Node Listing – 2-yr
- Node Listing – 10-yr
- 10-yr Storm Summary Hydrographs
- Node Listing – 25-yr
- Node Listing – 50-yr

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1.0 INTRODUCTION

This is a hydrologic analysis of the subject parcel located at 512 Sixth Street, Dover, NH. The 1.87± acre lot is identified as Tax Map B, Lot 2. The site is currently developed as residential with two single-family homes, a detached garage, two detached sheds, an asphalt drive and a gravel drive. The ground cover primarily consists of woods, lawn, pavement, and gravel for driveways. The site is bounded by residential lots to the north, south, and west and Sixth Street to the east.

The project proposes the construction of a 5-unit residential development and consists of the demolition of the two (2) existing structures, site improvements associated with the construction of the 5 residential structures, site access, driveways, grading and drainage, and utilities. The proposed drainage system incorporates three (3) infiltration basins, two (2) stone drip edges, a drainage ditch, and a roof drain to treat, mitigate, and infiltrate stormwater. The proposed stormwater system captures, treats, and stores the stormwater runoff from the site and redirects it to the existing discharge points. The proposed stormwater drainage structures will be maintained by the project proponent as outlined within the Stormwater Management System Inspection & Maintenance Manual (Stormwater I&M Manual) in Appendix C.

To effectively analyze the pre-development subject parcel, the site was divided into two watersheds, A & B. Watershed A drains to a wetland complex to the residential lot to the south of the site and Watershed B drains to a large wetland complex on the west of the parcel that drains to the abutting residential lot. Soil characteristics and topography information was obtained utilizing Web Soil Survey, test pits, borehole infiltration tests, and on-site survey.

The post development model analyzes the same two watersheds, A & B. Watersheds A & B are further divided into two and four sub-catchments, respectively, to better model the proposed drainage improvements on site. Drip edges 1 and 2 are designed to store and infiltrate the runoff from the 50-yr storm event. The model provides a direct comparison to the pre-development model. This analysis indicates that the proposed stormwater measures and stormwater management plan will treat and mitigate stormwater runoff in general accordance with The City of Dover's stormwater regulations. 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 watersheds were 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 25, dated September 3, 2024 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 subsoil variant

Hydrologic Drainage Class B:

Map Unit Symbol	Slopes	Map Unit Name
CfB	3 to 8%	Charlton fine sandy loam

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 3.13”, 4.71”, 5.95”, and 7.10” 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 two watersheds that discharge to abutting properties 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	0.02	0.0	0.3	0.6	1.0
B	0.02	0.1	0.4	0.8	1.3

2.3 DEVELOPED CONDITIONS

The post development model analyzes runoff to the post development discharge points.

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**
A	0.00	0.0	0.1	0.3	0.8
B	0.01	0.0	0.3	0.7	1.1

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	0.02/**0.00**	0.0/**0.0**	0.3/**0.1**	0.6/**0.3**	1.0/**0.8**
B	0.02/**0.01**	0.1/**0.0**	0.4/**0.3**	0.8/**0.7**	1.3/**1.1**

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

This project incorporates three infiltration basins and two stone drip edges (around one of the proposed buildings) to mitigate flow and water quality from the proposed development. See Appendix B-1 for Best Management Practice Design forms.

2.5.2 Pollutant Removal

This project effectively treats 0.367+/- acres of the total 0.393+/- acres of newly developed impervious area. Pollutant loads from the proposed development were calculated in accordance with NH Stormwater Manual, Volume 1, December 2008 utilizing the Simple Method. The project incorporates the following practices and associated pollutant removal efficacies as identified in the New Hampshire Stormwater Management Manual Volume 2, Appendix B:

	TSS	TN	TP
Infiltration Basins:	90%	65%	65%
Stone Drip Edge:	90%	55%	65%

Pollutant Removal Required					
Pollutant	**Residential Roof**	**Residential Driveway**	**Annual Load (lbs/yr)**	**% Removal**	**Removal Required (lbs/yr)**
TSS	**29.88**	**349.52**	**379.39**	**80%**	**303.51**
TN	**2.36**	**4.24**	**6.60**	**50%**	**3.30**
TP	**0.17**	**1.13**	**1.30**	**50%**	**0.65**

Pollutant Removal Provided							
Pollutant	**IB1**	**IB2**	**IB3**	**DE1**	**DE2**	**Removal Provided (lbs/yr)**	**Effective Removal Rate %**
TSS	**239.89**	**53.55**	**18.37**	**5.21**	**5.68**	**322.70**	**85%**
TN	**2.33**	**0.78**	**0.41**	**0.08**	**0.10**	**3.69**	**56%**
TP	**0.58**	**0.14**	**0.05**	**0.01**	**0.01**	**0.80**	**61%**

The pollutant removal meets or exceeds The City of Dover's, Site Review Regulations. See Appendix B-2 for Pollutant Removal supporting documentation.

2.5.3 Groundwater Recharge

Test pits (5 locations) were dug on October 25th, 2024 and borehole infiltration testing (5 locations) was performed on October 31st, 2024. The results from the infiltration tests indicated the soils have high KSAT values, ranging from 28 in/hr to 150 in/hr. The design infiltration rate applied for the infiltration practices is 5 in/hr as the soils in the basins will require 2 feet of soil amendment to meet NH DES infiltration rate requirements. A factor of safety of 2 was applied to the 10 in/hr maximum infiltration rate allowed per NH DES standards. Seasonal high water tables varied between depths of 48 and 59 inches. See Appendix B-3 for GRV calculations, supporting infiltration volume data, test pit, and borehole test information.

APPENDIX A

HYDROLOGIC CALCULATIONS

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: 43.22° N -70.92 °W

Locate by State/County



Select Options

Smoothing: Yes

Delivery: Popup

Submit

Version 2.0 Copyright 2010-2022
This project is a joint collaboration between:
Northeast Regional Climate Center (NRCC) | Natural Resources Conservation Service (NRCS)
Cornell University
Contact: precip@cornell.edu

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Metadata for Point	
Smoothing	Yes
State	New Hampshire
Location	New Hampshire, United States
Latitude	43.224 degrees North
Longitude	70.923 degrees West
Elevation	50 feet
Date/Time	Wed Oct 16 2024 11:12:55 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	1.99	2.59	2.85	**1yr**	2.29	2.75	3.15	3.87	4.44
2yr	0.32	0.49	0.61	0.81	1.01	1.28	**2yr**	0.87	1.17	1.50	1.91	2.44	3.13	3.49	**2yr**	2.77	3.35	3.85	4.58	5.21
5yr	0.37	0.57	0.72	0.96	1.23	1.58	**5yr**	1.06	1.44	1.85	2.38	3.06	3.95	4.46	**5yr**	3.49	4.29	4.91	5.77	6.53
10yr	0.40	0.63	0.80	1.09	1.42	1.84	**10yr**	1.22	1.69	2.17	2.81	3.64	4.71	5.38	**10yr**	4.17	5.17	5.92	6.89	7.74
25yr	0.46	0.74	0.94	1.30	1.72	2.27	**25yr**	1.49	2.09	2.69	3.51	4.58	5.95	6.89	**25yr**	5.26	6.63	7.56	8.70	9.71
50yr	0.52	0.83	1.06	1.48	2.00	2.66	**50yr**	1.73	2.45	3.17	4.17	5.45	7.10	8.32	**50yr**	6.28	8.00	9.11	10.38	11.53
100yr	0.58	0.94	1.21	1.71	2.32	3.12	**100yr**	2.01	2.88	3.74	4.94	6.48	8.48	10.05	**100yr**	7.51	9.66	10.99	12.39	13.69
200yr	0.64	1.05	1.36	1.95	2.70	3.67	**200yr**	2.33	3.39	4.42	5.87	7.73	10.13	12.13	**200yr**	8.97	11.67	13.25	14.81	16.26
500yr	0.76	1.25	1.62	2.36	3.31	4.54	**500yr**	2.85	4.21	5.49	7.34	9.73	12.83	15.58	**500yr**	11.36	14.98	16.97	18.74	20.44

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day
1yr	0.24	0.37	0.45	0.60	0.74	0.90	**1yr**	0.64	0.88	0.92	1.25	1.53	2.04	2.46	**1yr**	1.81	2.37	2.94	3.40	4.09
2yr	0.31	0.49	0.60	0.81	1.00	1.18	**2yr**	0.86	1.15	1.36	1.82	2.35	3.04	3.39	**2yr**	2.69	3.26	3.73	4.45	5.07
5yr	0.35	0.54	0.67	0.91	1.16	1.40	**5yr**	1.00	1.37	1.61	2.14	2.77	3.68	4.11	**5yr**	3.26	3.95	4.58	5.38	6.08
10yr	0.38	0.59	0.73	1.02	1.31	1.60	**10yr**	1.13	1.56	1.81	2.44	3.12	4.23	4.76	**10yr**	3.74	4.58	5.30	6.21	6.96
25yr	0.44	0.66	0.83	1.18	1.55	1.91	**25yr**	1.34	1.87	2.11	2.84	3.64	5.07	5.76	**25yr**	4.49	5.54	6.46	7.49	8.33
50yr	0.48	0.73	0.91	1.31	1.77	2.19	**50yr**	1.52	2.14	2.36	3.20	4.08	5.82	6.64	**50yr**	5.15	6.38	7.50	8.63	9.54
100yr	0.54	0.81	1.02	1.47	2.02	2.51	**100yr**	1.74	2.45	2.65	3.59	4.54	6.66	7.64	**100yr**	5.90	7.35	8.72	9.94	10.89
200yr	0.60	0.90	1.14	1.65	2.30	2.87	**200yr**	1.98	2.81	2.96	4.02	5.07	7.63	8.80	**200yr**	6.76	8.46	10.12	11.45	12.46
500yr	0.70	1.04	1.34	1.94	2.76	3.46	**500yr**	2.38	3.39	3.45	4.68	5.87	9.09	10.59	**500yr**	8.05	10.19	12.33	13.82	14.81

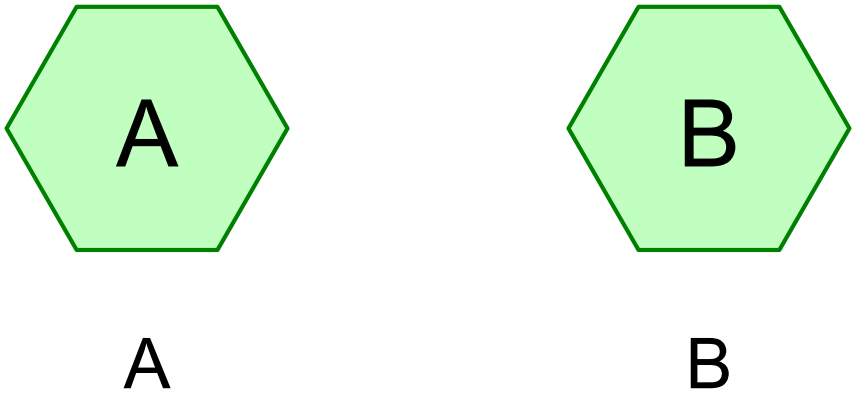
Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day
1yr	0.28	0.43	0.53	0.71	0.87	1.08	**1yr**	0.75	1.05	1.23	1.73	2.20	2.81	3.06	**1yr**	2.49	2.95	3.37	4.17	4.74
2yr	0.33	0.51	0.62	0.84	1.04	1.24	**2yr**	0.90	1.22	1.47	1.95	2.51	3.23	3.60	**2yr**	2.86	3.46	3.97	4.73	5.38
5yr	0.39	0.60	0.75	1.03	1.31	1.58	**5yr**	1.13	1.54	1.85	2.49	3.19	4.21	4.81	**5yr**	3.73	4.63	5.26	6.18	6.95
10yr	0.46	0.70	0.87	1.21	1.57	1.91	**10yr**	1.35	1.87	2.22	3.03	3.84	5.17	6.00	**10yr**	4.58	5.77	6.60	7.58	8.45
25yr	0.55	0.84	1.05	1.50	1.97	2.46	**25yr**	1.70	2.40	2.86	3.94	4.93	6.81	8.05	**25yr**	6.03	7.74	8.82	9.98	11.00
50yr	0.64	0.97	1.21	1.74	2.35	2.96	**50yr**	2.03	2.90	3.47	4.80	5.98	8.38	10.08	**50yr**	7.41	9.69	11.01	12.26	13.44
100yr	0.75	1.13	1.41	2.04	2.80	3.58	**100yr**	2.41	3.50	4.21	5.87	7.27	10.31	12.61	**100yr**	9.13	12.13	13.72	15.10	16.43
200yr	0.86	1.30	1.65	2.39	3.33	4.33	**200yr**	2.87	4.23	5.12	7.17	8.83	12.73	15.81	**200yr**	11.26	15.20	17.12	18.57	20.12
500yr	1.06	1.57	2.03	2.94	4.19	5.55	**500yr**	3.61	5.42	6.61	9.37	11.43	16.85	21.31	**500yr**	14.91	20.49	22.96	24.47	26.32

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EXISTING WATERSHEDS



Subcat Reach Pond Link

Routing Diagram for 24094 - Pre
Prepared by Civilworks New England
HydroCAD® 10.10-5a s/n 03240 © 2020 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.335	39	>75% Grass cover, Good, HSG A (A, B)
0.290	61	>75% Grass cover, Good, HSG B (A, B)
0.053	96	Gravel surface, HSG A (A)
0.013	96	Gravel surface, HSG B (A)
0.127	98	Paved parking, HSG A (A, B)
0.014	98	Paved parking, HSG B (A, B)
0.017	98	Roofs, HSG A (B)
0.051	98	Roofs, HSG B (A, B)
0.317	30	Woods, Good, HSG A (A, B)
0.834	55	Woods, Good, HSG B (A, B)
2.052	**55**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.850	HSG A	A, B
1.202	HSG B	A, B
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.052		**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
0.335	0.290	0.000	0.000	0.000	0.625	>75% Grass cover, Good	A, B
0.053	0.013	0.000	0.000	0.000	0.066	Gravel surface	A
0.127	0.014	0.000	0.000	0.000	0.142	Paved parking	A, B
0.017	0.051	0.000	0.000	0.000	0.068	Roofs	A, B
0.317	0.834	0.000	0.000	0.000	1.151	Woods, Good	A, B
0.850	**1.202**	**0.000**	**0.000**	**0.000**	**2.052**	**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=34,290 sf 17.74% Impervious Runoff Depth=0.23"
Flow Length=157' Tc=15.9 min CN=55 Runoff=0.0 cfs 0.02 af

Subcatchment B: B Runoff Area=55,089 sf 5.55% Impervious Runoff Depth=0.23"
Flow Length=350' Tc=25.1 min CN=55 Runoff=0.1 cfs 0.02 af

Total Runoff Area = 2.052 ac Runoff Volume = 0.04 af Average Runoff Depth = 0.23"
89.77% Pervious = 1.842 ac 10.23% Impervious = 0.210 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=34,290 sf 17.74% Impervious Runoff Depth=0.84"
Flow Length=157' Tc=15.9 min CN=55 Runoff=0.3 cfs 0.06 af

Subcatchment B: B Runoff Area=55,089 sf 5.55% Impervious Runoff Depth=0.84"
Flow Length=350' Tc=25.1 min CN=55 Runoff=0.4 cfs 0.09 af

Total Runoff Area = 2.052 ac Runoff Volume = 0.14 af Average Runoff Depth = 0.84"
89.77% Pervious = 1.842 ac 10.23% Impervious = 0.210 ac

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10-YR STORM SUMMARY

Summary for Subcatchment A: A

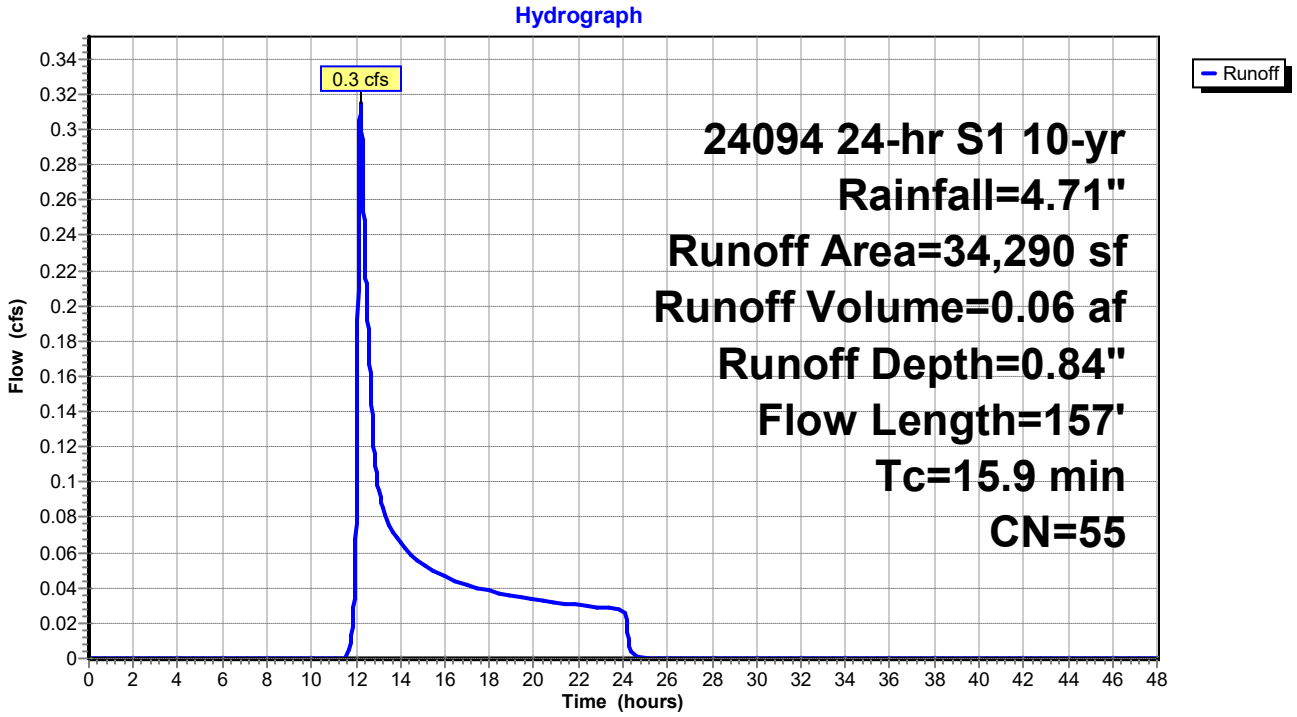
Runoff = 0.3 cfs @ 12.21 hrs, Volume= 0.06 af, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
6,295	30	Woods, Good, HSG A
12,764	39	>75% Grass cover, Good, HSG A
2,323	96	Gravel surface, HSG A
5,417	98	Paved parking, HSG A
800	55	Woods, Good, HSG B
3,319	61	>75% Grass cover, Good, HSG B
562	96	Gravel surface, HSG B
128	98	Paved parking, HSG B
538	98	Roofs, HSG B
2,044	30	Woods, Good, HSG A
100	39	>75% Grass cover, Good, HSG A
34,290	55	Weighted Average
28,207		82.26% Pervious Area
6,083		17.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	20	0.0300	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.13"
4.5	38	0.0530	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.13"
5.4	42	0.1130	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.13"
0.9	57	0.0480	1.10		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.9	157	Total			

Subcatchment A: A



Summary for Subcatchment B: B

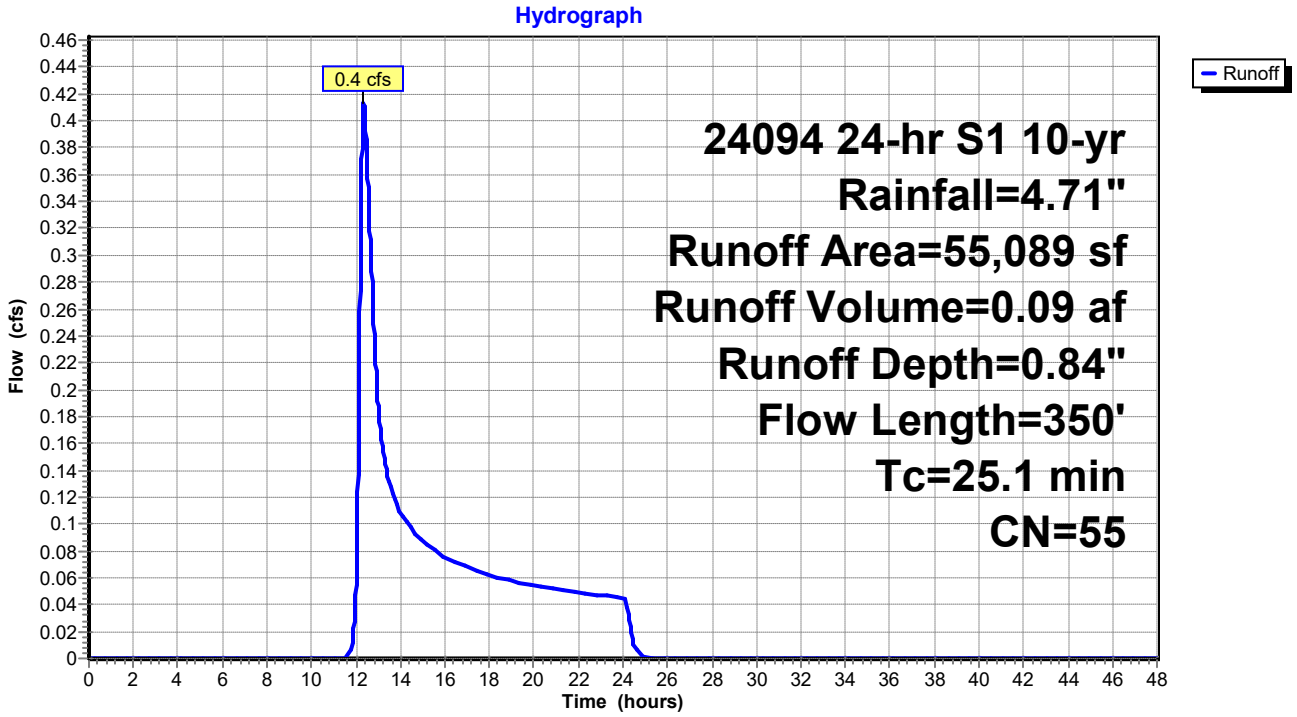
Runoff = 0.4 cfs @ 12.36 hrs, Volume= 0.09 af, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
5,022	30	Woods, Good, HSG A
1,714	39	>75% Grass cover, Good, HSG A
133	98	Paved parking, HSG A
734	98	Roofs, HSG A
28,918	55	Woods, Good, HSG B
9,321	61	>75% Grass cover, Good, HSG B
492	98	Paved parking, HSG B
1,699	98	Roofs, HSG B
466	30	Woods, Good, HSG A
6,590	55	Woods, Good, HSG B
55,089	55	Weighted Average
52,031		94.45% Pervious Area
3,058		5.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	77	0.0280	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.13"
6.4	23	0.0220	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.13"
1.2	81	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.1	169	0.0690	1.31		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
25.1	350	Total			

Subcatchment B: B



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=34,290 sf 17.74% Impervious Runoff Depth=1.49"
Flow Length=157' Tc=15.9 min CN=55 Runoff=0.6 cfs 0.10 af

Subcatchment B: B Runoff Area=55,089 sf 5.55% Impervious Runoff Depth=1.49"
Flow Length=350' Tc=25.1 min CN=55 Runoff=0.8 cfs 0.16 af

Total Runoff Area = 2.052 ac Runoff Volume = 0.25 af Average Runoff Depth = 1.49"
89.77% Pervious = 1.842 ac 10.23% Impervious = 0.210 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

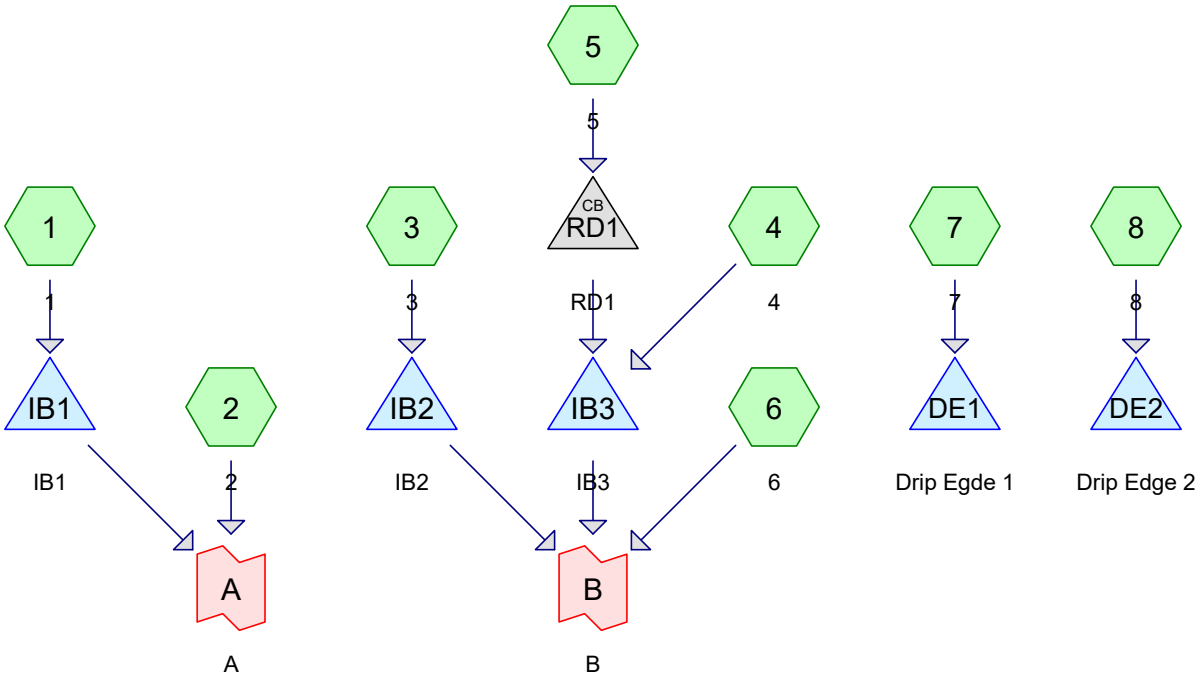
Subcatchment A: A Runoff Area=34,290 sf 17.74% Impervious Runoff Depth=2.19"
Flow Length=157' Tc=15.9 min CN=55 Runoff=1.0 cfs 0.14 af

Subcatchment B: B Runoff Area=55,089 sf 5.55% Impervious Runoff Depth=2.19"
Flow Length=350' Tc=25.1 min CN=55 Runoff=1.3 cfs 0.23 af

Total Runoff Area = 2.052 ac Runoff Volume = 0.37 af Average Runoff Depth = 2.19"
89.77% Pervious = 1.842 ac 10.23% Impervious = 0.210 ac

A – 2

DEVELOPED WATERSHEDS



Subcat Reach Pond Link

Routing Diagram for 24094 - Post
Prepared by Civilworks New England
HydroCAD® 10.10-5a s/n 03240 © 2020 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.348	39	>75% Grass cover, Good, HSG A (1, 2, 6)
0.306	61	>75% Grass cover, Good, HSG B (1, 2, 3, 4, 6)
0.001	98	Bulkhead, HSG A (1, 2)
0.001	98	Bulkhead, HSG B (2, 6)
0.002	96	Deck, HSG A (1)
0.013	96	Deck, HSG B (2, 6)
0.006	96	Gravel surface, HSG B (7, 8)
0.191	98	Paved parking, HSG A (1, 2, 6)
0.100	98	Paved parking, HSG B (1, 3, 4)
0.037	98	Roofs, HSG A (1)
0.119	98	Roofs, HSG B (1, 3, 4, 5, 7, 8)
0.272	30	Woods, Good, HSG A (2, 6)
0.657	55	Woods, Good, HSG B (2, 6)
2.052	**60**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.850	HSG A	1, 2, 6
1.202	HSG B	1, 2, 3, 4, 5, 6, 7, 8
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.052		**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
0.348	0.306	0.000	0.000	0.000	0.654	>75% Grass cover, Good	1, 2, 3, 4, 6
0.001	0.001	0.000	0.000	0.000	0.002	Bulkhead	1, 2, 6
0.002	0.013	0.000	0.000	0.000	0.015	Deck	1, 2, 6
0.000	0.006	0.000	0.000	0.000	0.006	Gravel surface	7, 8
0.191	0.100	0.000	0.000	0.000	0.291	Paved parking	1, 2, 3, 4, 6
0.037	0.119	0.000	0.000	0.000	0.155	Roofs	1, 3, 4, 5, 7, 8
0.272	0.657	0.000	0.000	0.000	0.928	Woods, Good	2, 6
0.850	**1.202**	**0.000**	**0.000**	**0.000**	**2.052**	**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=15,431 sf 61.13% Impervious Runoff Depth=1.16"
Flow Length=98' Slope=0.0370 '/' Tc=11.1 min CN=77 Runoff=0.4 cfs 0.03 af

Subcatchment 2: 2 Runoff Area=16,400 sf 19.57% Impervious Runoff Depth=0.10"
Flow Length=126' Tc=13.5 min CN=49 Runoff=0.0 cfs 0.00 af

Subcatchment 3: 3 Runoff Area=4,841 sf 73.48% Impervious Runoff Depth=1.93"
Flow Length=36' Slope=0.0200 '/' Tc=6.4 min CN=88 Runoff=0.2 cfs 0.02 af

Subcatchment 4: 4 Runoff Area=3,692 sf 37.49% Impervious Runoff Depth=1.05"
Flow Length=69' Tc=7.0 min CN=75 Runoff=0.1 cfs 0.01 af

Subcatchment 5: 5 Runoff Area=628 sf 100.00% Impervious Runoff Depth=2.90"
Flow Length=15' Tc=1.2 min CN=98 Runoff=0.0 cfs 0.00 af

Subcatchment 6: 6 Runoff Area=47,479 sf 1.42% Impervious Runoff Depth=0.16"
Flow Length=355' Tc=23.3 min CN=52 Runoff=0.0 cfs 0.01 af

Subcatchment 7: 7 Runoff Area=368 sf 66.58% Impervious Runoff Depth=2.79"
Flow Length=7' Tc=1.2 min CN=97 Runoff=0.0 cfs 0.00 af

Subcatchment 8: 8 Runoff Area=541 sf 74.12% Impervious Runoff Depth=2.79"
Flow Length=15' Tc=1.2 min CN=97 Runoff=0.0 cfs 0.00 af

Pond DE1: Drip Egde 1 Peak Elev=181.66' Storage=6 cf Inflow=0.0 cfs 0.00 af
Outflow=0.0 cfs 0.00 af

Pond DE2: Drip Edge 2 Peak Elev=181.91' Storage=15 cf Inflow=0.0 cfs 0.00 af
Outflow=0.0 cfs 0.00 af

Pond IB1: IB1 Peak Elev=179.96' Storage=292 cf Inflow=0.4 cfs 0.03 af
Discarded=0.1 cfs 0.03 af Primary=0.0 cfs 0.00 af Outflow=0.1 cfs 0.03 af

Pond IB2: IB2 Peak Elev=181.72' Storage=204 cf Inflow=0.2 cfs 0.02 af
Discarded=0.0 cfs 0.02 af Primary=0.0 cfs 0.00 af Outflow=0.0 cfs 0.02 af

Pond IB3: IB3 Peak Elev=174.50' Storage=44 cf Inflow=0.1 cfs 0.01 af
Discarded=0.0 cfs 0.01 af Primary=0.0 cfs 0.00 af Outflow=0.0 cfs 0.01 af

Pond RD1: RD1 Peak Elev=174.85' Inflow=0.0 cfs 0.00 af
6.0" Round Culvert n=0.012 L=60.0' S=0.0050 '/' Outflow=0.0 cfs 0.00 af

Link A: A Inflow=0.0 cfs 0.00 af
Primary=0.0 cfs 0.00 af

Link B: B Inflow=0.0 cfs 0.01 af
Primary=0.0 cfs 0.01 af

Total Runoff Area = 2.052 ac Runoff Volume = 0.09 af Average Runoff Depth = 0.50"
78.15% Pervious = 1.604 ac 21.85% Impervious = 0.448 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=15,431 sf 61.13% Impervious Runoff Depth=2.38"
Flow Length=98' Slope=0.0370 '/' Tc=11.1 min CN=77 Runoff=0.7 cfs 0.07 af

Subcatchment 2: 2 Runoff Area=16,400 sf 19.57% Impervious Runoff Depth=0.53"
Flow Length=126' Tc=13.5 min CN=49 Runoff=0.1 cfs 0.02 af

Subcatchment 3: 3 Runoff Area=4,841 sf 73.48% Impervious Runoff Depth=3.39"
Flow Length=36' Slope=0.0200 '/' Tc=6.4 min CN=88 Runoff=0.4 cfs 0.03 af

Subcatchment 4: 4 Runoff Area=3,692 sf 37.49% Impervious Runoff Depth=2.22"
Flow Length=69' Tc=7.0 min CN=75 Runoff=0.2 cfs 0.02 af

Subcatchment 5: 5 Runoff Area=628 sf 100.00% Impervious Runoff Depth=4.47"
Flow Length=15' Tc=1.2 min CN=98 Runoff=0.1 cfs 0.01 af

Subcatchment 6: 6 Runoff Area=47,479 sf 1.42% Impervious Runoff Depth=0.68"
Flow Length=355' Tc=23.3 min CN=52 Runoff=0.2 cfs 0.06 af

Subcatchment 7: 7 Runoff Area=368 sf 66.58% Impervious Runoff Depth=4.36"
Flow Length=7' Tc=1.2 min CN=97 Runoff=0.0 cfs 0.00 af

Subcatchment 8: 8 Runoff Area=541 sf 74.12% Impervious Runoff Depth=4.36"
Flow Length=15' Tc=1.2 min CN=97 Runoff=0.1 cfs 0.00 af

Pond DE1: Drip Egde 1 Peak Elev=181.78' Storage=11 cf Inflow=0.0 cfs 0.00 af
Outflow=0.0 cfs 0.00 af

Pond DE2: Drip Edge 2 Peak Elev=182.28' Storage=27 cf Inflow=0.1 cfs 0.00 af
Outflow=0.0 cfs 0.00 af

Pond IB1: IB1 Peak Elev=180.54' Storage=779 cf Inflow=0.7 cfs 0.07 af
Discarded=0.1 cfs 0.07 af Primary=0.0 cfs 0.00 af Outflow=0.1 cfs 0.07 af

Pond IB2: IB2 Peak Elev=182.03' Storage=328 cf Inflow=0.4 cfs 0.03 af
Discarded=0.1 cfs 0.03 af Primary=0.1 cfs 0.00 af Outflow=0.1 cfs 0.03 af

Pond IB3: IB3 Peak Elev=174.71' Storage=136 cf Inflow=0.2 cfs 0.02 af
Discarded=0.1 cfs 0.02 af Primary=0.0 cfs 0.00 af Outflow=0.1 cfs 0.02 af

Pond RD1: RD1 Peak Elev=174.88' Inflow=0.1 cfs 0.01 af
6.0" Round Culvert n=0.012 L=60.0' S=0.0050 '/' Outflow=0.1 cfs 0.01 af

Link A: A Inflow=0.1 cfs 0.02 af
Primary=0.1 cfs 0.02 af

Link B: B Inflow=0.3 cfs 0.06 af
Primary=0.3 cfs 0.06 af

Total Runoff Area = 2.052 ac Runoff Volume = 0.21 af Average Runoff Depth = 1.22"
78.15% Pervious = 1.604 ac 21.85% Impervious = 0.448 ac

A – 2

10-YR STORM SUMMARY

Summary for Subcatchment 1: 1

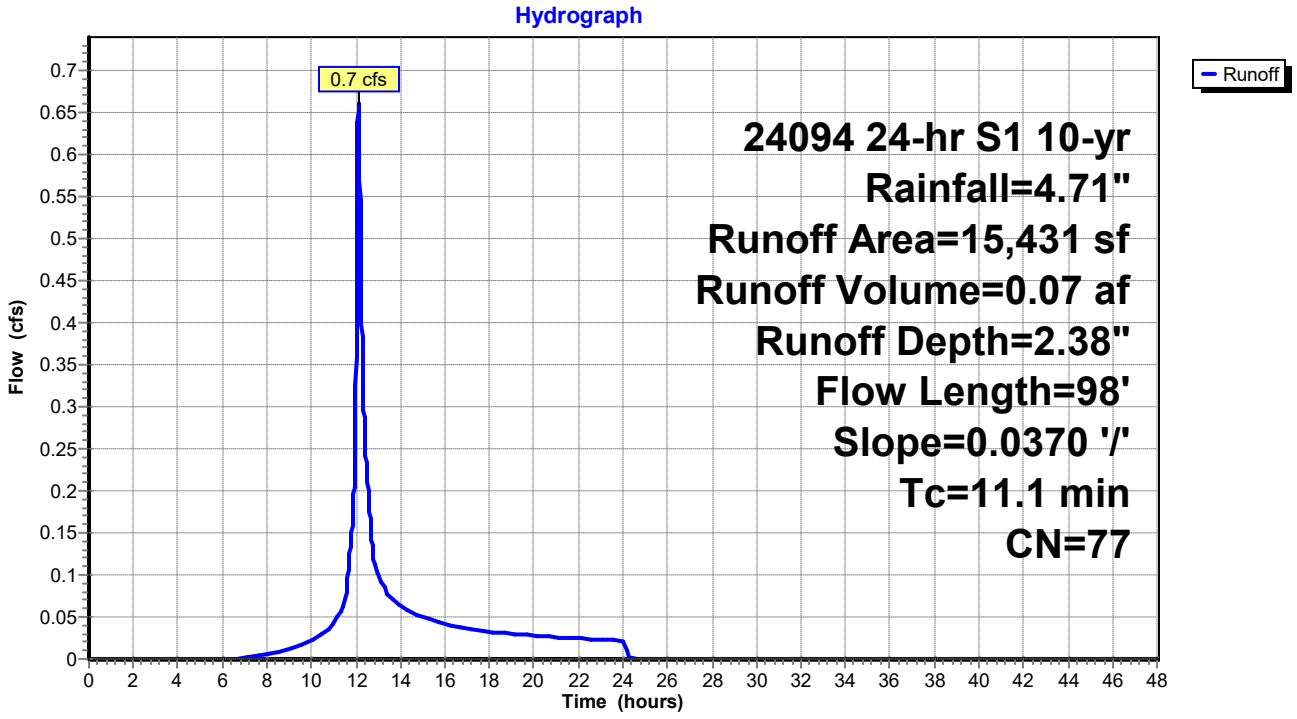
Runoff = 0.7 cfs @ 12.10 hrs, Volume= 0.07 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

	Area (sf)	CN	Description
	4,804	39	>75% Grass cover, Good, HSG A
	4,499	98	Paved parking, HSG A
*	24	98	Bulkhead, HSG A
*	72	96	Deck, HSG A
	1,595	98	Roofs, HSG A
	1,122	61	>75% Grass cover, Good, HSG B
	2,573	98	Paved parking, HSG B
	742	98	Roofs, HSG B
	15,431	77	Weighted Average
	5,998		38.87% Pervious Area
	9,433		61.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	98	0.0370	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.13"

Subcatchment 1: 1



Summary for Subcatchment 2: 2

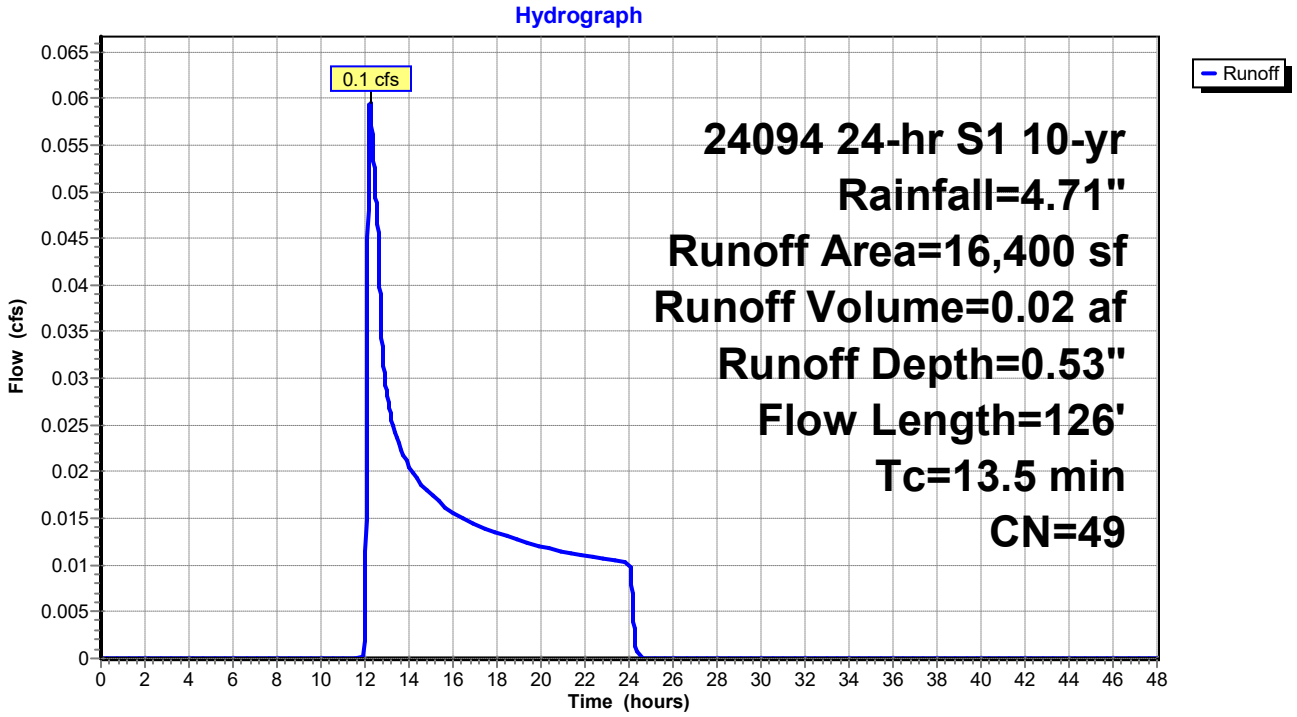
Runoff = 0.1 cfs @ 12.23 hrs, Volume= 0.02 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

	Area (sf)	CN	Description
	4,045	30	Woods, Good, HSG A
	5,457	39	>75% Grass cover, Good, HSG A
	3,186	98	Paved parking, HSG A
*	8	98	Bulkhead, HSG A
	414	55	Woods, Good, HSG B
	986	61	>75% Grass cover, Good, HSG B
*	16	98	Bulkhead, HSG B
*	144	96	Deck, HSG B
	2,044	30	Woods, Good, HSG A
	100	39	>75% Grass cover, Good, HSG A
	16,400	49	Weighted Average
	13,190		80.43% Pervious Area
	3,210		19.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	27	0.0460	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.13"
9.6	73	0.0830	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.13"
0.3	26	0.0700	1.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.5	126	Total			

Subcatchment 2: 2



Summary for Subcatchment 3: 3

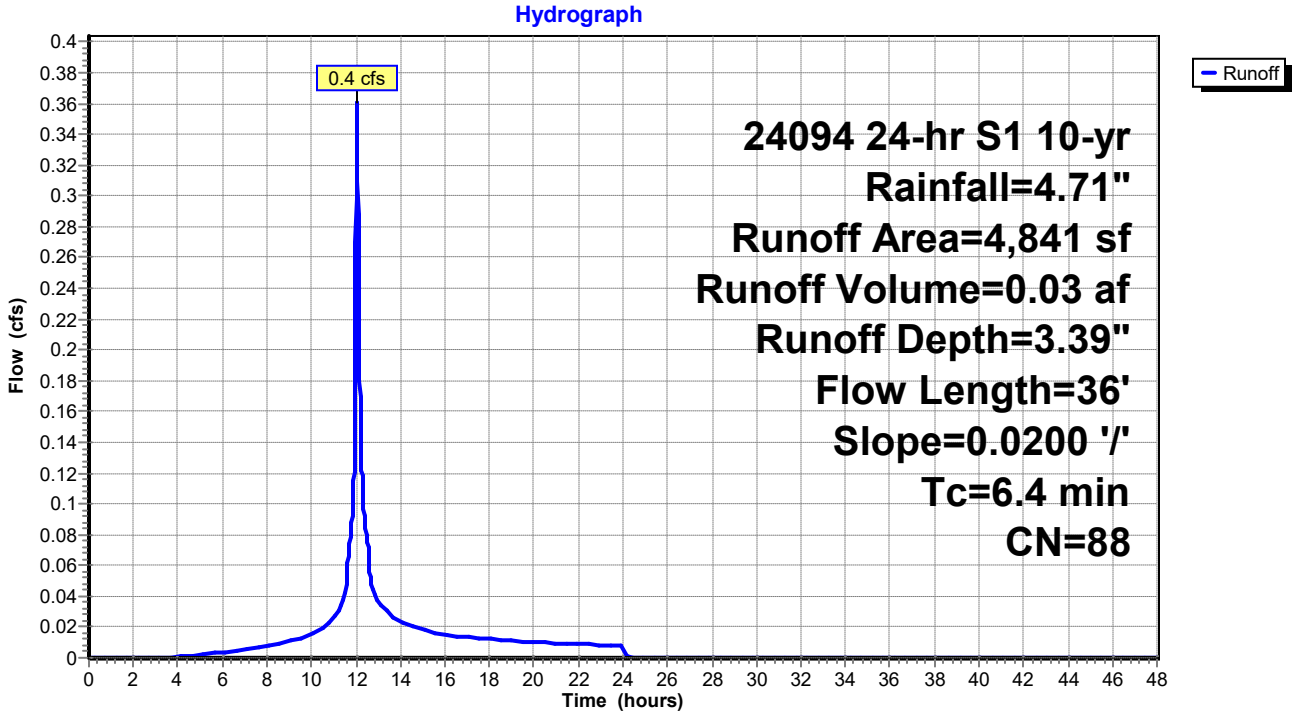
Runoff = 0.4 cfs @ 12.04 hrs, Volume= 0.03 af, Depth= 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
1,284	61	>75% Grass cover, Good, HSG B
1,404	98	Paved parking, HSG B
2,153	98	Roofs, HSG B
4,841	88	Weighted Average
1,284		26.52% Pervious Area
3,557		73.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	36	0.0200	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.13"

Subcatchment 3: 3



Summary for Subcatchment 4: 4

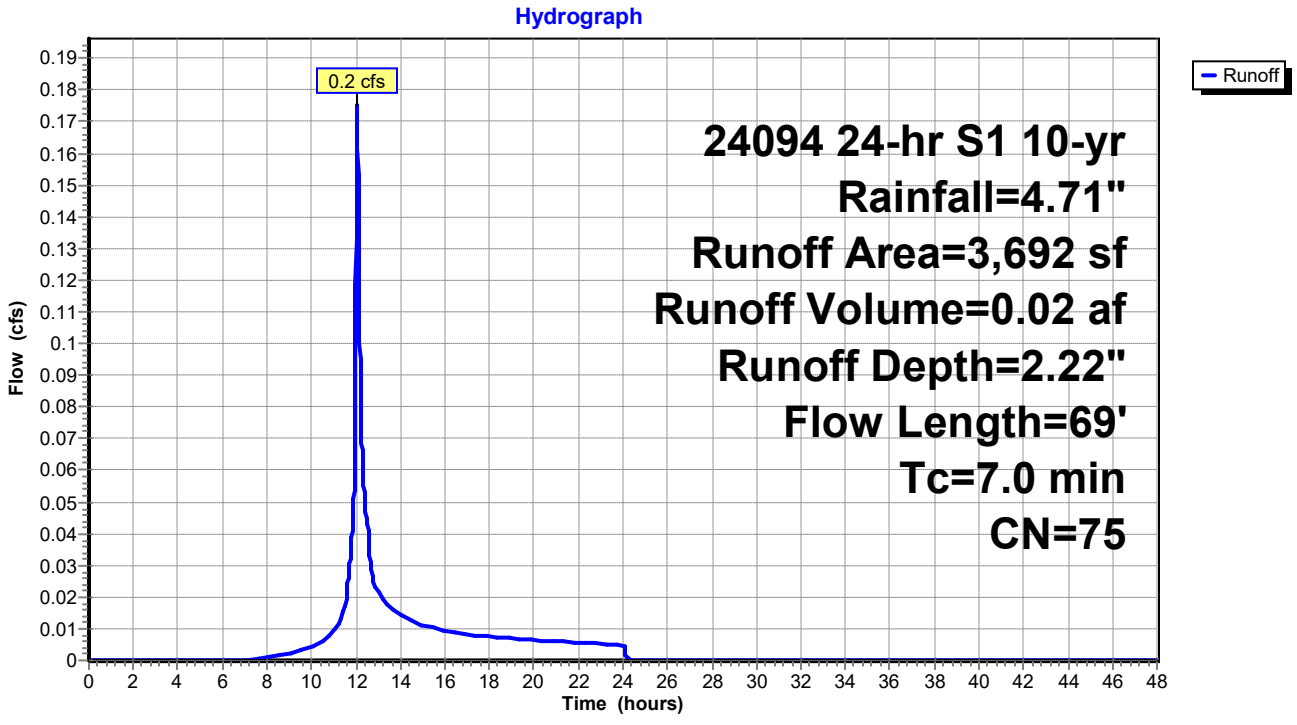
Runoff = 0.2 cfs @ 12.05 hrs, Volume= 0.02 af, Depth= 2.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
2,308	61	>75% Grass cover, Good, HSG B
382	98	Paved parking, HSG B
1,002	98	Roofs, HSG B
3,692	75	Weighted Average
2,308		62.51% Pervious Area
1,384		37.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	37	0.0440	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.13"
2.2	32	0.2380	0.25		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.13"
7.0	69	Total			

Subcatchment 4: 4



Summary for Subcatchment 5: 5

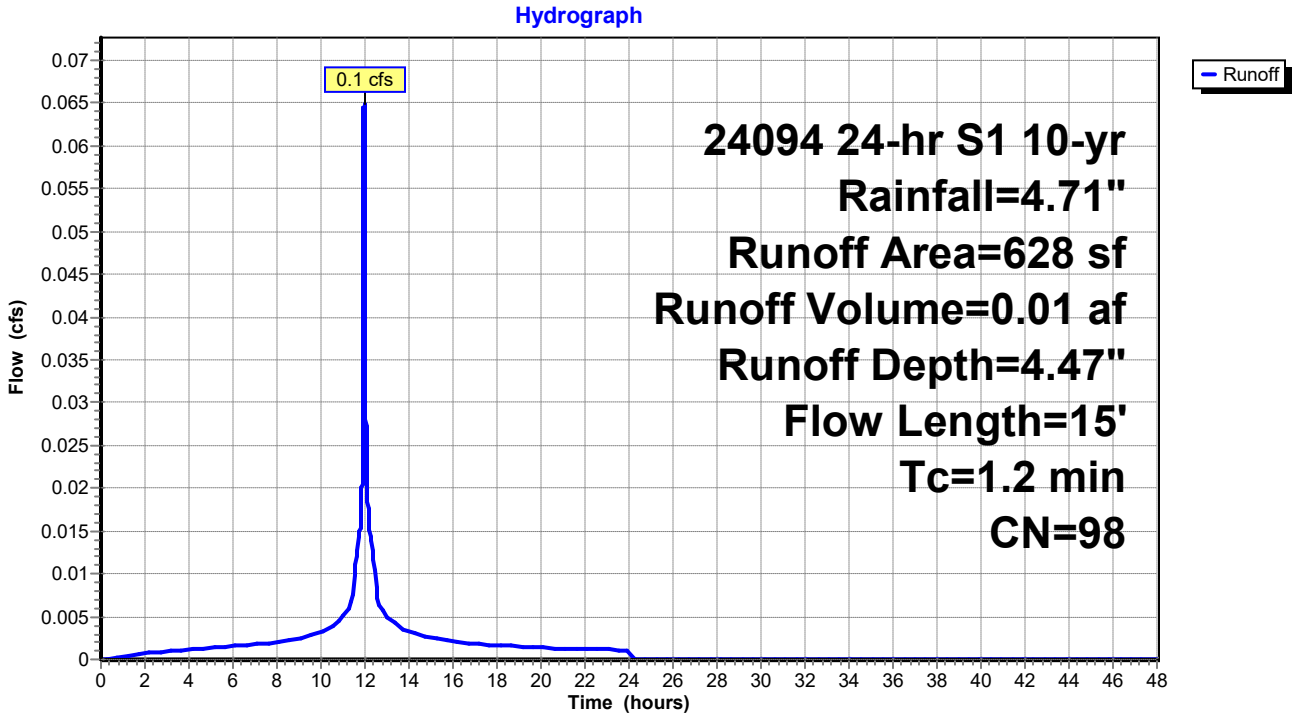
Runoff = 0.1 cfs @ 11.99 hrs, Volume= 0.01 af, Depth= 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
628	98	Roofs, HSG B
628		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	15		0.21		**Direct Entry, Roof**

Subcatchment 5: 5



Summary for Subcatchment 6: 6

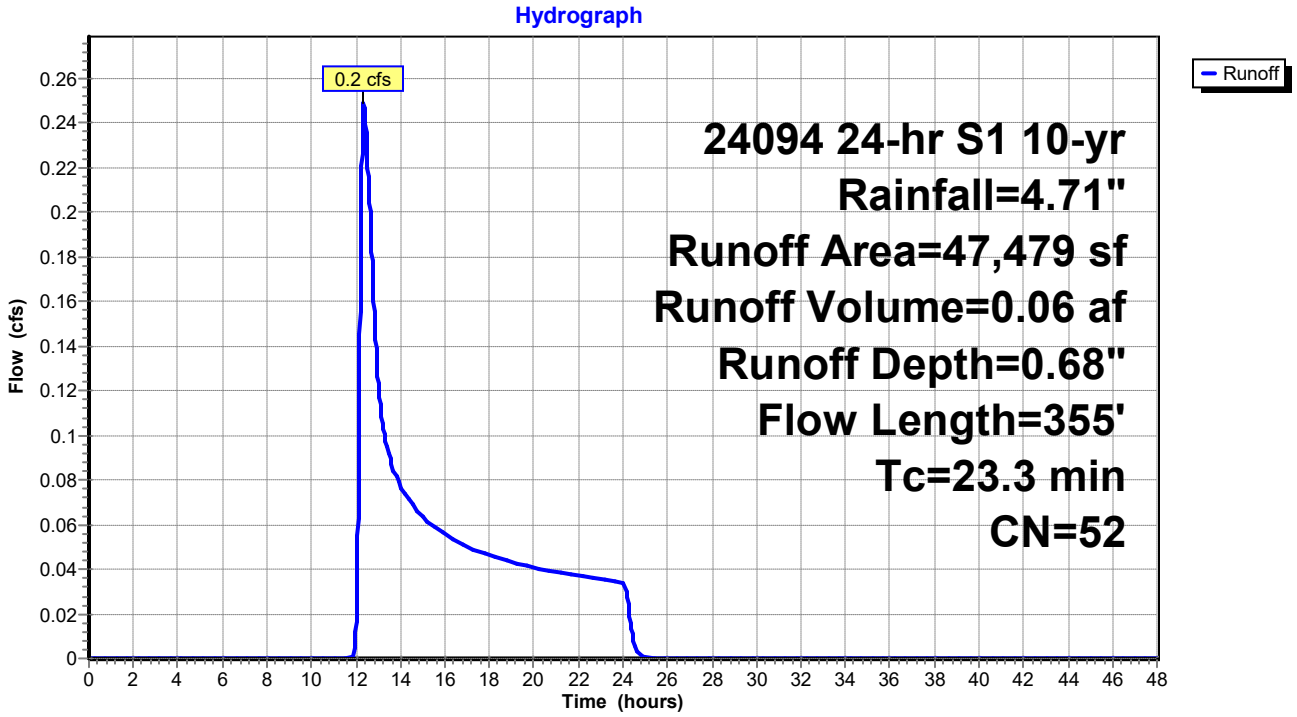
Runoff = 0.2 cfs @ 12.35 hrs, Volume= 0.06 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

	Area (sf)	CN	Description
	5,273	30	Woods, Good, HSG A
	4,814	39	>75% Grass cover, Good, HSG A
	625	98	Paved parking, HSG A
	21,596	55	Woods, Good, HSG B
	7,635	61	>75% Grass cover, Good, HSG B
*	432	96	Deck, HSG B
*	48	98	Bulkhead, HSG B
	6,590	55	Woods, Good, HSG B
	466	30	Woods, Good, HSG A
	47,479	52	Weighted Average
	46,806		98.58% Pervious Area
	673		1.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	77	0.0280	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.13"
4.3	23	0.0220	0.09		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.13"
1.2	70	0.0210	1.01		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.4	185	0.0680	1.30		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
23.3	355	Total			

Subcatchment 6: 6



Summary for Subcatchment 7: 7

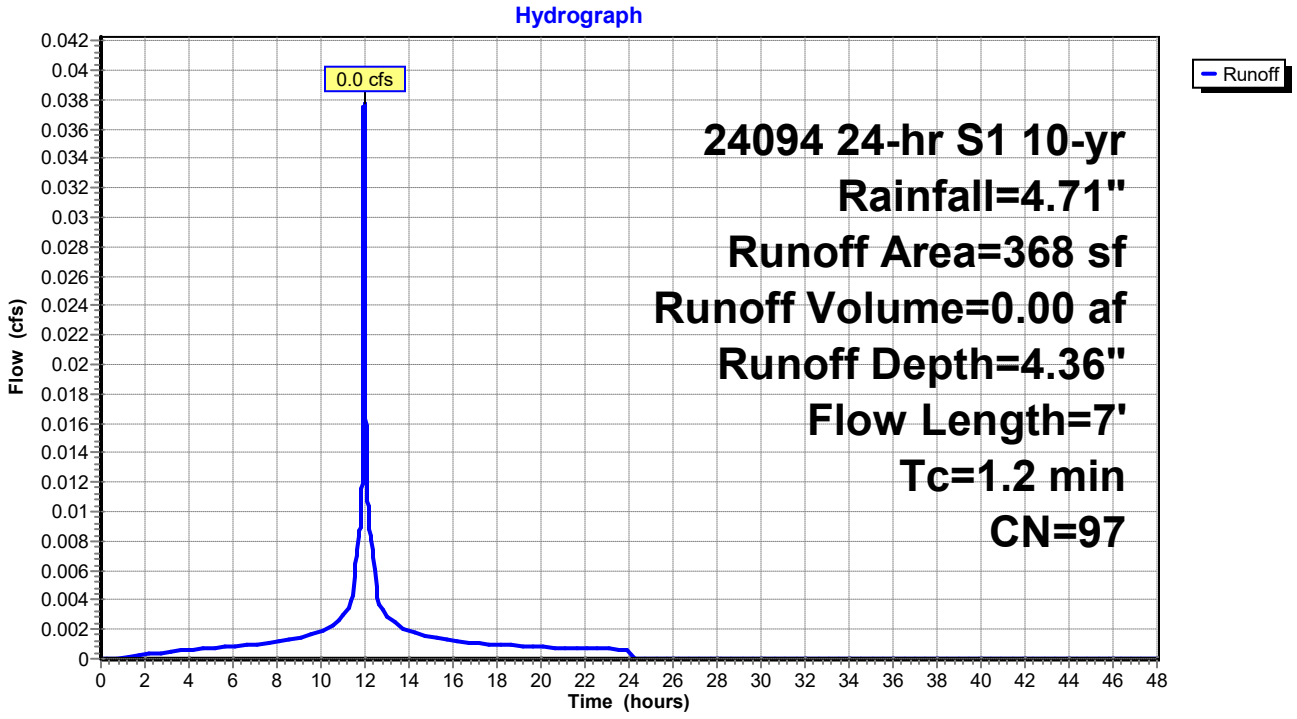
Runoff = 0.0 cfs @ 11.99 hrs, Volume= 0.00 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
123	96	Gravel surface, HSG B
245	98	Roofs, HSG B
368	97	Weighted Average
123		33.42% Pervious Area
245		66.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	7		0.10		**Direct Entry, Roof**

Subcatchment 7: 7



Summary for Subcatchment 8: 8

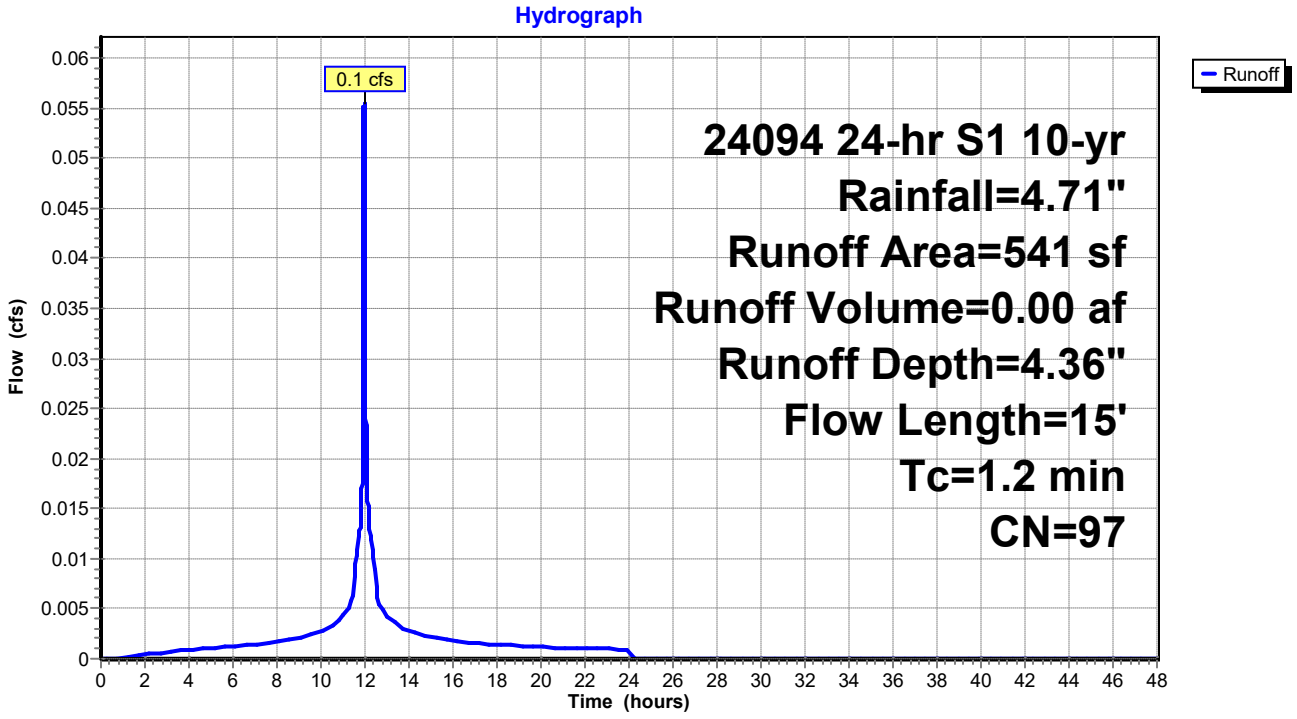
Runoff = 0.1 cfs @ 11.99 hrs, Volume= 0.00 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
24094 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
140	96	Gravel surface, HSG B
401	98	Roofs, HSG B
541	97	Weighted Average
140		25.88% Pervious Area
401		74.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	15		0.21		**Direct Entry, Roof**

Subcatchment 8: 8



Summary for Pond DE1: Drip Egde 1

Inflow Area = 0.008 ac, 66.58% Impervious, Inflow Depth = 4.36" for 10-yr event
Inflow = 0.0 cfs @ 11.99 hrs, Volume= 0.00 af
Outflow = 0.0 cfs @ 11.92 hrs, Volume= 0.00 af, Atten= 69%, Lag= 0.0 min
Discarded = 0.0 cfs @ 11.92 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 181.78' @ 12.12 hrs Surf.Area= 100 sf Storage= 11 cf
Flood Elev= 183.00' Surf.Area= 140 sf Storage= 68 cf

Plug-Flow detention time= 3.1 min calculated for 0.00 af (100% of inflow)
Center-of-Mass det. time= 3.1 min (759.8 - 756.7)

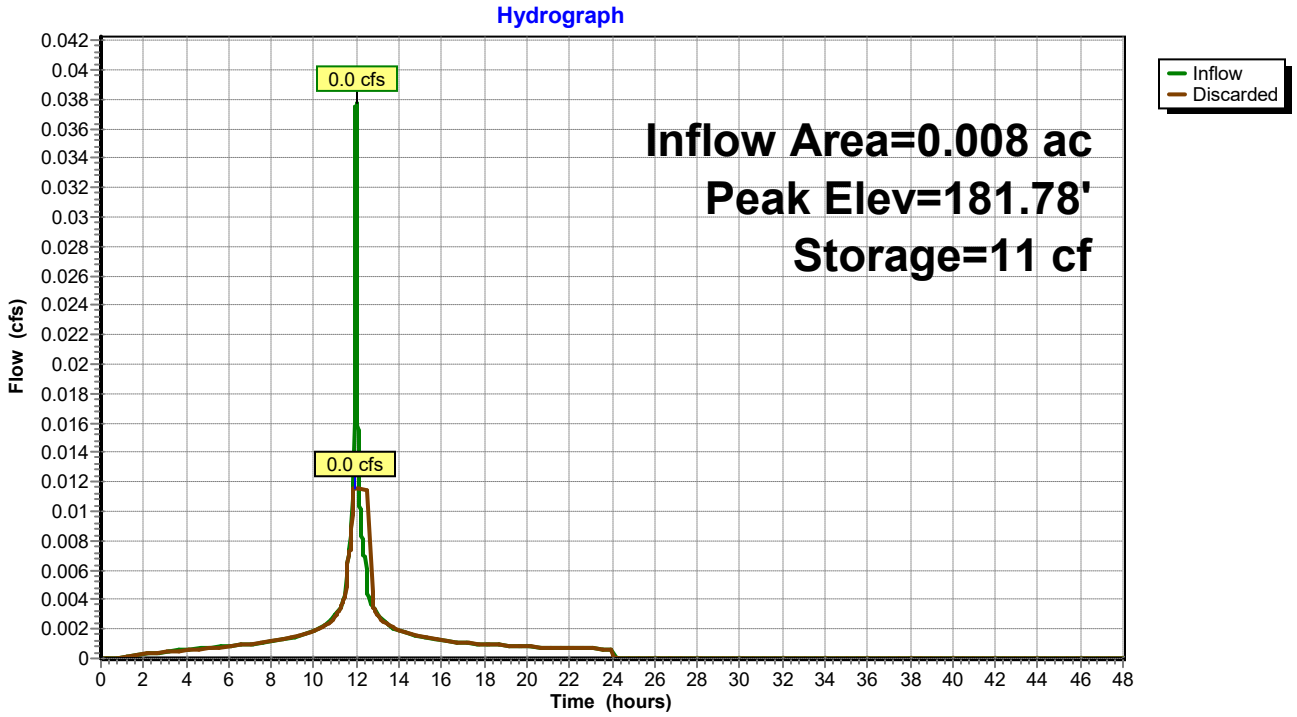
Volume	Invert	Avail.Storage	Storage Description
#1	181.50'	68 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.50	100	0.0	0	0
182.50	100	40.0	40	40
182.51	140	40.0	0	40
183.00	140	40.0	27	68

Device	Routing	Invert	Outlet Devices
#1	Discarded	181.50'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.0 cfs @ 11.92 hrs HW=181.52' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Pond DE1: Drip Egde 1



Summary for Pond DE2: Drip Edge 2

Inflow Area = 0.012 ac, 74.12% Impervious, Inflow Depth = 4.36" for 10-yr event
Inflow = 0.1 cfs @ 11.99 hrs, Volume= 0.00 af
Outflow = 0.0 cfs @ 11.72 hrs, Volume= 0.00 af, Atten= 82%, Lag= 0.0 min
Discarded = 0.0 cfs @ 11.72 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 182.28' @ 12.35 hrs Surf.Area= 88 sf Storage= 27 cf
Flood Elev= 183.00' Surf.Area= 123 sf Storage= 60 cf

Plug-Flow detention time= 10.4 min calculated for 0.00 af (100% of inflow)
Center-of-Mass det. time= 10.4 min (767.2 - 756.7)

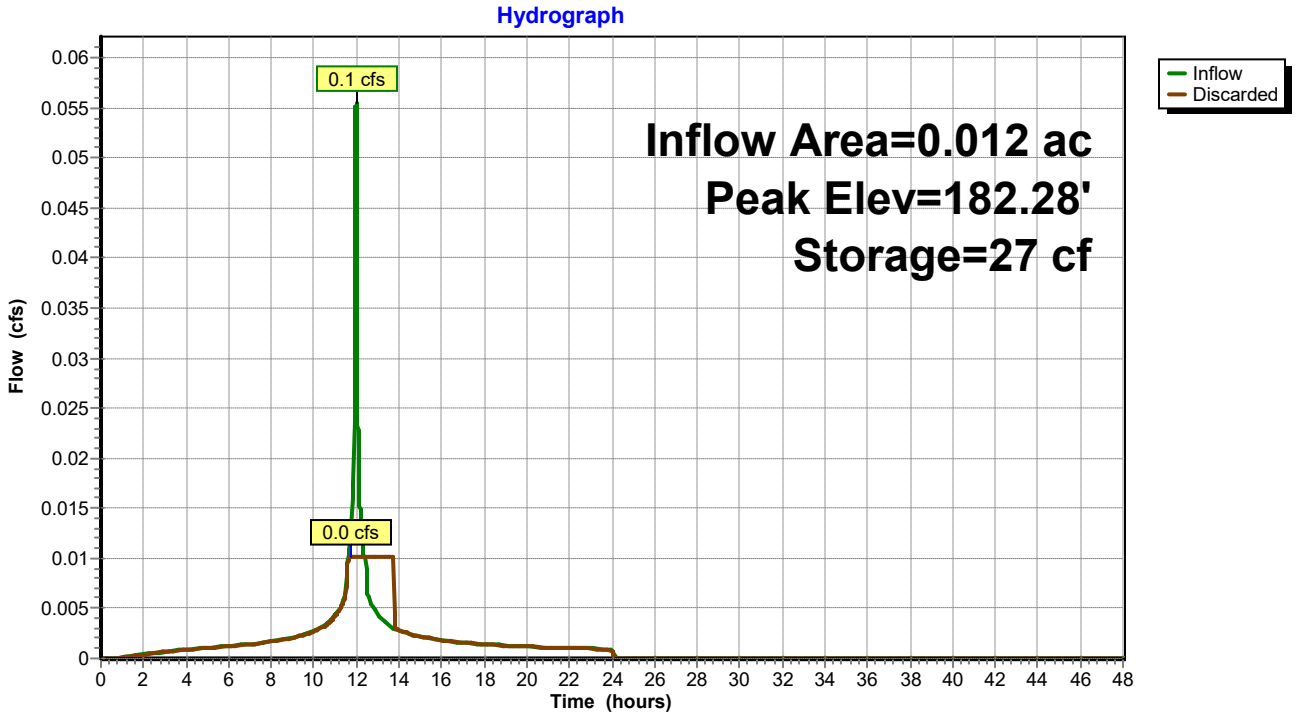
Volume	Invert	Avail.Storage	Storage Description
#1	181.50'	60 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.50	88	0.0	0	0
182.50	88	40.0	35	35
182.51	123	40.0	0	36
183.00	123	40.0	24	60

Device	Routing	Invert	Outlet Devices
#1	Discarded	181.50'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.0 cfs @ 11.72 hrs HW=181.52' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Pond DE2: Drip Edge 2



Summary for Pond IB1: IB1

Inflow Area = 0.354 ac, 61.13% Impervious, Inflow Depth = 2.38" for 10-yr event
Inflow = 0.7 cfs @ 12.10 hrs, Volume= 0.07 af
Outflow = 0.1 cfs @ 12.83 hrs, Volume= 0.07 af, Atten= 83%, Lag= 43.5 min
Discarded = 0.1 cfs @ 12.83 hrs, Volume= 0.07 af
Primary = 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
Peak Elev= 180.54' @ 12.83 hrs Surf.Area= 995 sf Storage= 779 cf
Flood Elev= 181.25' Surf.Area= 1,584 sf Storage= 1,653 cf

Plug-Flow detention time= 53.7 min calculated for 0.07 af (100% of inflow)
Center-of-Mass det. time= 53.7 min (924.5 - 870.8)

Volume	Invert	Avail.Storage	Storage Description
#1	179.50'	1,653 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

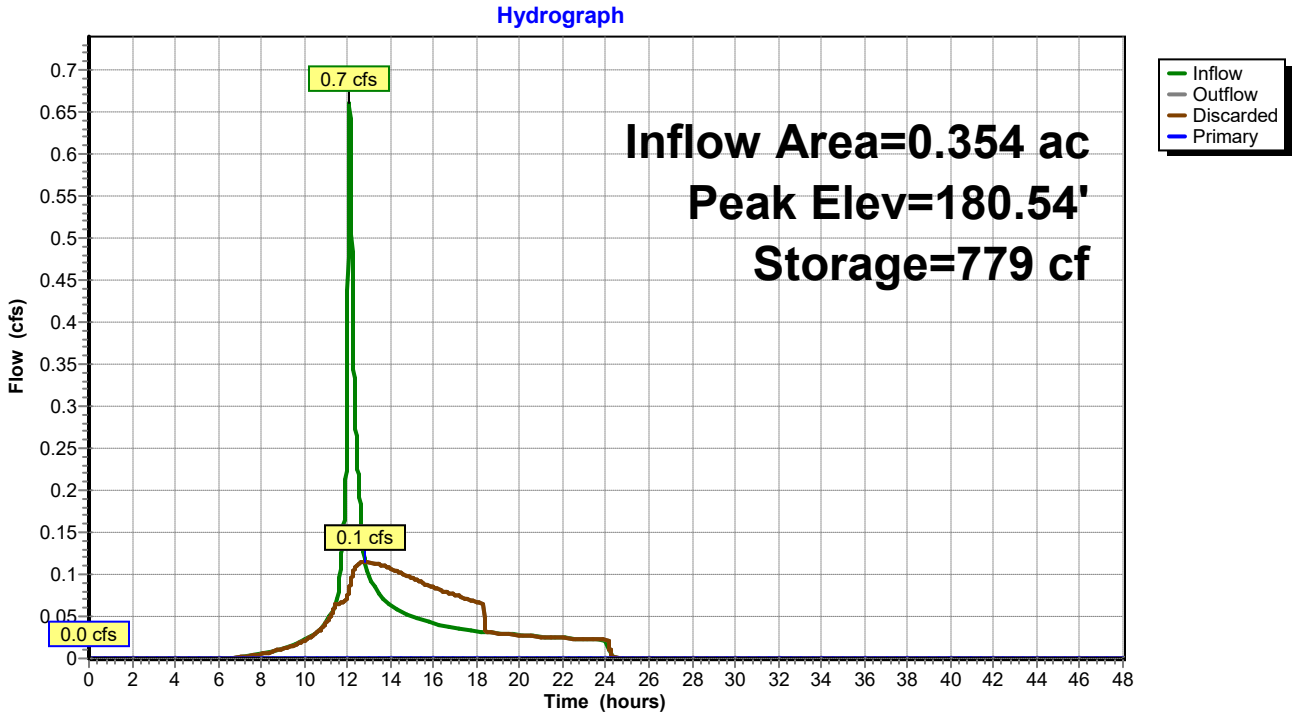
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
179.50	551	109.7	0	0	551
180.00	723	119.1	318	318	731
181.00	1,262	224.9	980	1,298	3,633
181.25	1,584	232.2	355	1,653	3,904

Device	Routing	Invert	Outlet Devices
#1	Discarded	179.50'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	180.75'	**5.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.1 cfs @ 12.83 hrs HW=180.54' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=179.50' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.0 cfs)

Pond IB1: IB1


Hydrograph
Inflow Area=0.354 ac
Peak Elev=180.54'
Storage=779 cf
0.7 cfs
0.1 cfs
0.0 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
0.6
0.65
0.7
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 IB2: IB2

Inflow Area = 0.111 ac, 73.48% Impervious, Inflow Depth = 3.39" for 10-yr event
Inflow = 0.4 cfs @ 12.04 hrs, Volume= 0.03 af
Outflow = 0.1 cfs @ 12.25 hrs, Volume= 0.03 af, Atten= 64%, Lag= 12.2 min
Discarded = 0.1 cfs @ 12.25 hrs, Volume= 0.03 af
Primary = 0.1 cfs @ 12.25 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 182.03' @ 12.25 hrs Surf.Area= 463 sf Storage= 328 cf
Flood Elev= 182.50' Surf.Area= 837 sf Storage= 626 cf

Plug-Flow detention time= 52.7 min calculated for 0.03 af (100% of inflow)
Center-of-Mass det. time= 52.7 min (872.7 - 819.9)

Volume	Invert	Avail.Storage	Storage Description
#1	180.75'	626 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

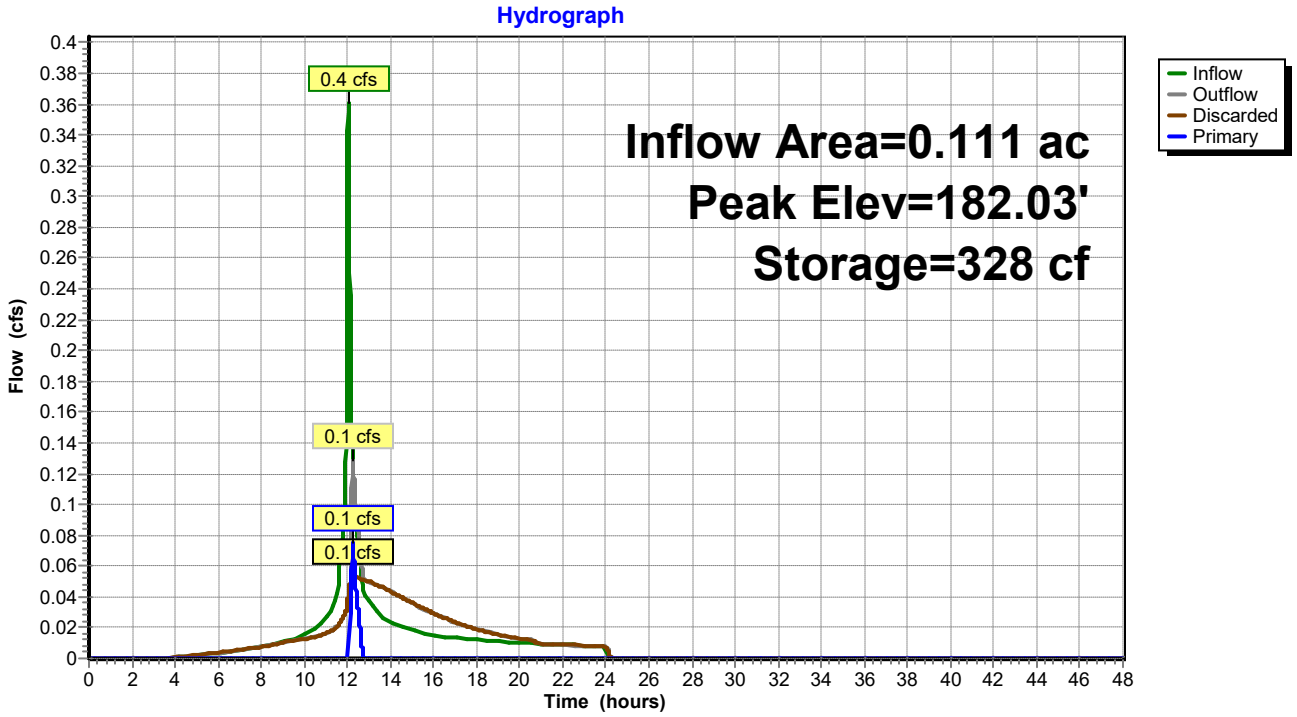
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
180.75	100	104.0	0	0	100
182.00	440	122.8	312	312	468
182.50	837	141.7	314	626	871

Device	Routing	Invert	Outlet Devices
#1	Discarded	180.75'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	182.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.1 cfs @ 12.25 hrs HW=182.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.1 cfs @ 12.25 hrs HW=182.03' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.1 cfs @ 0.43 fps)

Pond IB2: IB2


Hydrograph
Inflow Area=0.111 ac
Peak Elev=182.03'
Storage=328 cf
0.4 cfs
0.1 cfs
0.1 cfs
0.1 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Summary for Pond IB3: IB3

Inflow Area = 0.099 ac, 46.57% Impervious, Inflow Depth = 2.54" for 10-yr event
Inflow = 0.2 cfs @ 12.01 hrs, Volume= 0.02 af
Outflow = 0.1 cfs @ 12.48 hrs, Volume= 0.02 af, Atten= 73%, Lag= 28.0 min
Discarded = 0.1 cfs @ 12.48 hrs, Volume= 0.02 af
Primary = 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
Peak Elev= 174.71' @ 12.48 hrs Surf.Area= 480 sf Storage= 136 cf
Flood Elev= 175.25' Surf.Area= 649 sf Storage= 438 cf

Plug-Flow detention time= 11.9 min calculated for 0.02 af (100% of inflow)
Center-of-Mass det. time= 11.9 min (853.8 - 841.9)

Volume	Invert	Avail.Storage	Storage Description
#1	174.40'	438 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

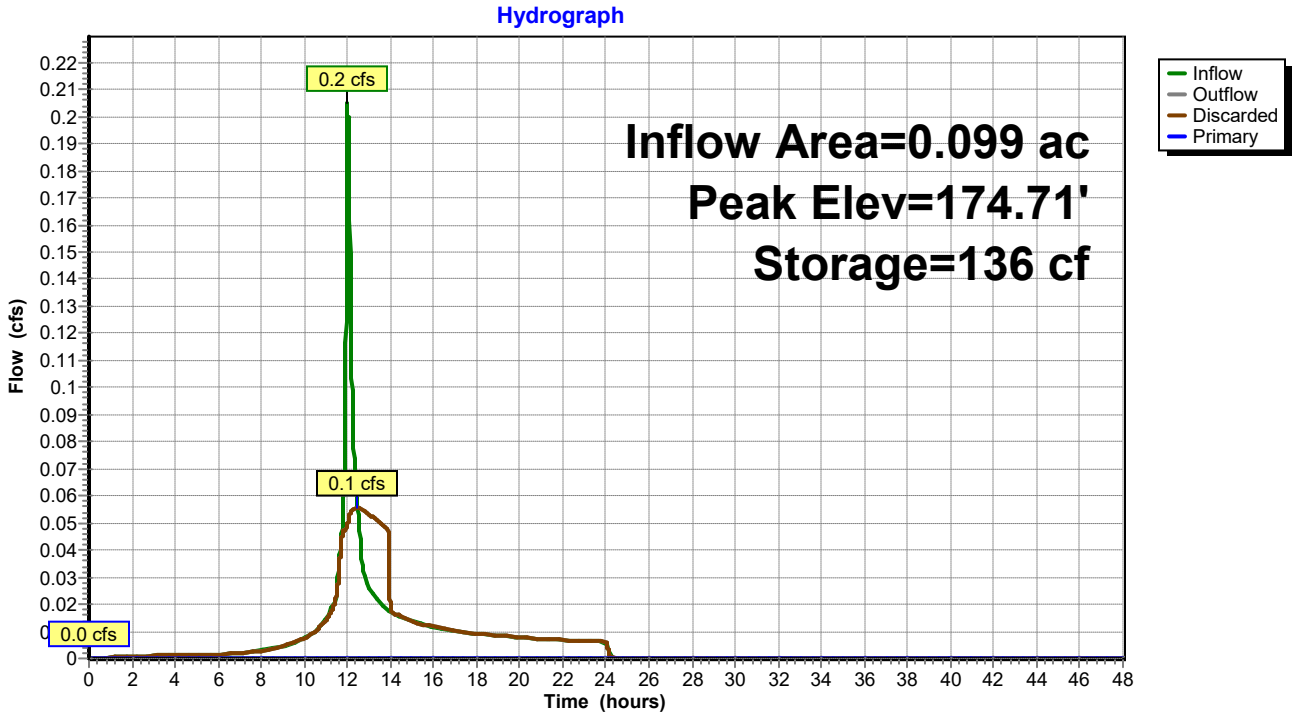
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
174.40	405	78.2	0	0	405
175.00	556	89.5	287	287	564
175.25	649	95.8	150	438	660

Device	Routing	Invert	Outlet Devices
#1	Discarded	174.40'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	175.00'	**4.0' long x 5.1' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.1 cfs @ 12.48 hrs HW=174.71' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=174.40' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.0 cfs)

Pond IB3: IB3


Hydrograph
Inflow Area=0.099 ac
Peak Elev=174.71'
Storage=136 cf
0.2 cfs
0.1 cfs
0.0 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Summary for Pond RD1: RD1

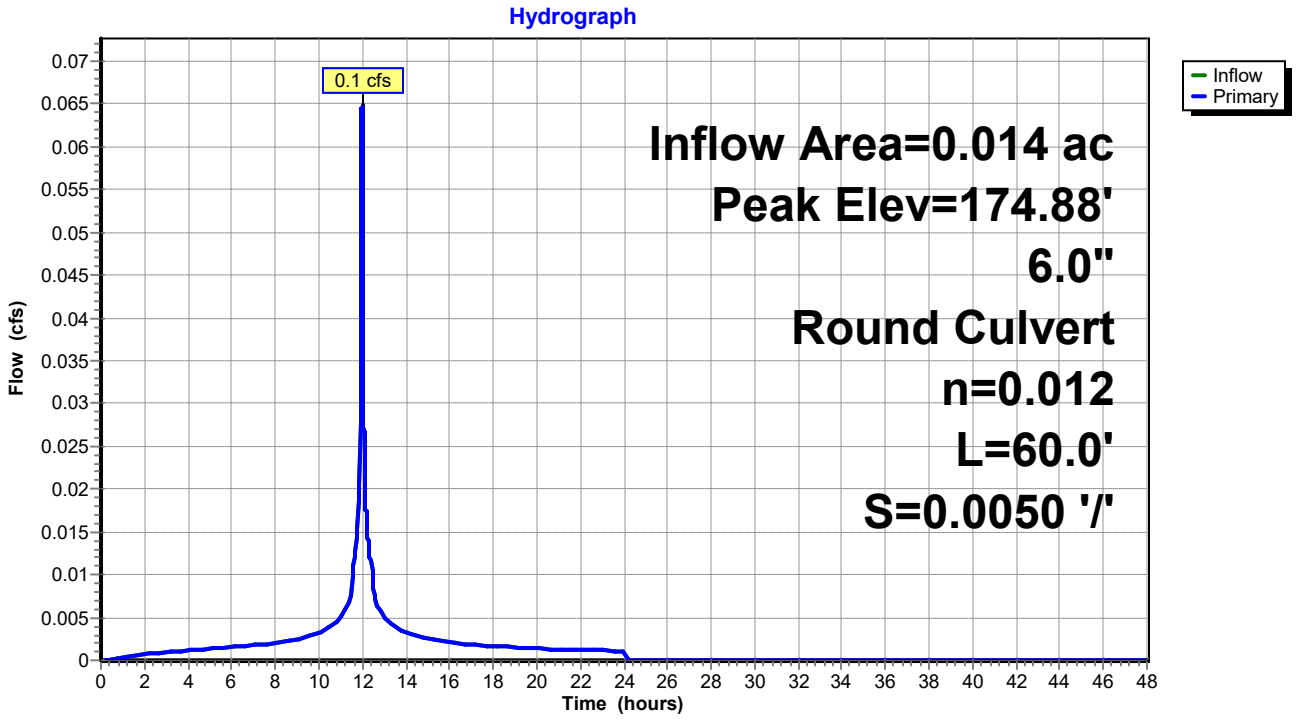
Inflow Area = 0.014 ac,100.00% Impervious, Inflow Depth = 4.47" for 10-yr event
Inflow = 0.1 cfs @ 11.99 hrs, Volume= 0.01 af
Outflow = 0.1 cfs @ 11.99 hrs, Volume= 0.01 af, Atten= 0%, Lag= 0.0 min
Primary = 0.1 cfs @ 11.99 hrs, Volume= 0.01 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 174.88' @ 11.99 hrs
Flood Elev= 176.65'

Device	Routing	Invert	Outlet Devices
#1	Primary	174.70'	**6.0" Round Culvert** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 174.70' / 174.40' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.1 cfs @ 11.99 hrs HW=174.88' TW=174.49' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.1 cfs @ 1.55 fps)

Pond RD1: RD1

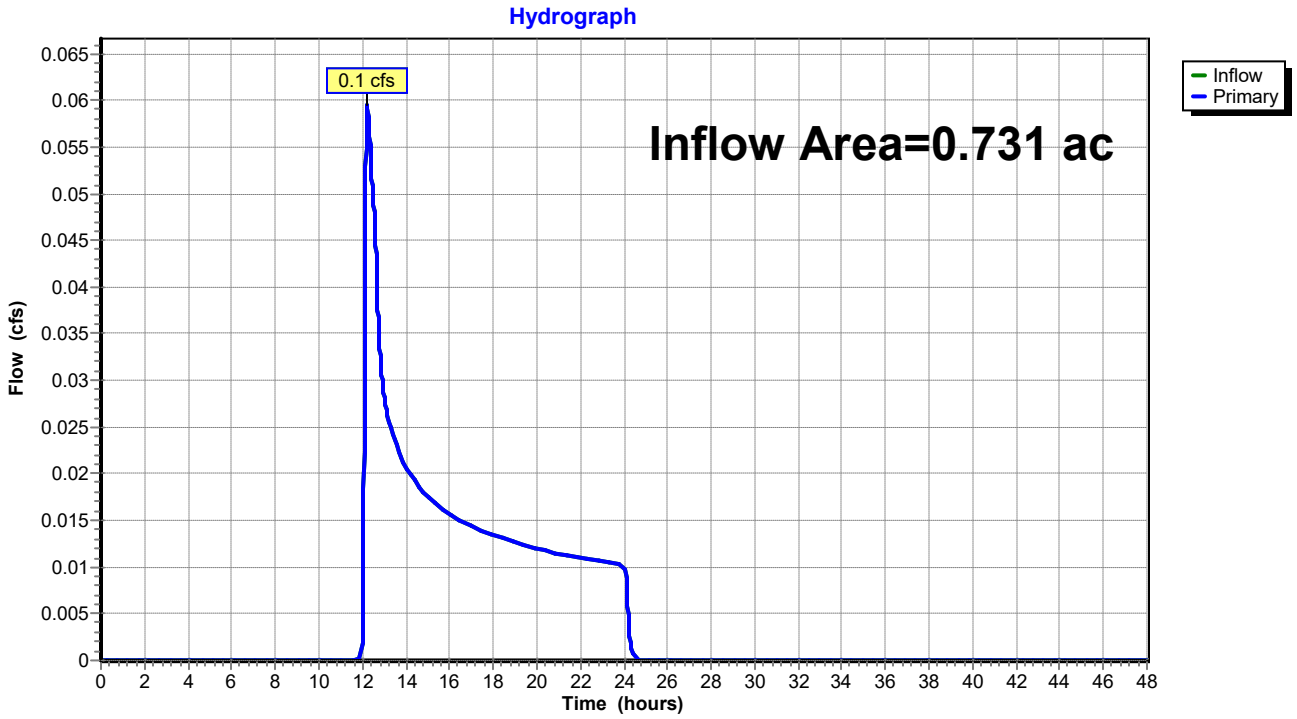


Summary for Link A: A

Inflow Area = 0.731 ac, 39.72% Impervious, Inflow Depth = 0.27" for 10-yr event
Inflow = 0.1 cfs @ 12.23 hrs, Volume= 0.02 af
Primary = 0.1 cfs @ 12.23 hrs, Volume= 0.02 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link A: A

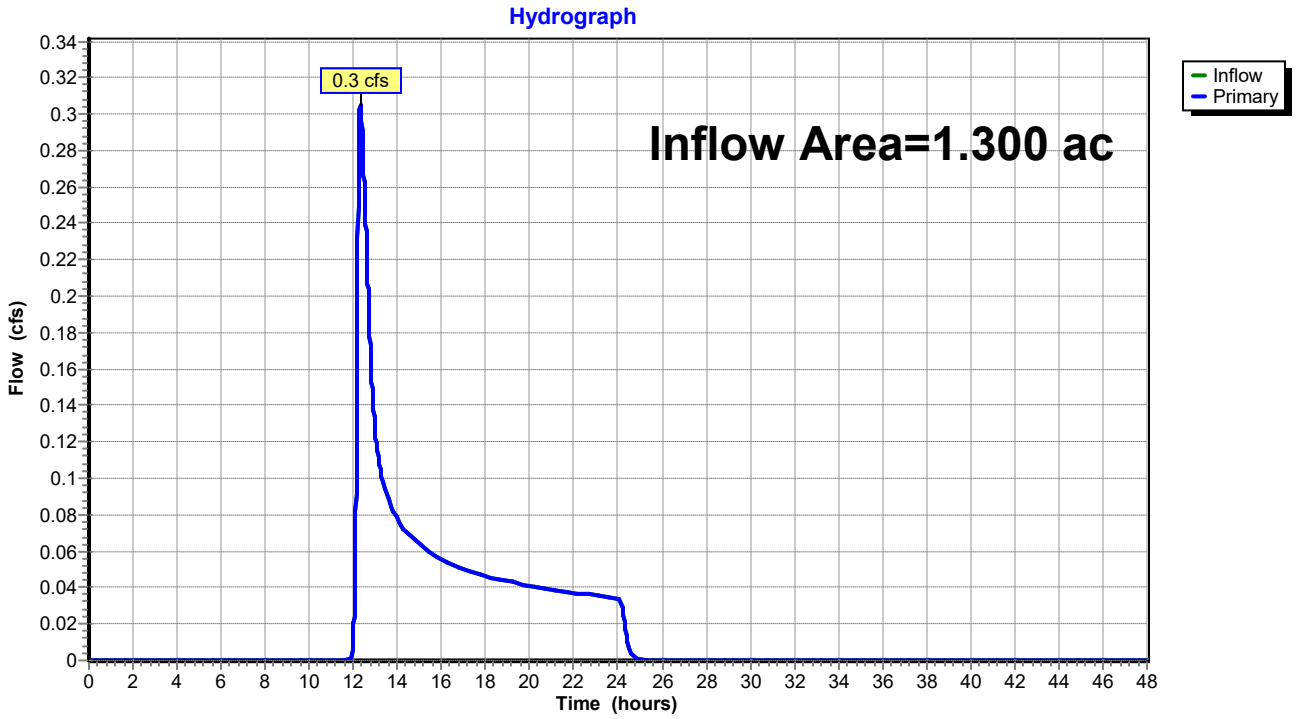


Summary for Link B: B

Inflow Area = 1.300 ac, 11.02% Impervious, Inflow Depth = 0.58" for 10-yr event
Inflow = 0.3 cfs @ 12.30 hrs, Volume= 0.06 af
Primary = 0.3 cfs @ 12.30 hrs, Volume= 0.06 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link B: B



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=15,431 sf 61.13% Impervious Runoff Depth=3.44"
Flow Length=98' Slope=0.0370 '/' Tc=11.1 min CN=77 Runoff=0.9 cfs 0.10 af

Subcatchment 2: 2 Runoff Area=16,400 sf 19.57% Impervious Runoff Depth=1.05"
Flow Length=126' Tc=13.5 min CN=49 Runoff=0.2 cfs 0.03 af

Subcatchment 3: 3 Runoff Area=4,841 sf 73.48% Impervious Runoff Depth=4.58"
Flow Length=36' Slope=0.0200 '/' Tc=6.4 min CN=88 Runoff=0.4 cfs 0.04 af

Subcatchment 4: 4 Runoff Area=3,692 sf 37.49% Impervious Runoff Depth=3.24"
Flow Length=69' Tc=7.0 min CN=75 Runoff=0.2 cfs 0.02 af

Subcatchment 5: 5 Runoff Area=628 sf 100.00% Impervious Runoff Depth=5.71"
Flow Length=15' Tc=1.2 min CN=98 Runoff=0.1 cfs 0.01 af

Subcatchment 6: 6 Runoff Area=47,479 sf 1.42% Impervious Runoff Depth=1.26"
Flow Length=355' Tc=23.3 min CN=52 Runoff=0.6 cfs 0.11 af

Subcatchment 7: 7 Runoff Area=368 sf 66.58% Impervious Runoff Depth=5.59"
Flow Length=7' Tc=1.2 min CN=97 Runoff=0.0 cfs 0.00 af

Subcatchment 8: 8 Runoff Area=541 sf 74.12% Impervious Runoff Depth=5.59"
Flow Length=15' Tc=1.2 min CN=97 Runoff=0.1 cfs 0.01 af

Pond DE1: Drip Egde 1 Peak Elev=181.91' Storage=16 cf Inflow=0.0 cfs 0.00 af
Outflow=0.0 cfs 0.00 af

Pond DE2: Drip Edge 2 Peak Elev=182.53' Storage=37 cf Inflow=0.1 cfs 0.01 af
Outflow=0.0 cfs 0.01 af

Pond IB1: IB1 Peak Elev=180.81' Storage=1,064 cf Inflow=0.9 cfs 0.10 af
Discarded=0.1 cfs 0.10 af Primary=0.2 cfs 0.01 af Outflow=0.3 cfs 0.10 af

Pond IB2: IB2 Peak Elev=182.08' Storage=350 cf Inflow=0.4 cfs 0.04 af
Discarded=0.1 cfs 0.04 af Primary=0.3 cfs 0.01 af Outflow=0.3 cfs 0.04 af

Pond IB3: IB3 Peak Elev=174.90' Storage=234 cf Inflow=0.3 cfs 0.03 af
Discarded=0.1 cfs 0.03 af Primary=0.0 cfs 0.00 af Outflow=0.1 cfs 0.03 af

Pond RD1: RD1 Peak Elev=174.91' Inflow=0.1 cfs 0.01 af
6.0" Round Culvert n=0.012 L=60.0' S=0.0050 '/' Outflow=0.1 cfs 0.01 af

Link A: A Inflow=0.3 cfs 0.04 af
Primary=0.3 cfs 0.04 af

Link B: B Inflow=0.7 cfs 0.12 af
Primary=0.7 cfs 0.12 af

Total Runoff Area = 2.052 ac Runoff Volume = 0.33 af Average Runoff Depth = 1.94"
78.15% Pervious = 1.604 ac 21.85% Impervious = 0.448 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=15,431 sf 61.13% Impervious Runoff Depth=4.46"
Flow Length=98' Slope=0.0370 '/' Tc=11.1 min CN=77 Runoff=1.1 cfs 0.13 af

Subcatchment 2: 2 Runoff Area=16,400 sf 19.57% Impervious Runoff Depth=1.63"
Flow Length=126' Tc=13.5 min CN=49 Runoff=0.3 cfs 0.05 af

Subcatchment 3: 3 Runoff Area=4,841 sf 73.48% Impervious Runoff Depth=5.69"
Flow Length=36' Slope=0.0200 '/' Tc=6.4 min CN=88 Runoff=0.5 cfs 0.05 af

Subcatchment 4: 4 Runoff Area=3,692 sf 37.49% Impervious Runoff Depth=4.24"
Flow Length=69' Tc=7.0 min CN=75 Runoff=0.3 cfs 0.03 af

Subcatchment 5: 5 Runoff Area=628 sf 100.00% Impervious Runoff Depth=6.86"
Flow Length=15' Tc=1.2 min CN=98 Runoff=0.1 cfs 0.01 af

Subcatchment 6: 6 Runoff Area=47,479 sf 1.42% Impervious Runoff Depth=1.91"
Flow Length=355' Tc=23.3 min CN=52 Runoff=0.9 cfs 0.17 af

Subcatchment 7: 7 Runoff Area=368 sf 66.58% Impervious Runoff Depth=6.74"
Flow Length=7' Tc=1.2 min CN=97 Runoff=0.1 cfs 0.00 af

Subcatchment 8: 8 Runoff Area=541 sf 74.12% Impervious Runoff Depth=6.74"
Flow Length=15' Tc=1.2 min CN=97 Runoff=0.1 cfs 0.01 af

Pond DE1: Drip Egde 1 Peak Elev=182.05' Storage=22 cf Inflow=0.1 cfs 0.00 af
Outflow=0.0 cfs 0.00 af

Pond DE2: Drip Edge 2 Peak Elev=182.73' Storage=46 cf Inflow=0.1 cfs 0.01 af
Outflow=0.0 cfs 0.01 af

Pond IB1: IB1 Peak Elev=180.87' Storage=1,140 cf Inflow=1.1 cfs 0.13 af
Discarded=0.1 cfs 0.11 af Primary=0.5 cfs 0.02 af Outflow=0.7 cfs 0.13 af

Pond IB2: IB2 Peak Elev=182.11' Storage=365 cf Inflow=0.5 cfs 0.05 af
Discarded=0.1 cfs 0.04 af Primary=0.4 cfs 0.01 af Outflow=0.5 cfs 0.05 af

Pond IB3: IB3 Peak Elev=175.03' Storage=302 cf Inflow=0.3 cfs 0.04 af
Discarded=0.1 cfs 0.04 af Primary=0.0 cfs 0.00 af Outflow=0.1 cfs 0.04 af

Pond RD1: RD1 Peak Elev=175.03' Inflow=0.1 cfs 0.01 af
6.0" Round Culvert n=0.012 L=60.0' S=0.0050 '/' Outflow=0.1 cfs 0.01 af

Link A: A Inflow=0.8 cfs 0.07 af
Primary=0.8 cfs 0.07 af

Link B: B Inflow=1.1 cfs 0.18 af
Primary=1.1 cfs 0.18 af

Total Runoff Area = 2.052 ac Runoff Volume = 0.46 af Average Runoff Depth = 2.68"
78.15% Pervious = 1.604 ac 21.85% Impervious = 0.448 ac

APPENDIX B

DESIGN

B – 1

STORMWATER BEST MANAGEMENT PRACTICES

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

INFILTRATION PRACTICE CRITERIA
(Env-Wq 1508.06)

Type/Node Name: **Infiltration Basin 1 (IB1)**

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

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	**← yes**
0.35	ac	A = Area draining to the practice	
0.22	ac	A_I = Impervious area draining to the practice	
0.61	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.60	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.21	ac-in	WQV= 1" x Rv x A	
771	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
193	cf	25% x WQV (check calc for sediment forebay volume)	
Grassed Swale		Method of pretreatment? (not required for clean or roof runoff)	
-	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
1,001	cf	V = Volume[1] (attach a stage-storage table)	**≥ WQV**
551	sf	A_{SA} = Surface area of the bottom of the pond	
5.00	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
3.4	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
179.50	feet	E_{BTM} = Elevation of the bottom of the basin	
176.21	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
174.21	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
3.29	feet	D_{SHWT} = Separation from SHWT	**≥ *** [3]
5.3	feet	D_{ROCK} = Separation from bedrock	**≥ *** [3]
2.0	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	**≥ 24"**
-	ft	D_T = Depth of trench, if trench proposed	**4 - 10 ft**
N/A	Yes/No	If a trench or underground system is proposed, has observation well been provided?	**←yes**
N/A		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	**← yes**
Yes	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	**← yes**
3.0	:1	If a basin is proposed, pond side slopes.	**≥3:1**
180.54	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
180.87	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
181.25	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	**← yes**
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	**← yes**

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

Designer's Notes:

Summary for Pond IB1: IB1

Inflow Area = 0.354 ac, 61.13% Impervious, Inflow Depth = 2.38" for 10-yr event
Inflow = 0.7 cfs @ 12.10 hrs, Volume= 0.07 af
Outflow = 0.1 cfs @ 12.83 hrs, Volume= 0.07 af, Atten= 83%, Lag= 43.5 min
Discarded = 0.1 cfs @ 12.83 hrs, Volume= 0.07 af
Primary = 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
Peak Elev= 180.54' @ 12.83 hrs Surf.Area= 995 sf Storage= 779 cf
Flood Elev= 181.25' Surf.Area= 1,584 sf Storage= 1,653 cf

Plug-Flow detention time= 53.7 min calculated for 0.07 af (100% of inflow)
Center-of-Mass det. time= 53.7 min (924.5 - 870.8)

Volume	Invert	Avail.Storage	Storage Description
#1	179.50'	1,653 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
179.50	551	109.7	0	0	551
180.00	723	119.1	318	318	731
181.00	1,262	224.9	980	1,298	3,633
181.25	1,584	232.2	355	1,653	3,904

Device	Routing	Invert	Outlet Devices
#1	Discarded	179.50'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	180.75'	**5.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.1 cfs @ 12.83 hrs HW=180.54' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=179.50' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond IB1: IB1

Inflow Area = 0.354 ac, 61.13% Impervious, Inflow Depth = 4.46" for 50-yr event
Inflow = 1.1 cfs @ 12.10 hrs, Volume= 0.13 af
Outflow = 0.7 cfs @ 12.27 hrs, Volume= 0.13 af, Atten= 42%, Lag= 10.1 min
Discarded = 0.1 cfs @ 12.27 hrs, Volume= 0.11 af
Primary = 0.5 cfs @ 12.27 hrs, Volume= 0.02 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 180.87' @ 12.27 hrs Surf.Area= 1,184 sf Storage= 1,140 cf
Flood Elev= 181.25' Surf.Area= 1,584 sf Storage= 1,653 cf

Plug-Flow detention time= 64.2 min calculated for 0.13 af (100% of inflow)
Center-of-Mass det. time= 64.2 min (912.6 - 848.4)

Volume	Invert	Avail.Storage	Storage Description
#1	179.50'	1,653 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
179.50	551	109.7	0	0	551
180.00	723	119.1	318	318	731
181.00	1,262	224.9	980	1,298	3,633
181.25	1,584	232.2	355	1,653	3,904

Device	Routing	Invert	Outlet Devices
#1	Discarded	179.50'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	180.75'	**5.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.1 cfs @ 12.27 hrs HW=180.87' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.5 cfs @ 12.27 hrs HW=180.87' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.5 cfs @ 0.85 fps)

Stage-Area-Storage for Pond IB1: IB1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
179.50	551	0
179.52	557	11
179.54	564	22
179.56	570	34
179.58	577	45
179.60	584	57
179.62	590	68
179.64	597	80
179.66	604	92
179.68	610	104
179.70	617	117
179.72	624	129
179.74	631	142
179.76	638	154
179.78	644	167
179.80	651	180
179.82	658	193
179.84	665	206
179.86	672	220
179.88	680	233
179.90	687	247
179.92	694	261
179.94	701	275
179.96	708	289
179.98	716	303
180.00	723	318
180.02	732	332
180.04	742	347
180.06	751	362
180.08	761	377
180.10	770	392
180.12	780	408
180.14	789	423
180.16	799	439
180.18	809	455
180.20	819	472
180.22	829	488
180.24	839	505
180.26	849	522
180.28	859	539
180.30	869	556
180.32	879	573
180.34	890	591
180.36	900	609
180.38	910	627
180.40	921	645
180.42	931	664
180.44	942	683
180.46	952	702
180.48	963	721
180.50	974	740
180.52	985	760
180.54	996	780
180.56	1,006	800
180.58	1,017	820
180.60	1,029	840
180.62	1,040	861
180.64	1,051	882
180.66	1,062	903
180.68	1,073	924
180.70	1,085	946
180.72	1,096	968
180.74	1,108	990
180.76	1,119	1,012
180.78	1,131	1,035
180.80	1,142	1,057
180.82	1,154	1,080
180.84	1,166	1,103
180.86	1,178	1,127
180.88	1,189	1,151
180.90	1,201	1,174
180.92	1,213	1,199
180.94	1,225	1,223
180.96	1,238	1,248
180.98	1,250	1,272
181.00	1,262	1,298
181.02	1,286	1,323
181.04	1,311	1,349
181.06	1,336	1,376
181.08	1,361	1,402
181.10	1,386	1,430
181.12	1,412	1,458
181.14	1,438	1,486
181.16	1,464	1,515
181.18	1,490	1,545
181.20	1,517	1,575
181.22	1,543	1,606
181.24	**1,570**	**1,637**

INFILTRATION PRACTICE CRITERIA
(Env-Wq 1508.06)

Type/Node Name: **Infiltration Basin 2 (IB2)**

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

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	**← yes**
0.11	ac	A = Area draining to the practice	
0.08	ac	A_I = Impervious area draining to the practice	
0.73	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.71	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.08	ac-in	WQV= 1" x Rv x A	
287	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
72	cf	25% x WQV (check calc for sediment forebay volume)	
Grassed Swale/Roof		Method of pretreatment? (not required for clean or roof runoff)	
-	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
312	cf	V = Volume[1] (attach a stage-storage table)	**≥ WQV**
100	sf	A_{SA} = Surface area of the bottom of the pond	
5.00	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
6.9	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
180.75	feet	E_{BTM} = Elevation of the bottom of the basin	
177.50	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
175.92	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
3.25	feet	D_{SHWT} = Separation from SHWT	**≥ *** [3]
4.8	feet	D_{ROCK} = Separation from bedrock	**≥ *** [3]
2.0	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	**≥ 24"**
-	ft	D_T = Depth of trench, if trench proposed	**4 - 10 ft**
N/A	Yes/No	If a trench or underground system is proposed, has observation well been provided?	**←yes**
N/A		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	**← yes**
Yes	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	**← yes**
3.0	:1	If a basin is proposed, pond side slopes.	**≥3:1**
182.03	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
182.11	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
182.50	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	**← yes**
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	**← yes**

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

Designer's Notes:

Summary for Pond IB2: IB2

Inflow Area = 0.111 ac, 73.48% Impervious, Inflow Depth = 3.39" for 10-yr event
Inflow = 0.4 cfs @ 12.04 hrs, Volume= 0.03 af
Outflow = 0.1 cfs @ 12.25 hrs, Volume= 0.03 af, Atten= 64%, Lag= 12.2 min
Discarded = 0.1 cfs @ 12.25 hrs, Volume= 0.03 af
Primary = 0.1 cfs @ 12.25 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 182.03' @ 12.25 hrs Surf.Area= 463 sf Storage= 328 cf
Flood Elev= 182.50' Surf.Area= 837 sf Storage= 626 cf

Plug-Flow detention time= 52.7 min calculated for 0.03 af (100% of inflow)
Center-of-Mass det. time= 52.7 min (872.7 - 819.9)

Volume	Invert	Avail.Storage	Storage Description
#1	180.75'	626 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
180.75	100	104.0	0	0	100
182.00	440	122.8	312	312	468
182.50	837	141.7	314	626	871

Device	Routing	Invert	Outlet Devices
#1	Discarded	180.75'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	182.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.1 cfs @ 12.25 hrs HW=182.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.1 cfs @ 12.25 hrs HW=182.03' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.1 cfs @ 0.43 fps)

Summary for Pond IB2: IB2

Inflow Area = 0.111 ac, 73.48% Impervious, Inflow Depth = 5.69" for 50-yr event
Inflow = 0.5 cfs @ 12.04 hrs, Volume= 0.05 af
Outflow = 0.5 cfs @ 12.07 hrs, Volume= 0.05 af, Atten= 8%, Lag= 1.7 min
Discarded = 0.1 cfs @ 12.07 hrs, Volume= 0.04 af
Primary = 0.4 cfs @ 12.07 hrs, Volume= 0.01 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 182.11' @ 12.07 hrs Surf.Area= 517 sf Storage= 365 cf
Flood Elev= 182.50' Surf.Area= 837 sf Storage= 626 cf

Plug-Flow detention time= 53.0 min calculated for 0.05 af (100% of inflow)
Center-of-Mass det. time= 53.0 min (854.8 - 801.8)

Volume	Invert	Avail.Storage	Storage Description
#1	180.75'	626 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
180.75	100	104.0	0	0	100
182.00	440	122.8	312	312	468
182.50	837	141.7	314	626	871

Device	Routing	Invert	Outlet Devices
#1	Discarded	180.75'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	182.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.1 cfs @ 12.07 hrs HW=182.11' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.4 cfs @ 12.07 hrs HW=182.11' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.4 cfs @ 0.78 fps)

Stage-Area-Storage for Pond IB2: IB2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
180.75	100	0
180.77	104	2
180.79	107	4
180.81	111	6
180.83	115	9
180.85	118	11
180.87	122	13
180.89	126	16
180.91	130	18
180.93	134	21
180.95	138	24
180.97	142	27
180.99	147	29
181.01	151	32
181.03	155	35
181.05	160	39
181.07	164	42
181.09	169	45
181.11	173	49
181.13	178	52
181.15	183	56
181.17	187	59
181.19	192	63
181.21	197	67
181.23	202	71
181.25	207	75
181.27	212	79
181.29	217	84
181.31	223	88
181.33	228	93
181.35	233	97
181.37	239	102
181.39	244	107
181.41	249	112
181.43	255	117
181.45	261	122
181.47	266	127
181.49	272	132
181.51	278	138
181.53	284	144
181.55	290	149
181.57	296	155
181.59	302	161
181.61	308	167
181.63	314	174
181.65	321	180
181.67	327	186
181.69	333	193
181.71	340	200
181.73	346	207
181.75	353	214
181.77	359	221
181.79	366	228
181.81	373	235
181.83	380	243
181.85	386	250
181.87	393	258
181.89	400	266
181.91	407	274
181.93	415	282
181.95	422	291
181.97	429	299
181.99	436	308
182.01	447	317
182.03	460	326
182.05	474	335
182.07	488	345
182.09	502	355
182.11	516	365
182.13	531	375
182.15	546	386
182.17	561	397
182.19	576	409
182.21	591	420
182.23	607	432
182.25	623	445
182.27	639	457
182.29	655	470
182.31	671	483
182.33	688	497
182.35	705	511
182.37	722	525
182.39	739	540
182.41	756	555
182.43	774	570
182.45	792	586
182.47	810	602
182.49	**828**	**618**

INFILTRATION PRACTICE CRITERIA
(Env-Wq 1508.06)

Type/Node Name: **Infiltration Basin 3 (IB3)**

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

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	**← yes**
0.10	ac	A = Area draining to the practice	
0.05	ac	A_I = Impervious area draining to the practice	
0.47	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.47	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.05	ac-in	WQV= 1" x Rv x A	
169	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
42	cf	25% x WQV (check calc for sediment forebay volume)	
Grassed Swale		Method of pretreatment? (not required for clean or roof runoff)	
-	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
287	cf	V = Volume[1] (attach a stage-storage table)	**≥ WQV**
405	sf	A_{SA} = Surface area of the bottom of the pond	
5.00	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
1.0	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
174.40	feet	E_{BTM} = Elevation of the bottom of the basin	
171.37	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
169.12	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
3.03	feet	D_{SHWT} = Separation from SHWT	**≥ *** [3]
5.3	feet	D_{ROCK} = Separation from bedrock	**≥ *** [3]
2.0	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	**≥ 24"**
-	ft	D_T = Depth of trench, if trench proposed	**4 - 10 ft**
N/A	Yes/No	If a trench or underground system is proposed, has observation well been provided?	**←yes**
N/A		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	**← yes**
Yes	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	**← yes**
3.0	:1	If a basin is proposed, pond side slopes.	**≥3:1**
174.71	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
175.03	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
175.25	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	**← yes**
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	**← yes**

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

Designer's Notes:

Summary for Pond IB3: IB3

Inflow Area = 0.099 ac, 46.57% Impervious, Inflow Depth = 2.54" for 10-yr event
Inflow = 0.2 cfs @ 12.01 hrs, Volume= 0.02 af
Outflow = 0.1 cfs @ 12.48 hrs, Volume= 0.02 af, Atten= 73%, Lag= 28.0 min
Discarded = 0.1 cfs @ 12.48 hrs, Volume= 0.02 af
Primary = 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
Peak Elev= 174.71' @ 12.48 hrs Surf.Area= 480 sf Storage= 136 cf
Flood Elev= 175.25' Surf.Area= 649 sf Storage= 438 cf

Plug-Flow detention time= 11.9 min calculated for 0.02 af (100% of inflow)
Center-of-Mass det. time= 11.9 min (853.8 - 841.9)

Volume	Invert	Avail.Storage	Storage Description
#1	174.40'	438 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
174.40	405	78.2	0	0	405
175.00	556	89.5	287	287	564
175.25	649	95.8	150	438	660

Device	Routing	Invert	Outlet Devices
#1	Discarded	174.40'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	175.00'	**4.0' long x 5.1' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.1 cfs @ 12.48 hrs HW=174.71' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=174.40' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.0 cfs)

Summary for Pond IB3: IB3

Inflow Area = 0.099 ac, 46.57% Impervious, Inflow Depth = 4.62" for 50-yr event
Inflow = 0.3 cfs @ 12.05 hrs, Volume= 0.04 af
Outflow = 0.1 cfs @ 12.39 hrs, Volume= 0.04 af, Atten= 69%, Lag= 20.7 min
Discarded = 0.1 cfs @ 12.39 hrs, Volume= 0.04 af
Primary = 0.0 cfs @ 12.39 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 175.03' @ 12.39 hrs Surf.Area= 565 sf Storage= 302 cf
Flood Elev= 175.25' Surf.Area= 649 sf Storage= 438 cf

Plug-Flow detention time= 25.6 min calculated for 0.04 af (100% of inflow)
Center-of-Mass det. time= 25.6 min (852.9 - 827.3)

Volume	Invert	Avail.Storage	Storage Description
#1	174.40'	438 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
174.40	405	78.2	0	0	405
175.00	556	89.5	287	287	564
175.25	649	95.8	150	438	660

Device	Routing	Invert	Outlet Devices
#1	Discarded	174.40'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	175.00'	**4.0' long x 5.1' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.1 cfs @ 12.39 hrs HW=175.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 12.39 hrs HW=175.03' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.0 cfs @ 0.38 fps)

Stage-Area-Storage for Pond IB3: IB3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
174.40	405	0
174.41	407	4
174.42	410	8
174.43	412	12
174.44	414	16
174.45	417	21
174.46	419	25
174.47	421	29
174.48	424	33
174.49	426	37
174.50	429	42
174.51	431	46
174.52	433	50
174.53	436	55
174.54	438	59
174.55	441	63
174.56	443	68
174.57	445	72
174.58	448	77
174.59	450	81
174.60	453	86
174.61	455	90
174.62	458	95
174.63	460	99
174.64	463	104
174.65	465	109
174.66	468	113
174.67	470	118
174.68	472	123
174.69	475	127
174.70	478	132
174.71	480	137
174.72	483	142
174.73	485	147
174.74	488	152
174.75	490	156
174.76	493	161
174.77	495	166
174.78	498	171
174.79	500	176
174.80	503	181
174.81	506	186
174.82	508	191
174.83	511	196
174.84	513	202
174.85	516	207
174.86	519	212
174.87	521	217
174.88	524	222
174.89	527	228
174.90	529	233
174.91	532	238
174.92	534	243
174.93	537	249
174.94	540	254
174.95	543	260
174.96	545	265
174.97	548	271
174.98	551	276
174.99	553	282
175.00	556	287
175.01	560	293
175.02	563	298
175.03	567	304
175.04	570	310
175.05	574	315
175.06	578	321
175.07	581	327
175.08	585	333
175.09	589	339
175.10	592	345
175.11	596	350
175.12	600	356
175.13	603	362
175.14	607	369
175.15	611	375
175.16	615	381
175.17	618	387
175.18	622	393
175.19	626	399
175.20	630	406
175.21	634	412
175.22	637	418
175.23	641	425
175.24	645	431
175.25	**649**	**438**

GENERAL CALCULATIONS - WQV and WQF
(optional worksheet)

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

Water Quality Volume (WQV)

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

Water Quality Flow (WQF)

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

Designer's Notes: WQV for Drip Edge 1.

Summary for Pond DE1: Drip Egde 1

Inflow Area = 0.008 ac, 66.58% Impervious, Inflow Depth = 6.74" for 50-yr event
Inflow = 0.1 cfs @ 11.99 hrs, Volume= 0.00 af
Outflow = 0.0 cfs @ 11.77 hrs, Volume= 0.00 af, Atten= 77%, Lag= 0.0 min
Discarded = 0.0 cfs @ 11.77 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 182.05' @ 12.31 hrs Surf.Area= 100 sf Storage= 22 cf
Flood Elev= 183.00' Surf.Area= 140 sf Storage= 68 cf

Plug-Flow detention time= 6.5 min calculated for 0.00 af (100% of inflow)
Center-of-Mass det. time= 6.5 min (753.7 - 747.2)

Volume	Invert	Avail.Storage	Storage Description
#1	181.50'	68 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.50	100	0.0	0	0
182.50	100	40.0	40	40
182.51	140	40.0	0	40
183.00	140	40.0	27	68

Device	Routing	Invert	Outlet Devices
#1	Discarded	181.50'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.0 cfs @ 11.77 hrs HW=181.52' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Stage-Area-Storage for Pond DE1: Drip Egde 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
181.50	100	0
181.52	100	1
181.54	100	2
181.56	100	2
181.58	100	3
181.60	100	4
181.62	100	5
181.64	100	6
181.66	100	6
181.68	100	7
181.70	100	8
181.72	100	9
181.74	100	10
181.76	100	10
181.78	100	11
181.80	100	12
181.82	100	13
181.84	100	14
181.86	100	14
181.88	100	15
181.90	100	16
181.92	100	17
181.94	100	18
181.96	100	18
181.98	100	19
182.00	100	20
182.02	100	21
182.04	100	22
182.06	100	22
182.08	100	23
182.10	100	24
182.12	100	25
182.14	100	26
182.16	100	26
182.18	100	27
182.20	100	28
182.22	100	29
182.24	100	30
182.26	100	30
182.28	100	31
182.30	100	32
182.32	100	33
182.34	100	34
182.36	100	34
182.38	100	35
182.40	100	36
182.42	100	37
182.44	100	38
182.46	100	38
182.48	100	39
182.50	**100**	40
182.52	**140**	41
182.54	140	42
182.56	140	43
182.58	140	44
182.60	140	46
182.62	140	47
182.64	140	48
182.66	140	49
182.68	140	50
182.70	140	51
182.72	140	52
182.74	140	53
182.76	140	54
182.78	140	56
182.80	140	57
182.82	140	58
182.84	140	59
182.86	140	60
182.88	140	61
182.90	140	62
182.92	140	63
182.94	140	65
182.96	140	66
182.98	140	67
183.00	140	**68**

GENERAL CALCULATIONS - WQV and WQF
(optional worksheet)

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

Water Quality Volume (WQV)

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

Water Quality Flow (WQF)

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

Designer's Notes: WQV for Drip Edge 2.

Summary for Pond DE2: Drip Edge 2

Inflow Area = 0.012 ac, 74.12% Impervious, Inflow Depth = 6.74" for 50-yr event
Inflow = 0.1 cfs @ 11.99 hrs, Volume= 0.01 af
Outflow = 0.0 cfs @ 12.03 hrs, Volume= 0.01 af, Atten= 81%, Lag= 2.4 min
Discarded = 0.0 cfs @ 12.03 hrs, Volume= 0.01 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 182.73' @ 12.42 hrs Surf.Area= 123 sf Storage= 46 cf
Flood Elev= 183.00' Surf.Area= 123 sf Storage= 60 cf

Plug-Flow detention time= 16.0 min calculated for 0.01 af (100% of inflow)
Center-of-Mass det. time= 16.0 min (763.3 - 747.2)

Volume	Invert	Avail.Storage	Storage Description
#1	181.50'	60 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.50	88	0.0	0	0
182.50	88	40.0	35	35
182.51	123	40.0	0	36
183.00	123	40.0	24	60

Device	Routing	Invert	Outlet Devices
#1	Discarded	181.50'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.0 cfs @ 12.03 hrs HW=182.52' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Stage-Area-Storage for Pond DE2: Drip Edge 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
181.50	88	0
181.52	88	1
181.54	88	1
181.56	88	2
181.58	88	3
181.60	88	4
181.62	88	4
181.64	88	5
181.66	88	6
181.68	88	6
181.70	88	7
181.72	88	8
181.74	88	8
181.76	88	9
181.78	88	10
181.80	88	11
181.82	88	11
181.84	88	12
181.86	88	13
181.88	88	13
181.90	88	14
181.92	88	15
181.94	88	15
181.96	88	16
181.98	88	17
182.00	88	18
182.02	88	18
182.04	88	19
182.06	88	20
182.08	88	20
182.10	88	21
182.12	88	22
182.14	88	23
182.16	88	23
182.18	88	24
182.20	88	25
182.22	88	25
182.24	88	26
182.26	88	27
182.28	88	27
182.30	88	28
182.32	88	29
182.34	88	30
182.36	88	30
182.38	88	31
182.40	88	32
182.42	88	32
182.44	88	33
182.46	88	34
182.48	88	34
182.50	**88**	35
182.52	**123**	36
182.54	123	37
182.56	123	38
182.58	123	39
182.60	123	40
182.62	123	41
182.64	123	42
182.66	123	43
182.68	123	44
182.70	123	45
182.72	123	46
182.74	123	47
182.76	123	48
182.78	123	49
182.80	123	50
182.82	123	51
182.84	123	52
182.86	123	53
182.88	123	54
182.90	123	55
182.92	123	56
182.94	123	57
182.96	123	58
182.98	123	59
183.00	123	**60**

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POLLUTANT REMOVAL

CIVILWORKS NEW ENGLAND
181 WATSON ROAD
P.O. BOX 1166
DOVER, NH 03821-1166
PHONE: 603.749.0443

Objective: In accordance with Chapter 153-14.A.3.b.1 runoff from impervious surfaces shall be treated to provide 80% removal of total suspended solids (TSS) and 50% removal of both total nitrogen and phosphorus using appropriate treatment measures as specified in the NH Stormwater Manual, Volumes 1 and 2, December 2008, as amended.

Narrative: The subject parcel is 1.87 acres and is located at 512 Sixth Street in Dover, NH. The site is currently developed as residential with two single-family homes, a detached garage, two detached sheds, an asphalt drive and a gravel drive. The ground cover primarily consists of woods, lawn, pavement, and gravel for driveways. The project proposes the construction of a 5-unit residential development and consists of the demolition of the two (2) existing structures, site improvements associated with the construction of the 5 residential structures, site access, driveways, grading and drainage, and utilities. The development includes 0.393 acres of new impervious area including 0.172 acres of residential roof (roof, deck, bulkhead) and 0.221 acres of residential driveway (shared driveway, individual driveways, gravel of drip edges). Residential driveway pollutant loading was chosen for the shared driveway as the pollutant loading for all three contaminants is higher than that for a residential street. The project proposes the treatment of 0.158 acres of roof and 0.209 acres of driveway. The remaining 0.014 acres of roof (consisting of decks and bulkheads) and 0.012 acres of driveway (located at the entrance of the site along Sixth Street) were unable to be captured and treated, however, the proposed stormwater mitigation system is still able to provide the required pollutant removal per City of Dover standards.

Pollutant Loads: Pollutant loads were calculated in accordance with NH Stormwater Manual, Volume 1, December 2008 utilizing the Simple Method.

Polutant Load Equations		
Annual Load - Simple Method Equation:	**L = 0.226 * R * C * A**	
	L	Annual Load (lbs/yr)
	0.226	Unit Conversion Constant
	R	Annual Runoff (in)
	C	Pollutant Concentration (mg/l)
	A	Area (ac)
Annual Runoff (R) Equation:	**R = P * Pj * Rv**	
	R	Annual Runoff (in)
	P	Annual Rainfall (in)
	Pj	Rainfall Runoff Fraction (0.9)
	Rv	Runoff Coefficient
Runoff Coefficient (Rv) Equation:	**Rv = 0.05 + 0.9Ia**	
	Rv	Runoff Coefficient
	Ia	% Impervious Area (decimal form)

Runoff Coefficient (Rv): Dover requires the treatment of all impervious surfaces therefore the % Impervious Area (Ia) in decimal form is 1.

Rv = 0.05 + 0.9(1) = 0.95

Annual Runoff (R): U.S. Climate Data (https://www.usclimatedata.com/climate/madbury/new-hampshire/united-states/usnh0285) provides an average annual precipitation for Madbury, NH of 47.31 inches.

R = 47.31 in * 0.9 * 0.95 = 40.45 in

Annual Load (L): Utilizing the sites impervious areas of 0.172 ac of residential roof, 0.221 ac of residential driveway and the Event Mean Concentrations identified in Appendix D of the NH Stormwater Manual, Volume 1, December 2008 for Residential Roof (19 mg/L TSS, 1.5 mg/L TN, and 0.11 mg/L TP) and Residential Driveway (173 mg/L TSS, 2.1 mg/L TN, and 0.56 mg/L TP) provides the following pollutant loads for the impervious development of the parcel.

Residential Roof:

L_{TSS} = 0.226 * 40.45 in * 19 mg/L * 0.172 ac = 29.88 lb/yr

L_{TN} = 0.226 * 40.45 in * 1.5 mg/L * 0.172 ac = 2.36 lb/yr

L_{TP} = 0.226 * 40.45 in * 0.11 mg/L * 0.172 ac = 0.173 lb/yr

Residential Driveway:

L_{TSS} = 0.226 * 40.45 in * 173 mg/L * 0.221 ac = 349.52 lb/yr

L_{TN} = 0.226 * 40.45 in * 2.1 mg/L * 0.221 ac = 4.24 lb/yr

L_{TP} = 0.226 * 40.45 in * 0.56 mg/L * 0.221 ac = 1.13 lb/yr

Pollutant Removal Required: In accordance with City of Dover's Site Plan regulations, at a minimum, the following pollutant removal is required.

Pollutant Removal Required					
Pollutant	**Residential Roof**	**Residential Driveway**	**Annual Load (lbs/yr)**	**% Removal**	**Removal Required (lbs/yr)**
TSS	**29.88**	**349.52**	**379.39**	**80**	**303.51**
TN	**2.36**	**4.24**	**6.60**	**50**	**3.30**
TP	**0.17**	**1.13**	**1.30**	**50**	**0.65**

Pollutant Removal Provided: The project proposes the treatment of 0.157 ac of roof and 0.209 ac of driveway through three (3) infiltration basins and two (2) drip edges. BMP Pollutant Removal Efficiency rates are provided in Appendix B of the NH Stormwater Manual, Volume 2, December 2008. Infiltration Basins provide 90% TSS, 60% TN, and 65% TP removal and Drip Edges provide 90% TSS, 55% TN, and 60% TP removal.

Infiltration Basin 1 (IB1):
IB1 captures and treats 0.056 ac of roof and 0.162 ac of driveway.

IB1					
Pollutant	**Residential Roof**	**Residential Driveway**	**Annual Load (lbs/yr)**	**% Removal**	**Removal Provided (lbs/yr)**
TSS	**9.71**	**256.84**	**266.55**	**90%**	**239.89**
TN	**0.77**	**3.12**	**3.88**	**60%**	**2.33**
TP	**0.06**	**0.83**	**0.89**	**65%**	**0.58**

Infiltration Basin 2 (IB2):
IB2 captures and treats 0.049 ac of roof and 0.032 ac of driveway.

IB2					
Pollutant	**Residential Roof**	**Residential Driveway**	**Annual Load (lbs/yr)**	**% Removal**	**Removal Provided (lbs/yr)**
TSS	**8.58**	**50.92**	**59.51**	**90%**	**53.55**
TN	**0.68**	**0.62**	**1.30**	**60%**	**0.78**
TP	**0.05**	**0.16**	**0.21**	**65%**	**0.14**

Infiltration Basin 3 (IB3):
IB3 captures and treats 0.037 ac of roof and 0.009 ac of driveway.

IB3					
Pollutant	**Residential Roof**	**Residential Driveway**	**Annual Load (lbs/yr)**	**% Removal**	**Removal Provided (lbs/yr)**
TSS	**6.50**	**13.92**	**20.41**	**90%**	**18.37**
TN	**0.51**	**0.17**	**0.68**	**60%**	**0.41**
TP	**0.04**	**0.05**	**0.08**	**65%**	**0.05**

Drip Edge 1 (DE1):
DE1 captures and treats 0.006 ac of roof and 0.003 ac of driveway.

DE1					
Pollutant	**Residential Roof**	**Residential Driveway**	**Annual Load (lbs/yr)**	**% Removal**	**Removal Provided (lbs/yr)**
TSS	**1.04**	**4.74**	**5.79**	**90%**	**5.21**
TN	**0.08**	**0.06**	**0.14**	**55%**	**0.08**
TP	**0.01**	**0.02**	**0.02**	**60%**	**0.01**

Drip Edge 2 (DE2):
DE2 captures and treats 0.009 ac of roof and 0.003 ac of driveway.

DE2					
Pollutant	**Residential Roof**	**Residential Driveway**	**Annual Load (lbs/yr)**	**% Removal**	**Removal Provided (lbs/yr)**
TSS	**1.56**	**4.74**	**6.31**	**90%**	**5.68**
TN	**0.12**	**0.06**	**0.18**	**55%**	**0.10**
TP	**0.01**	**0.02**	**0.02**	**60%**	**0.01**

Total Pollutant Removal Rate Provided:

Pollutant Removal Provided							
Pollutant	**IB1**	**IB2**	**IB3**	**DE1**	**DE2**	**Removal Provided (lbs/yr)**	**Effective Removal Rate %**
TSS	**239.89**	**53.55**	**18.37**	**5.21**	**5.68**	**322.70**	**85%**
TN	**2.33**	**0.78**	**0.41**	**0.08**	**0.10**	**3.69**	**56%**
TP	**0.58**	**0.14**	**0.05**	**0.01**	**0.01**	**0.80**	**61%**

Conclusion: The proposed mitigation measures implemented on site meet the minimum treatment rates for TSS, TN, and TP required by the City's regulations.

Typical Pollutant EMCs Found in Stormwater Runoff by Source Area*			
Source Area Unit	**TSS mg/L**	**TP mg/L**	**TN mg/L[3]**
RESIDENTIAL (general) [4]	100	0.40	2.2
Med. Density Residential [5]	85	0.52	5.15
Residential roof	19 [1]	0.11 [2]	1.5
Residential street	172 [1]	0.55 [2]	1.4
Driveway	173 [1]	0.56 [2]	2.1
COMMERCIAL (general) [5]	77	0.33	2.97
Commercial roof	9 [1]	0.14 [2]	2.1
Commercial street	468 [1]		
Commercial/ Residential parking	27 [1]	0.15 [2]	1.9
INDUSTRIAL (general) [5]	149	0.32	3.97
Industrial roof	17 [1]		
Industrial parking	228 [1]		
Heavy industrial	124 [1]		
HIGHWAY (general) [5]	141	0.43	2.65
Urban highway	142 [1]	0.32 [2]	3
Rural highway	51 [1]		22
Lawns	80 [1]	2.1 [2]	9.1
Landscaping	37 [1]		
Urban open [5]	51	0.11	1.74
Rural open/forest [5]	51	0.11	1.78
Ag/pasture [5]	145	0.37	5.98
Water/wetland [5]	6	0.08	1.38

Sources: 1: Claytor and Schueler (1996)
2: Average of Steuer et al. (1997), Bannerman (1993) and Waschbusch (2000)
3: Steuer et al. (1997)
4: Caraco (2001), default values averaged from several individual assessments
5: Camp, Dresser, and McKee, *Merrimack River Watershed Assessment Study, Draft Screening Level Model*, January 2004.

*To address the concerns associated with the application of chlorides and other deicing materials, NHDES requests the development of a Road Salt and Deicing Minimization Plan when a development will create one acre or more of pavement, including parking lots and roadways. The plan should address 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.

New Hampshire does not yet have salt reduction guidance, but recommends following the guidelines available in the Minnesota Snow and Ice Control handbook, available at: http://www.mnltap.umn.edu/pdf/snowicecontrolhandbook.pdf. Deicing application rate guidelines and a form for tracking salt and other deicer usage are included in Appendix C.

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%

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GROUNDWATER RECHARGE

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

0.16	ac	Area of HSG A soil that was replaced by impervious cover	0.40"
0.24	ac	Area of HSG B soil that was replaced by impervious cover	0.25"
-	ac	Area of HSG C soil that was replaced by impervious cover	0.10"
-	ac	Area of HSG D soil or impervious cover that was replaced by impervious cover	0.0"
0.31	inches	Rd = Weighted groundwater recharge depth	
0.1215	ac-in	GRV = AI * Rd	
441	cf	GRV conversion (ac-in x 43,560 sf/ac x 1ft/12”)	

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

Calculations exclude offsite impervious areas. Volume infiltrated calculated for 2-yr storm event.

IB1 = 0.034 af, IB2 = 0.018 af, IB3 = 0.011 af, DE1 = 0.002 af, DE2 = 0.003 af

Infiltration = 0.068 af = 2,962 cf

Summary for Pond DE1: Drip Egde 1

Inflow Area = 0.008 ac, 66.58% Impervious, Inflow Depth = 2.79" for 2-yr event
Inflow = 0.0 cfs @ 12.00 hrs, Volume= 0.002 af
Outflow = 0.0 cfs @ 11.93 hrs, Volume= 0.002 af, Atten= 60%, Lag= 0.0 min
Discarded = 0.0 cfs @ 11.93 hrs, Volume= 0.002 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 181.66' @ 12.04 hrs Surf.Area= 100 sf Storage= 6 cf
Flood Elev= 183.00' Surf.Area= 140 sf Storage= 68 cf

Plug-Flow detention time= 1.8 min calculated for 0.002 af (100% of inflow)
Center-of-Mass det. time= 1.8 min (769.9 - 768.1)

Volume	Invert	Avail.Storage	Storage Description
#1	181.50'	68 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.50	100	0.0	0	0
182.50	100	40.0	40	40
182.51	140	40.0	0	40
183.00	140	40.0	27	68

Device	Routing	Invert	Outlet Devices
#1	Discarded	181.50'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.0 cfs @ 11.93 hrs HW=181.52' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Summary for Pond DE2: Drip Edge 2

Inflow Area = 0.012 ac, 74.12% Impervious, Inflow Depth = 2.79" for 2-yr event
Inflow = 0.0 cfs @ 12.00 hrs, Volume= 0.003 af
Outflow = 0.0 cfs @ 11.86 hrs, Volume= 0.003 af, Atten= 76%, Lag= 0.0 min
Discarded = 0.0 cfs @ 11.86 hrs, Volume= 0.003 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 181.91' @ 12.15 hrs Surf.Area= 88 sf Storage= 15 cf
Flood Elev= 183.00' Surf.Area= 123 sf Storage= 60 cf

Plug-Flow detention time= 5.1 min calculated for 0.003 af (100% of inflow)
Center-of-Mass det. time= 5.1 min (773.3 - 768.1)

Volume	Invert	Avail.Storage	Storage Description
#1	181.50'	60 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
181.50	88	0.0	0	0
182.50	88	40.0	35	35
182.51	123	40.0	0	36
183.00	123	40.0	24	60

Device	Routing	Invert	Outlet Devices
#1	Discarded	181.50'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'

Discarded OutFlow Max=0.0 cfs @ 11.86 hrs HW=181.52' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.0 cfs)

Summary for Pond IB1: IB1

Inflow Area = 0.354 ac, 61.13% Impervious, Inflow Depth = 1.16" for 2-yr event
Inflow = 0.4 cfs @ 12.11 hrs, Volume= 0.034 af
Outflow = 0.1 cfs @ 12.66 hrs, Volume= 0.034 af, Atten= 77%, Lag= 33.0 min
Discarded = 0.1 cfs @ 12.66 hrs, Volume= 0.034 af
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 179.96' @ 12.66 hrs Surf.Area= 710 sf Storage= 292 cf
Flood Elev= 181.25' Surf.Area= 1,584 sf Storage= 1,653 cf

Plug-Flow detention time= 21.3 min calculated for 0.034 af (100% of inflow)
Center-of-Mass det. time= 21.3 min (915.6 - 894.3)

Volume	Invert	Avail.Storage	Storage Description
#1	179.50'	1,653 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
179.50	551	109.7	0	0	551
180.00	723	119.1	318	318	731
181.00	1,262	224.9	980	1,298	3,633
181.25	1,584	232.2	355	1,653	3,904

Device	Routing	Invert	Outlet Devices
#1	Discarded	179.50'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	180.75'	**5.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.1 cfs @ 12.66 hrs HW=179.96' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=179.50' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.0 cfs)

Summary for Pond IB2: IB2

Inflow Area = 0.111 ac, 73.48% Impervious, Inflow Depth = 1.93" for 2-yr event
Inflow = 0.2 cfs @ 12.04 hrs, Volume= 0.018 af
Outflow = 0.0 cfs @ 12.57 hrs, Volume= 0.018 af, Atten= 83%, Lag= 31.9 min
Discarded = 0.0 cfs @ 12.57 hrs, Volume= 0.018 af
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 181.72' @ 12.57 hrs Surf.Area= 344 sf Storage= 204 cf
Flood Elev= 182.50' Surf.Area= 837 sf Storage= 626 cf

Plug-Flow detention time= 41.4 min calculated for 0.018 af (100% of inflow)
Center-of-Mass det. time= 41.4 min (880.4 - 839.0)

Volume	Invert	Avail.Storage	Storage Description
#1	180.75'	626 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
180.75	100	104.0	0	0	100
182.00	440	122.8	312	312	468
182.50	837	141.7	314	626	871

Device	Routing	Invert	Outlet Devices
#1	Discarded	180.75'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	182.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.0 cfs @ 12.57 hrs HW=181.72' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=180.75' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.0 cfs)

Summary for Pond IB3: IB3

Inflow Area = 0.099 ac, 46.57% Impervious, Inflow Depth = 1.32" for 2-yr event
Inflow = 0.1 cfs @ 12.01 hrs, Volume= 0.011 af
Outflow = 0.0 cfs @ 12.22 hrs, Volume= 0.011 af, Atten= 58%, Lag= 12.9 min
Discarded = 0.0 cfs @ 12.22 hrs, Volume= 0.011 af
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 174.50' @ 12.22 hrs Surf.Area= 430 sf Storage= 44 cf
Flood Elev= 175.25' Surf.Area= 649 sf Storage= 438 cf

Plug-Flow detention time= 4.0 min calculated for 0.011 af (100% of inflow)

Center-of-Mass det. time= 4.0 min (857.3 - 853.3)

Volume	Invert	Avail.Storage	Storage Description
#1	174.40'	438 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
174.40	405	78.2	0	0	405
175.00	556	89.5	287	287	564
175.25	649	95.8	150	438	660

Device	Routing	Invert	Outlet Devices
#1	Discarded	174.40'	**5.000 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	175.00'	**4.0' long x 5.1' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.0 cfs @ 12.22 hrs HW=174.50' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=174.40' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Test Pit: 1 **Date:** 10/25/2024

Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-13	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
13-36	10 YR 6/4	Loamy Sand	Massive	Friable		Roots few, fine @ 36"
36-59	10 YR 5/6	Fine Sandy Loam	Massive	Friable		10% Cobbles
59-78	2.5 Y 2/3	Fine Sandy Loam	Blocky		<2% Redox 59"	

Seasonal High Water (in): 59
Observed Water (in): None
Restrictive Layer (in): None
Bedrock/Refusal (in): None

Soil Series:
NHDES Soil Group:
Hydrologic Soil Group:

Depth Perc Test Minutes/Inch

Notes: By Douglas J. LaRosa Designer #849

Test Pit: 2 **Date:** 10/25/2024

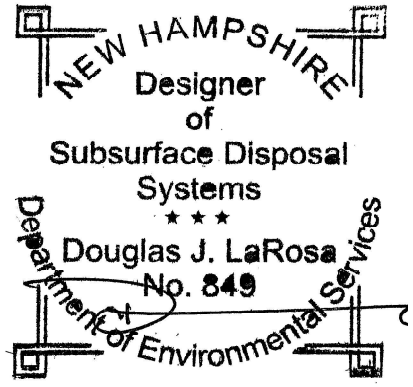
Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-25	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
25-46	10 YR 6/6	Loamy sand	Massive	Friable		Roots many common @38"
46-72	10 YR 4/3	Fine Sandy Loam	Blocky	Firm	<2% Redox 48"	Roots few,fine @ 48"

Seasonal High Water (in): 48
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 Minutes/Inch

Notes: Performed by Douglas J. LaRosa Designer #849



Test Pit: 3 **Date:** 10/25/2024

Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-8	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
8-50	2.5 Y 5/4	Loamy Sand	Massive	Friable		10% Cobbles
50-78	2.5 Y 4/3	Fne Sandy Loam	Massive	Firm	Redox > 2%,at 51"	Roots, few fine 50"

Seasonal High Water (in): 51
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 Minutes/Inch

Notes: Performed by Douglas J. LaRosa Designer #849

Test Pit: 4 **Date:** 10/25/2024

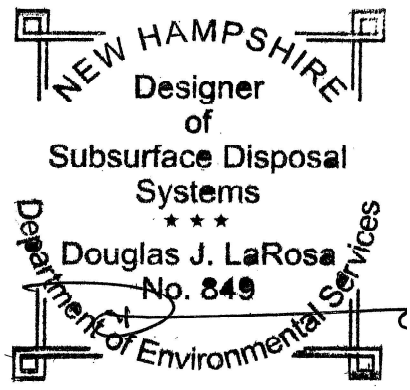
Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-1	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
1-59	10 YR 4/6	Loamy Sand	Massive	Loose		Roots 58" few fine
59-78	10 YR 4/4	Fine Sandy Loam	Blocky	Firm	2% Redox+ 59"	

Seasonal High Water (in): 59"
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 Minutes/Inch

Notes: By Douglas J. LaRosa Designer #849



Test Pit: 5 **Date:** 10/25/2024

Redox

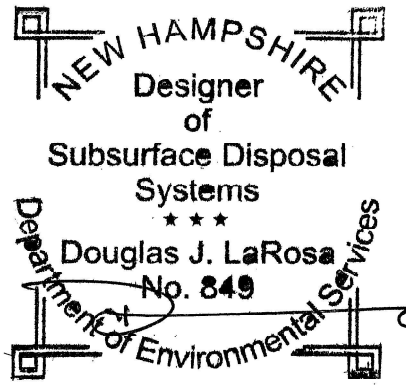
Depth (in)	Color	Texture	Structure	Consistence	Features	Notes
0-3	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
3-48	10 YR 6/4	Loamy Sand	Massive	Friable		5% Gravel
48-56	10 YR3/3	Fine Sandy Loam	Massive	Friable		Roots few,fine @ 48"
56-80	10 YR 5/4	Fine Sandy Loam	Massive		2%+ Redox 5YR 5/4 56"	

Seasonal High Water (in): 56"
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 Minutes/Inch

Notes: By Douglas J. LaRosa Designer #849



Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number: 1 **Test Pit/Boring Hole Number:** BH-1 **Test Method:** Borehole Infiltration Test
Test Depth (feet): 2 **Surface Elevation (feet):** 183.4± **Instrument Diameter (inches):** 4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	**Top Soil**	N
12-24	**Sand**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**23**	**0**
50.00		**0**	**23**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	6.00		**23**	**230.00**	**Finish**

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	2	**Test Pit/Boring Hole Number:**	BH-1	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):	2	**Surface Elevation (feet):**	183.4±	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Top Soil	N
12-24	Sand	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
50.00		0	23

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	15.00		22	88.00	
15.00		1			
	18.00		23	76.67	Finish

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	3	**Test Pit/Boring Hole Number:**	BH-1	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):	2	**Surface Elevation (feet):**	183.4±	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Top Soil	N
12-24	Sand	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
50.00		0	23

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	15.00		21	84.00	
15.00		2			
	25.00		23	55.20	Finish

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	4	**Test Pit/Boring Hole Number:**	BH-1	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):	2	**Surface Elevation (feet):**	183.4±	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	**Top Soil**	N
12-24	**Sand**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**23**	**0**
50.00		**0**	**23**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	15.00		**20**	**80.00**	
15.00		**3**			
	23.00		**23**	**60.00**	**Finish**

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	5	**Test Pit/Boring Hole Number:**	BH-1	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):	2	**Surface Elevation (feet):**	183.4±	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Top Soil	N
12-24	Sand	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
50.00		0	23

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	15.00		20	80.00	
15.00		3			
	26.00		23	53.08	Finish

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	1	**Test Pit/Boring Hole Number:**	BH-2	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):		**Surface Elevation (feet):**	176	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-23	**Fine Sandy Loam**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):	
0.00		**15**	**0**	presoak
37.00		**0**	**15**	

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	8.00		**23**	**172.50**	**Finish**

Stabilized Infiltration Testing Rate (inches per hour): **172.50**

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	2	**Test Pit/Boring Hole Number:**	BH-2	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):		**Surface Elevation (feet):**	176	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-23	**Fine Sandy Loam**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**15**	**0**
37.00		**0**	**15**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	9.00		**23**	**153.33**	**Finish**

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	3	**Test Pit/Boring Hole Number:**	BH-2	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):		**Surface Elevation (feet):**	176	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-23	**Fine Sandy Loam**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**15**	**0**
37.00		**0**	**15**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	9.00		**23**	**153.33**	**Finish**

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number: 4 **Test Pit/Boring Hole Number:** BH-2 **Test Method:** Borehole Infiltration Test
Test Depth (feet): **Surface Elevation (feet):** 176 **Instrument Diameter (inches):** 4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-23	**Fine Sandy Loam**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**15**	**0**
37.00		**0**	**15**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	10.00		**23**	**138.00**	**Finish**

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	5	**Test Pit/Boring Hole Number:**	BH-2	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):		**Surface Elevation (feet):**	176	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-23	**Fine Sandy Loam**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):	
0.00		**15**	**0**	presoak
37.00		**0**	**15**	

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	9.00		**23**	**153.33**	**Finish**

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number: 1 **Test Pit/Boring Hole Number:** BH-3 **Test Method:** Borehole Infiltration Test
Test Depth (feet): **Surface Elevation (feet):** 174 **Instrument Diameter (inches):** 4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	Fine Sandy Loam	N
12-24	Sand	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		23	0
22.00		0	23

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		23			Start
	15.00		22	88.00	
15.00		1			
	18.00		23	76.67	Finish

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	2	**Test Pit/Boring Hole Number:**	BH-3	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):		**Surface Elevation (feet):**	174	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	**Fine Sandy Loam**	N
12-24	**Sand**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**23**	**0**
22.00		**0**	**23**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	15.00		**21.5**	**86.00**	
15.00		**1.5**			
	19.00		**23**	**72.63**	**Finish**

Stabilized Infiltration Testing Rate (inches per hour): **72.63**

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	3	**Test Pit/Boring Hole Number:**	BH-3	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):		**Surface Elevation (feet):**	174	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	**Fine Sandy Loam**	N
12-24	**Sand**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**23**	**0**
22.00		**0**	**23**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	15.00		**21**	**84.00**	
15.00		**2**			
	21.00		**23**	**65.71**	**Finish**
Stabilized Infiltration Testing Rate (inches per hour):				**65.71**	

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	4	**Test Pit/Boring Hole Number:**	BH-3	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):		**Surface Elevation (feet):**	174	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	**Fine Sandy Loam**	N
12-24	**Sand**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**23**	**0**
22.00		**0**	**23**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	15.00		**19.5**	**78.00**	
15.00		**3.5**			
	23.00		**23**	**60.00**	**Finish**

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number: 5 **Test Pit/Boring Hole Number:** BH-3 **Test Method:** Borehole Infiltration Test
Test Depth (feet): **Surface Elevation (feet):** 174 **Instrument Diameter (inches):** 4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	**Fine Sandy Loam**	N
12-24	**Sand**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**23**	**0**
22.00		**0**	**23**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	15.00		**20**	**80.00**	
15.00		**3**			
	23.00		**23**	**60.00**	**Finish**

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number: 1 **Test Pit/Boring Hole Number:** BH-4 **Test Method:** Borehole Infiltration Test
Test Depth (feet): **Surface Elevation (feet):** 181.85 **Instrument Diameter (inches):** 4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	**Fine Sandy Loam**	N
12-24	**Sand**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**23**	**0**
10.00		**0**	**23**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	15.00		**23**	**92.00**	**Finish**

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	2	**Test Pit/Boring Hole Number:**	BH-4	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):		**Surface Elevation (feet):**	181.85	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	**Fine Sandy Loam**	N
12-24	**Sand**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**23**	**0**
10.00		**0**	**23**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	13.00		**23**	**106.15**	**Finish**

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	3	**Test Pit/Boring Hole Number:**	BH-4	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):		**Surface Elevation (feet):**	181.85	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	**Fine Sandy Loam**	N
12-24	**Sand**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**23**	**0**
10.00		**0**	**23**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	14.00		**23**	**98.57**	**Finish**

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	4	**Test Pit/Boring Hole Number:**	BH-4	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):		**Surface Elevation (feet):**	181.85	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	**Fine Sandy Loam**	N
12-24	**Sand**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**23**	**0**
10.00		**0**	**23**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	15.00		**23**	**92.00**	**Finish**

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	5	**Test Pit/Boring Hole Number:**	BH-4	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):		**Surface Elevation (feet):**	181.85	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-12	**Fine Sandy Loam**	N
12-24	**Sand**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**23**	**0**
10.00		**0**	**23**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	15.00		**23**	**92.00**	**Finish**

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	1	**Test Pit/Boring Hole Number:**	BH-5	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):		**Surface Elevation (feet):**	180.44	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-18	**Fine Sandy Loam**	N
18-24	**Grey hardpan**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**23**	**0**
30.00		**0**	**23**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	15.00		**14**	**56.00**	
15.00		**9**			
	30.00		**19.5**	**39.00**	
30.00		**3.5**			
	41.00		**23**	**33.66**	**Finish**

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	2	**Test Pit/Boring Hole Number:**	BH-5	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):		**Surface Elevation (feet):**	180.44	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-18	**Fine Sandy Loam**	N
18-24	**Grey hardpan**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**23**	**0**
30.00		**0**	**23**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	15.00		**14**	**56.00**	
15.00		**9**			
	30.00		**19**	**38.00**	
30.00		**4**			
	44.00		**23**	**31.36**	**Finish**
Stabilized Infiltration Testing Rate (inches per hour):				**31.36**	

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number:	3	**Test Pit/Boring Hole Number:**	BH-5	**Test Method:**	Borehole Infiltration Test
Test Depth (feet):		**Surface Elevation (feet):**	180.44	**Instrument Diameter (inches):**	4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-18	**Fine Sandy Loam**	N
18-24	**Grey hardpan**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**23**	**0**
30.00		**0**	**23**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	15.00		**14**	**56.00**	
15.00		**9**			
	30.00		**19**	**38.00**	
30.00		**4**			
	45.00		**23**	**30.67**	**Finish**
			Stabilized Infiltration Testing Rate (inches per hour):	**30.67**	

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number: 4 **Test Pit/Boring Hole Number:** BH-5 **Test Method:** Borehole Infiltration Test
Test Depth (feet): **Surface Elevation (feet):** 180.44 **Instrument Diameter (inches):** 4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-18	**Fine Sandy Loam**	N
18-24	**Grey hardpan**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**23**	**0**
30.00		**0**	**23**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	15.00		**14**	**56.00**	
15.00		**9**			
	30.00		**18**	**36.00**	
30.00		**5**			
	45.00		**22.5**	**30.00**	
45.00		**0.5**			
	49.00		**23**	**28.16**	**Finish**
Stabilized Infiltration Testing Rate (inches per hour):				**28.16**	

Notes:

Stormwater Infiltration Testing Log

Project Name:	CNE#24094 - DBS Holdings Sixth St	**Date:**	10/31/2024
Project Address:	512 Sixth Street, Dover NH	**Weather:**	Sunny, 78°
Testing Company:	Civilworks NE	**Tester's Name:**	**Mike Menary**
Phone Number:	(603) 749-0443	**Email Address:**	mmenary@civilworksne.com

Test Number: 5 **Test Pit/Boring Hole Number:** BH-5 **Test Method:** Borehole Infiltration Test
Test Depth (feet): **Surface Elevation (feet):** 180.44 **Instrument Diameter (inches):** 4

Soil Characterization (See Test Pit Logs)

Depth (inches):	Soil Texture:	Limiting Layers Type and Depth (feet):
0-18	**Fine Sandy Loam**	N
18-24	**Grey hardpan**	N

Presoak

Time:(Min)	Time Interval (HRS):	Measurement, (inches):	Drop in water level, (inches):
0.00		**23**	**0**
30.00		**0**	**23**

presoak

Infiltration Testing

Time 1:	Time 2:	Measurement, (inches):	Drop in water level, (inches):	Infiltration rate (inches per hour):	Remarks:
0.00		**23**			**Start**
	15.00		**13**	**52.00**	
15.00		**10**			
	30.00		**18.5**	**37.00**	
30.00		**4.5**			
	45.00		**22.5**	**30.00**	
45.00		**0.5**			
	49.00		**23**	**28.16**	**Finish**
Stabilized Infiltration Testing Rate (inches per hour):				**28.16**	

Notes:

APPENDIX C

INSPECTION AND MAINTENANCE

C – 1

STORMWATER MANAGEMENT SYSTEM INSPECTION & MAINTENANCE PLAN

Stormwater Management System Inspection & Maintenance Plan

Prepared for:

TDR SITE PLAN
5 UNIT RESIDENTIAL
Map B, Lot 2

512 Sixth Street
Dover, New Hampshire
Strafford County

November 2024
Revised: March 2025

Owner of Record:

DBS HOLDINGS, LLC
71 Danielle Lane
Dover, New Hampshire 03820

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 **DBS Holdings, 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 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:

DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820

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

Contact / Responsible Party:

DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820

Dave Sullivan
Phone: (603) 743-4284
Email: dbsholdingsllc@gmail.com

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

Management Company:

DBS Holdings, LLC
71 Danielle Lane
Dover, NH 03820

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

Inspection Schedule / Record Retention

Inspection frequency should, at a minimum, be in accordance with New Hampshire Stormwater Manual, Volume 2, latest edition, as updated by 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
- Grass Lined Conveyance Swales
- Infiltration Basins
- Stone Drip Edges
- 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:

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

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.

INFILTRATION BASIN:

- Inspect and remove any debris from inlet and outlet structures.
- Remove any accumulated sediment.
- Inspect and repair outlet structures and appurtenances.
- Inspection of infiltration components 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.
- Periodic mowing of basin and embankments.
- Removal of woody vegetation from basin and embankments.
- Inspection and repair of embankments and spillways.
- If an infiltration system does not drain within 72 hours following a rainfall event, then a qualified professional should assess the condition of the facility to determine measures required to restore infiltration function, including but not limited to removal of accumulated sediments or reconstruction of the infiltration bottom.

STONE DRIP EDGES:

- Inspect twice annually and following any rainfall event exceeding 2.5 inches in a 24-hour period.
- If system does not drain within 72-hours following a rainfall event, a qualified engineer should inspect the system and determine measures required to restore the condition of the facility.
- Follow the University of New Hampshire's "Methods for Disposing Non-Native Invasive Plants" for disposing of invasive species (Attached).
- There shall be no use of chemical herbicides or pesticides, except for wildlife habitat management and then only in coordination with the New Hampshire Fish and Game Nongame and Endangered Wildlife Program. Herbicides or pesticides are absolutely prohibited within wetlands or wetland buffer setbacks.

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	Annually	• Check for clogging • Check for sediment accumulation	Remove when noticed Clean when necessary
Grass Lined Conveyance Swale	Annually	• Check for sediment accumulation • Check for erosion • Ensure swale is stabilized • Maintain healthy stand of veg., min 4” • Inspect for invasive species	≥ 1 in. sediment Repair immediately Restore vegetation in-kind Mow twice per year Remove/Dispose of accordingly
Infiltration Basin	Bi-Annually	• Check for sediment accumulation • Check for debris • Inspect for woody vegetation • Maintain healthy stand of veg., 4” minimum • Inspect for invasive species • Check for water draining	Remove any accumulated Sediment Remove from inlet/outlet structures Remove Immediately Mow twice per year (applies to IB1 and IB2) Remove/Dispose of accordingly 72 hours after a 2.5 inch storm event in a 24 hour period
Stone Drip Edges	Bi-Annually	• Check for sediment accumulation • Check for woody vegetation growth • Check for debris	Remove/Dispose of accordingly Remove Immediately 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

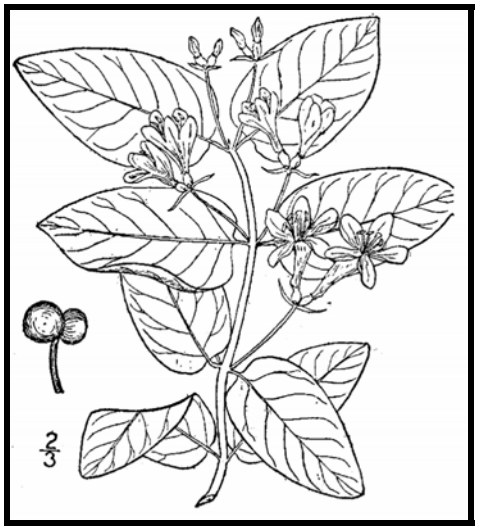
Deicing Salt Quantity Use Log

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

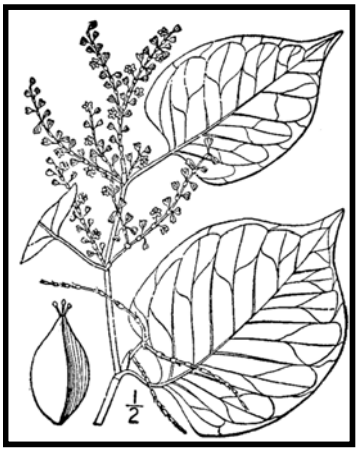
Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

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>

Non-Woody Plants	Method of Reproducing	Methods of Disposal
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)*	**Fruits and Seeds** 	**Prior to flowering** Depends on scale of infestation Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material. **During and following flowering** Do nothing until the following year or remove flowering heads and bag and let rot. Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material.
common reed (*Phragmites australis*) Japanese knotweed *(Polygonum cuspidatum)* Bohemian knotweed *(Polygonum x bohemicum)*	**Fruits, Seeds, Plant Fragments** Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn't materially influence disposal activities.	**Small infestation** ▪ Bag all plant material and let rot. ▪ Never pile and use resulting material as compost. ▪ Burn. **Large infestation** ▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile. ▪ Monitor and remove any sprouting material. ▪ Pile, let dry, and burn.

January 2010

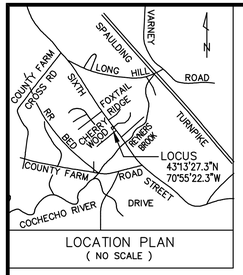
UNH Cooperative Extension programs and policies are consistent with pertinent Federal and State laws and regulations, and prohibits discrimination in its programs, activities and employment on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sex, sexual 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.

APPENDIX D

WATERSHED PLANS

D – 1

PRE-DEVELOPMENT CONDITIONS



LOCATION PLAN
(NO SCALE)

B / 3
J. TODD CORLEY
DENISE M. CORLEY
518 SIXTH STREET
DOVER, NH 03820
1961 / 519

B / 4-6
NATHAN A. DOWNS
ELIZABETH A. DOWNS
59 COTTONWOOD DRIVE
DOVER, NH 03820
4263 / 364

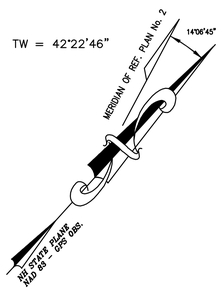
DISCHARGE PT. B

B / 4-69
ROBERT L. SUYDAM
JO ANN SUYDAM
11 CHERRYWOOD DRIVE
DOVER, NH 03820
2963 / 798

B / 2
PARCEL AREA
81,270 S.F.
1.87 Ac.

A / 45-1
WILLIAM ROBINSON
JILLIAN MODOONO
6 OLIVE MEADOW LAI
DOVER, NH 03820
4748 / 180

TW = 42°22'46"



WELL
SHED
2 STORY GARAGE
ASPHALT DRIVE
1 STORY WOOD FRAME HOUSE #512
GRAVEL DRIVE
SHED
60"ø OAK
36"ø OAK
SIXTH STREET {PUBLIC; VARIABLE WIDTH R.O.W.}
OLIVE MEADOW LANE
WOODEN RAIL FENCE
GRAVEL DRIVE
MOBILE HOME WITH ADDITION
18" RCP INV. = 175.7'
18" RCP
18" RCP INV. = 176.7'

A / 45-2-9
DAVID THOMPSEN
LINDA THOMPSEN
3 OLIVE MEADOW LANE
DOVER, NH 03820
4050 / 728

A / 46
CODY M. RICHARD
513 SIXTH STREET
DOVER, NH 03820
4705 / 729

B / 2C
DURELL FAMILY REVOCABLE
TRUST OF 2018
508 SIXTH STREET
DOVER, NH 03820
4572 / 641

DISCHARGE PT. A

PRE-DEVELOPMENT WATERSHED CHARACTERISTICS

SUBCATCHMENT DESIGNATION	AREA (ACRES)	LONGEST FLOW PATH (FEET)	Tc (MIN)
A	0.79	157	15.9
B	1.26	350	25.1

LEGEND:

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

GRAPHIC SCALE
20 0 10 20 40 80
(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
1	REVISED PER TRC	SJH	2-14-25

DATE: 11-21-24
SCALE: 1"=20'
DRAWN BY: SRD
DESIGN BY: JFG
APPROVED BY:SJH
PROJECT NO: 24094
FILE: Drn.dwg

PRE-DEVELOPMENT WATERSHED PLAN

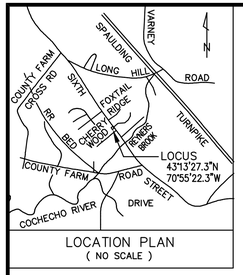
DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

WS-1

D – 2

POST-DEVELOPMENT CONDITIONS



LOCATION PLAN
(NO SCALE)

B / 4-6
NATHAN A. DOWNS
ELIZABETH A. DOWNS
59 COTTONWOOD DRIVE
DOVER, NH 03820
4263 / 364

B / 4-69
ROBERT L. SUYDAM
JO ANN SUYDAM
11 CHERRYWOOD DRIVE
DOVER, NH 03820
2963 / 798

B / 3
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DENISE M. CORLEY
518 SIXTH STREET
DOVER, NH 03820
1961 / 519

A / 45-1
WILLIAM ROBINSON
JILLIAN MODOONO
6 OLIVE MEADOW LAI
DOVER, NH 03820
4748 / 180

A/ 45-2-9
DAVID THOMPSEN
LINDA THOMPSEN
3 OLIVE MEADOW LANE
DOVER, NH 03820
4050 / 728

A / 46
CODY M. RICHARD
513 SIXTH STREET
DOVER, NH 03820
4705 / 729

B / 2C
DURELL FAMILY REVOCABLE
TRUST OF 2018
508 SIXTH STREET
DOVER, NH 03820
4572 / 641

DISCHARGE PT. B

DISCHARGE PT. A

DRIP EDGE 1 (DE1)

DRIP EDGE 2 (DE2)

INFILTRATIN BASIN 3 (IB3)

INFILTRATION BASIN 1 (IB1)

INFILTRATION BASIN 2 (IB2)

RD1

SIXTH STREET {PUBLIC; VARIABLE WIDTH R.O.W.}

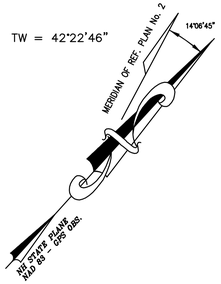
OLIVE MEADOW LANE

18" RCP INV. = 175.7'

18" RCP

18" RCP INV. = 176.7'

TW = 42'22'46"



POST-DEVELOPMENT WATERSHED CHARACTERISTICS

SUBCATCHMENT DESIGNATION	AREA (ACRES)	LONGEST FLOW PATH (FEET)	Tc (MIN)
1	0.35	98	11.1
2	0.38	126	13.5
3	0.11	36	6.4
4	0.08	69	7.0
5	0.01	15	1.2
6	1.09	355	23.2
7	0.01	7	1.2
8	0.01	15	1.2

LEGEND:

- EX 2' CONTOUR
- EX 10' CONTOUR
- 180 PROPOSED FINISH GRADE
- PROPERTY LINE
- PROPOSED BUILDING
- EX EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- PROPOSED EDGE OF GRAVEL
- EX TREELINE
- PROPOSED TREELINE
- EDGE OF WETLAND
- SUBCATCHMENT BOUNDARY
- LONGEST FLOW PATH WITH DIRECTION OF FLOW
- (1) SUBCATCHMENT DESIGNATION

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)

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
1	REVISED PER TRC	SJH	2-27-25

DATE: 11-21-24
SCALE: 1"=20'
DRAWN BY: SRD
DESIGN BY: JFG
APPROVED BY:SJH
PROJECT NO: 24094
FILE: Drn.dwg

POST-DEVELOPMENT WATERSHED PLAN

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

WS-2

Test Pit: 1 **Date:** 10/25/2024

Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-13	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
13-36	10 YR 6/4	Loamy Sand	Massive	Friable		Roots few, fine @ 36"
36-59	10 YR 5/6	Fine Sandy Loam	Massive	Friable		10% Cobbles
59-78	2.5 Y 2/3	Fine Sandy Loam	Blocky		<2% Redox 59"	

Seasonal High Water (in): 59
Observed Water (in): None
Restrictive Layer (in): None
Bedrock/Refusal (in): None

Soil Series:
NHDES Soil Group:
Hydrologic Soil Group:

Depth Perc Test Minutes/Inch

Notes: By Douglas J. LaRosa Designer #849

Test Pit: 2 **Date:** 10/25/2024

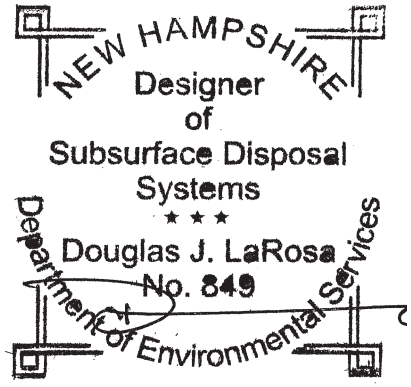
Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-25	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
25-46	10 YR 6/6	Loamy sand	Massive	Friable		Roots many common @38"
46-72	10 YR 4/3	Fine Sandy Loam	Blocky	Firm	<2% Redox 48"	Roots few,fine @ 48"

Seasonal High Water (in): 48
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 Minutes/Inch

Notes: Performed by Douglas J. LaRosa Designer #849



Test Pit: 3 **Date:** 10/25/2024

Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-8	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
8-50	2.5 Y 5/4	Loamy Sand	Massive	Friable		10% Cobbles
50-78	2.5 Y 4/3	Fne Sandy Loam	Massive	Firm	Redox > 2%,at 51"	Roots, few fine 50"

Seasonal High Water (in): 51
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 Minutes/Inch

Notes: Performed by Douglas J. LaRosa Designer #849

Test Pit: 4 **Date:** 10/25/2024

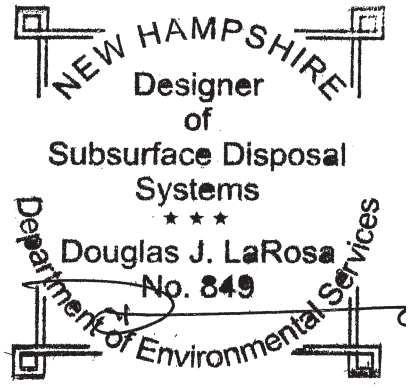
Depth (in)	Color	Texture	Structure	Consistence	Redox Features	Notes
0-1	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
1-59	10 YR 4/6	Loamy Sand	Massive	Loose		Roots 58" few fine
59-78	10 YR 4/4	Fine Sandy Loam	Blocky	Firm	2% Redox+ 59"	

Seasonal High Water (in): 59"
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 Minutes/Inch

Notes: By Douglas J. LaRosa Designer #849



Test Pit: 5 **Date:** 10/25/2024

Redox

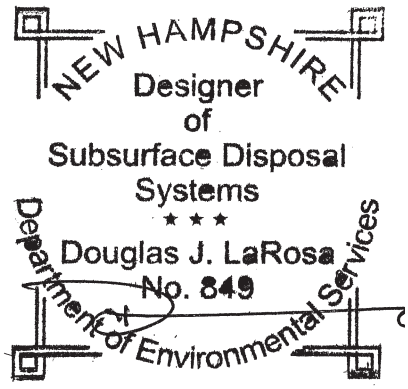
Depth (in)	Color	Texture	Structure	Consistence	Features	Notes
0-3	10 YR 3/3	Fine Sandy Loam	Massive	Friable		
3-48	10 YR 6/4	Loamy Sand	Massive	Friable		5% Gravel
48-56	10 YR3/3	Fine Sandy Loam	Massive	Friable		Roots few,fine @ 48"
56-80	10 YR 5/4	Fine Sandy Loam	Massive		2%+ Redox 5YR 5/4 56"	

Seasonal High Water (in): 56"
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 Minutes/Inch

Notes: By Douglas J. LaRosa Designer #849

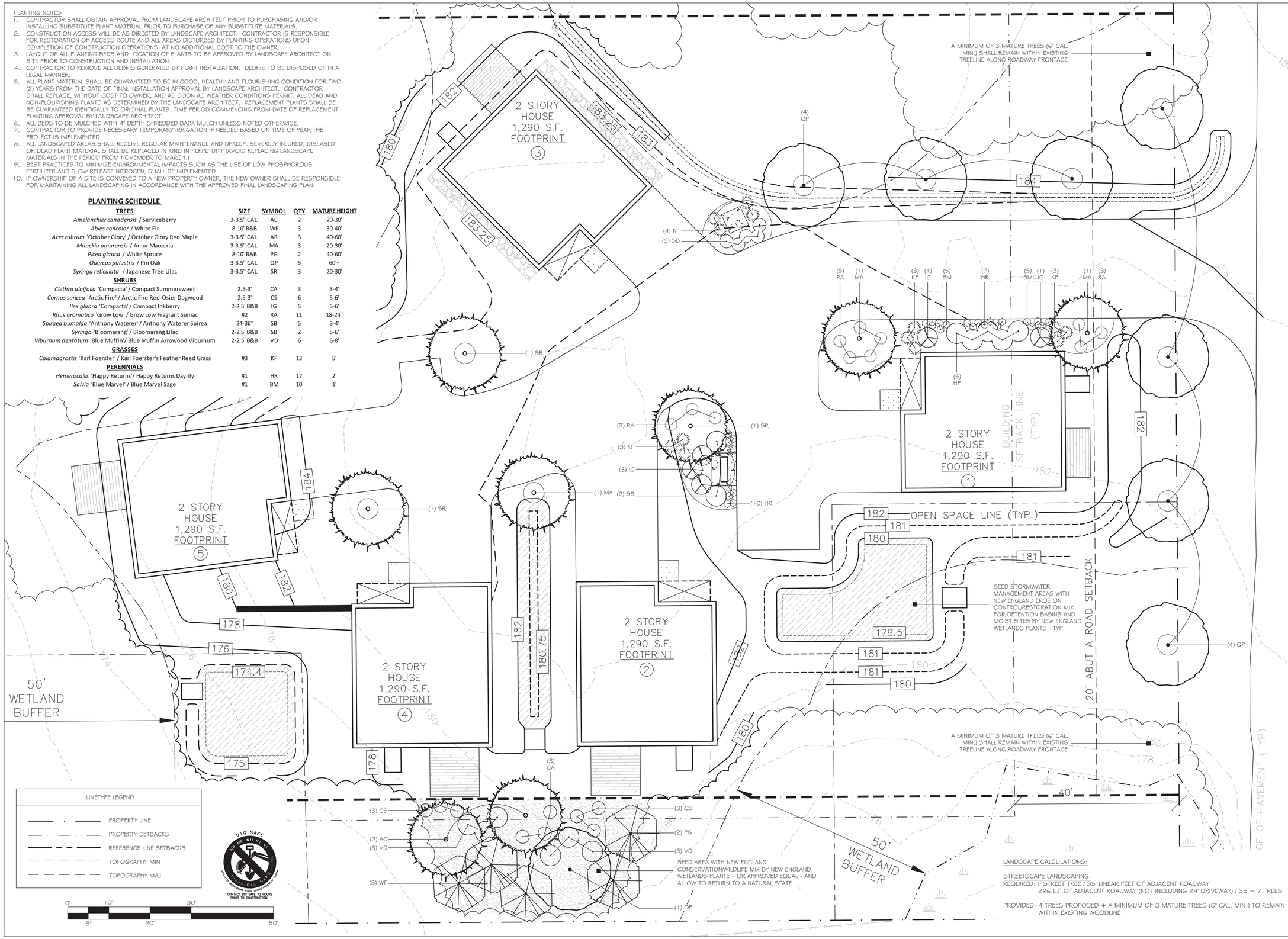


PLANTING NOTES

1. CONTRACTOR SHALL OBTAIN APPROVAL FROM LANDSCAPE ARCHITECT PRIOR TO PURCHASING AND/OR INSTALLING SUBSTITUTE PLANT MATERIAL PRIOR TO PURCHASE OF ANY SUBSTITUTE MATERIALS.
2. CONSTRUCTION ACCESS WILL BE AS DIRECTED BY LANDSCAPE ARCHITECT. CONTRACTOR IS RESPONSIBLE FOR RESTORATION OF ACCESS ROUTE AND ALL AREAS DISTURBED BY PLANTING OPERATIONS UPON COMPLETION OF CONSTRUCTION OPERATIONS, AT NO ADDITIONAL COST TO THE OWNER.
3. LAYOUT OF ALL PLANTING BEDS AND LOCATION OF PLANTS TO BE APPROVED BY LANDSCAPE ARCHITECT ON SITE PRIOR TO CONSTRUCTION AND INSTALLATION.
4. CONTRACTOR TO REMOVE ALL DEBRIS GENERATED BY PLANT INSTALLATION. DEBRIS TO BE DISPOSED OF IN A LEGAL MANNER.
5. ALL PLANT MATERIAL SHALL BE GUARANTEED TO BE IN GOOD, HEALTHY AND FLOURISHING CONDITION FOR TWO (2) YEARS FROM THE DATE OF FINAL INSTALLATION APPROVAL BY LANDSCAPE ARCHITECT. CONTRACTOR SHALL REPLACE, WITHOUT COST TO OWNER, AND AS SOON AS WEATHER CONDITIONS PERMIT, ALL DEAD AND NON-FLOURISHING PLANTS AS DETERMINED BY THE LANDSCAPE ARCHITECT. REPLACEMENT PLANTS SHALL BE BE GUARANTEED IDENTICALLY TO ORIGINAL PLANTS, TIME PERIOD COMMENCING FROM DATE OF REPLACEMENT PLANTING APPROVAL BY LANDSCAPE ARCHITECT.
6. ALL BEDS TO BE MULCHED WITH 4" DEPTH SHREDDED BARK MULCH UNLESS NOTED OTHERWISE.
7. CONTRACTOR TO PROVIDE NECESSARY TEMPORARY IRRIGATION IF NEEDED BASED ON TIME OF YEAR THE PROJECT IS IMPLEMENTED.
8. ALL LANDSCAPED AREAS SHALL RECEIVE REGULAR MAINTENANCE AND UPKEEP. SEVERELY INJURED, DISEASED, OR DEAD PLANT MATERIAL SHALL BE REPLACED IN KIND IN PERPETUITY (AVOID REPLACING LANDSCAPE MATERIALS IN THE PERIOD FROM NOVEMBER TO MARCH.)
9. BEST PRACTICES TO MINIMIZE ENVIRONMENTAL IMPACTS SUCH AS THE USE OF LOW PHOSPHOROUS FERTILIZER AND SLOW RELEASE NITROGEN, SHALL BE IMPLEMENTED.
10. 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.

PLANTING SCHEDULE

TREES	SIZE	SYMBOL	QTY	MATURE HEIGHT
Amelanchier canadensis / Serviceberry	3-3.5" CAL.	AC	2	20-30'
Abies concolor / White Fir	8-10' B&B	WF	3	30-40'
Acer rubrum 'October Glory' / October Glory Red Maple	3-3.5" CAL.	AR	3	40-60'
Maackia amurensis / Amur Maccckia	3-3.5" CAL.	MA	3	20-30'
Picea glauca / White Spruce	8-10' B&B	PG	2	40-60'
Quercus palustris / Pin Oak	3-3.5" CAL.	QP	5	60'+
Syringa reticulata / Japanese Tree Lilac	3-3.5" CAL.	SR	3	20-30'
SHRUBS				
Clethra alnifolia 'Compacta' / Compact Summersweet	2.5-3'	CA	3	3-4'
Cornus sericea 'Arctic Fire' / Arctic Fire Red-Osier Dogwood	2.5-3'	CS	6	5-6'
Ilex glabra 'Compacta' / Compact Inkberry	2-2.5' B&B	IG	5	5-6'
Rhus aromatica 'Grow Low' / Grow Low Fragrant Sumac	#2	RA	11	18-24"
Spiraea bumalda 'Anthony Waterer' / Anthony Waterer Spirea	24-36"	SB	5	3-4'
Syringa 'Bloomarang' / Bloomarang Lilac	2-2.5' B&B	SB	2	5-6'
Viburnum dentatum 'Blue Muffin'/ Blue Muffin Arrowood Viburnum	2-2.5' B&B	VD	6	6-8'
GRASSES				
Calamagrostis 'Karl Foerster' / Karl Foerster's Feather Reed Grass	#3	KF	13	5'
PERENNIALS				
Hemerocallis 'Happy Returns'/ Happy Returns Daylily	#1	HR	17	2'
Salvia 'Blue Marvel' / Blue Marvel Sage	#1	BM	10	1'



LINETYPE LEGEND

- PROPERTY LINE
- PROPERTY SETBACKS
- REFERENCE LINE SETBACKS
- TOPOGRAPHY MIN
- TOPOGRAPHY MAJ

0' 10' 30'
5' 20' 50'

DIG SAFE
811 OR 1-888-DIG-SAFE
CONTACT DIG SAFE 72 HOURS PRIOR TO CONSTRUCTION

LANDSCAPE CALCULATIONS:

STREETSCAPE LANDSCAPING:
REQUIRED: 1 STREET TREE / 35' LINEAR FEET OF ADJACENT ROADWAY
226 L.F.OF ADJACENT ROADWAY (NOT INCLUDING 24' DRIVEWAY) / 35 = 7 TREES

PROVIDED: 4 TREES PROPOSED + A MINIMUM OF 3 MATURE TREES (6" CAL. MIN.) TO REMAIN WITHIN EXISTING WOODLINE

terrain
planning & design llc
311 kast hill road
hopkinton nh 03229
603. 746. 3512
terrainplanning.com

TDR SITE PLAN

Site Location:
Sixth Street
Dover, NH 03820

Prepared For:
Civilworks New England
181 Watson Road
PO Box 1166
Dover, NH 03821

LANDSCAPE PLAN

DATE: 03 - 11 - 25

SCALE: 1" = 10'

PROJECT #: 25012

Drawn By: RNM

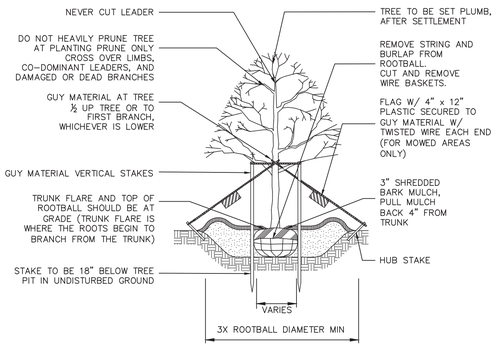
Checked By: ERB

REVISIONS: DATE:
Issued for Client Review

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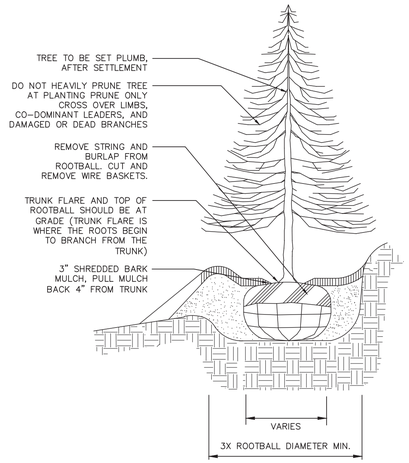
L - 1

CERTIFIED LANDSCAPE ARCHITECT
ROBERT N. KRUEGER
086
STATE OF NEW HAMPSHIRE



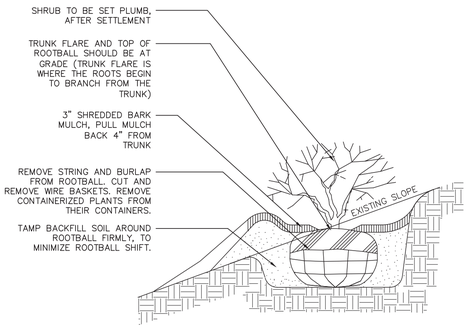
NOTES:
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2. TYPICALLY ONLY TREES WITH A 3" OR GREATER CALIPER NEED TO BE STAKED. TREES WITH LESS THAN A 3" CALIPER NEED TO BE STAKED ONLY AS REQUIRED BY LANDSCAPE ARCHITECT.
3. ONLY WRAP TREE TRUNKS AS REQUIRED BY LANDSCAPE ARCHITECT.
4. TREE SHALL BE SET PLUMB, AFTER SETTLEMENT.
5. LOAM FOR BACKFILLING SHALL BE AMENDED AS REQUIRED BY LANDSCAPE ARCHITECT.
6. CITY TREES PLANTED ON PRIVATE PROPERTY, ADJACENT TO A PUBLIC RIGHT-OF-WAY, NEED TO BE PLANTED A MINIMUM OF 5 FEET FROM THE EDGE OF THE CITY SIDEWALK.

DECIDUOUS TREE PLANTING



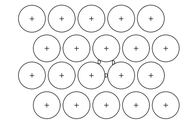
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3. TAMP BACKFILL SOIL AROUND ROOTBALL FIRMLY TO MINIMIZE ROOTBALL SHIFT.

EVERGREEN TREE PLANTING



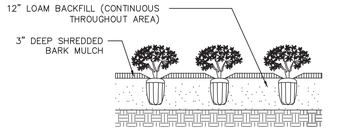
NOTE:
1. DO NOT HEAVILY PRUNE SHRUB AT PLANTING, PRUNE ONLY CROSSOVER LIMBS AND DAMAGED OR DEAD BRANCHES.
2. BACKFILL WITH LOAM, AMEND AS REQUIRED BY LANDSCAPE ARCHITECT.
3. SHRUBS & GROUNDCOVER PLANTED ADJACENT TO CITY SIDEWALKS NEED TO BE PLACED SO THE PLANTS, AT THEIR MATURE HEIGHT & WIDTH, WILL NOT ENCROACH INTO THE CITY'S SIDEWALK.

TYPICAL SHRUB PLANTING



TYPICAL BED PLANT SPACING

NOTE:
D = DIMENSION OF PLANT SPACING (SHRUB OR GROUNDCOVER AS INDICATED ON PLANS)



TYPICAL PERENNIAL PLANTING

terrain
planning & design llc
311 kast hill road
hopkinton nh 03229
603. 746. 3512
terrainplanning.com

TDR SITE PLAN

Site Location:
Sixth Street
Dover, NH 03820

Prepared For:
Civilworks New England
181 Watson Road
PO Box 1166
Dover, NH 03821

CONSTRUCTION DETAILS

DATE: 03 - 11 - 25

SCALE: AS NOTED

PROJECT #: 25012

Drawn By: RNM

Checked By: ERB

REVISIONS: DATE:
Issued for Client Review

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L - 2

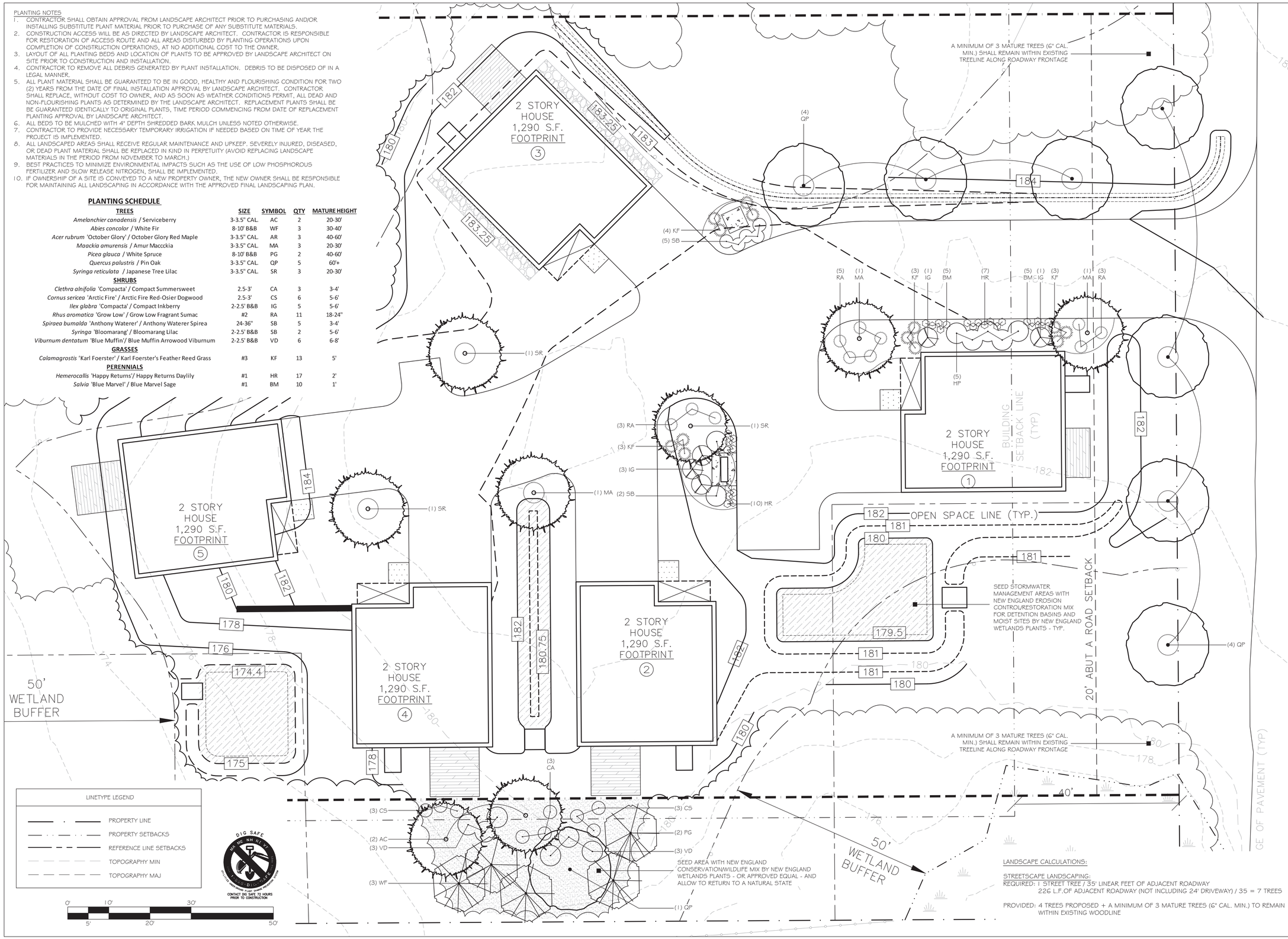


PLANTING NOTES

1. CONTRACTOR SHALL OBTAIN APPROVAL FROM LANDSCAPE ARCHITECT PRIOR TO PURCHASING AND/OR INSTALLING SUBSTITUTE PLANT MATERIAL PRIOR TO PURCHASE OF ANY SUBSTITUTE MATERIALS.
2. CONSTRUCTION ACCESS WILL BE AS DIRECTED BY LANDSCAPE ARCHITECT. CONTRACTOR IS RESPONSIBLE FOR RESTORATION OF ACCESS ROUTE AND ALL AREAS DISTURBED BY PLANTING OPERATIONS UPON COMPLETION OF CONSTRUCTION OPERATIONS, AT NO ADDITIONAL COST TO THE OWNER.
3. LAYOUT OF ALL PLANTING BEDS AND LOCATION OF PLANTS TO BE APPROVED BY LANDSCAPE ARCHITECT ON SITE PRIOR TO CONSTRUCTION AND INSTALLATION.
4. CONTRACTOR TO REMOVE ALL DEBRIS GENERATED BY PLANT INSTALLATION. DEBRIS TO BE DISPOSED OF IN A LEGAL MANNER.
5. ALL PLANT MATERIAL SHALL BE GUARANTEED TO BE IN GOOD, HEALTHY AND FLOURISHING CONDITION FOR TWO (2) YEARS FROM THE DATE OF FINAL INSTALLATION APPROVAL BY LANDSCAPE ARCHITECT. CONTRACTOR SHALL REPLACE, WITHOUT COST TO OWNER, AND AS SOON AS WEATHER CONDITIONS PERMIT, ALL DEAD AND NON-FLOURISHING PLANTS AS DETERMINED BY THE LANDSCAPE ARCHITECT. REPLACEMENT PLANTS SHALL BE BE GUARANTEED IDENTICALLY TO ORIGINAL PLANTS, TIME PERIOD COMMENCING FROM DATE OF REPLACEMENT PLANTING APPROVAL BY LANDSCAPE ARCHITECT.
6. ALL BEDS TO BE MULCHED WITH 4" DEPTH SHREDDED BARK MULCH UNLESS NOTED OTHERWISE.
7. CONTRACTOR TO PROVIDE NECESSARY TEMPORARY IRRIGATION IF NEEDED BASED ON TIME OF YEAR THE PROJECT IS IMPLEMENTED.
8. ALL LANDSCAPED AREAS SHALL RECEIVE REGULAR MAINTENANCE AND UPKEEP. SEVERELY INJURED, DISEASED, OR DEAD PLANT MATERIAL SHALL BE REPLACED IN KIND IN PERPETUITY (AVOID REPLACING LANDSCAPE MATERIALS IN THE PERIOD FROM NOVEMBER TO MARCH.)
9. BEST PRACTICES TO MINIMIZE ENVIRONMENTAL IMPACTS SUCH AS THE USE OF LOW PHOSPHOROUS FERTILIZER AND SLOW RELEASE NITROGEN, SHALL BE IMPLEMENTED.
10. 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.

PLANTING SCHEDULE

TREES	SIZE	SYMBOL	QTY	MATURE HEIGHT
Amelanchier canadensis / Serviceberry	3-3.5" CAL.	AC	2	20-30'
Abies concolor / White Fir	8-10' B&B	WF	3	30-40'
Acer rubrum 'October Glory' / October Glory Red Maple	3-3.5" CAL.	AR	3	40-60'
Maackia amurensis / Amur Maccckia	3-3.5" CAL.	MA	3	20-30'
Picea glauca / White Spruce	8-10' B&B	PG	2	40-60'
Quercus palustris / Pin Oak	3-3.5" CAL.	QP	5	60'+
Syringa reticulata / Japanese Tree Lilac	3-3.5" CAL.	SR	3	20-30'
SHRUBS				
Clethra alnifolia 'Compacta' / Compact Summersweet	2.5-3'	CA	3	3-4'
Cornus sericea 'Arctic Fire' / Arctic Fire Red-Osier Dogwood	2.5-3'	CS	6	5-6'
Ilex glabra 'Compacta' / Compact Inkberry	2-2.5' B&B	IG	5	5-6'
Rhus aromatica 'Grow Low' / Grow Low Fragrant Sumac	#2	RA	11	18-24"
Spiraea bumalda 'Anthony Waterer' / Anthony Waterer Spirea	24-36"	SB	5	3-4'
Syringa 'Bloomarang' / Bloomarang Lilac	2-2.5' B&B	SB	2	5-6'
Viburnum dentatum 'Blue Muffin'/ Blue Muffin Arrowood Viburnum	2-2.5' B&B	VD	6	6-8'
GRASSES				
Calamagrostis 'Karl Foerster' / Karl Foerster's Feather Reed Grass	#3	KF	13	5'
PERENNIALS				
Hemerocallis 'Happy Returns'/ Happy Returns Daylily	#1	HR	17	2'
Salvia 'Blue Marvel' / Blue Marvel Sage	#1	BM	10	1'



LINETYPE LEGEND

- PROPERTY LINE
- PROPERTY SETBACKS
- REFERENCE LINE SETBACKS
- TOPOGRAPHY MIN
- TOPOGRAPHY MAJ

0' 10' 30'
5' 20' 50'

DIG SAFE
811 OR 1-888-DIG-SAFE
CONTACT DIG SAFE 72 HOURS PRIOR TO CONSTRUCTION

LANDSCAPE CALCULATIONS:

STREETSCAPE LANDSCAPING:
REQUIRED: 1 STREET TREE / 35' LINEAR FEET OF ADJACENT ROADWAY
226 L.F.OF ADJACENT ROADWAY (NOT INCLUDING 24' DRIVEWAY) / 35 = 7 TREES

PROVIDED: 4 TREES PROPOSED + A MINIMUM OF 3 MATURE TREES (6" CAL. MIN.) TO REMAIN WITHIN EXISTING WOODLINE

terrain
planning & design llc
311 kast hill road
hopkinton nh 03229
603. 746. 3512
terrainplanning.com

TDR SITE PLAN

Site Location:
Sixth Street
Dover, NH 03820

Prepared For:
Civilworks New England
181 Watson Road
PO Box 1166
Dover, NH 03821

LANDSCAPE PLAN

DATE: 03 - 11 - 25

SCALE: 1" = 10'

PROJECT #: 25012

Drawn By: RNM

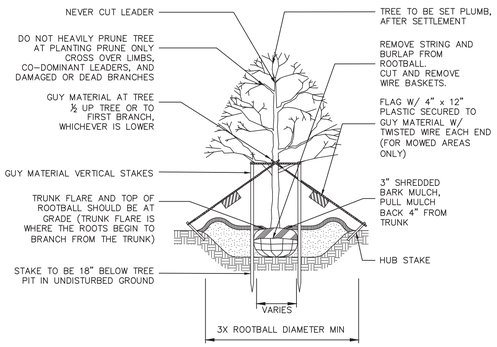
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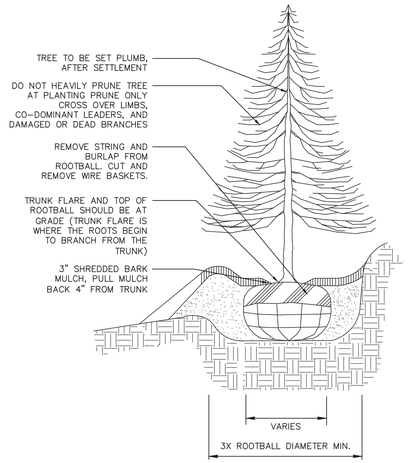
L - 1

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STATE OF NEW HAMPSHIRE



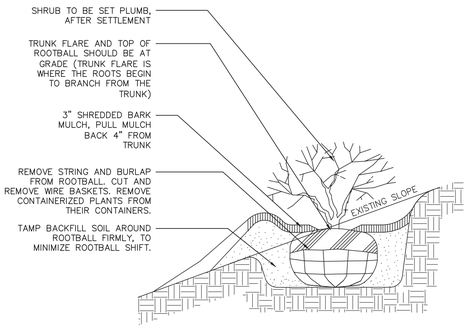
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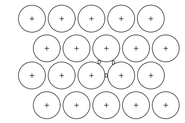
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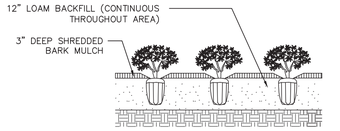
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TYPICAL BED PLANT SPACING

NOTE:
D = DIMENSION OF PLANT SPACING (SHRUB OR GROUNDCOVER AS INDICATED ON PLANS)



TYPICAL PERENNIAL PLANTING

terrain
planning & design llc
311 kast hill road
hopkinton nh 03229
603. 746. 3512
terrainplanning.com

TDR SITE PLAN

Site Location:
Sixth Street
Dover, NH 03820

Prepared For:
Civilworks New England
181 Watson Road
PO Box 1166
Dover, NH 03821

CONSTRUCTION DETAILS

DATE: 03 - 11 - 25

SCALE: AS NOTED

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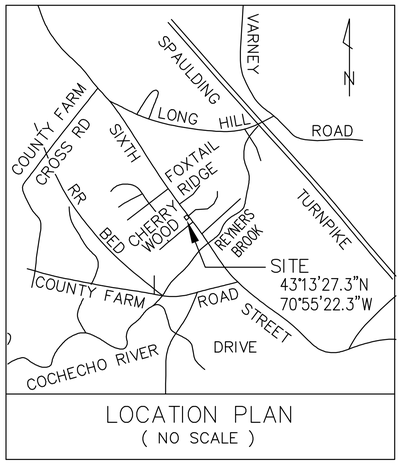
L - 2



TDR SITE PLAN
5 UNIT RESIDENTIAL

TAX MAP B, LOT No. 2

512 SIXTH STREET
DOVER, NH
NOVEMBER 21, 2024
REVISED: FEBRUARY 27, 2025
REVISED: MARCH 13, 2025



LOCATION PLAN
(NO SCALE)

OWNER

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NEW HAMPSHIRE 03820

OWNER SIGNATURE

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

WETLAND SCIENTIST

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

LANDSCAPE ARCHITECT

TERRAIN PLANNING & DESIGN, LLC
311 KAST HILL ROAD
HOPKINTON, NH 03229
(603) 491-2322

PERMIT SUMMARY/ WAIVER SUMMARY:

1. CITY 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-2024-0018-PENDING

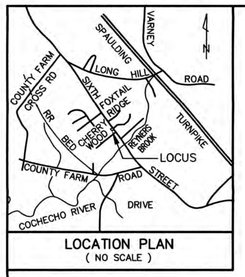
   CONDITIONAL USE PERMIT: COND-2024-0034-PENDING

2. WAIVERS REQUESTED:
   A WAIVER REQUESTED FROM SECTION 157-31F TO PERMIT A SHARED DRIVEWAY LENGTH OF LESS THAN 500 FEET.

SHEET INDEX

	SHEET
COVER SHEET	1
EXISTING CONDITIONS PLAN (BY MCENEANEY SURVEY)	2
NEIGHBORHOOD PLAN	3
NOTE SHEET	4
DEMOLITION PLAN	5
SITE PLAN	6
GRADING & DRAINAGE PLAN	7
IMPACT & EROSION CONTROL PLAN	8
UTILITY PLAN	9
PLAN & PROFILES	10
EROSION CONTROL NOTES	11
EROSION CONTROL DETAILS	12 - 14
DETAILS	15 - 18
TRUCK MOVEMENT PLAN	19
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LIGHTING DETAILS	21
LANDSCAPE PLANS	
LANDSCAPE PLAN	L-1
LANDSCAPE DETAILS	L-2

PLANNING FILE NO.: SITE-2024-0018



LOCATION PLAN
(NO SCALE)

REFERENCE PLANS:

1.) PLAN OF LOTS BETHARLENE WEEDEN TO ROBERT W. & BEATRICE MILLER, L. WILLIAM & JOANNA E. DOTCHIN, DOVER, NEW HAMPSHIRE; SCALE: 1" = 50'; DATED: AUGUST 1973; BY: R.W. McCRONE; RECORDED S.C.R.D. PLAN 50, POCKET 4, FOLDER 2.

2.) ALDEN WOODS SUBDIVISION, SIXTH STREET, DOVER, NEW HAMPSHIRE; SCALE: 1" = 60'; DATED: APRIL 27, 1998, REVISED THROUGH 10/7/98; BY McENEANEY SURVEY ASSOCIATES, INC.; RECORDED S.C.R.D. PLAN 56-32.

NH STATE PLANE NAD 83 - GPS OBS.

B / 3
J. TODD CORLEY
DENISE M. CORLEY
518 SIXTH STREET
DOVER, NH 03820
1961 / 519

B / 4-6
NATHAN A. DOWNS
ELIZABETH A. DOWNS
59 COTTONWOOD DRIVE
DOVER, NH 03820
4263 / 364

I.R.(fnd)
N47°41'39"E
324.91'
I.R.(tbs)

WELL
SHED
WETLAND BUFFER
50'
OHU
2 STORY GARAGE
F.F. = 183.4'
ASPHALT DRIVE
1 STORY WOOD FRAME HOUSE #512
F.F. = 185.7'
GRAVEL DRIVE
BUILDING SETBACK LINE (TYP.)

B / 2
PARCEL AREA
81,270 S.F.
1.87 Ac.

N42°24'46"W
250.22'
S42°25'40"E
250.00'

B / 4-69
ROBERT L. SUYDAM
JO ANN SUYDAM
11 CHERRYWOOD DRIVE
DOVER, NH 03820
2963 / 798

SHED
MOBILE HOME WITH ADDITION
F.F. = 181.9'
UP 200
WOODEN RAIL FENCE
GRAVEL DRIVE
EDGE OF PAVEMENT (TYP.)
S47°39'20"W
324.97'
I.R.(fnd)
I.R.(tbs)
WOODEN STOCKADE FENCE

60"ø OAK
36"ø OAK

SIXTH STREET {PUBLIC; VARIABLE WIDTH R.O.W.}

SMH (2005)
RIM = 190.78'
INVERT IN 8" PVC = 179.5'
(NORTH)
INVERT OUT 8" PVC = 179.4'
(SOUTH, SMH (2001)) L=302.5'
BRICK SHELF ELEV. = 180.1'

TBM
SPIKE IN
UTILITY POLE
ELEV. = 186.58

UP 58/19

A / 45-1
WILLIAM ROBINSON
JILLIAN MODOONO
6 OLIVE MEADOW LANE
DOVER, NH 03820
4748 / 180

OLIVE MEADOW LANE

A / 45-2-9
DAVID THOMPSEN
LINDA THOMPSEN
3 OLIVE MEADOW LANE
DOVER, NH 03820
4050 / 728

SMH (2001)
RIM = 182.55'
INVERT IN 8" PVC = 173.0'
(NORTH, SMH (2005)) L=302.5'
INVERT OUT 8" PVC = 172.6'
(SOUTH)
BRICK SHELF ELEV. = 173.4'

UP 58/18

TBM
SPIKE IN
UTILITY POLE
ELEV. = 182.09

18" RCP
INV. = 175.7'
18" RCP
18" RCP
INV. = 176.7'

B / 2C
DURELL FAMILY REVOCABLE TRUST OF 2018
508 SIXTH STREET
DOVER, NH 03820
4572 / 641

A / 46
CODY M. RICHARD
513 SIXTH STREET
DOVER, NH 03820
4705 / 729

STATE OF NEW HAMPSHIRE
DAMON E. BURT
No. 163
CERTIFIED WETLAND SCIENTIST
3/5/25

NOTES:

1.) OWNER OF RECORD:
DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NEW HAMPSHIRE 03820
S.C.R.D. VOLUME 5155, PAGE 367

2.) B / 2 – DENOTES TAX MAP AND PARCEL NUMBER.

3.) PARCEL AREA = 81,270 S.F. / 1.87 Ac.

4.) THE INTENT OF THIS PLAN IS TO DEPICT THE PARCEL BOUNDARY AND EXISTING SITE CONDITIONS AS OF DECEMBER 14, 2023.

5.) ZONING DISTRICT:

DISTRICT RURAL RESIDENTIAL (R-40)

DIMENSIONAL REQUIREMENTS:		
MINIMUM LOT SIZE	=	40,000 S.F.
MAXIMUM LOT COVERAGE	=	10 PERCENT
MINIMUM FRONTAGE	=	150 FEET
BUILDING SETBACK REQUIREMENTS:		
FRONT SETBACK	=	40 FEET
SIDE SETBACK	=	25 FEET
REAR SETBACK	=	30 FEET
MAXIMUM BUILDING HEIGHT	=	35 FEET MAXIMUM
OUTBUILDING SETBACK REQUIREMENTS:		
FRONT SETBACK	=	40 FEET
SIDE SETBACK	=	10 FEET
REAR SETBACK	=	10 FEET

7.) BASIS OF BEARING IS NH STATE PLANE (NAD83) AND VERTICAL DATUM IS NAVD88 BASED ON GPS OBSERVATION DATED DECEMBER 12, 2023.

11.) WETLANDS SHOWN WERE DELINEATED BY DAMON E. BURT, N.H.C.W.S. #163 OF FRAGGLE ROCK ENVIRONMENTAL SERVICES ON DECEMBER 13, 2023 IN ACCORDANCE WITH THE 1987 CORPS. OF ENGINEERS WETLANDS DELINEATION MANUAL AND LOCATED BY THIS OFFICE.

12.) PARCEL IS SERVICED BY MUNICIPAL SEWER AND WATER.

LEGEND

I.P.(fnd) – IRON PIPE FOUND
I.R.(fnd) – IRON ROD FOUND
I.R.(tbs) – IRON ROD WITH ID CAP #661 TO BE SET
S.F. – SQUARE FEET
Ac. – ACRE
(TYP.) – TYPICAL
± – MORE OR LESS
ø – DIAMETER
S.C.R.D. – STRAFFORD COUNTY REGISTRY OF DEEDS
UP 55/14 – UTILITY POLE W/ I.D. No.
OHU – OVERHEAD UTILITY WIRES

F.F. – FINISHED FLOOR ELEVATION
ELEV. – ELEVATION
R.O.W. – RIGHT OF WAY
SMH – SEWER MANHOLE
WATER GATE VALVE
FIRE HYDRANT
180 – CONTOUR LINE (2 FOOT INTERVAL)
WETLAND BOUNDARY
GV – GAS VALVE

NO.	DATE	DESCRIPTION	BY	CHK
		REVISIONS		
1	3/5/25	ADD SIGNATURES	RJM	KMM

PROJECT NO	TYPE	FIELDBOOK & PAGES
23-2416	EC	23-11 34-38

EXISTING CONDITIONS PLAN
PREPARED FOR
DBS HOLDINGS, LLC
TAX MAP B, LOT No. 2
512 SIXTH STREET
CITY of DOVER
COUNTY of STRAFFORD
STATE of NEW HAMPSHIRE

DRAWN BY: KJF | FILE: MSA\2416\D\23-2416
SCALE: 1" = 20' | DATE: OCTOBER 31, 2024

20 10 0 10 20 40 60 80

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

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

SURVEYING – PLANNING – CONSULTING

3/5/2025 12:38:16 File: M:\2416\Drawings\23-2416.dwg Layout: 23-2416 EC

ABUTTERS LIST
(WITHIN 200 FT)

TAX MAP	LOT NO.	NAME & ADDRESS
B	2	DBS HOLDINGS, LLC 71 DANIELLE LANE DOVER, NH 03820
A	45A–2–9	THOMPSEN DAVID P & THJOMPSEN LINDA M 3 OLIVE MEADOW LANE DOVER, NH 03820
A	45–1–0	ROBINSON WILLIAM & MODOONO TTS ROBINSON FAMILY REVOCABLE TRUST 2024 6 OLIVE MEADOW LANE DOVER, NH 03820
A	45–A–1	RIEL JAMES E & RIEL SAMANTHA S 519 SIXTH STREET DOVER, NH 03820
B	3–0–0	CORLEY J TODD & CORLEY DENISE M 518 SIXTH STREET DOVER, NH 03820
B	4–60–0	DOWNS NATHAN A & DOWNS ELIZABETH A 59 COTTONWOOD DRIVE DOVER, NH 03820
B	4–61–0	BARTER ANDREW P MCADAMS KATHLEEN 53 COTTONWOOD DRIVE DOVER, NH 03820
B	4–62–0	BOURQUE KEVIN R & LAURA K TRUSTEES LK EAGLE ANCESTRAL GRANTOR TRUST 47 COTTONWOOD DRIVE DOVER, NH 03820
B	4–69–0	SUYDAM ROBERT L & SUYDAM JO ANN 11 CHERRYWOOD DRIVE DOVER, NH 03820
B	2–C–0	DURELL KENETH C & DONNA M CO–TRUSTEES DURELL FAMILY REVOCABLE TRUST OF 2018 508 SIXTH STREET DOVER, NH 03820
A	46–0–0	RICHARD CODY M 513 SIXTH STREET DOVER, NH 03820

SYMBOL LEGEND

D / 11 — TAX MAP / LOT NUMBER

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)

PLANNING FILE NO.: SITE–2024–0018

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

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

NO.	REVISION	APP'D	DATE
1	PER TRC COMMENTS	SJH	2–27–25
2	PB SUBMISSION	SJH	3–13–25

DESIGN BY: JFG
DRAWN BY: SRD
APPROVED BY:SJH
SCALE: 1"=50'
DATE: 11–21–24
PROJECT NO: 24094
FILE: SITE.DWG

NEIGHBORHOOD PLAN

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

3

DOVER NOTES:

1. THE PURPOSE OF THIS PLAN IS TO DEPICT SITE IMPROVEMENTS ASSOCIATED WITH THE CONSTRUCTION OF A 5 UNIT RESIDENTIAL DEVELOPMENT INCLUDING 5 SINGLE FAMILY UNITS, SITE ACCESS, DRIVEWAYS, GRADING AND DRAINAGE IMPROVEMENTS, AND UTILITY UPGRADES.
2. OWNER OF RECORD:
   DBS HOLDINGS, LLC
   71 DANIELLE LANE
   DOVER, NEW HAMPSHIRE 03820
3. THE PARCEL IS SHOWN ON CITY OF DOVER ASSESSOR'S MAP B, LOT 2.
4. PARCEL AREA = 81,270 S.F. / 1.87 Ac. THERE IS NO LAND AREA CURRENTLY IN CURRENT USE.
5. TITLE REFERENCE FOR THE PROJECT PARCEL IS THE STRAFFORD COUNTY REGISTRY OF DEEDS, BOOK 5155, PAGE NO. 367.
6. REFERENCE PLAN: EXISTING CONDITIONS PLAN PREPARED FOR DBS HOLDINGS, LLC; TAX MAP B, LOT NO.2; 512 SIXTH STREET, CITY OF DOVER; COUNTY OF STAFFORD; STATE OF NEW HAMPSHIRE; SCALE 1"=20'; DATED: OCTOBER 31, 2024.
7. ALL APPLICABLE RIGHT-OF-WAY, CONSERVATION, SLOPE, CONSTRUCTION, POWER LINE, CROSS TRAVEL, OR OTHER EASEMENTS SHALL BE REFERENCED IN A NOTE AND SHOWN ON THE PLAN.
8. ZONING DISTRICT: RURAL RESIDENTIAL (R40)

DIMENSIONAL REQUIREMENTS:	REQUIRED	PROPOSED
MINIMUM LOT SIZE	40,000 S.F.	81,270 S.F.
MAXIMUM LOT COVERAGE	10 %	8.3 %
MINIMUM FRONTAGE	150 FEET	250 FEET
BUILDING SETBACK REQUIREMENTS:		
FRONT SETBACK	40 FEET	SEE TDR BELOW
SIDE SETBACK	25 FEET	SEE TDR BELOW
REAR SETBACK	30 FEET	SEE TDR BELOW
MAXIMUM BUILDING HEIGHT	35 FEET	28'-2"
WETLAND BUFFER	50 FEET	CUP REQUESTED
TRANSFER OF DEVELOPMENT RIGHTS REGULATIONS:		
ABUTTING A ROAD SETBACK	20 FEET	MIN 21 FEET
ABUTTING A LOT LINE SETBACK	10 FEET	N/A
STREET SIDES OF UNITS	20 FEET	MIN 21 FEET
ABUTTING STRUCTURES	20 FEET	MIN 20.56 FEET
NO CUT BUFFER FROM EXTERIOR LOT LINE	30 FEET	MIN 30 FEET

9. OFF STREET PARKING REQUIREMENTS: MAXIMUM PROVIDED
   PARKING DIMENSIONS 9 X 18 9 X 18
   (SEE SITE PLAN FOR PARKING CALCULATIONS)
10. THE PROJECT IS REQUESTNG A WAIVER FROM SECTION 149-13.A (12) TO NOT REQUIRE A LANDSCAPE PLAN.
11. THE PROJECT DOES NOT REQUIRE VARIANCES OR SPECIAL EXCEPTIONS TO BE GRANTED BY THE ZONING BOARD.
12. THE PROJECT REQUIRES A CONDITIONAL USE PERMIT. SEE THE CITY PERMITS GRANTED SECTION.
13. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES OF NEW ENGLAND DURING JANUARY AND MARCH, 2024 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.
14. AS-BUILT PLANS OF THE PROJECT SHALL BE SUBMITTED ON PAPER AND IN DIGITAL FORMAT AUTOCAD DWG, AUTOCAD DXF OR ESRI FORMAT TO THE CITY OF DOVER ENGINEER'S OFFICE UPON COMPLETION OF PROJECT. AS-BUILT PLANS SHALL BE PREPARED AND CERTIFIED CORRECT BY A L.L.S. OR P.E. DIGITAL FILES SHALL BE GEO-REFERENCED TO NEW HAMPSHIRE STATE PLANE COORDINATES NAD83 AND SHALL BE EXPRESSED IN FEET.
15. THE SUBJECT PARCEL IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA (SFHA) AS SHOWN ON FLOOD INSURANCE RATE MAP 33017C0310E, EFFECTIVE DATE 9/30/2015.
16. TOPOGRAPHIC SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATE, JANUARY AND MARCH 2024.
17. BASIS OF BEARING IS NH STATE PLANE (NAD83) AND VERTICAL DATUM IS NAVD88 BASED ON GPS OBSERVATION DATED DECEMBER 12, 2023.
18. WETLANDS SHOWN WERE DELINEATED BY DAMON E. BURT, N.H.C.W.S. #163 OF FRAGGLE ROCK ENVIRONMENTAL SERVICES ON DECEMBER 13, 2023 IN ACCORDANCE WITH THE 1987 CORPS. OF ENGINEERS WETLANDS DELINEATION MANUAL AND LOCATED BY THIS OFFICE.
19. THE INSTALLATION OF ELECTRIC POWER, CABLE TELEVISION AND TELEPHONE LINES SHALL BE UNDERGROUND THROUGHOUT THE SITE FOR WHICH DEVELOPMENT IS PROPOSED.
20. THE SUBJECT PARCEL IS SERVED BY MUNICIPAL WATER AND SEWER.
21. ALL CONSTRUCTION SHALL CONFORM WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION (NHDOT) "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AND WITH THE CITY OF DOVER COMMUNITY SERVICES REGULATIONS AND STANDARD SPECIFICATION FOR CONSTRUCTION. THE MORE STRINGENT SPECIFICATION SHALL APPLY.
22. CONTRACTOR SHALL FOLLOW THE CONSTRUCTION SEQUENCING IDENTIFIED WITHIN THE PLANNING BOARD APPROVED PLAN SET. ANY DEVIATION FROM THAT SEQUENCING SHALL BE APPROVED BY THE CITY ENGINEER.
23. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBANCE AND BE PROVIDED FOR CONSTRUCTION SEQUENCING INCLUDING TEMPORARY MEASURES.
24. CONTRACTOR SHALL FOLLOW THE PERMANENT STABILIZATION MEASURES 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 AS NOTED WITHIN THE PLANNING BOARD APPROVED PLANS. ANY DEVIATION FROM THAT SEQUENCING SHALL BE APPROVED BY THE CITY ENGINEER.
25. 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.
26. ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS.
27. A LETTER OF CREDIT FOR THE COST OF REVEGETATING ALL DISTURBED AREAS ON THE SITE SHALL BE SUBMITTED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS.
28. A CITY ENGINEER APPROVED CONSTRUCTION SIGN SHALL BE INSTALLED PRIOR TO COMMENCING EARTH DISTURBANCE. SAID SIGNAGE MUST BE LOCATED AND APPROVED BY THE CITY ENGINEER OR PLANNING DIRECTOR.
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.

DOVER NOTES CONTINUED:

30. SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY-FRIDAY 7 AM-6 PM AND SATURDAYS 9AM-4PM. HOURS OF CONSTRUCTION MUST BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. WORK PRECLUDED ON SUNDAYS AND FEDERAL HOLIDAYS.
31. BUILDING ADDRESSES (INCLUDING APT/UNIT NUMBERS, IF APPLICABLE) SHALL BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.
32. THE PROPOSED USE FOR THE SITE (STRUCTURE) IS FIVE (5) SINGLE FAMILY RESIDENTIAL UNITS.
33. THE PROJECT DOES NOT REQUIRE FEDERAL OR STATE PERMITTING FOR APPROVAL.
34. COMMERCIAL VEHICLE ROUTE DURING CONSTRUCTION SHALL CONFORM TO DOVER CITY CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR OR THEIR DESIGNEE.
35. ANY RETAINING WALL TALLER THAN FOUR FEET (4') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
36. ANY FENCE TALLER THAN SEVEN FEET (7') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
37. 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/
38. 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.
39. 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.
40. EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 153-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.
41. IF A BUISNESS ESTABLISHMENT OR MULTI-FAMILY DWELLING CONTAINED IN A NEW, ALTERED, OR REPAIRED STRUCTURE, 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).
42. APPROVED BACKFLOW PREVENTERS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.
43. THE PROPOSED STRUCTURES 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. 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.
45. 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.
46. 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.
47. APPLICANT SHALL SUBMIT A LETTER CERTIFYING THE TIE IN LOCATIONS OR DISCHARGE POINTS FOR ALL SUMP PUMPS AND ROOF LEADERS FOR EXISTING STRUCTURES ON THE PROPERTY PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY (AS APPLICABLE).
48. DESIGN ENGINEER SHALL PROVIDE SIGNED LETTER TO CITY ENGINEER CERTIFYING THAT THE STORMWATER MANAGEMENT SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS.
49. ALL MANHOLE COVERS SHALL BE LIFTMATE R-1743-LM OR APPROVED EQUAL WITH 90 DEGREE HINGE.
50. THE WATER MAIN SHALL BE POLY WRAPPED IN ACCORDANCE WITH THE CITY OF DOVER STANDARDS.
51. ALL SEWER MAINS AND MANHOLES SHALL BE TESTED IN ACCORDANCE WITH NHDES ENV-WQ 700 REQUIREMENTS. COPIES OF TEST RESULTS SHALL BE PROVIDED TO THE CITY OF DOVER ENGINEERING DEPARTMENT.
52. ALL FITTINGS MUST BE CLASS 140 WATER FITTINGS.
53. ALL GATE VALVES MUST BE MANUFACTURED BY MUELLER OR CLOW.
54. THE APPLICANT SHALL PROVIDE THE CITY OF DOVER AN EASEMENT TO ACCESS WATERLINE AND HYDRANT TO MAINTAIN WATER QUALITY PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
55. REFUSE REMOVAL SHALL BE ON SITE AND BY PRIVATE CONTRACTOR.

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 CONTRACTOR'S 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 OWNER'S 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. 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.
11. 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.

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. THE DESIGN ENGINEER MUST CERTIFY THAT THE STORMWATER MANAGEMENT SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS.
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.

UTILITY CONTACTS:

NATURAL GAS: -
CONTACT: UNITIL CORPORATION
DAVID MACLEAN
325 WEST ROAD
PORTSMOUTH, NH 03801
TEL: (603)-294-5261
EMAIL: MACLEAND@UNITIL.COM

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
TREVOR EMMONS
4 OLD DOVER ROAD
ROCHESTER, NH 03867
TEL: (603)-332-7515
EMAIL: TREVOR.EMMONS@EVERSOURCE.COM

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 AS APPLICABLE 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 AS APPROPRIATE.
26. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.
27. SEWAGE LOADING
    THE PROJECT TOTAL DESIGN FLOW IS ESTIMATED AS FOLLOWS:
    SINGLE FAMILY 3 BEDROOM UNIT = 300 GPD FOR 1ST 2 BEDROOMS + 150 GPD FOR 3RD BEDROOM = 450 GPD PER UNIT
    5 UNIT x 450 GPD/UNIT = 2,250 GPD = TOTAL ESTIMATED DESIGN
28. AN EASEMENT WILL BE GRANTED TO THE CITY ALONG THE WATER LINES TO ALLOW ACCESS FOR OPERATION OF THE WATER INFRASTRUCTURE TO MAINTAIN WATER QUALITY.
29. ALL VALVES SHALL OPEN COUNTER CLOCKWISE.

PLANNING FILE NO.: SITE-2024-0018

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
2	PB SUBMISSION	SJH	3-13-25
1	PER TRC COMMENTS	SJH	2-27-25

APPROVED BY:SJH
PROJECT NO:24094
FILE: SITE.DWG
DESIGN BY: JFG
DRAWN BY: SRD
SCALE: N.T.S.
DATE: 11-21-24

NOTE SHEET

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

LOCATION PLAN
(NO SCALE)

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CIVIL & WATERFRONT ENGINEERING
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603.749.0443

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2	PB SUBMISSION	SJH	3-13-25
1	PER TRC COMMENTS	SJH	2-27-25

DATE: 11-21-24
SCALE: 1"=20'
DRAWN BY: SRD
DESIGN BY: JFG
APPROVED BY:SJH
PROJECT NO: 24094
FILE: SITE.DWG

PLANNING FILE NO.: SITE-2024-0018

I.R.(fnd)
I.R.(tbs)
25'
50' WETLAND BUFFER
30'
WELL TO BE CAPPED & ABANDONED
WELL
LIMITS OF TREELINE REMOVAL
SHED TO BE REMOVED
SHED
STAIRS (TBR)
OVERHEAD WIRES TO BE REMOVED
FENCE TO BE REMOVED
UTILITY POLE TO BE REMOVED
OHU
UP OHU1
UP OHU1 -7 JPN382
2 STORY GARAGE F.F. = 183.4'
TREELINE TO BE REMOVED
ASPHALT DRIVE (TBR)
BUILDING TO BE REMOVED
PROPOSED TREELINE
1 STORY WOOD FRAME HOUSE #512 F.F. = 185.7'
GRAVEL DRIVE (TBR)
SIDEWALK TO BE REMOVED
STAIRS & CANOPY TO BE REMOVED
BUILDING SETBACK LINE (TYP)
TREE TO BE REMOVED
60"ø OAK
36"ø OAK
WOODEN RAIL FENCE (TBR)
MOBILE HOME WITH ADDITION F.F. = 181.9'
UP 20D
40'
WOODEN STOCKADE FENCE
WATER 12" C.L. DI
SEWER 8" SDR
TBM SPIKE IN UTILITY POLE ELEV. = 186.58
UP 58/19
SAWCUT LIMITS
4' WIDE TRENCH FOR GAS LINE (SEE TYPICAL TRENCH DETAIL)
GAS
OLIVE MEADOW LANE
SIXTH STREET {PUBLIC; VARIABLE WIDTH R.O.W.}
EDGE OF PAVEMENT (TYP)
8" D.I.
8" PVC
SMH (2001)
RIM = 182.55'
INVERT IN 8" PVC = 173.0'
INVERT IN 8" PVC = 172.92
(NORTH, SMH (2005)) L=302.5'
INVERT OUT 8" PVC = 172.6'
(SOUTH)
BRICK SHELF ELEV. = 173.4'
182.09
UP 58/18 UGU
TBM SPIKE IN UTILITY POLE ELEV. = 182.09
18" RCP
INV. = 175.7'
18" RCP
18" RCP
INV. = 176.7'

LEGEND
S.F. – SQUARE FEET
Ac. – ACRE
(TYP.) – TYPICAL
± – MORE OR LESS
ø – DIAMETER
S.C.R.D. – STRAFFORD COUNTY REGISTRY OF DEEDS
UP – UTILITY POLE
TBR – TO BE REMOVED
SMH – SEWER MANHOLE
WV – WATER SHUT-OFF
GV – WATER GATE VALVE
GAS VALVE
FIRE HYDRANT
EDGE OF WETLAND
WETLAND
WETLAND BUFFER

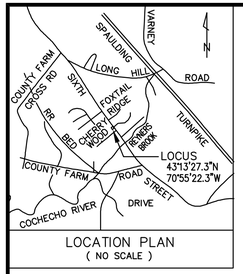
GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)

DEMOLITION PLAN

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

5



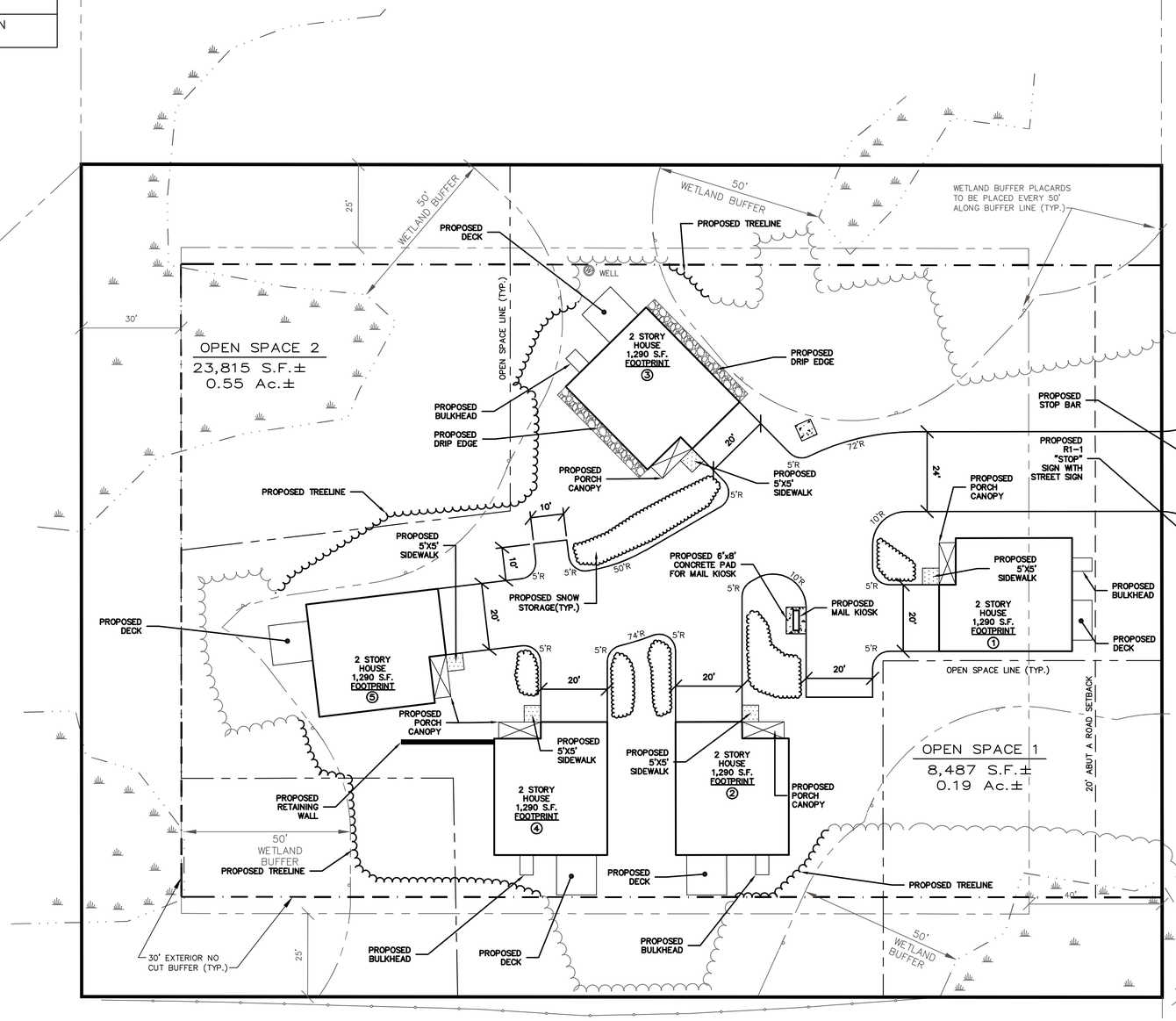
LOCATION PLAN
(NO SCALE)

SITE PARKING CALCULATIONS

	MAX	PROPOSED
RESIDENTIAL (NON-CBD-G)		
5 UNITS @ 1.4 SPACES + 0.5 SPACES PER UNIT	10	10

SNOW STORAGE CALCULATIONS

IMPERVIOUS PAVEMENT AREA	=	8,647 S.F.
SNOW STORAGE REQUIRED	=	865 S.F.
SNOW STORAGE PROVIDED	=	918 S.F.

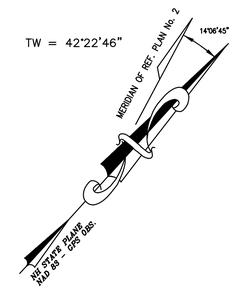


GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

TW = 42°22'46"



LEGEND

S.F.	SQUARE FEET
Ac.	ACRE
±	MORE OR LESS
(TYP)	TYPICAL
DIA.	DIAMETER
V.I.F.	VERIFY IN FIELD
	EXISTING UTILITY POLE
	EXISTING SIGN
	EXISTING HYDRANT
	EXISTING LIGHT/SIGNAL POLE
5'R	PAVEMENT RADIUS
	EDGE OF WET
	50' WETLAND BUFFER
	PROPOSED EDGE OF PAVEMENT
	PROPOSED SIGN
	PROPOSED STONE
	PROPOSED CONCRETE
	PROPOSED SIDEWALK

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CIVIL & WATERSHED ENGINEERING
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603.749.0443

NO.	REVISION	APP'D	DATE
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1	PER TRC COMMENTS	SJH	2-27-25

DESIGN BY: JFG
DRAWN BY: SRD
SCALE: 1"=20'
DATE: 11-21-24
APPROVED BY:SJH
PROJECT NO: 24094
FILE: SITE.DWG

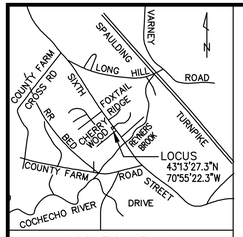
PLANNING FILE NO.: SITE-2024-0018

SITE PLAN

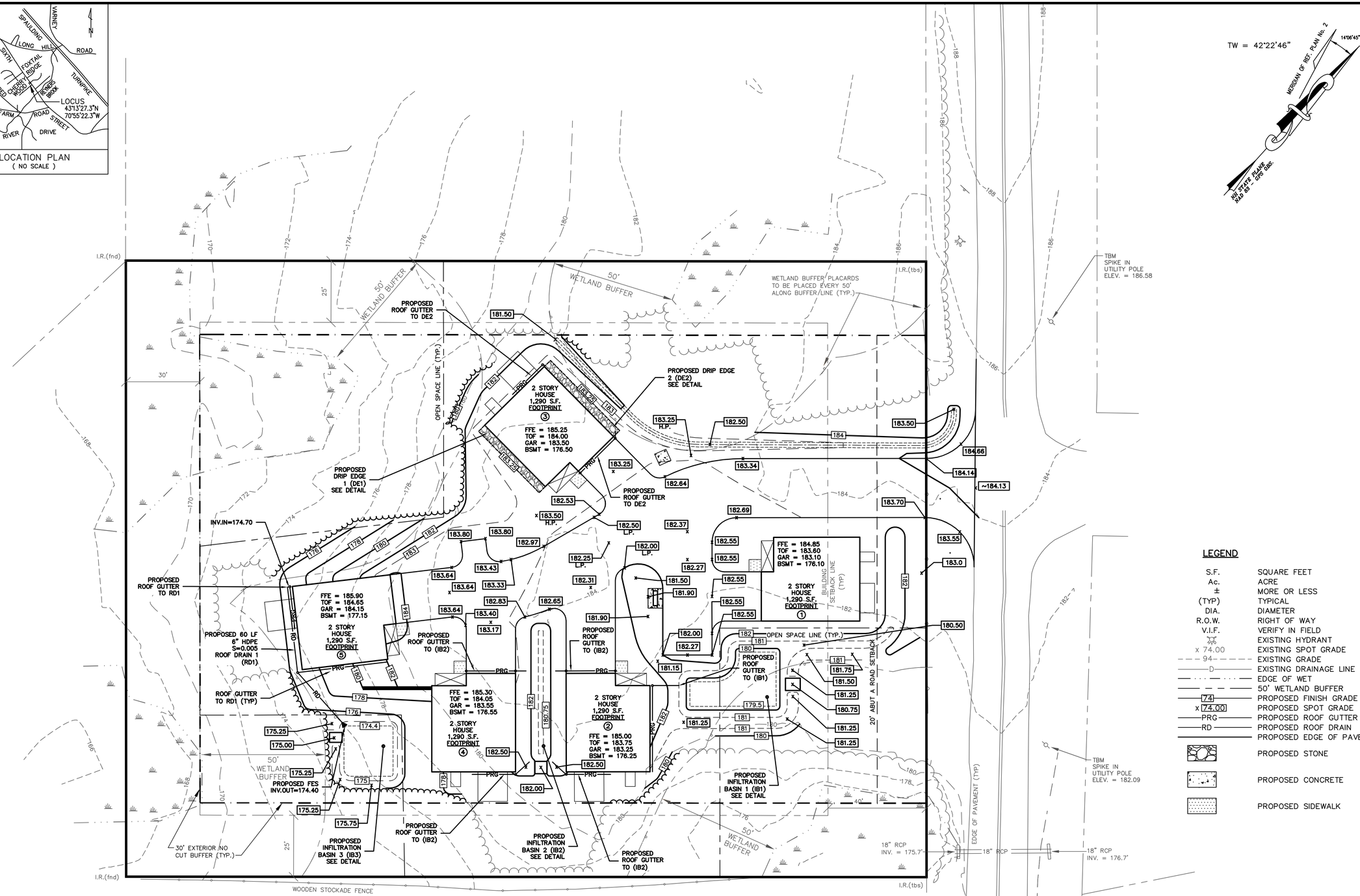
DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

6



LOCATION PLAN
(NO SCALE)



NOTE:
1. ROOF GUTTER LOCATIONS AND POINTS OF DISCHARGE HAVE BEEN DESIGNED INTO THE STORMWATER MANAGEMENT OF THIS SITE. CHANGES TO THE DESIGN REQUIRE APPROVAL FROM THE DESIGN ENGINEER AND CITY ENGINEER PRIOR TO MAKING CHANGES.

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)

LEGEND

S.F.	SQUARE FEET
Ac.	ACRE
±	MORE OR LESS
(TYP)	TYPICAL
DIA.	DIAMETER
R.O.W.	RIGHT OF WAY
V.I.F.	VERIFY IN FIELD
	EXISTING HYDRANT
x 74.00	EXISTING SPOT GRADE
94	EXISTING GRADE
D	EXISTING DRAINAGE LINE
	EDGE OF WET
	50' WETLAND BUFFER
74	PROPOSED FINISH GRADE
x 74.00	PROPOSED SPOT GRADE
PRG	PROPOSED ROOF GUTTER
RD	PROPOSED ROOF DRAIN
	PROPOSED EDGE OF PAVEMENT
	PROPOSED STONE
	PROPOSED CONCRETE
	PROPOSED SIDEWALK

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NO.	REVISION	APP'D	DATE
1	PER TRC COMMENTS	SJH	2-27-25
2	PB SUBMISSION	SJH	3-13-25

DESIGN BY: JFG
DRAWN BY: SRD
CHECKED BY: SJH
APPROVED BY: SJH
PROJECT NO: 24094
FILE: SITE.DWG
SCALE: 1"=20'
DATE: 11-21-24

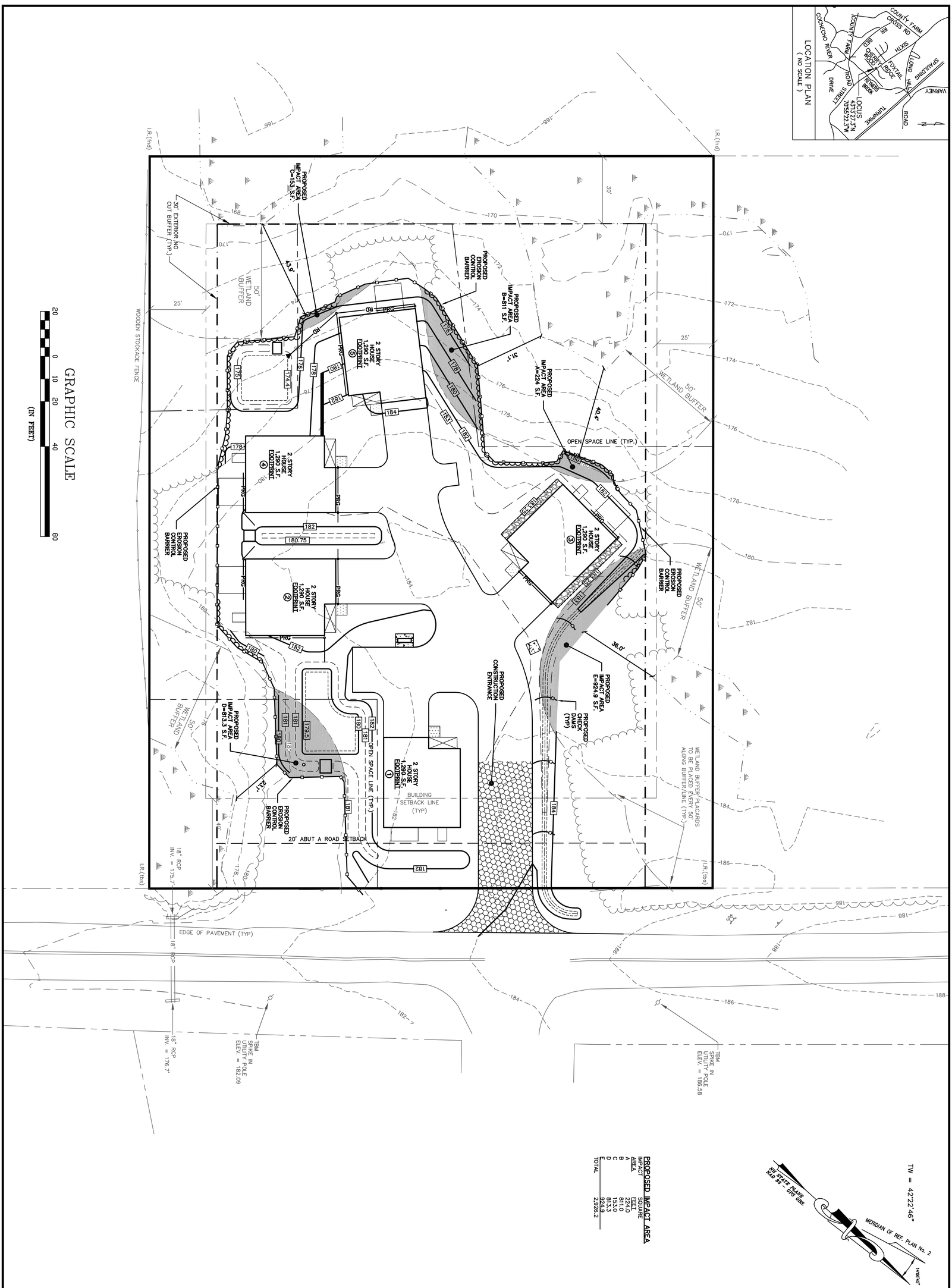
PLANNING FILE NO.: SITE-2024-0018

GRADING & DRAINAGE PLAN

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

7

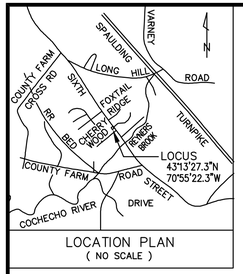


PLANNING FILE NO.: SITE-2024-0018

IMPACT & EROSION CONTROL PLAN			
8	TDR SITE PLAN 5 UNIT RESIDENTIAL SIXTH STREET DOVER, NH	DBS HOLDINGS, LLC 71 DANIELLE LANE DOVER, NH 03820	

DATE: 11-21-24				
SCALE: 1"=20'				
DRAWN BY: SRD				
DESIGN BY: JPG				
APPROVED BY:SJH	2	PB SUBMISSION	SJH	3-13-25
PROJECT NO: 24094	1	PER TRC COMMENTS	SJH	2-27-25
FILE: SITE.DWG	NO.	REVISION	APP'D	DATE

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CIVIL & WATERFRONT ENGINEERING
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LOCATION PLAN
(NO SCALE)

TEST PIT CHART

TP1
ELEV. = 183.42
SHWT = 178.50
BOTTOM = 176.92
BEDROCK = NONE

TP2
ELEV. = 177.40
SHWT = 173.40
BOTTOM = 171.40
BEDROCK = NONE

TP3
ELEV. = 175.62
SHWT = 171.37
BOTTOM = 169.12
BEDROCK = NONE

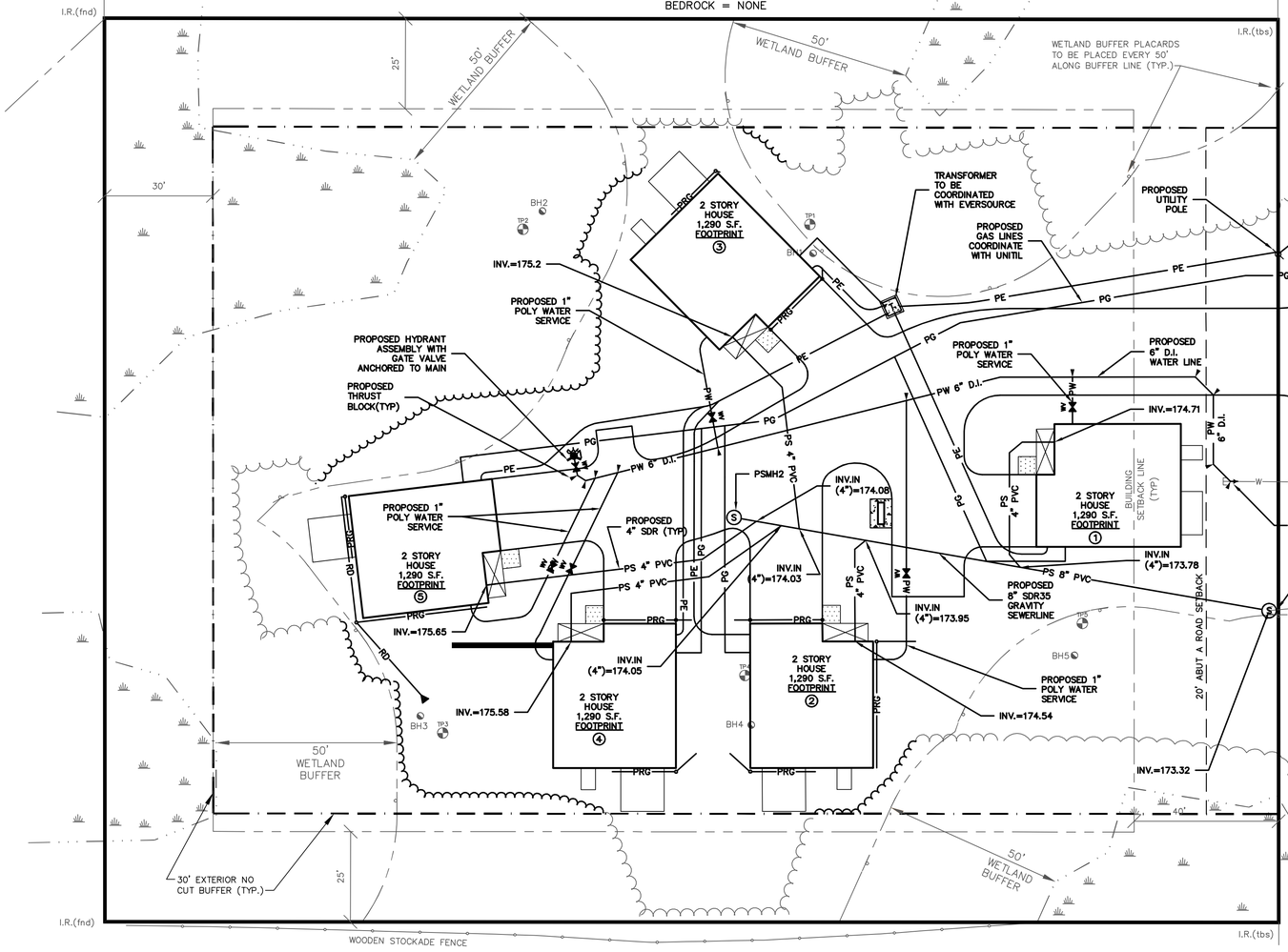
TP4
ELEV. = 182.42
SHWT = 177.50
BOTTOM = 175.92
BEDROCK = NONE

TP5
ELEV. = 180.88
SHWT = 176.21
BOTTOM = 174.21
BEDROCK = NONE

PROPOSED SEWER MANHOLES

PSMH1
RIM=181.75
INV.IN 8" PVC= 173.34
INV.OUT 8" PVC=173.32

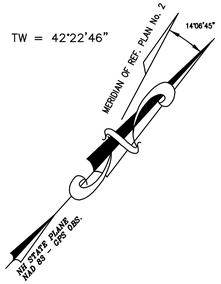
PSMH2
RIM=182.60
INV.OUT 8" PVC=173.93



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)



LEGEND

S.F.	SQUARE FEET
Ac.	ACRE
±	MORE OR LESS
(TYP)	TYPICAL
DIA.	DIAMETER
V.I.F.	VERIFY IN FIELD
	EXISTING UTILITY POLE
	EXISTING WATER SHUT-OFF
	EXISTING WATER VALVE
	EXISTING GAS VALVE
	EXISTING HYDRANT
	EXISTING LIGHT/SIGNAL POLE
	EXISTING SEWER MANHOLE
OHU	OVERHEAD UTILITY
E	EXISTING ELECTRIC
W	EXISTING WATER LINE
S	EXISTING SEWER LINE
D	EXISTING DRAINAGE LINE
G	EXISTING GAS LINE
	EDGE OF WET
	50' WETLAND BUFFER
PG	PROPOSED GAS
PW	PROPOSED WATER
PE	PROPOSED ELECTRIC
RD	PROPOSED ROOF DRAIN
PS	PROPOSED SEWER
	PROPOSED EDGE OF PAVEMENT
	PROPOSED THRUST BLOCK
	PROPOSED WATER SHUTOFF
	PROPOSED FIRE HYDRANT
	PROPOSED UTILITY POLE
	PROPOSED STONE
	PROPOSED CONCRETE
	PROPOSED SIDEWALK

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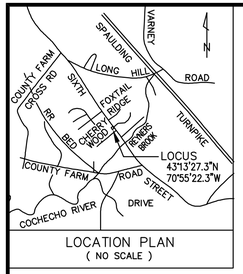
PLANNING FILE NO.: SITE-2024-0018

UTILITY PLAN

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

9

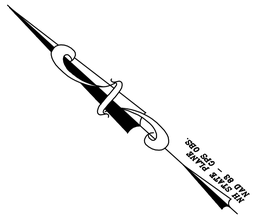


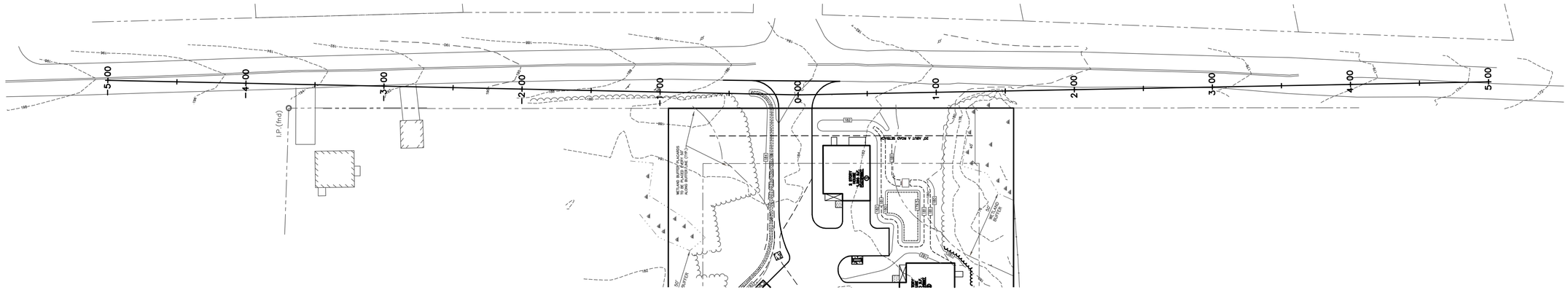
LOCATION PLAN
(NO SCALE)

GRAPHIC SCALE

40 0 20 40 80 160

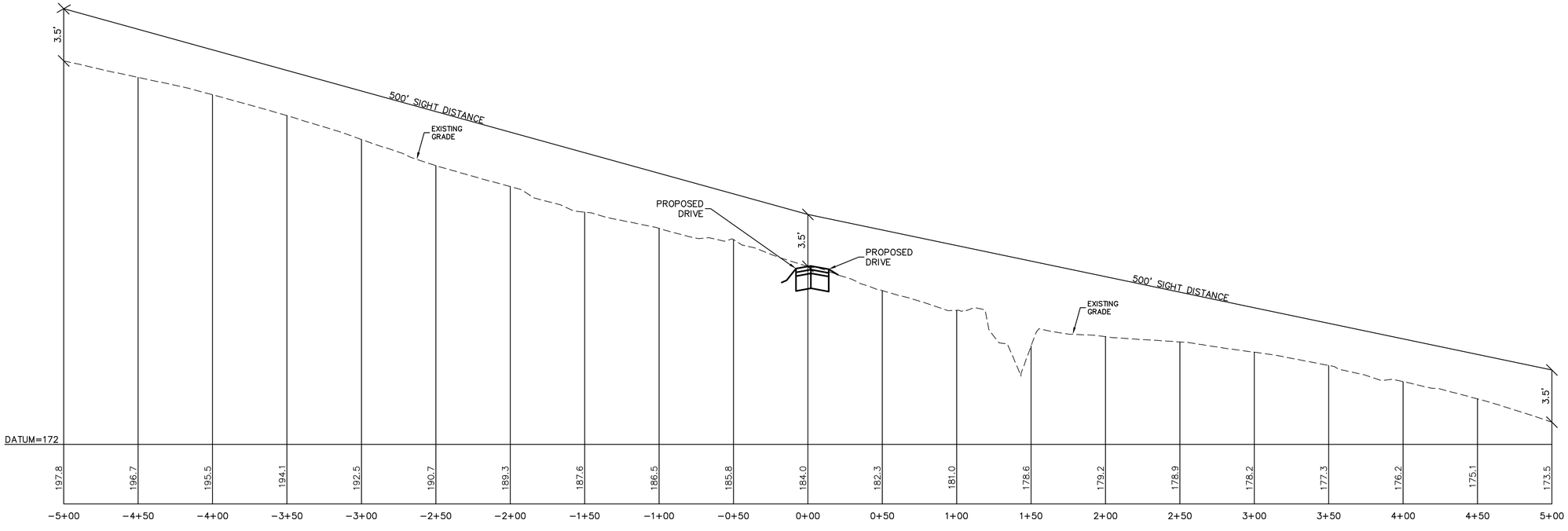
(IN FEET)





PARTIAL SITE PLAN

SCALE: HORIZONTAL 1" = 40'



SIGHTLINE PROFILE

SCALE: HORIZONTAL 1" = 40'
VERTICAL 1" = 4'

PLANNING FILE NO.: SITE-2024-0018

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NO.	REVISION	APP'D	DATE
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DESIGN BY: JFG
DRAWN BY: SRD
SCALE: AS SHOWN
DATE: 11-21-24
PROJECT NO: 24094
APPROVED BY: SJH
FILE: 11-21-24

PLAN & PROFILES

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

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DESCRIPTION

1. THE PURPOSE OF THIS PLAN IS TO DEPICT SITE IMPROVEMENTS ASSOCIATED WITH THE CONSTRUCTION OF A 5 UNIT RESIDENTIAL DEVELOPMENT INCLUDING 5 SINGLE FAMILY UNITS, SITE ACCESS, DRIVEWAYS, GRADING AND DRAINAGE IMPROVEMENTS, AND UTILITY UPGRADES.

PROJECT NAME AND LOCATION

TDR SITE PLAN — *LATITUDE N43° 13' 27.3"*
5 UNIT RESIDENTIAL — *LONGITUDE W70° 55' 22.3"*
SIXTH STREET
DOVER, NH

DISTURBED AREA

±34,100 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. PLACE TEMPORARY EROSION AND SEDIMENT CONTROL BMP'S PRIOR TO EARTH MOVING ACTIVITIES.
2. ALL EROSION CONTROL AND PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO COMMENCING EARTH MOVING OPERATIONS.
3. SELECTIVE DEMOLITION.
4. REGRADE SITE TO SUBGRADE.
5. TEMPORARY WATER DIVERSION (SWALES, BASINS) MUST BE USED AS NECESSARY UNTIL AREAS ARE STABILIZED.
6. 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.
7. INSTALL DRAINAGE STRUCTURES AND CONTROLS.
8. INSTALL FOUNDATION FOOTINGS AND WALLS.
9. INSTALL UTILITIES.
10. PLACE GRAVELS AND FINE GRADE.
11. STABILIZE ROADWAYS AND PARKING AREAS WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
12. ALL CUT AND FILL SLOPES SHALL BE LOAMED AND SEEDED (AS APPLICABLE) WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.
13. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY 1/2" OF RAINFALL.
14. 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.
15. 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 FOLLOWING HAS OCCURRED.

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

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

A. SILT BARRIER

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

B. MULCHING

1. TIMING
   a. APPLY MULCH PRIOR TO ANY STORM EVENT. IT WILL BE NECESSARY TO CLOSELY MONITOR WEATHER PREDICTIONS TO HAVE ADEQUATE WARNING OF SIGNIFICANT STORMS.
   b. IN OTHER AREAS, THE TIME PERIOD CAN RANGE FROM 14 TO 30 DAYS OF INACTIVITY ON A AREA. THE LENGTH OF TIME VARYING WITH SITE CONDITIONS. PROFESSIONAL JUDGEMENT SHALL BE USED TO EVALUATE THE INTERACTION OF SITE CONDITIONS (SOIL ERODIBILITY, SEASON OF YEAR, EXTENT OF DISTURBANCE, PROXIMITY TO SENSITIVE RESOURCES, ETC.) AND THE POTENTIAL IMPACT OF EROSION ON ADJACENT AREAS TO CHOOSE AN APPROPRIATE TIME RESTRICTION.
   c. WITHIN 100 FEET OF RIVERS, STREAMS, WETLANDS, AND IN LAKE AND POND WATERSHEDS, THE TIME PERIOD OF WHICH MULCHING SHOULD TAKE OCCUR SHOULD BE NO GREATER THAN SEVEN (7) DAYS. THIS SEVEN DAY LIMIT SHOULD BE REDUCED FURTHER DURING WET WEATHER PERIODS.
2. APPLICATION RATE
   a. MULCH SHALL BE APPLIED AT A RATE OF BETWEEN 1.5 TO 2 TONS PER ACRE, OR 70 TO 90 POUNDS PER 1000 SQUARE FEET.
   b. GUIDELINES FOR WINTER MULCH APPLICATION. WHEN MULCH IS APPLIED TO PROVIDE PROTECTION OVER WINTER (PAST THE GROWING SEASON) IT SHALL BE AT A RATE OF 150–200 POUNDS OF HAY OR STRAW PER ACRE WITH ABOUT 4 INCHES IN DEPTH. A TACKIFIER MAY BE ADDED TO THE MULCH.
3. MAINTENANCE
   a. ALL MULCHES MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS. CHECK FOR SIGNS OF EROSION OR DISPLACEMENT OF THE MULCH. IF LESS THAN 90% OF THE SOIL SURFACE IS COVERED BY MULCH, ADDITIONAL MULCH SHALL BE IMMEDIATELY APPLIED.
   b. NETS MUST BE INSPECTED AFTER RAIN EVENTS FOR DISLOCATION OR FAILURE AND SHOULD BE REPAIRED AS NECCESSARY.
   c. INSPECTIONS SHOULD TAKE PLACE UNTIL THE SITE IS ESTABLISHED.
   d. EROSION CONTROL 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 INTERFERING 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 AS SEEDING.
   b. FERTILIZER SHOULD BE RESTRICTED TO A LOW PHOSPHATE, SLOW RELEASE NITROGEN 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 STABILIZATION 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–2024–0018

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
2	PB SUBMISSION	SJH	3–13–25
1	PER TRC COMMENTS	SJH	2–27–25

DATE: 11–21–24
SCALE: N.T.S.
DRAWN BY: SRD
DESIGN BY: JFG
APPROVED BY:SJH
PROJECT NO: 24094
FILE: SITE.DWG

EROSION CONTROL NOTES

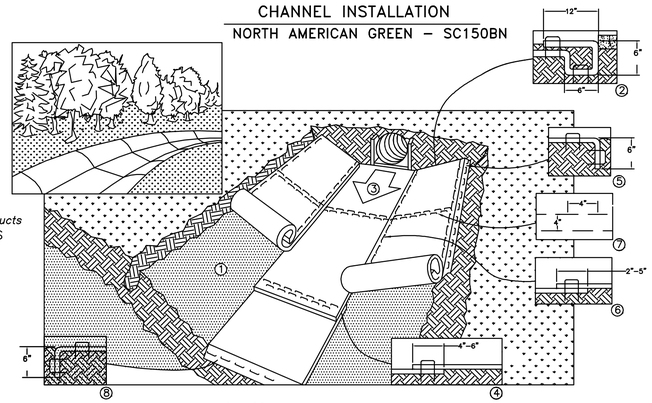
TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

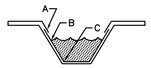
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CHANNEL INSTALLATION
NORTH AMERICAN GREEN – SC150BN

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.



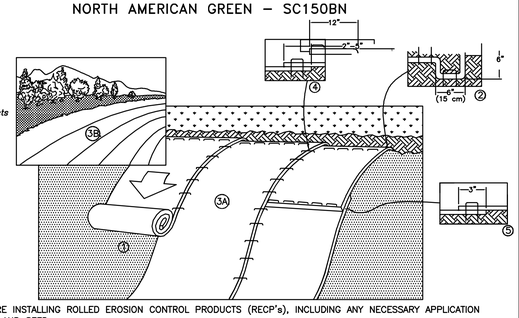
CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

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

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

SLOPE INSTALLATION
NORTH AMERICAN GREEN – SC150BN

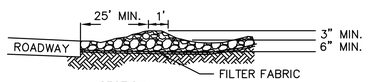
NORTH AMERICAN GREEN
EROSION CONTROL *Products Guaranteed* SOLUTIONS



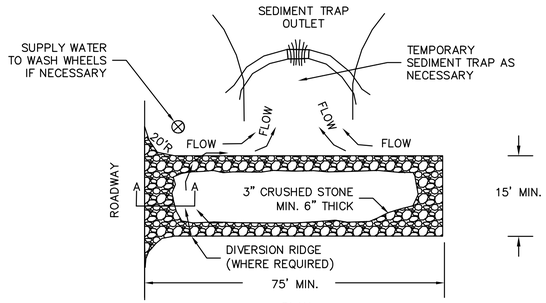
1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL–O–SEED DO NOT SEED PREPARED AREA. CELL–O–SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE 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.

DIVERSION RIDGE REQUIRED
WHERE GRADE EXCEEDS 2%



SECTION A – A



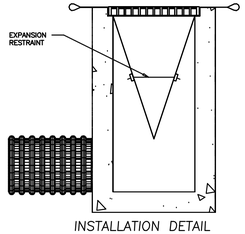
PLAN

A. GENERAL NOTES:
1. STABILIZED CONSTRUCTION ENTRANCE/EXIT CONSISTS OF A PAD OF STONE AGGREGATE PLACED ON A GEOTEXTILE FILTER FABRIC, LOCATED AT ANY POINT WHERE TRAFFIC WILL BE LEAVING A CONSTRUCTION SITE TO AN EXISTING ACCESS ROAD WAY OR OTHER PAVED SURFACE. ITS PURPOSE IS TO REDUCE OR ELIMINATE THE TRACKING OF SEDIMENT ONTO PUBLIC ROADS BY CONSTRUCTION VEHICLES. THIS HELPS PROTECT RECEIVING WATERS FROM SEDIMENT CARRIED BY STORM WATER RUNOFF FROM ROADS
2. ONLY CONSTRUCTION TRAFFIC LEAVING THE SITE IS REQUIRED TO USE THE TEMPORARY STABILIZED EXIT. CONSIDER PROVIDING A SEPARATE, UNPROTECTED ENTRANCE FOR TRAFFIC ENTERING THE SITE. THIS WILL INCREASE THE LONGEVITY OF THE STABILIZED EXIT BY ELIMINATING HEAVY LOADS ENTERING THE SITE AND REDUCING THE TOTAL TRAFFIC OVER THE DEVICE.
3. LOCATE THE CONSTRUCTION ENTRANCES AND EXITS, A MINIMUM OF 100 FEET FROM INTERSECTIONS, TO LIMIT SEDIMENT LEAVING THE SITE AND TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES. AVOID ENTRANCES THAT HAVE STEEP GRADES AND ENTRANCES AT CURVES IN ROADS.
4. THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR MAINTENANCE OF ANY MEASURES USED TO TRAP SEDIMENT.

B. SPECIFICATIONS: (TEMPORARY CONSTRUCTION ENTRANCE/EXITS SHOULD MEET THE FOLLOWING REQUIREMENTS).
1. STONE SIZE MINIMUM: USE SHOULD BE 3" CRUSHED STONE.
2. THE MINIMUM LENGTH OF THE PAD SHOULD BE 75 FEET.
3. THE MINIMUM WIDTH OF THE PAD SHOULD BE 15 FEET OR THE WIDTH OF THE ENTRANCE, WHICHEVER IS GREATER.
4. THE PAD SHOULD SLOPE AWAY FROM THE EXISTING ROADWAY.
5. THE PAD SHOULD BE AT LEAST 6" THICK.
6. A GEOTEXTILE FILTER FABRIC SHOULD BE PLACED BETWEEN THE STONE PAD AND THE EARTH SURFACE BELOW THE PAD.
7. THE PAD SHOULD BE MAINTAINED OR REPLACED WHEN MUD AND SOIL PARTICLES CLOG THE VOIDS IN THE STONE SUCH THAT MUD AND SOIL PARTICLES ARE TRACKED OFF–SITE.
8. NATURAL DRAINAGE THAT CROSSES THE LOCATION OF THE STONE PAD SHOULD BE INTERCEPTED AND PIPED BENEATH THE PAD, AS NECESSARY, WITH SUITABLE OUTLET PROTECTION.

C. MAINTENANCE REQUIREMENTS: (THE ENTRANCE/EXIT SHOULD BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY, THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT).
1. WHEN THE CONTROL PAD BECOMES INEFFECTIVE, THE STONE SHOULD BE REMOVED ALONG WITH THE COLLECTED SOIL MATERIAL, REGRADED ON SITE, AND STABILIZED. THE ENTRANCE SHOULD THEN BE RECONSTRUCTED.
2. THE CONTRACTOR SHOULD SWEEP THE PAVEMENT AT EXITS WHENEVER SOIL MATERIALS ARE TRACKED ONTO THE ADJACENT PAVEMENT OR TRAVELED WAY.
3. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF–WAY. WHEN WHEEL WASHING IS REQUIRED, IT SHOULD BE CONDUCTED ON AN AREA STABILIZED WITH AGGREGATE, WHICH DRAINS INTO AN APPROVED SEDIMENT–TRAPPING DEVICE. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES OR WATERWAYS.

TEMPORARY CONSTRUCTION ENTRANCE/EXIT
NOT TO SCALE



INSTALLATION DETAIL

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

OIL–ABSORBANT SILTSACK®

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

DETAIL OF INLET SEDIMENT CONTROL DEVICE

SEEKING REPORTS OF RARE TURTLES

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



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



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



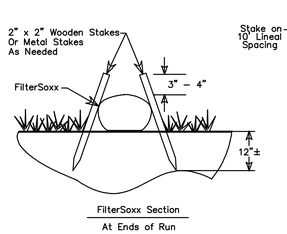
Eastern box turtle (state endangered)
- Small terrestrial turtle with highly domed shell
- Irregular yellow or orange markings over brown/black base



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

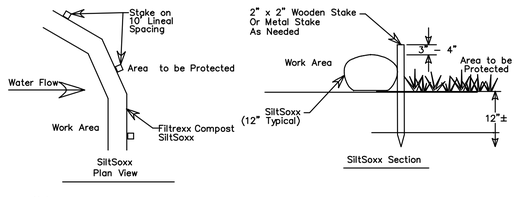
Report sightings to RAARP@wildlife.nh.gov or 603-271-2461 *Please report promptly, noting specific location and date – Photographs strongly encouraged*

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



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

FilterSoxx Staking Details



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

SILTSOXX DETAILS
NOT TO SCALE

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
2	PB SUBMISSION	SJH	3–13–25
1	PER TRC COMMENTS	SJH	2–27–25

DATE: 11–21–24
SCALE: N.T.S.
DRAWN BY: SRD
DESIGN BY: JPG
APPROVED BY:SJH
PROJECT NO:24094
FILE: SITE.DWG

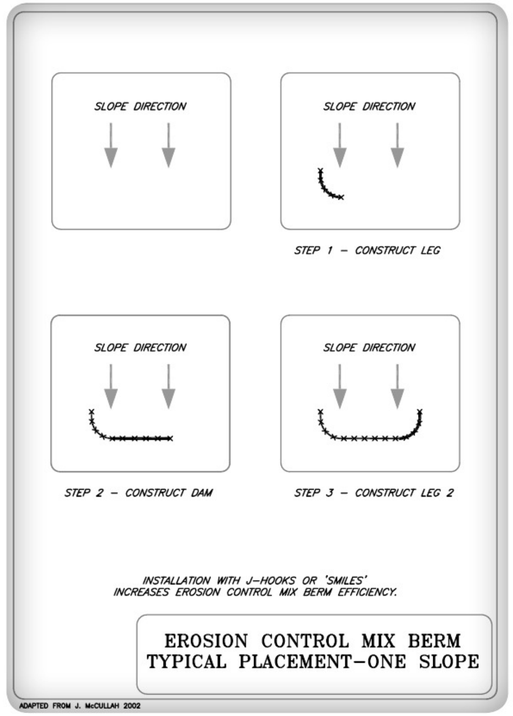
PLANNING FILE NO.: SITE–2024–0018

EROSION CONTROL DETAILS

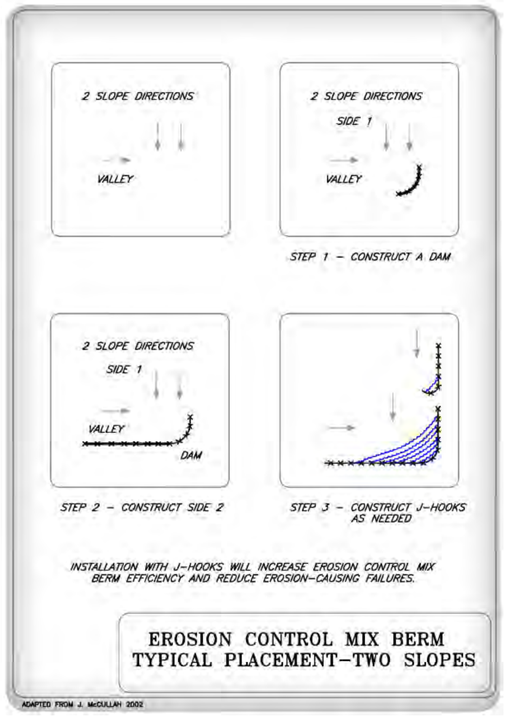
DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

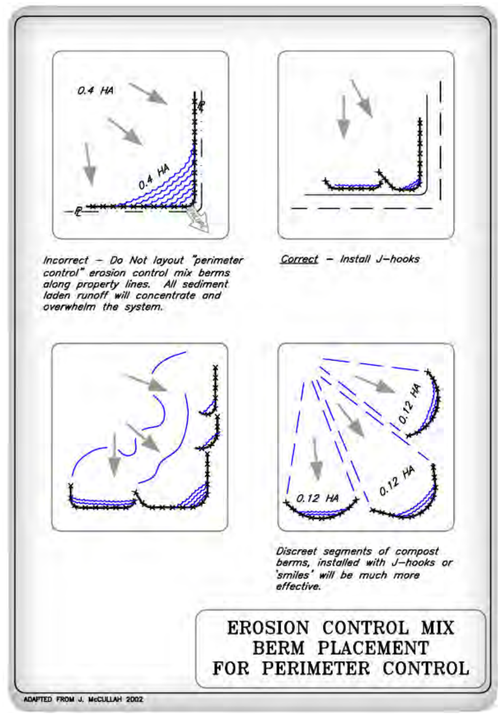
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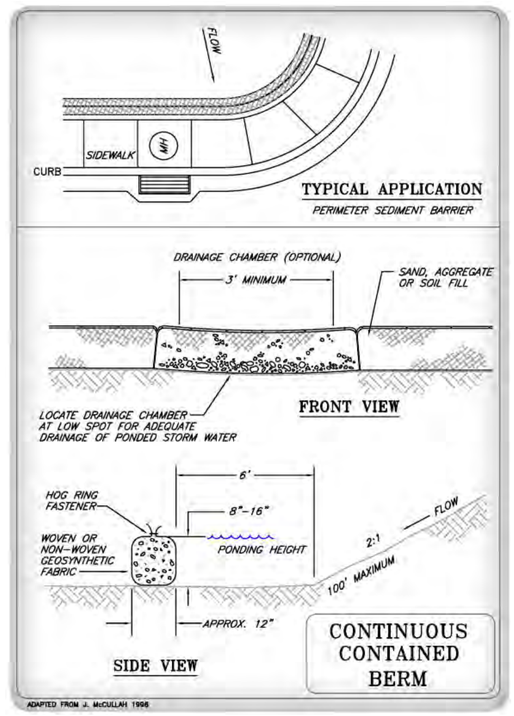
DETAIL FROM NHDES STORMWATER MANUAL VOLUME 3



DETAIL FROM NHDES STORMWATER MANUAL VOLUME 3



DETAIL FROM NHDES STORMWATER MANUAL VOLUME 3



DETAIL FROM NHDES STORMWATER MANUAL VOLUME 3

PLANNING FILE NO.: SITE–2024–0018

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1	PER TRC COMMENTS	SJH	2–27–25

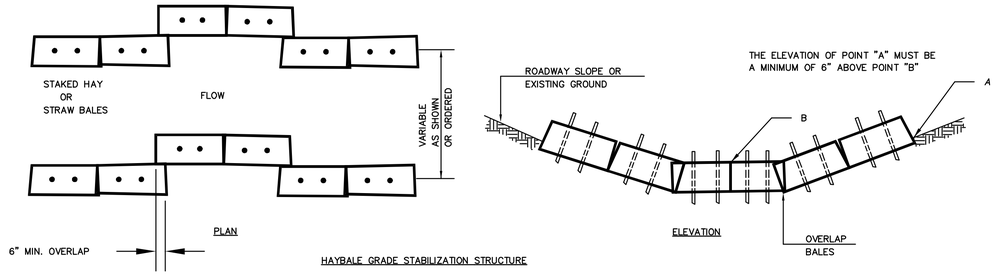
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DRAWN BY: SRD
SCALE: N.T.S.
DATE: 11–21–24
APPROVED BY: SJH
PROJECT NO: 24094
FILE: SITE.DWG

EROSION CONTROL DETAILS

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

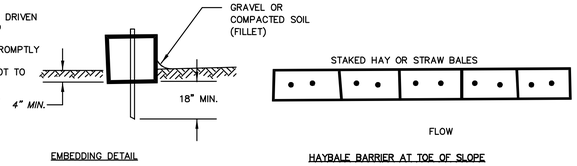
13



HAYBALE GRADE STABILIZATION STRUCTURE

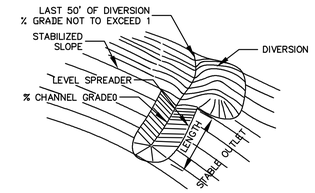
CONSTRUCTION SPECIFICATIONS:

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.

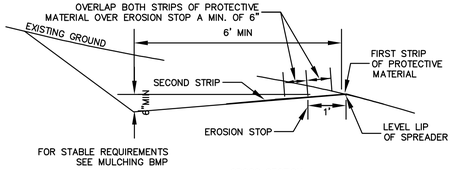


HAYBALE NOTES AND DETAILS

NOT TO SCALE



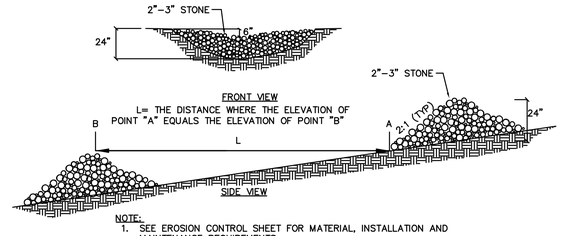
ISOMETRIC VIEW



CROSS SECTION

LEVEL SPREADER DETAIL

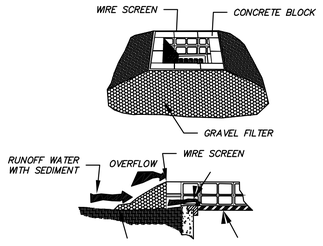
NOT TO SCALE



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

STONE CHECK DAM

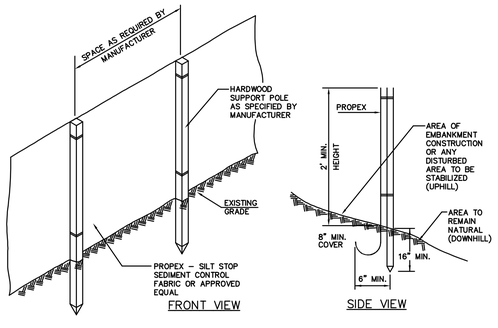
NOT TO SCALE



NORMAL USE AROUND CATCH BASINS

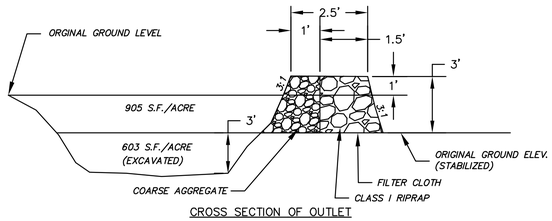
TEMPORARY EROSION CONTROL

NOT TO SCALE

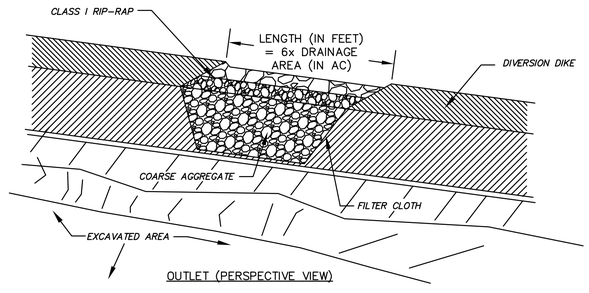


SILT FENCE DETAIL

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

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

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SCALE: N.T.S.
DRAWN BY: SRD
DESIGN BY: JPG
APPROVED BY:SJH
PROJECT NO:24094
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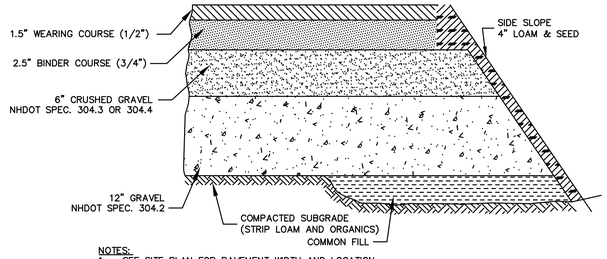
PLANNING FILE NO.: SITE-2024-0018

EROSION CONTROL DETAILS

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

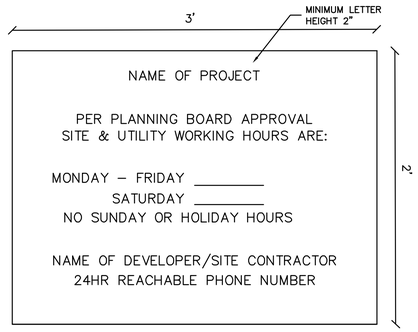
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NOTES:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
3. GEOTEXTILE FABRIC MAYBE REQUIRED UNDER THE ROADWAY AND /OR THE PARKING AREAS AS REQUIRED BY THE ENGINEER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

TYPICAL PAVEMENT SECTION

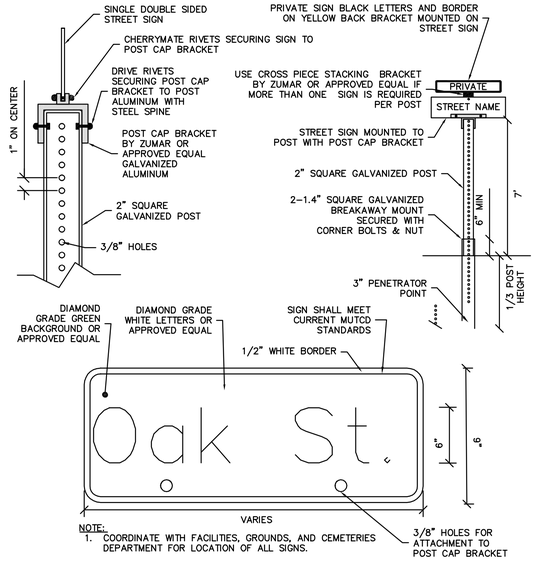
NOT TO SCALE



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.

CITY OF DOVER D-2
CONSTRUCTION SIGN

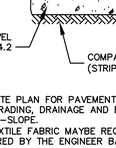
NOT TO SCALE



NOTE:
1. COORDINATE WITH FACILITIES, GROUNDS, AND CEMETERIES DEPARTMENT FOR LOCATION OF ALL SIGNS.

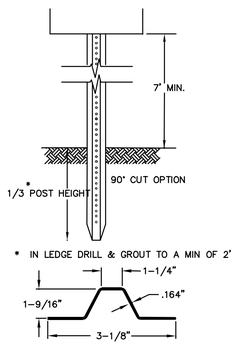
CITY OF DOVER D-1
STREET SIGN

NOT TO SCALE



R1-1
30" x 30"

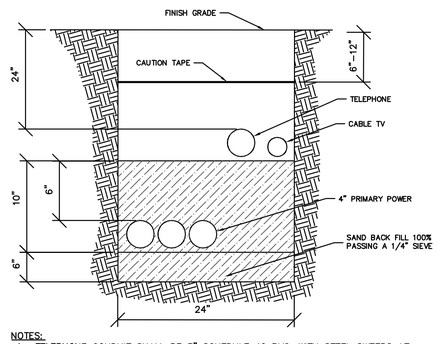
NOTE:
1. ALL SIGNS TO BE INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.



LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)
HOLES: 3/8" DIAMETER, 1" C-C FULL LENGTH
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASTM A-576 (GRADE 1070 – 1080)
FINISH: SHALL BE PAINTED WITH TWO COATS OF AN APPROVED MEDIUM GREEN
BAKED ON OR AIR DRIED, PAINT OF WEATHER RESISTANT QUALITY.
ALL FABRICATION SHALL BE COMPLETE BEFORE PAINTING.

SIGN LEGEND & SIGN POST

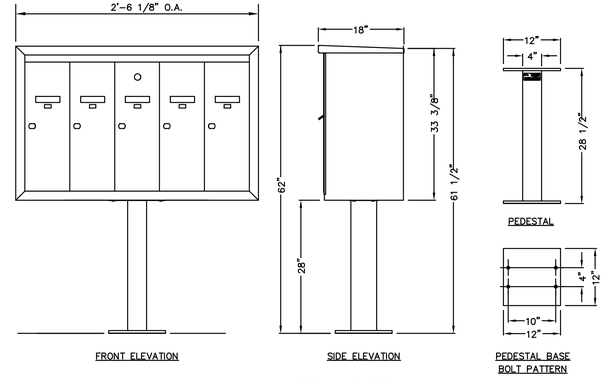
NOT TO SCALE



NOTES:
1. TELEPHONE CONDUIT SHALL BE 3" SCHEDULE 40 PVC, WITH STEEL SWEEPS AT RISER POLE, 90° BENDS AND AT BUILDING.
2. LEAVE PULL ROPE IN ALL CONDUITS FOR CABLE INSTALLATION.
3. FOR COMPLETE SPECIFICATIONS SEE "PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE CONSTRUCTION SPECIFICATIONS FOR UNDERGROUND CONDUIT SYSTEMS".
4. CONTRACTOR SHOULD VERIFY THE NUMBER & SIZE OF CONDUIT WITH THE APPROPRIATE UTILITIES.

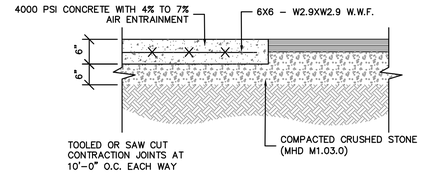
UTILITY TRENCH

NOT TO SCALE



MAIL KIOSK DETAIL

NOT TO SCALE



MAIL KIOSK FOUNDATION DETAIL

NOT TO SCALE

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

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

NO.	REVISION	APP'D	DATE
2	PB SUBMISSION	SJH	3-13-25
1	PER TRC COMMENTS	SJH	2-27-25

DATE: 11-21-24
SCALE: N.T.S.
DRAWN BY: SRD
DESIGN BY: JFG
APPROVED BY:SJH
PROJECT NO: 24094
FILE: SITE.DWG

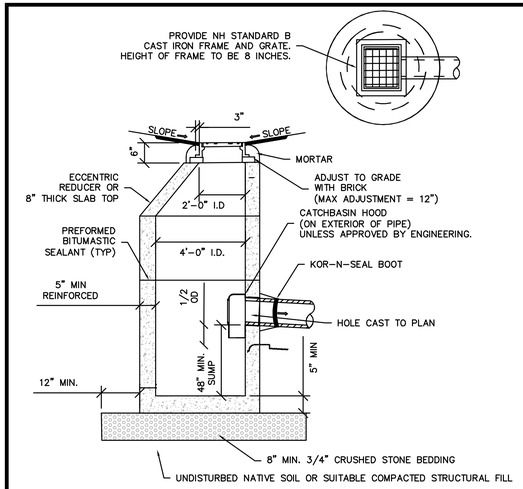
PLANNING FILE NO.: SITE-2024-0018

DETAILS

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

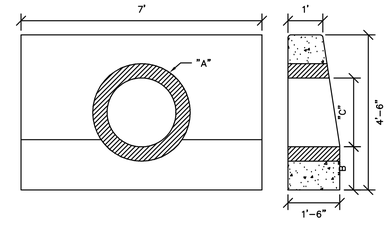
15



NOTE:
1. ENTIRE STRUCTURE SHALL BE H-20 LOAD RATED. PROVIDE MANUFACTURER REINFORCEMENT DETAILS TO THE CITY ENGINEER UPON REQUEST.

CITY OF DOVER D-19
CATCHBASIN DETAIL

NOT TO SCALE

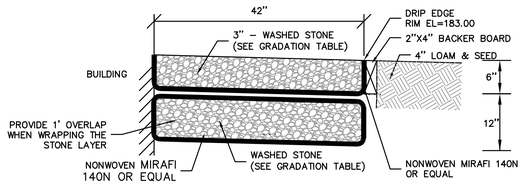


DIA	"A"	"B"	"C"
15"	19"	18"	15"
18"	26"	18"	18"
24"	34"	15"	24"

GENERAL NOTES:
1. STEEL REINFORCEMENT CONFORMS TO LATEST ASTM SPECIFICATION: ASTM A-615 GRADE 60 BLACK DEFORMED BARS
2. CONCRETE: FC = 4,000 PSI @ 28 DAYS MINIMUM
3. EST WEIGHT: 5,035 LBS
4. SHOP DRAWINGS WITH REBAR LAYOUT SHALL BE STAMPED BY A PROFESSIONAL ENGINEER AND PROVIDED PRIOR TO CONSTRUCTION.

HEADWALL DETAIL

NOT TO SCALE



DE1 3-1/2' WIDE x 35' LONG
DE2 3-1/2' WIDE x 40' LONG

NOTE: SEE SITE AND GRADING PLANS FOR LIMITS OF STONE DRIPEDGE

WASHED STONE GRADATION TABLE

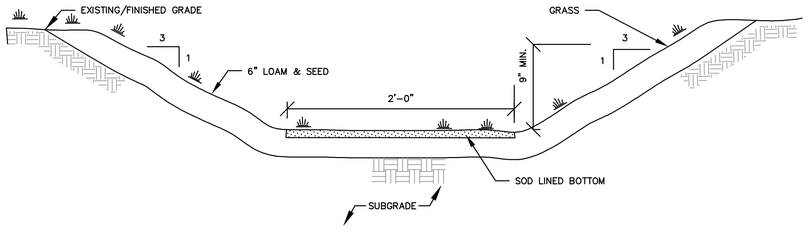
SIEVE SIZE	% FINER BY WEIGHT
1"	100
3/4"	90 - 100
3/8"	20 - 55
# 4	0

INSTALLATION NOTES:
1. THE FILTER FABRIC SHALL BE ENTIRELY WRAPPED AROUND THE 12" LAYER OF STONE.
2. A SECOND FILTER FABRIC SHALL BE LAID ON TOP AND ATTACHED TO THE BACKER BOARD TO CREATE A "U". THIS ALLOWS FOR EASY REMOVAL OF TOP 3" OF STONE AND 'U" SHAPED FABRIC, FOR MAINTENANCE.

MAINTENANCE NOTES:
IF PONDING OR SAND/DEBRIS BUILD UP IS NOTICED FOLLOW HE BELOW STEPS:
1. REMOVE TOP 3" OF STONE AND THE "U" SHAPED FILTER FABRIC.
2. CLEAN THE TOP OF THE FILTER FABRIC THAT IS WRAPPED AROUND 12" LAYER OF STONE.
3. INSPECT ANY RIPS OR TEARS IN FABRIC, IF ANY. LAY ADDITIONAL FILTER FABRIC OVER THE RIPS OR THE TEARS.
4. CLEAN AND INSPECT THE "U" SHAPED FILTER FABRIC THAT WAS REMOVED. IF THERE ARE NO TEARS OR RIPS THE FILTER FABRIC MAY BE REUSED.
5. INSPECT AND REMOVE ANY SAND OR DEBRIS FROM THE TOP 3" LAYER OF STONE.
6. RE-INSTALL FILTER FABRIC AND 3" STONE LAYER

DRIP EDGE INFILTRATION TRENCH DETAIL

NOT TO SCALE



MAINTENANCE:
TIMELY MAINTENANCE IS IMPORTANT TO KEEP THE VEGETATION IN THE SWALE IN GOOD CONDITION. MOWING SHOULD BE DONE FREQUENTLY ENOUGH TO KEEP THE VEGETATION IN VIGOROUS CONDITION AND TO CONTROL ENCROACHMENT OF WEEDS AND WOODY VEGETATION, HOWEVER IT SHOULD NOT BE MOWED TOO CLOSELY, MAINTAIN A MINIMUM 4" STAND OF VEGETATION. FERTILIZE ON AN "AS NEEDED" BASIS TO KEEP THE GRASS HEALTHY. OVER FERTILIZATION CAN RESULT IN THE SWALE BECOMING A SOURCE OF POLLUTION.

THE SWALE SHOULD BE INSPECTED PERIODICALLY AND AFTER EVERY MAJOR STORM TO DETERMINE THE CONDITION OF THE SWALE. RILLS AND DAMAGED AREAS SHOULD BE PROMPTLY REPAIRED AND REVEGETATED AS NECESSARY TO PREVENT FURTHER DETERIORATION.

GRASS LINED CONVEYANCE SWALE DETAIL

NOT TO SCALE

TRELLEBORG PIPE SEALS

TRELLEBORG

Kor-N-Seal® I
Stainless Steel Wedge Connector
(WS Series)

Installation Instructions

CONNECTOR INSTALLATION

1. Check to be sure the Stainless Steel Waveband® is properly located in Connector groove.
2. Inspect the inside surface of the cored/formed hole. If there is porosity or wire-to-concrete separation, use patching or hydraulic cement to smooth the surface.
3. Insert Connector Assembly into hole with Wedge Expander at top of hole.
4. Position Connector so it is square to manhole both vertically and horizontally.
5. Tighten Wedge Expander using 1/2" socket wrench to 12 foot pounds.
6. Retorquing prior to shipment is recommended but not required.

Note if Vacuum Testing

Testing should be done prior to backfilling so that leaks can be easily located and repaired.

All lift holes need to be plugged with a nonshrinking mortar.

Plug all pipes entering the manhole, taking care to securely brace the pipes and plugs.

Patented Waveband technology "captures" the rubber between itself and the concrete, creating a more effective seal.



*Covered under US Patent No.: 5,738,359

PIPE INSTALLATION

1. Be sure sealing area of pipe is smooth and free of defects. Repair if needed.
2. Center pipe in Connector opening. (Pipe must not rest on Connector Korband)
3. Position the Pipe Clamp in the Connector's Pipe Clamp groove with the screw at the top.
4. Tighten the Pipe Clamp screw to 60 inch pounds with a T-handle Torque Wrench, P/N 80090

Note:

On minimum pipe O.D. installations, tension the rubber under the pipe clamp by lifting the rubber toward pipe clamp screw housing by hand. This will help prevent the rubber from wrinkling or folding over during tightening of hose clamp. Application of a very small amount pipe lube on the pipe clamp track will allow the pipe clamp to slide on the rubber and improve the performance of the hose clamp. Make sure to torque all screw locations on the pipe clamps.

Caution:

Do not use an impact wrench for installation.

All pipe stubs must be restrained.

Adapters are required when using Corrugated Pipe. Refer to the Corrugated Pipe Adapter Data Sheet for more information.

Check calibration of torque limiters monthly

Torque limiters are available for connectors that can be used with cordless drills and hand or air ratchets.

Call 800-626-2180 for information.

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TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

16

INFILTRATION BASIN CONSTRUCTION NOTES:

INFILTRATION AREA EARTH EMBANKMENT:

1. TOP BERM WIDTH SHALL BE A MINIMUM OF 6 FEET.
2. SIDE SLOPES – THREE HORIZONTAL TO ONE VERTICAL (3:1) OR UNLESS OTHERWISE NOTED.
3. GRAVEL FILL MATERIALS SHALL BE HARD DURABLE GRANULAR STOCK AND SHALL BE FREE OF DETRIMENTAL AMOUNTS OF SOD, ROOTS, FROZEN SOIL, STONES MORE THAN 6 INCHES IN DIAMETER (EXCEPT FOR ROCK FILLS), AND OTHER OBJECTIONABLE MATERIAL.
4. FILL MATERIALS SHALL BE A MIXTURE OF STONES (NOT EXCEEDING 6" IN DIAMETER) AND A FINE SANDY SILT MATERIAL.
5. THE SOIL USED FOR THE BERM SHALL HAVE A MINIMUM PERCOLATION RATE OF 10 MINUTES AN INCH.
6. SELECTED BACKFILL MATERIAL SHALL BE PLACED AROUND STRUCTURES AND PIPE CONDUITS AT ABOUT THE SAME RATE ON ALL SIDES TO PREVENT DAMAGE FROM UNEQUAL LOADING.

DETENTION AREA BERM BASE PREPARATION:

1. THE BASE AREA SHALL BE CLEARED OF TREES, LOGS, STUMPS, ROOTS, BRUSH, BOULDERS, SOD, AND RUBBISH. IF NEEDED TO ESTABLISH VEGETATION, THE TOPSOIL AND SOD SHALL BE STOCKPILED AND SPREAD ON THE COMPLETED BERM.
2. REMOVE ALL SOFT ORGANIC MATTER, PEAT, DEBRIS AND FOREIGN MATERIAL TO A DEPTH AS NEEDED (1' MIN) TO REACH AN UNYIELDING BASE OF VIRGIN SOIL.

EXECUTION:

1. GRAVEL FILL SHALL BE PLACED IN HORIZONTAL 12" (MAX.) LIFTS TO FULL WIDTHS AS SHOWN ON THE DESIGN PLAN.
2. GRAVEL FILLS SHALL BE FRESHLY PLACED PRIOR TO COMPACTION.
3. ALL FILLS SHALL BE COMPACTED BY MECHANICAL VIBRATORY COMPACTION TO 95% PROCTOR DENSITY.
4. FILL SHALL BE CONSTRUCTED IN CONTINUOUS HORIZONTAL LAYERS EXCEPT WHERE OPENINGS OR SECTIONALIZED FILLS ARE REQUIRED. IN THOSE CASES, THE SLOPE OF THE BONDING SURFACES BETWEEN THE EMBANKMENT IN PLACE AND THE EMBANKMENT TO BE PLACED SHALL NOT BE STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL. PLACE THE MORE IMPERVIOUS SOIL (HIGHER PERCENTAGE PASSING THE #200 SIEVE) IN THE UPSTREAM TWO–THIRDS (2/3) OF THE BERM. THE MORE GRANULAR SOIL MATERIAL SHOULD BE PLACED IN THE REMAINING DOWNSTREAM ONE–THIRD PORTION OF THE BERM.

GENERAL NOTES:

1. DO NOT DISCHARGE SEDIMENT–LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF, WATER FROM EXCAVATIONS) TO THE INFILTRATION BASIN.
2. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION BASIN.
3. AFTER THE BASIN IS EXCAVATED TO THE FINAL DESIGN ELEVATION, THE FLOOR SHOULD BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW TO RESTORE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.
4. VEGETATION SHOULD BE ESTABLISHED IMMEDIATELY.
5. DO NOT PLACE INFILTRATION SYSTEMS INTO SERVICE UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.

MOISTURE CONTROL:

1. THE MOISTURE CONTENT OF THE FILL MATERIAL SHALL BE ADEQUATE FOR OBTAINING THE REQUIRED COMPACTION. MATERIAL THAT IS TOO WET SHALL BE DRIED TO MEET THIS REQUIREMENT AND MATERIAL THAT IS TOO DRY SHALL HAVE WATER ADDED AND MIXED UNTIL THE REQUIREMENT IS MET.

COMPACTION:

1. FILL ADJACENT TO STRUCTURES, PIPES CONDUITS SHALL BE COMPACTED TO A DENSITY EQUIVALENT TO THAT OF THE SURROUNDING FILL BY MEAN OF HAND TAMPING OR MANUALLY POWER TAMPER OR PLATE VIBRATORS.

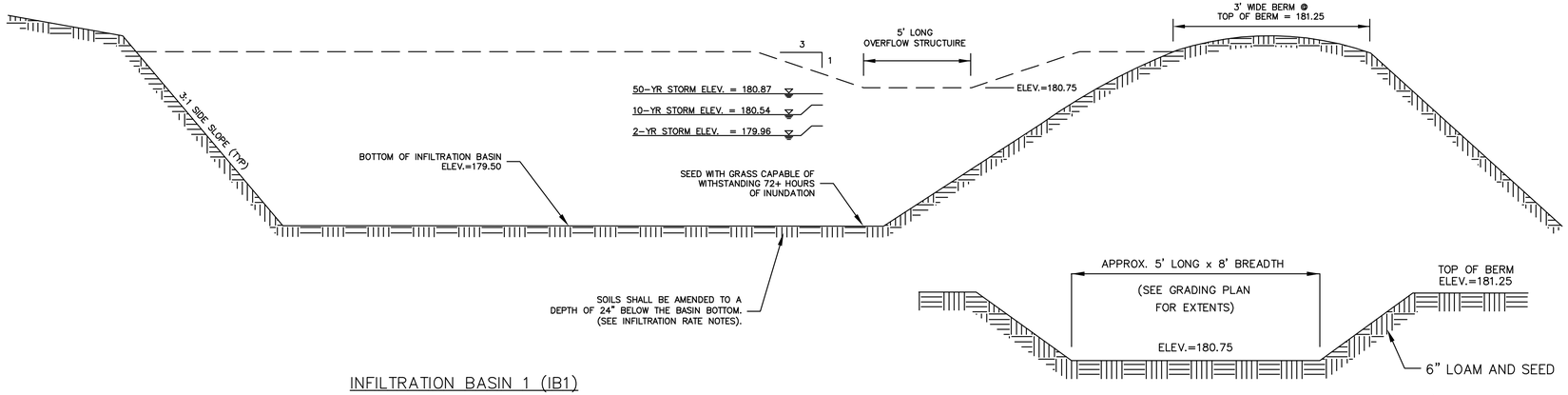
MAINTENANCE:

MAINTENANCE IS NECESSARY TO ENSURE THAT THE INFILTRATION BASIN WILL CONTINUE TO FUNCTION AS ORIGINALLY DESIGNED. THE OWNER IS RESPONSIBLE FOR MAINTAINING THE STRUCTURES AND THE BASIN AREA.

1. EMBANKMENT – THE EMBANKMENT SHOULD BE INSPECTED ANNUALLY TO DETERMINE IF RODENT BURROWS, WET AREAS, OR EROSION OF THE FILL IS TAKING PLACE. IF SUCH ISSUES ARE NOTED THEY SHALL BE RECTIFIED AS SOON AS PRACTICAL.
2. VEGETATION – THE VEGETATED AREAS OF THE SYSTEM SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH. LIME AND FERTILIZER SHOULD BE APPLIED AS NECESSARY AS DETERMINED BY SOIL TESTS. TREES SHOULD BE KEPT OFF THE BERM AREA.
3. INLETS AND OUTLETS – SHOULD BE INSPECTED ANNUALLY AND AFTER EVERY MAJOR STORM. ACCUMULATED DEBRIS AND SEDIMENT SHOULD BE REMOVED.
4. SEDIMENT – SEDIMENT SHOULD BE CONTINUALLY CHECKED IN THE FOREBAY. WHEN SEDIMENT ACCUMULATIONS REACH 3 INCHES THEN THE SEDIMENT SHOULD BE REMOVED AND PROPERLY DISPOSED OF.

INFILTRATION RATE NOTES:

1. INFILTRATION RATES IN AND AROUND THE AREA OF THE INFILTRATION BASINS WERE FIELD MEASURED TO BE GREATER THAN 20 INCHES/HR.
2. AMEND EXISTING SOILS ALONG THE BOTTOM OF THE BASINS WITH A FINE SANDY SILT MATERIAL TO A DEPTH OF 24" PER NHDES ENV–WQ 1508.06(b).
3. THE AMENDED SOILS SHALL EXHIBIT AN INFILTRATION RATE OF BETWEEN 8 AND 10 INCHES/HR.
4. IN SITU INFILTRATION TESTING MUST BE PERFORMED IN ACCORDANCE WITH NHDES ENV–WQ 1504.14(e) TO CONFIRM THE INFILTRATION RATE OF 8 TO 10 INCHES/HR. TESTING SHALL BE PERFORMED BY A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL, A CERTIFIED SOIL SCIENTIST, PROFESSIONAL GEOLOGIST OR PROFESSIONAL ENGINEER.
5. PERFORM TWO TESTS LOCATED WITHIN THE FOOTPRINT OF EACH INFILTRATION BASIN. THE LOCATIONS SHALL BE SUFFICIENTLY SPACED TO BE REPRESENTATIVE OF THE OVERALL CONDITIONS. CONDUCT THE TESTS AT THE BASE ELEVATION OF THE PROPOSED PRACTICE.
6. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL BY THE DESIGN ENGINEER.
7. SOIL TESTING SHALL BE COORDINATED WITH THE DESIGN ENGINEER.
8. SOIL TEST RESULTS WILL BE PROVIDED TO THE CITY OF DOVER ENGINEERING OFFICE OF COMMUNITY SERVICE.

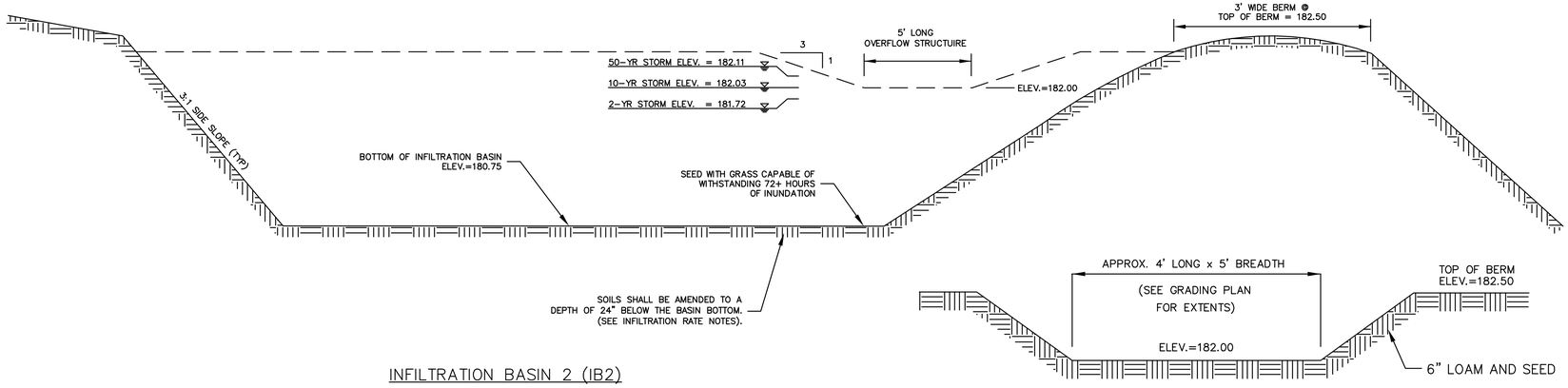


INFILTRATION BASIN 1 (IB1)

NOT TO SCALE

EMERGENCY OVERFLOW DETAIL (IB1)

NOT TO SCALE

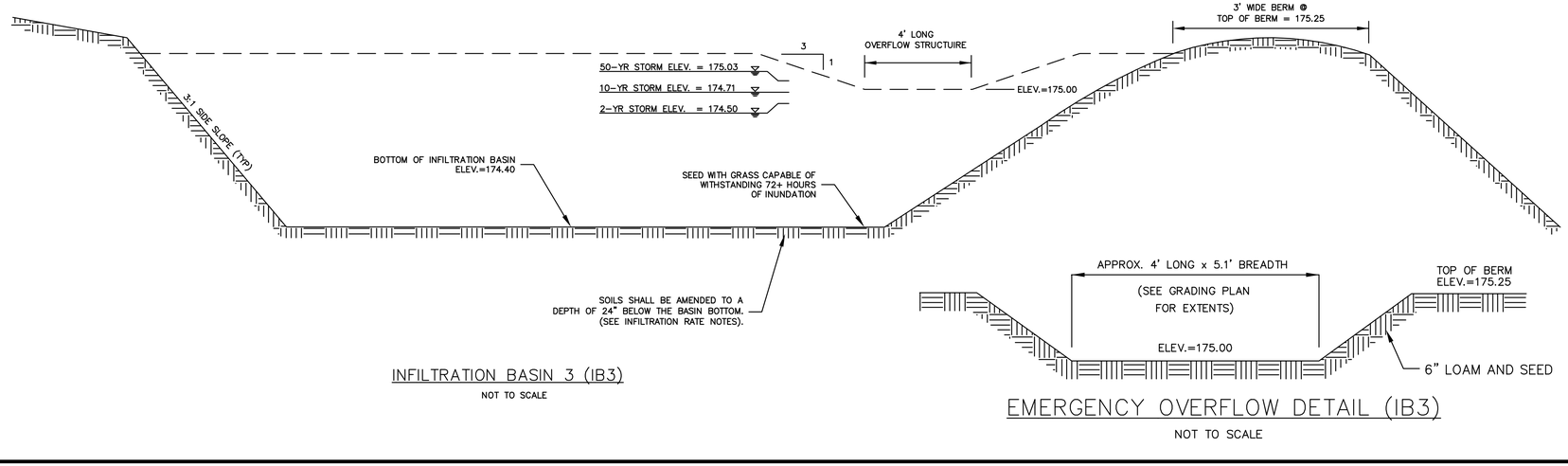


INFILTRATION BASIN 2 (IB2)

NOT TO SCALE

EMERGENCY OVERFLOW DETAIL (IB2)

NOT TO SCALE



INFILTRATION BASIN 3 (IB3)

NOT TO SCALE

EMERGENCY OVERFLOW DETAIL (IB3)

NOT TO SCALE

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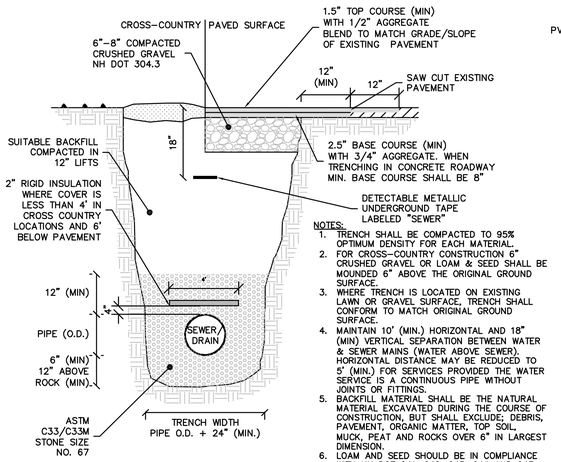
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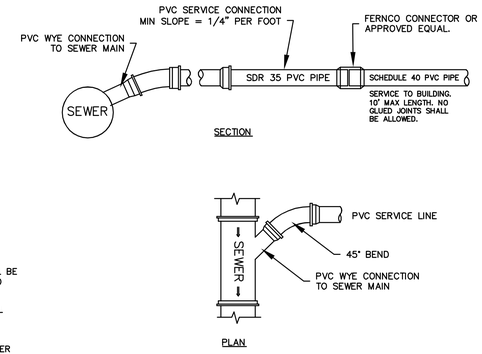
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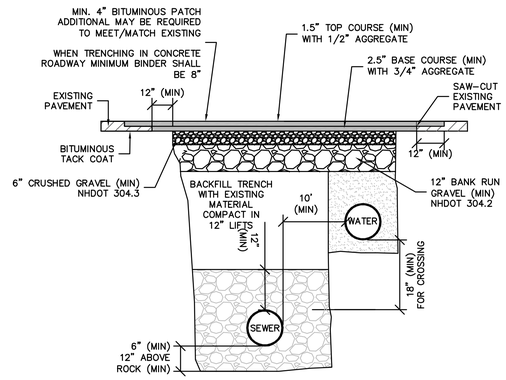
NOTES:
1. TRENCH SHALL BE COMPACTED TO 95% OPTIMUM DENSITY FOR EACH MATERIAL.
2. FOR CROSS-COUNTRY CONSTRUCTION 6" CRUSHED GRAVEL OR LOAM & SEED SHALL BE MOUNDED 6" ABOVE THE ORIGINAL GROUND SURFACE.
3. WHERE TRENCH IS LOCATED ON EXISTING LAWN OR GRAVEL SURFACE, TRENCH SHALL CONFORM TO MATCH ORIGINAL 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.

CITY OF DOVER D-3
SEWER TRENCH DETAIL
NOT TO SCALE



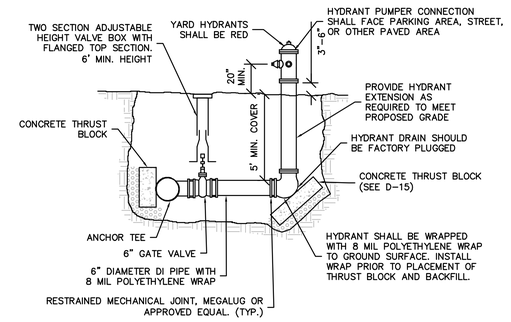
NOTES:
1. TRENCHING AND BEDDING REQUIREMENTS PER CITY SEWER TRENCH DETAIL (D-3).
2. SERVICE LATERAL DIAMETER VARIES PER APPLICATION. REVIEW SIZE WITH CITY ENGINEER PRIOR TO INSTALLATION.
3. SDR 35 SHALL NOT EXTEND INTO THE BUILDING.
4. PIPE BEDDING AND BLANKET SHALL MEET THE STANDARD SEWER TRENCH DETAIL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

CITY OF DOVER D-17
SEWER SERVICE DETAIL
NOT TO SCALE



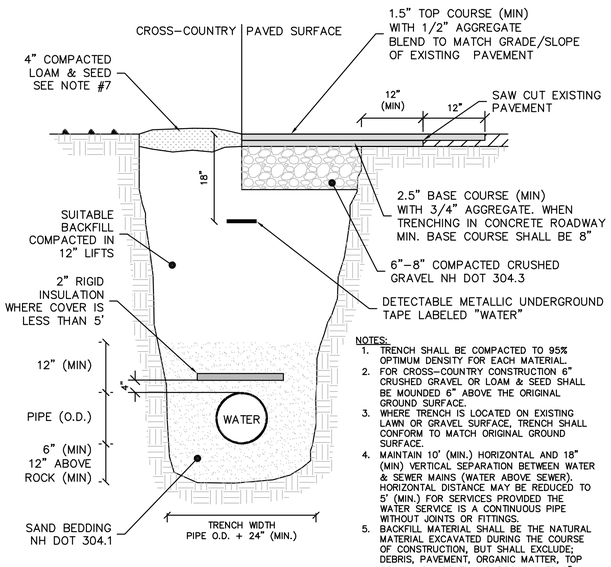
NOTES:
1. TRENCH SHALL BE COMPACTED TO 95% OPTIMUM DENSITY.
2. ALL WORK SHALL COMPLY WITH THE CITY OF DOVER CONSTRUCTION GUIDELINES AND PROCEDURES
3. MAINTAIN 10' (MIN.) HORIZONTAL AND 18" (MIN) VERTICAL SEPARATION BETWEEN WATER & SEWER MAINS (WATER ABOVE SEWER). HORIZONTAL DISTANCE MAY BE REDUCED TO 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



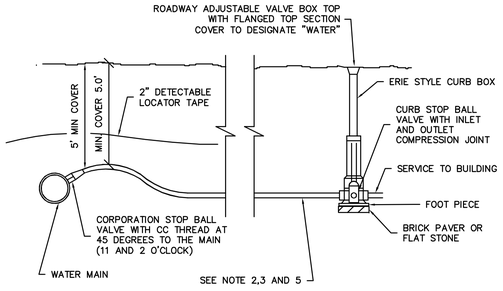
NOTES:
1. FIRE HYDRANTS SHALL BE FACTORY SEALED EDDY STYLE 2641.
2. HYDRANT SHALL BE PAINTED RED WITH EPOXY PAINT AS RECOMMENDED BY THE HYDRANT MANUFACTURER.
3. HYDRANT SHALL OPEN LEFT.

CITY OF DOVER
TYPICAL HYDRANT DETAIL
NOT TO SCALE



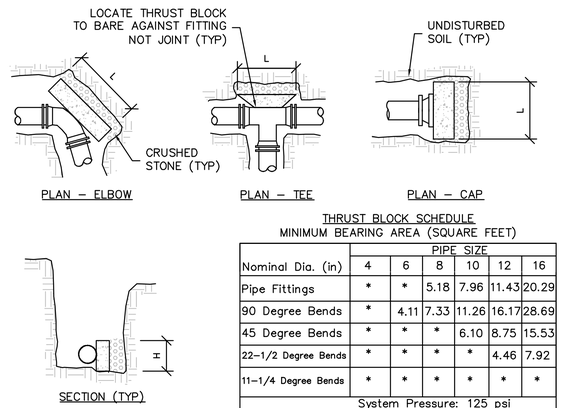
NOTES:
1. TRENCH SHALL BE COMPACTED TO 95% OPTIMUM DENSITY FOR EACH MATERIAL.
2. FOR CROSS-COUNTRY CONSTRUCTION 6" CRUSHED GRAVEL OR LOAM & SEED SHALL BE MOUNDED 6" ABOVE THE ORIGINAL GROUND SURFACE.
3. WHERE TRENCH IS LOCATED ON EXISTING LAWN OR GRAVEL SURFACE, TRENCH SHALL CONFORM TO MATCH ORIGINAL 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.

CITY OF DOVER D-4
WATER TRENCH DETAIL
NOT TO SCALE



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. ALL SERVICES SHALL BE 1". PROVIDE 1" TO 3/4" REDUCER COUPLING WHERE EXISTING SERVICES ARE 3/4". SUBSIDIARY.
6. 3/4"- COPPER, CTS
   1"- COPPER, CTS
   2"- CTS, HDPE, IPS
7. ALL SADDLES USED AS SPECIFIED SHALL HAVE DOUBLE STAINLESS STEEL STRAPS.
8. TAPS TO BE MADE AT APPROX. 2:00 AND 10:00.
9. ALL WATER VALVES SHALL OPEN LEFT (COUNTER CLOCKWISE).

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 TWCE 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

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

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

NO.	REVISION	APP'D	DATE
2	PB SUBMISSION	SJH	3-13-25
1	PER TRC COMMENTS	SJH	2-27-25

DATE: 11-21-24
SCALE: N.T.S.
DRAWN BY: SRD
DESIGN BY: JFG
APPROVED BY:SJH
PROJECT NO: 24094
FILE: SITE.DWG

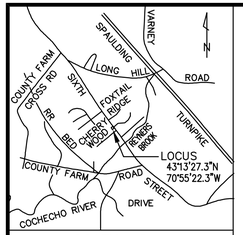
PLANNING FILE NO.: SITE-2024-0018

DETAILS

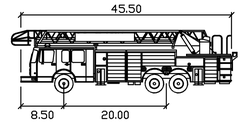
DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

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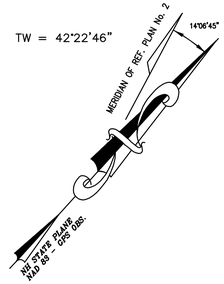
LOCATION PLAN
(NO SCALE)

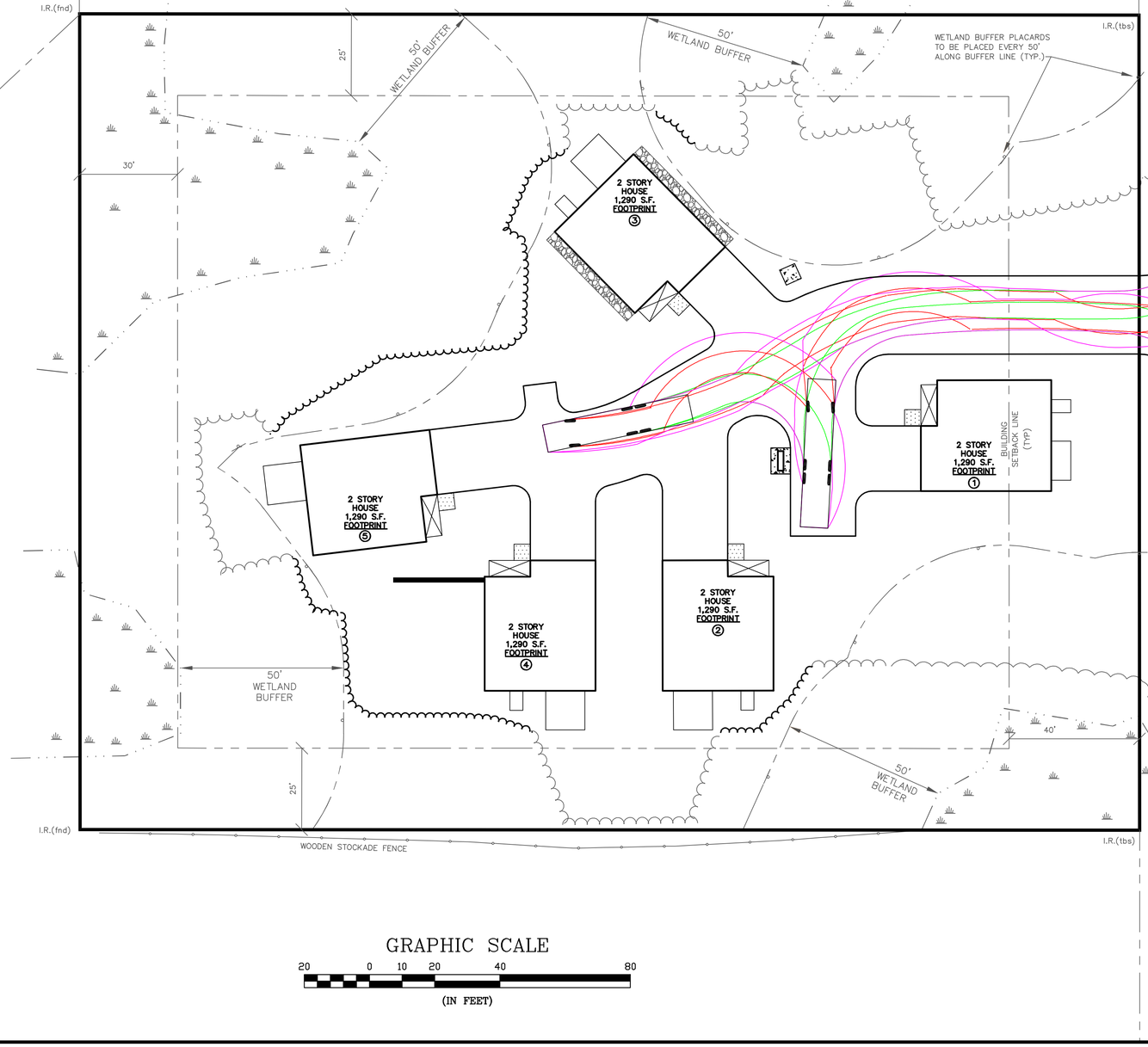


Dover ladder

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

OUTER TRUCK BODY
FRONT AXLE
CENTER REAR AXLES





GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

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

NO.	REVISION	APP'D	DATE
2	PB SUBMISSION	SJH	3-13-25
1	PER TRC COMMENTS	SJH	2-27-25

DATE: 11-21-24
SCALE: 1"=20'
DRAWN BY: SRD
DESIGN BY: JFG
APPROVED BY:SJH
PROJECT NO: 24094
FILE: SITE.DWG

PLANNING FILE NO.: SITE-2024-0018

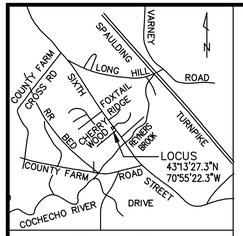
TRUCK MOVEMENT PLAN

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

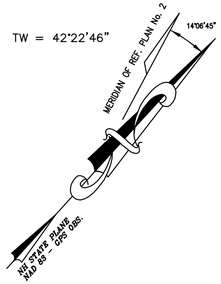
DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

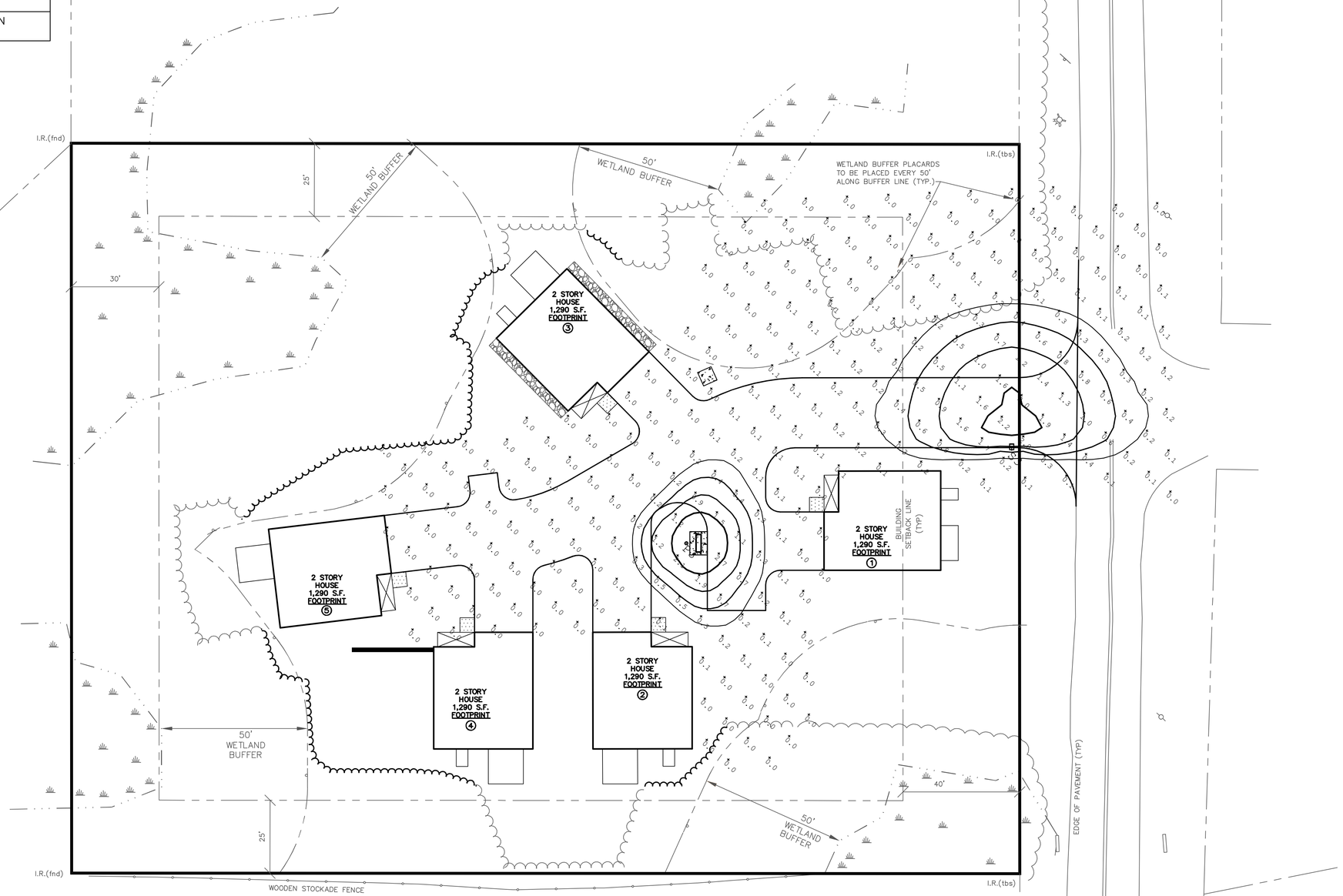
19

Luminaire Schedule					
Symbol	Qty	Label	Arrangement	Description	[MANUFAC]
⊙	1	P3	Single	OPS-PT-3L-3W-UNV-30K8-BLK-EHS / 4RP T S10G12 N BLK	LSI INDUSTRIES, INC.
▭	1	S3	Single	VALS-06L-3M-UNV-30K8-CXXX-SA / 4SQ B3 S11G20 S AB 4BC	LSI INDUSTRIES, INC.



LOCATION PLAN
(NO SCALE)





GRAPHIC SCALE

20 0 10 20 40 80

(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
2	PB SUBMISSION	SJH	3-13-25
1	PER TRC COMMENTS	SJH	2-27-25

DATE: 11-21-24
SCALE: 1"=20'
DRAWN BY: SRD
DESIGN BY: JFG
APPROVED BY:SJH
PROJECT NO: 24094
FILE: SITE.DWG

PLANNING FILE NO.: SITE-2024-0018

LIGHTING PLAN

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

20

Catalog #: _____ Project: _____ Type: _____
Prepared By: _____ Date: _____

Opulence Small Post Top (OPS)

Outdoor Decorative Post Top



OVERVIEW	
Lumen Package (lm)	3,000 - 14,000
Wattage Range (W)	20 - 100
Efficacy Range (LPW)	120 - 155
Weight lbs (kg)	25 (11.3)
Control Options	IMSBT, ALBCS, 7-Pin

QUICK LINKS

Ordering Guide | Performance | Photometrics | Dimensions

FEATURES & SPECIFICATIONS

Construction
- Rugged die-cast aluminum housing.
- 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.

Optical System
- High density LED optical system delivers industry leading optical performance and visual comfort.
- 7 distribution types 2W, 4F, 5Q, 5C, 5R, 5D & AD.
- Diffused lens version provides maximum visual comfort with reduced brightness and LED pixelization
- Available in 5000K, 4000K, 3500K, 3000K and 2700K color temperatures per ANSI C78.377. Also available in Phosphor Converted Amber with Peak Intensity at 610nm.
- Minimum CRI of 80
- External Shield available for field installation (see accessory ordering information and dimensions for details).

Electrical
- High-performance driver features over-voltage, under-voltage, short-circuit and over temperature protection (6kV surge standard).
- 0-10V dimming driver (optional extended leads).
- Standard Universal Voltage (120-277 VAC) Input 50/60 Hz or optional High Voltage (347-480 VAC).
- Total harmonic distortion (THD): <20%
- Operating temperature: -40ºC to +40ºC (-40ºF to +104ºF).
- Power factor (PF): >.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).
- 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
- Integral passive infrared Bluetooth™ motion and photocell sensor options: Fixtures operate independently and can be commissioned via an IOS or Android configuration app.
- LSI's AirLink™ Blue lighting control system is a simple feature rich wireless Bluetooth® mesh network. The integrated fixture sensor module provides wireless control of grouped fixtures based on motion sensors, daylight or a fully customizable schedule. Updates and modifications to the control strategy are easily implemented via an intuitive iOS app.

Installation
- Designed to mount directly to a 2 3/8" - 3" outer diameter tenon (4" tall).
- Optional flush mount accesory slips inside the top of a 4" round pole for a virtually seamless transition from pole to luminaire.

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 and warmer 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.
- DesignLights Consortium® (DLC) Premium qualified product. Not all versions of this product may be DLC Premium 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: _____ Type: _____
Prepared By: _____ Date: _____

V-Locity Small (VALS)

Outdoor LED Area Light



OVERVIEW	
Lumen Package	6,000 - 27,000
Wattage Range	36 - 178
Efficacy Range (LPW)	142 - 171
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 units. Cast aluminum wiring access door located underneath.
- Self-contained optic, board and heat sink assembly can be rotated or replaced in the field.
- 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: TBD lbs in carton.

Optical System
- State-of-the-Art acrylic optics delivers industry leading optical control with an integrated gasket to provide IP66 rated seal.
- Proprietary refractor optics provide exceptional coverage and uniformity in distribution types 2, 3M, 3W, 4M, 4W, 4F, FTM, 5QN, 5QM, 5Q, 5QW, AM, WF and LC/RC.
- Available in 5000K, 4000K, 3500K, 3000K and 2700K color temperatures per ANSI C78.377 as well as phosphor converted amber.
- Minimum CRI of 80 (optional 70 CRI for 5000K and 4000K).
- Factory or field installable integral shielding available for enhanced spill light control.
- Zero Uplight (excludes adjustable arms).

Electrical
- High-performance driver features over-voltage, under voltage, short-circuit and over temperature protection.
- 0-10 volt dimming (10% - 100%) standard, must specify EXT option for dimming leads to be extended to fixture exterior.
- 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: -40ºC to +50ºC (-40ºF to +122ºF).
- 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
- RED iMount pole mount arm allows for a true one person installation.
- Side arm pole mount designed to mount to square or round poles.
- Pole mount arms can accommodate pole drill patterns from 2.4 to 5" on center and utilize LSI's reduced B3 or traditional B5 drill patterns.
- Additional mounting options are available including a mast arm or adjustable slip fitter that allow for luminaire attachment to a 2 3/8" tenon or mast arm.
- Adjustable arms allow for 65º of tilt (-5ºbelow horizontal to +60º above horizontal) in 5º increments.

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.
- DarkSky approved with 3000K or warmer color temperature selection (side arm pole and mast arm mounting only).
- 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.

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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 4-2/4" 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.

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.

Ground Lug
- Ground lug is standard.

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

Catalog #: _____ Project: _____
Prepared By: _____ Date: _____

Round Poles

Round Straight



QUICK LINKS

Ordering Guide | Configurations | Dimensions | EPA

FEATURES & SPECIFICATIONS

Pole Shaft
- Steel round poles are 4" or 5" in diameter
- Pole shaft is electro-welded ASTM-A500 Grade C Steel Tubing with a minimum yield strength of 46,000 psi.
- On Tenon Mount steel poles, tenon is high-strength pipe. Tenon N option is 2-3/8" O.D. x 4-3/4" tall. Tenon 4N option is 4" O.D. x 4-7/8" tall.

Hand-Hole
- Standard hand-hole location is 12" above pole base.
- Poles 18' 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. Decorative base cover is also available.

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.

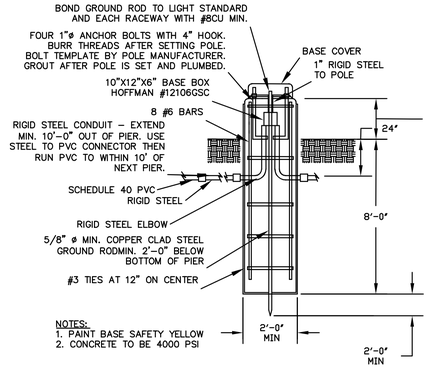
Ground Fault Circuit Interrupter
- Self-testing ground fault circuit interrupter is optional.

Finishes
- Every pole is provided with the DuraGrip® Protection System and a 5-year limited warranty.
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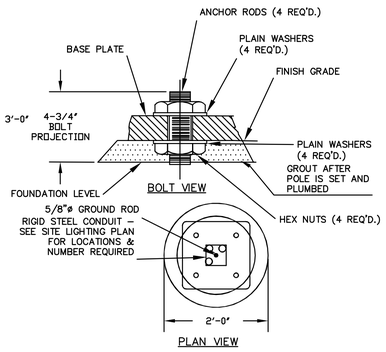
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- Select MPH to match wind speed in the application area (See windspeed maps).
- Confirm pole EPA equal to or exceeding value of luminaire/bracket EPA.
- Consult factory for special wind load requirements and banner brackets.

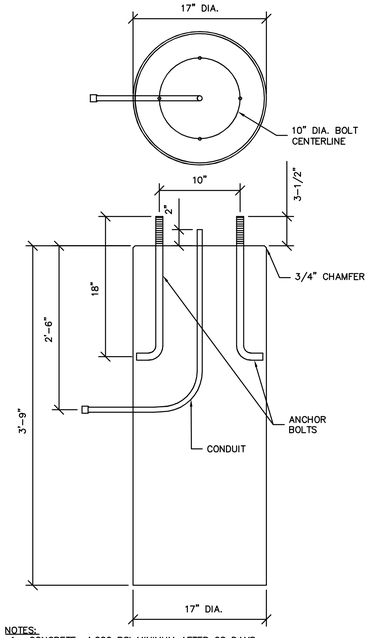
Pole Vibration Damper
- A pole vibration damper is recommended in open terrain areas of the country where low steady state winds are common.
- Non-tapered poles and lightly loaded poles are more susceptible to destructive vibration if a damper is not installed.

Listings
- UL Listed
- BAA/TAA Compliant



LIGHT POLE BASE
NOT TO SCALE





NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. CONDUIT, ANCHOR BOLTS AND TEMPLATE SUPPLIED BY OTHERS.
3. LIGHT POLE BASE SIZE IS TO BE SPECIFIED BY A QUALIFIED ENGINEER

LIGHT POLE BASE (LITE DUTY)
NOT TO SCALE

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

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

NO.	REVISION	APP'D	DATE
2	PB SUBMISSION	SJH	3-13-25
1	PER TRC COMMENTS	SJH	2-27-25

DESIGN BY: JFG
DRAWN BY: SRD
APPROVED BY: SJH
PROJECT NO: 24094
FILE: SITE.DWG
DATE: 11-21-24
SCALE: N.T.S.

PLANNING FILE NO.: SITE-2024-0018

DBS HOLDINGS, LLC
71 DANIELLE LANE
DOVER, NH 03820

TDR SITE PLAN
5 UNIT RESIDENTIAL
SIXTH STREET
DOVER, NH

LIGHTING DETAILS

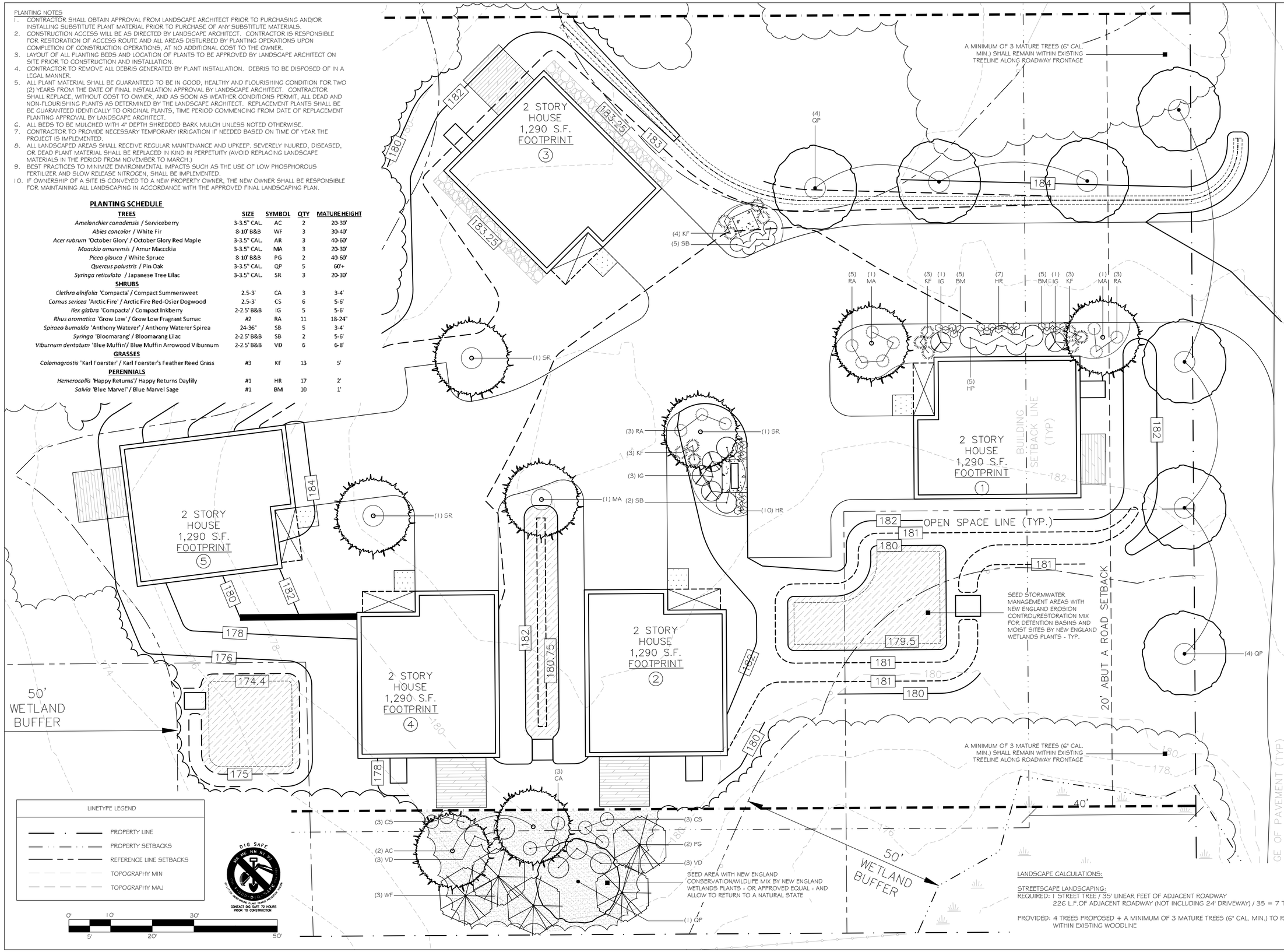
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PLANTING NOTES

1. CONTRACTOR SHALL OBTAIN APPROVAL FROM LANDSCAPE ARCHITECT PRIOR TO PURCHASING AND/OR INSTALLING SUBSTITUTE PLANT MATERIAL PRIOR TO PURCHASE OF ANY SUBSTITUTE MATERIALS.
2. CONSTRUCTION ACCESS WILL BE AS DIRECTED BY LANDSCAPE ARCHITECT. CONTRACTOR IS RESPONSIBLE FOR RESTORATION OF ACCESS ROUTE AND ALL AREAS DISTURBED BY PLANTING OPERATIONS UPON COMPLETION OF CONSTRUCTION OPERATIONS, AT NO ADDITIONAL COST TO THE OWNER.
3. LAYOUT OF ALL PLANTING BEDS AND LOCATION OF PLANTS TO BE APPROVED BY LANDSCAPE ARCHITECT ON SITE PRIOR TO CONSTRUCTION AND INSTALLATION.
4. CONTRACTOR TO REMOVE ALL DEBRIS GENERATED BY PLANT INSTALLATION. DEBRIS TO BE DISPOSED OF IN A LEGAL MANNER.
5. ALL PLANT MATERIAL SHALL BE GUARANTEED TO BE IN GOOD, HEALTHY AND FLOURISHING CONDITION FOR TWO (2) YEARS FROM THE DATE OF FINAL INSTALLATION APPROVAL BY LANDSCAPE ARCHITECT. CONTRACTOR SHALL REPLACE, WITHOUT COST TO OWNER, AND AS SOON AS WEATHER CONDITIONS PERMIT, ALL DEAD AND NON-FLOURISHING PLANTS AS DETERMINED BY THE LANDSCAPE ARCHITECT. REPLACEMENT PLANTS SHALL BE BE GUARANTEED IDENTICALLY TO ORIGINAL PLANTS, TIME PERIOD COMMENCING FROM DATE OF REPLACEMENT PLANTING APPROVAL BY LANDSCAPE ARCHITECT.
6. ALL BEDS TO BE MULCHED WITH 4" DEPTH SHREDDED BARK MULCH UNLESS NOTED OTHERWISE.
7. CONTRACTOR TO PROVIDE NECESSARY TEMPORARY IRRIGATION IF NEEDED BASED ON TIME OF YEAR THE PROJECT IS IMPLEMENTED.
8. ALL LANDSCAPED AREAS SHALL RECEIVE REGULAR MAINTENANCE AND UPKEEP. SEVERELY INJURED, DISEASED, OR DEAD PLANT MATERIAL SHALL BE REPLACED IN KIND IN PERPETUITY (AVOID REPLACING LANDSCAPE MATERIALS IN THE PERIOD FROM NOVEMBER TO MARCH.)
9. BEST PRACTICES TO MINIMIZE ENVIRONMENTAL IMPACTS SUCH AS THE USE OF LOW PHOSPHOROUS FERTILIZER AND SLOW RELEASE NITROGEN, SHALL BE IMPLEMENTED.
10. 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.

PLANTING SCHEDULE

	SIZE	SYMBOL	QTY	MATURE HEIGHT
TREES				
Amelanchier canadensis / Serviceberry	3-3.5" CAL.	AC	2	20-30'
Abies concolor / White Fir	8-10' B&B	WF	3	30-40'
Acer rubrum 'October Glory' / October Glory Red Maple	3-3.5" CAL.	AR	3	40-60'
Maackia amurensis / Amur Maccckia	3-3.5" CAL.	MA	3	20-30'
Picea glauca / White Spruce	8-10' B&B	PG	2	40-60'
Quercus palustris / Pin Oak	3-3.5" CAL.	QP	5	60'+
Syringa reticulata / Japanese Tree Lilac	3-3.5" CAL.	SR	3	20-30'
SHRUBS				
Clethra alnifolia 'Compacta' / Compact Summersweet	2.5-3'	CA	3	3-4'
Cornus sericea 'Arctic Fire' / Arctic Fire Red-Osier Dogwood	2.5-3'	CS	6	5-6'
Ilex glabra 'Compacta' / Compact Inkberry	2-2.5' B&B	IG	5	5-6'
Rhus aromatica 'Grow Low' / Grow Low Fragrant Sumac	#2	RA	11	18-24"
Spiraea bumalda 'Anthony Waterer' / Anthony Waterer Spirea	24-36"	SB	5	3-4'
Syringa 'Bloomarang' / Bloomarang Lilac	2-2.5' B&B	SB	2	5-6'
Viburnum dentatum 'Blue Muffin'/ Blue Muffin Arrowood Viburnum	2-2.5' B&B	VD	6	6-8'
GRASSES				
Calamagrostis 'Karl Foerster' / Karl Foerster's Feather Reed Grass	#3	KF	13	5'
PERENNIALS				
Hemerocallis 'Happy Returns'/ Happy Returns Daylily	#1	HR	17	2'
Salvia 'Blue Marvel' / Blue Marvel Sage	#1	BM	10	1'



LANDSCAPE CALCULATIONS:

STREETSCAPE LANDSCAPING:
REQUIRED: 1 STREET TREE / 35' LINEAR FEET OF ADJACENT ROADWAY
226 L.F.OF ADJACENT ROADWAY (NOT INCLUDING 24' DRIVEWAY) / 35 = 7 TREES

PROVIDED: 4 TREES PROPOSED + A MINIMUM OF 3 MATURE TREES (6" CAL. MIN.) TO REMAIN WITHIN EXISTING WOODLINE

terrain
planning & design llc
311 kast hill road
hopkinton nh 03229
603. 746. 3512
terrainplanning.com

TDR SITE PLAN

Site Location:
Sixth Street
Dover, NH 03820

Prepared For:
Civilworks New England
181 Watson Road
PO Box 1166
Dover, NH 03821

LANDSCAPE PLAN

DATE: 03 - 11 - 25

SCALE: 1" = 10'

PROJECT #: 25012

Drawn By: RNM

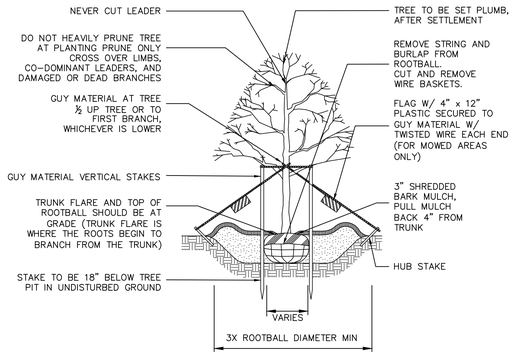
Checked By: ERB

REVISIONS: DATE:
Issued for Client Review

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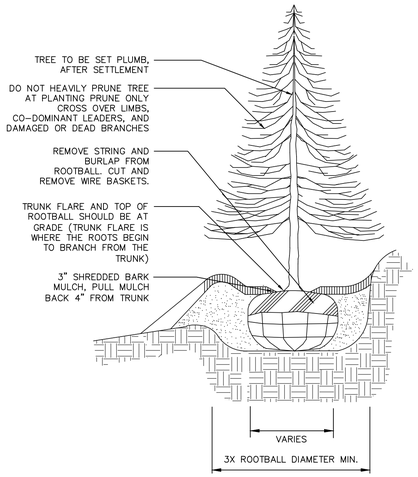
L - 1





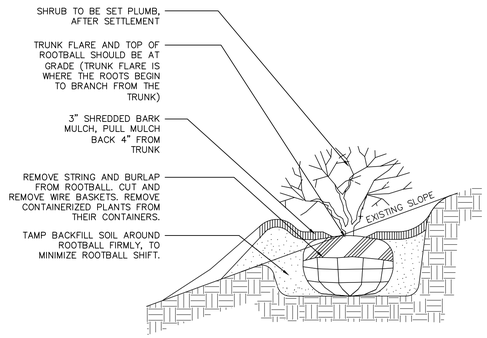
NOTES:
1. GUYING AND STAKING TO BE DETERMINED IN THE FIELD BY THE LANDSCAPE ARCHITECT. LOCAL FIELD CONDITIONS AS WELL AS PLANT CHARACTERISTICS WILL DETERMINE THE NECESSITY OF GUYING AND STAKING.
2. TYPICALLY ONLY TREES WITH A 3" OR GREATER CALIPER NEED TO BE STAKED. TREES WITH LESS THAN A 3" CALIPER NEED TO BE STAKED ONLY AS REQUIRED BY LANDSCAPE ARCHITECT.
3. ONLY WRAP TREE TRUNKS AS REQUIRED BY LANDSCAPE ARCHITECT.
4. TREE SHALL BE SET PLUMB, AFTER SETTLEMENT.
5. LOAM FOR BACKFILLING SHALL BE AMENDED AS REQUIRED BY LANDSCAPE ARCHITECT.
6. CITY TREES PLANTED ON PRIVATE PROPERTY, ADJACENT TO A PUBLIC RIGHT-OF-WAY, NEED TO BE PLANTED A MINIMUM OF 5 FEET FROM THE EDGE OF THE CITY SIDEWALK.

DECIDUOUS TREE PLANTING



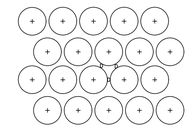
NOTES:
1. DO NOT STAKE EVERGREEN TREES.
2. LOAM FOR BACKFILLING SHALL BE AMENDED AS REQUIRED BY LANDSCAPE ARCHITECT.
3. TAMP BACKFILL SOIL AROUND ROOTBALL FIRMLY TO MINIMIZE ROOTBALL SHIFT.

EVERGREEN TREE PLANTING



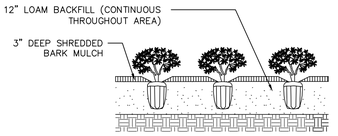
NOTE:
1. DO NOT HEAVILY PRUNE SHRUB AT PLANTING, PRUNE ONLY CROSSOVER LIMBS AND DAMAGED OR DEAD BRANCHES.
2. BACKFILL WITH LOAM, AMEND AS REQUIRED BY LANDSCAPE ARCHITECT.
3. SHRUBS & GROUNDCOVER PLANTED ADJACENT TO CITY SIDEWALKS NEED TO BE PLACED SO THE PLANTS, AT THEIR MATURE HEIGHT & WIDTH, WILL NOT ENCROACH INTO THE CITY'S SIDEWALK.

TYPICAL SHRUB PLANTING



TYPICAL BED PLANT SPACING

NOTE:
D = DIMENSION OF PLANT SPACING (SHRUB OR GROUNDCOVER AS INDICATED ON PLANS)



TYPICAL PERENNIAL PLANTING

terrain
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311 kast hill road
hopkinton nh 03229
603. 746. 3512
terrainplanning.com

TDR SITE PLAN

Site Location:
Sixth Street
Dover, NH 03820

Prepared For:
Civilworks New England
181 Watson Road
PO Box 1166
Dover, NH 03821

CONSTRUCTION DETAILS

DATE: 03 - 11 - 25

SCALE: AS NOTED

PROJECT #: 25012

Drawn By: RNM

Checked By: ERB

REVISIONS: DATE:
Issued for Client Review

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L - 2



9/25/2024

Ben Bradley Classic, 36x40

990.124.v5 GR (9/25/2024)

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Art Form Architecture, LLC

Prelim / Work in Progress 603-431-9559



Dear Builders and Home Buyers,

In addition to our Terms and Conditions (the "Terms"), please be aware of the following:

This design may not yet have Construction Drawings (as defined in the Terms), and is, therefore, only available as a Design Drawing (as defined in the Terms and together with Construction Drawings, "Drawings'). It is possible that during the conversion of a Design Drawing to a final Construction Drawing, changes may be necessary including, but not limited to, dimensional changes. Please see Plan Data Explained on www.artform.us to understand room sizes, dimensions and other data provided. We are not responsible for typographical errors.

Art Form Architecture ("Art Form") requires that our home designs be built substantially as designed. Art Form will not be obligated by or liable for use of this design with markups as part of any builder agreement. While we attempt to accommodate where possible and reasonable, and where the changes do not denigrate our design, any and all changes to Drawings must be approved in writing by Art Form. It is recommended that you have your Drawing updated by Art Form prior to attaching any Drawing to any builder agreement. Art Form shall not be responsible for the misuse of or unauthorized alterations to any of its Drawings.

Facade Changes:
• To maintain design integrity, we pay particular attention to features on the front facade, including but not limited to door surrounds, window casings, finished porch column sizes, and roof friezes. While we may allow builders to add their own flare to aesthetic elements, we don't allow our designs to be stripped of critical details. Any such alterations require the express written consent of Art Form.
• Increasing ceiling heights usually requires adjustments to window sizes and other exterior elements.
Floor plan layout and/or Structural Changes:
• Structural changes always require the express written consent of Art Form
• If you wish to move or remove walls or structural elements (such as removal of posts, increases in house size, ceiling height changes, addition of dormers, etc), please do not assume it can be done without other additional changes (even if the builder or lumber yard says you can).

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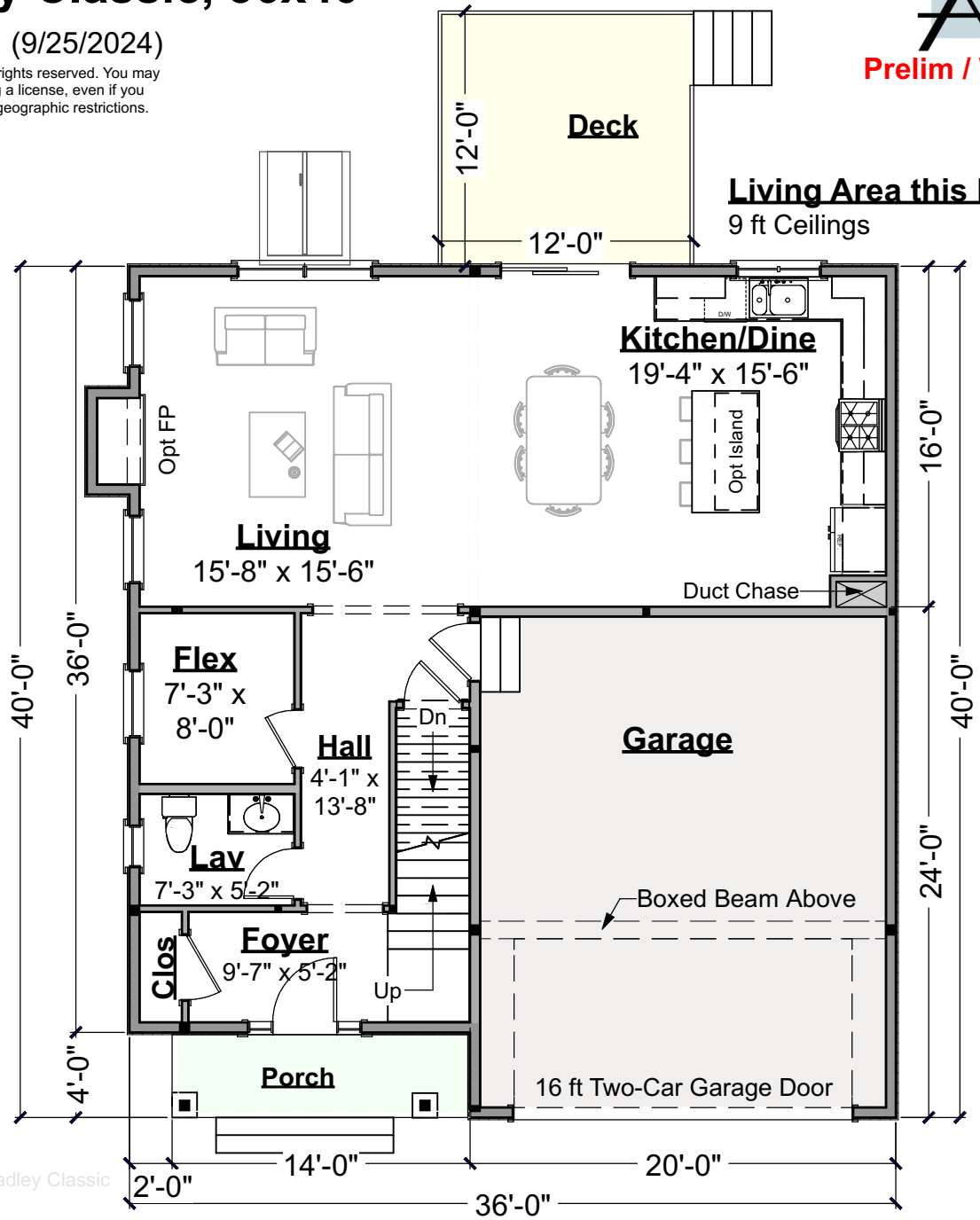
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Living Area this Floor: 924 sq ft
9 ft Ceilings



First Floor Plan

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

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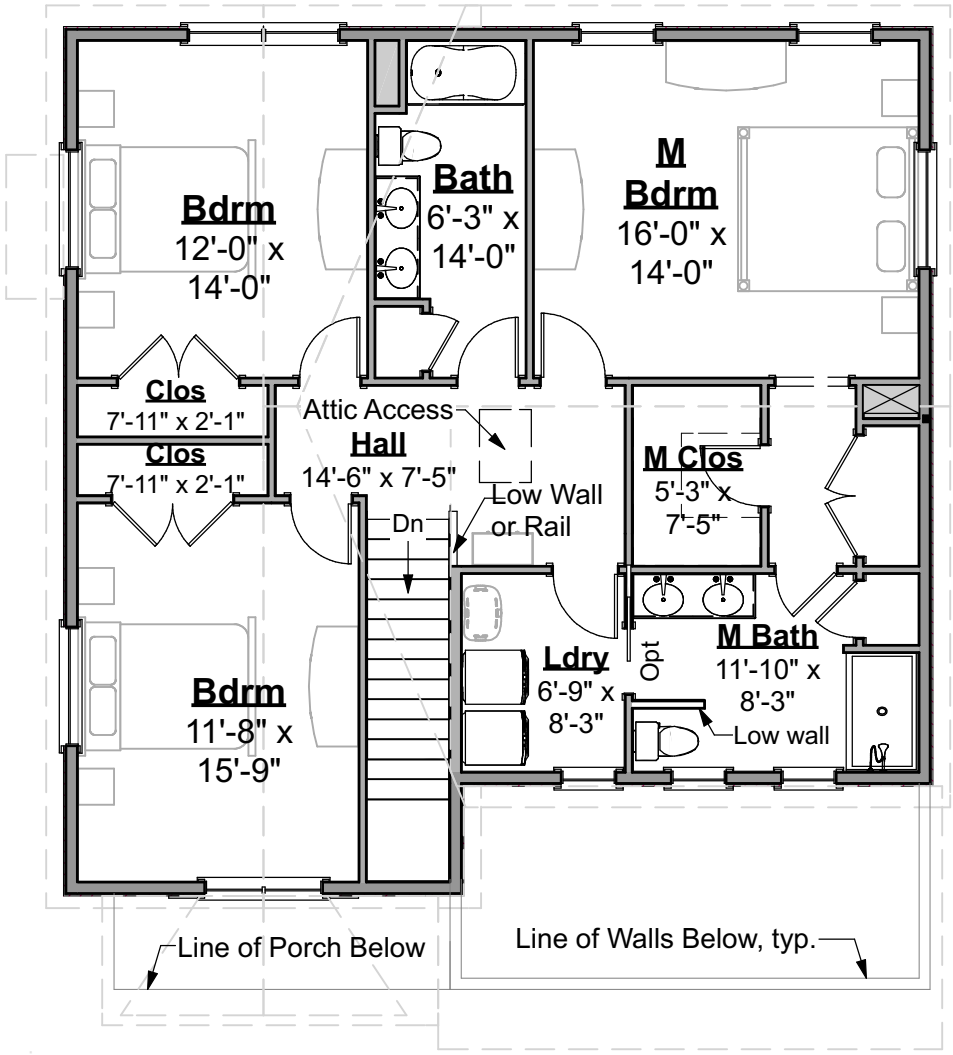
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Living Area this Floor: 1206 sq ft

8 ft Ceilings



Second Floor Plan

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

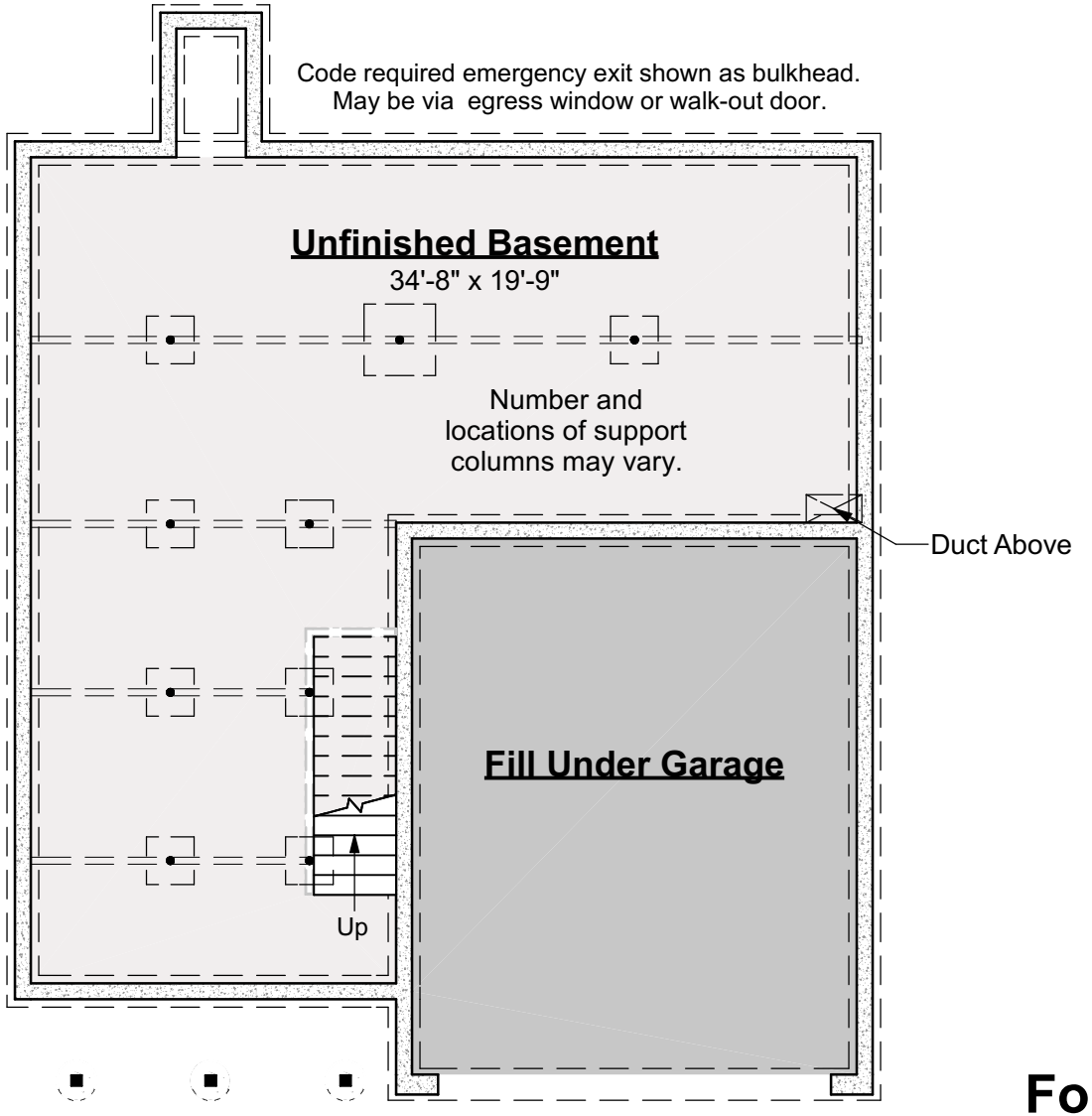
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Form Height Shown: 8 FT (May vary to suit site conditions)

Foundation Plan

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

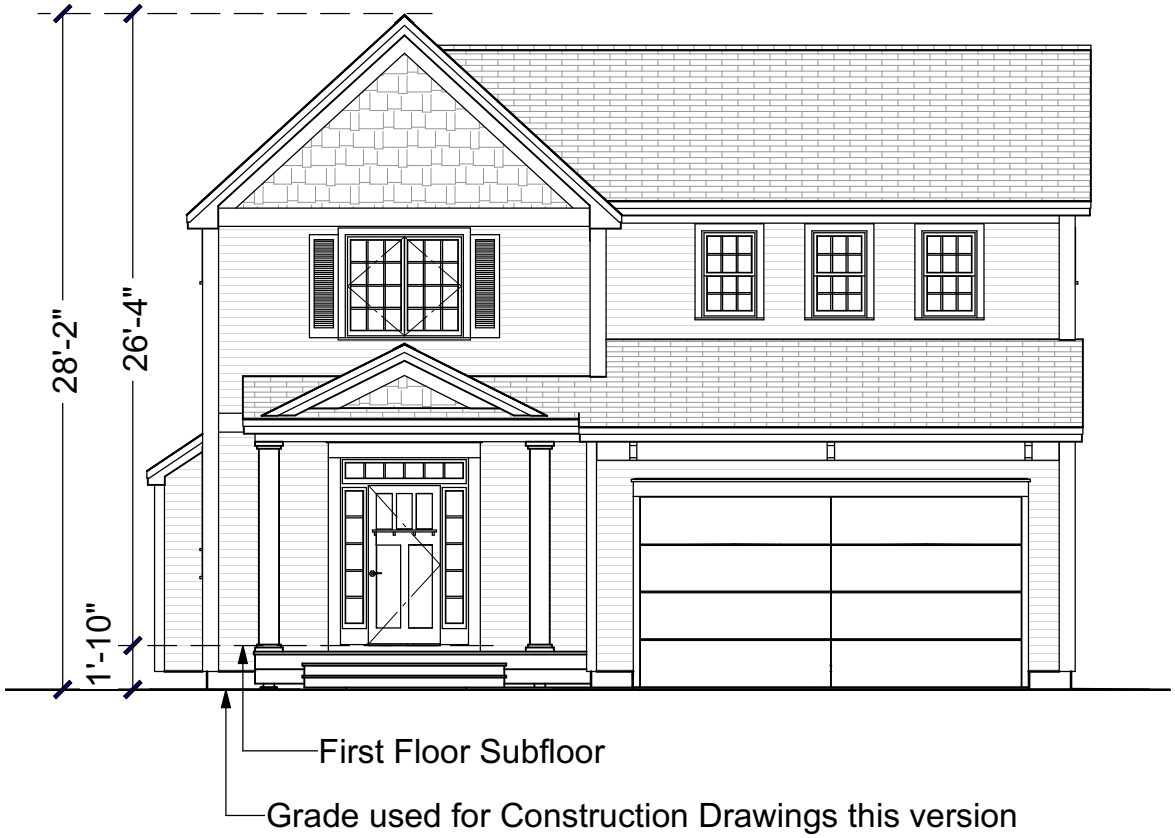
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Front Elevation

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

9/25/2024

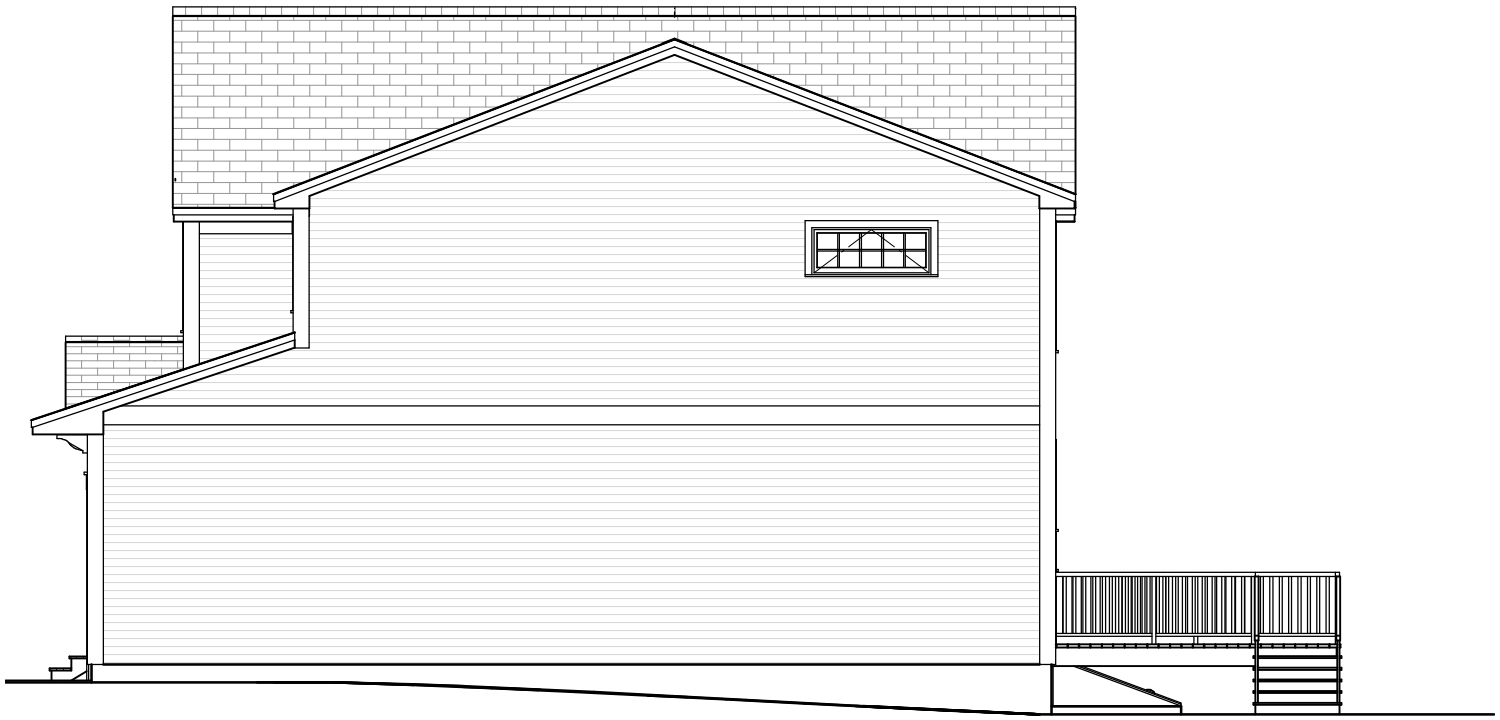
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Right Elevation

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

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Rear Elevation

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

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Left Elevation

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

From: Hilary Hamer <hilary.a.hamer@gmail.com>
Sent: Tuesday, April 8, 2025 8:09:46 AM
To: Planning Board - All
Subject: 512 Sixth St: Agenda Item Tuesday April 8, 2025

Security Notice: External sender. Use caution with hyperlinks or attachments.

Dear Planning Board:

I am writing to protest the admission of 512 Sixth St under Site Plan Regulations (chapter 153) instead of Subdivision Regulations (chapter 157). I believe there is a significant legal error here and that the correct regulations for the 512 Sixth St plan are subdivision chapter 157. The plan should not be accepted nor voted on tonight as 512 Sixth St must be reviewed as a subdivision and consistency with chapter 157's regulations for subdivisions has not been reviewed.

Facts: The plan for 512 Sixth St solely consists of single-family houses intended to be rented or sold within residential R-40 district.

NH RSA 672:14 defines a subdivision as follows:

672:14 *Subdivision. –*

I. "Subdivision" means the division of the lot, tract, or parcel of land into 2 or more lots, plats, sites, or other divisions of land for the purpose, whether immediate or future, of sale, rent, lease, condominium conveyance or building development. It includes resubdivision and, when appropriate to the context, relates to the process of subdividing or to the land or territory subdivided.

You'll note that this definition is regardless of presence or absence of lot-lines.

Dover's definiton is nearly the same 157-60:

"***SUBDIVISION***

The division of the lot, tract, or parcel of land into two or more lots, plats, sites, or other divisions of land for the purpose, whether immediate or future, of sale, rent, lease or building development. It includes resubdivision and, when appropriate to the context, relates to the process of subdividing or to the land or territory subdivided. A condominium conveyance, per RSA 356-B, shall not require Planning Board approval.

"

You'll note that although a condominium (ie. lot-line free plan under a HOA) is not indicated to require Planning Board approval here, it is specifically within this definition of a subdivision still.

Further, at yesterday's TDR Subcommittee meeting, our Deputy City Manager Chris Parker stated clearly that condominiums in Dover are specifically Open Space Subdivisions (ie. lot-line free divisions are still subdivisions).

Open Space Subdivisions definition 157-19:

"An open space subdivision (OSS) represents a form of residential development where, instead of subdividing an entire tract of land into lots of conventional size and arrangement, a similar number of single-family housing units, duplexes in an R-12 Zone, may, at the discretion of the Planning Board, be arranged on the land in a more innovative fashion which better fits the topography and natural attributes of the site. The remaining land in the tract which has not been built upon shall be set aside for municipal use or integrated among the housing units and reserved for usable common open space. Said open space shall be held in a form of ownership that will prevent it from being further subdivided or developed."

I find that the layout of 512 Sixth St is consistent with the NH state and Dover definitions of subdivisions, and the definition of an Open Space Subdivision in Dover. 512 Sixth St, as a proposal including a parent parcel being divided into single-family residences to be sold and/or rented with shared common space, regardless of lot-lines, must not be accepted as a site plan by the Board.

If the Board chooses to accept this application as a Site Plan under Chapter 153, I request a clear justification as to the reason why given these facts.

Sincerely,
Hilary Hamer, OD, FAAO
91 Court St, Dover

The Law Office of Scott E. Hogan

P.O. Box 57
Lyndeborough, New Hampshire 03082
Phone: 603-969-1183 Email: hoganlaw@comcast.net

Via email transmission

Planning Board, City of Dover April 8, 2025
288 Central Ave
Dover, NH 03820

RE: Applications of DBS Holdings, LLC, Assessor's Map B, Lot 2, zoned R-40, located at 512 Sixth Street

Dear Planning Board members:

I represent Ken and Donna Durell, who own and reside at 508 6th Street, Dover, direct abutters to the above-referenced development project at 512 6th Street.

They respectfully request the Board to consider the following, and for the reasons stated they state that the present applications before the Board cannot be approved.

Prejudgment, Conflict Issues

Recent TDR applications and reviews have implicated certain Planning Board members regarding issues of prejudgment, conflicts, etc. regarding personal TDR applications to the Planning Board and participation in other TDR applications before the same Board. See e.g. recent recommendation of Dover Ethics Commission, 1-21-25 to remove Planning Board member Cullen, due to non-disclosure of his relationship with McEaneany Survey (representing the current 512 St applicant), citing the current applications of DBS Holdings as precedent. See:

RECOMMENDATION

Pursuant to Section 21-14(A) and (B)(2) of the Dover Ethics Code, the recommendation of the Ethics Committee for a remedy is removal of Councilor Cullen from the office of City Council representative to the Dover Planning Board. The rationale is removal will address the issue whether ethical violations will occur in the future.

This recommendation sanction was approved by the Commission 3-1, with member Keane dissenting. In all other respects, the Commission unanimously approved the findings and rulings herein.

31. Mr. Cullen testified that he cited the Planning Board's approval of the DBS Holdings application as precedent in the revised site plan application for his property at 566 Sixth Street.

Thus any member of the Planning Board who may have prejudged this or other similar TDR applications, or who may have a conflict, or an appearance of a conflict must recuse themselves from these applications before the Board can begin consideration.

> **"[M]ere participation by one disqualified member [is] sufficient to invalidate the tribunal's decision because it [is] impossible to estimate the influence one member might have on his associates**." Winslow v. Holderness Planning Board, 125 N.H. 262 (1984).

Are These Applications Site Plans?/ Subdivisions?

The Board has had a varied and inconsistent approach to TDR applications and whether they are also subject to Subdivision or Site Plan Review.

The Regulations are clear that residential TDR applications shall be considered subdivisions.

> "*The TDR process is a discretionary process, and the Planning Board is not obligated to sell units*." (Emphasis added). See specifically TDR 170-29-G(3)a.6, (Residential performance standards):
> "The plan shall be considered a subdivision application. Prior to submission, a determination by the Director of Planning and Community Development shall be made whether to follow the minor or major subdivision regulations".

The Board (and/or the Planning Staff) have stated different and differing opinions over different TDR applications. The controlling statutory definitions of subdivision and site plan are clear. There is no definition of a site plan that possibly conforms with the Board reviewing this TDR proposal as a site plan.

The Board needs to reconcile this issue before making any final or conditional decision on the pending applications.

30 Foot No Cut Perimeter Buffer

TDR regulations require a 30 foot no cut perimeter buffer, as a basic quid pro quo for the Application purchasing excessive density. The Board has had a varied and inconsistent approach to TDR applications regarding this requirement. The Board needs to confirm this as a basic requirement.

Application's Request for Additional Waiver

Beyond the excessive density that the Applicant is purchasing through the TDR "process', it is also additionally asking for waiver relief:

"WAIVERS REQUESTED:
§157-32J: request for relief due to
dead-end street proposed as less than
500 feet."

There is nothing in record or the facts that could support such additional waiver relief consistent with the Zoning Ordinance, Regulations and TDR requirements. It is the Application's burden to present such evidence, and without such the waiver must be denied.

Maintaining the Daily Use, Enjoyment, Value and Future Marketability of Existing Property Owners

The Planning Board's decision is required to be both lawful, *and independently reasonable*.

The current TDR design proposes unreasonable, unlawful density, at the expense of the existing abutting property owners in terms of their own daily use, enjoyment, value, and future marketability of their property.

The TDR "option" in Dover is absolutely discretionary, and not "by right". The Planning Board has the discretion to allow such applications or not.

In the "Land Use Planning and Zoning" volume of the New Hampshire Practice series Attorney Peter Loughlin states,

The beauty of a residential neighborhood is for the comfort and happiness of the residents and tends to sustain the value of property in the neighborhood. **It is a matter of general welfare, like other conditions, that adds to the attractiveness of a community and the value of the residences located there**. (Citing Deering v. Tibbetts, 105 N.H. 481 (1964)). New Hampshire Practice, Volume 15, §2.17. (Emphasis added).

Loughlin goes on to state,

The New Hampshire Supreme Court eliminated any doubt about the ability of a municipality to use its zoning powers to promote aesthetics in *Asselin v. Town of Conway*, (137 N.H.369 (1993)) where it stated:

We now conclude that municipalities may validly exercise zoning power solely to advance aesthetic values, because the preservation or enhancement of the visual

environment may promote the general welfare. *See* RSA 674:16,I; Opinion of the Justices, 103 N.H. 268, 270... (1961).

The Supreme Court noted:

"[t]he concept of public welfare is broad and inclusive. The values it represents are spiritual as well as physical, aesthetic as well as monetary**. It is within the power of the legislature to determine that the community should be beautiful as well as healthy, spacious as well as clean, well-balanced as well as carefully patrolled.** (Emphasis added)."

In the **first statement made** in the New Hampshire Practice series on Land Use Planning and Zoning Attorney Peter Loughlin presents this apt quotation,

"Zoning is a complex and important function to the State. **It may indeed be the most essential function performed by local government, for it is one of the primary means by which we protect that sometimes difficult to define concept of quality of life**." Justice Thurgood Marshall, dissenting in the case of *Village of Belle Terre v. Boraas*, 416 U.S. 1, 39 L. Ed. 2d 797, 94 S. Ct. 1536 (1974). (Emphasis added).

The Planning Board's application of the City's Transfer of Development Rights program can jeopardize the rights expressed above, if not applied judiciously, which in some cases means not applying it at all. The TDR program is expressly discretionary, and thus the Planning Board is given the discretion as to how and where and to what extent to apply it, or the discretion to not apply it at all.

Ken and Donna Durell respectfully request that the Board deny the subject applications.

Respectfully submitted,

/Scott E. Hogan, Esq./

Scott E. Hogan, Esq.

CITY OF DOVER

CITY OF DOVER – ORDINANCE

Ordinance Number: **O – yyyy.mm.dd -**
Ordinance Title: Updating the Dover Zoning Ordinance
Chapter: 170

The City of Dover Ordains:

1. **PURPOSE**
The purpose of this ordinance is to amend Chapter 170 of the Code of the City of Dover, entitled Zoning, by updating the Code to reflect changes in the community and in land use regulations.

2. **AMENDMENT**
Chapter 170 of the Code of the City of Dover, entitled Zoning, is hereby amended by revising Chapter 170-6.B., "Word Usage and Definitions", by amending the definition of a multifamily dwelling, which is to read as follows:

"DWELLING, MULTIFAMILY ~~– A building containing more than four dwelling units.~~ means any structure containing five (5) or more residential dwelling units. This definition shall not apply to uses categorized as ROOMING HOUSEs, COMMUNITY RESIDENCEs, or EMERGENCY SHELTERs."

3. **AMENDMENT**
Chapter 170 of the Code of the City of Dover, entitled Zoning, is hereby amended by revising Chapter 170-6.B., "Word Usage and Definitions", by amending the definition of a single-family home, which is to read as follows:

"DWELLING, SINGLE-FAMILY — A detached building, to include MANUFACTURED HOUSING, containing one dwelling unit only.

4. **AMENDMENT**
Chapter 170 of the Code of the City of Dover, entitled Zoning, is hereby amended by revising Chapter 170-6.B., "Word Usage and Definitions", by amending the definition of unsuitable development area, which is to read as follows:

"UNSUITABLE DEVELOPMENT AREA — The area of a site that includes wetlands, water bodies, slopes exceeding a grade of 20% and totaling more than 2,000 square feet of contiguous area, land used for septic systems, floodways, areas within 25 feet of a designated burial ground, ~~and~~ floodway fringe within the 100-year floodplain as shown on the latest FEMA maps accepted by the City, and public utility easements

5. **AMENDMENT**
Chapter 170 of the Code of the City of Dover, entitled Zoning, is hereby amended by revising Chapter 170-6.B., "Word Usage and Definitions", by adding the following definition to the ordinance, which is to read as follows:

"EMERGENCY SHELTER means any facility, the primary purpose of which is to provide temporary or transitional shelter for persons experiencing homelessness. This use shall be exclusively permitted by Conditional Use Permit in any zoning district provided that the criteria specified in §170-19.B(4) is met.

6. AMENDMENT

Chapter 170 of the Code of the City of Dover, entitled Zoning, is hereby amended by revising Chapter 170-12, Commercial District Table of Uses, by amending the solar/green roof standards under footnote 8, which is to read as follows:

"Solar/Green Roof Standard:
• All buildings must be solar ready
• ~~Commercial and mixed use buildings that are 25,000 sq ft or more must also incorporate solar panels and/or a green roof on at least 30 percent of the roof area.~~
• Commercial and mixed-use buildings that are 25,000 sq. ft. or more must meet the following solar/green roof standards:

A. Solar panels, green roof, or a combination thereof must be installed in an area no less than either:

1. Fifteen (15) percent of the gross floor area of the building;
2. Thirty (30) percent of the total roof area on the building; or
3. (For solar paneling only) an area equal to an amount required to provide one hundred (100) percent of estimated annual average electricity used at the building.

Notwithstanding the above, solar panels are not required to be roof-mounted and may be located elsewhere on site provided their area is compliant with the above percentages. **CUP (170-20B) may be used to adjust standards.*"

7. AMENDMENT

Chapter 170 of the Code of the City of Dover, entitled Zoning, is hereby amended by revising Chapter 170-12, Commercial Manufacturing District Table of Uses, by amending the solar/green roof standards under footnote 9, which is to read as follows:

"Solar/Green Roof Standard:
• All buildings must be solar ready
• ~~Commercial and mixed use buildings that are 25,000 sq ft or more must also incorporate solar panels and/or a green roof on at least 30 percent of the roof area.~~
• Commercial and mixed-use buildings that are 25,000 sq. ft. or more must meet the following solar/green roof standards:

A. Solar panels, green roof, or a combination thereof must be installed in an area no less than either:

1. Fifteen (15) percent of the gross floor area of the building;
2. Thirty (30) percent of the total roof area on the building; or
3. (For solar paneling only) an area equal to an amount required to provide one hundred (100) percent of estimated annual average electricity used at the building.

Notwithstanding the above, solar panels are not required to be roof-mounted and may be located elsewhere on site provided their area is compliant with the above percentages. **CUP (170-20B) may be used to adjust standards.*"

8. AMENDMENT

Chapter 170 of the Code of the City of Dover, entitled Zoning, is hereby amended by revising Chapter 170-12, Innovative Technology District Table of Uses, by amending the solar/green roof standards under footnote 14, which is to read as follows:

"Solar/Green Roof Standard:
• All buildings must be solar ready
• ~~Commercial and mixed use buildings that are 25,000 sq ft or more must also incorporate solar panels and/or a green roof on at least 30 percent of the roof area.~~
• Commercial and mixed-use buildings that are 25,000 sq. ft. or more must meet the following solar/green roof standards:

A. Solar panels, green roof, or a combination thereof must be installed in an area no less than either:

1. Fifteen (15) percent of the gross floor area of the building;
2. Thirty (30) percent of the total roof area on the building; or
3. (For solar paneling only) an area equal to an amount required to provide one hundred (100) percent of estimated annual average electricity used at the building.

Notwithstanding the above, solar panels are not required to be roof-mounted and may be located elsewhere on site provided their area is compliant with the above percentages. **CUP (170-20B) may be used to adjust standards.*"

9. AMENDMENT

Chapter 170 of the Code of the City of Dover, entitled Zoning, is hereby amended by revising Chapter 170-12, Central Business District - General (CBD-G) Table of Uses, by amending the solar/green roof standards as specified in the Required Building Standards, which is to read as follows:

"• Building designs shall be harmonious with neighboring structures in terms of mass, width, height, proportion, spacing, and setback.
• All exterior walls that front on a public way with adjacent pedestrian traffic/infrastructure must incorporate wood, brick, stone or a suitable contemporary material appropriately detailed within the first 20 vertical feet.
• Large structures shall be broken into smaller masses to provide human scale, variation, and depth.
• The design of the building shall incorporate views that are directed to the street and garden/courtyard rather than adjacent neighbors.
• Buildings shall be placed at or near the street, along the outer edge of their sites, to ensure the unity of those streets and to encourage and facilitate pedestrian activity.
• Building design shall enhance the pedestrian environment and streetscape.
• Utility elements shall be screened in an aesthetically pleasing manner.
• Garages shall not face the street.
• Solar/Green Roof Standard:

• All buildings must be solar ready
• ~~Commercial and mixed use buildings that are 25,000 sq ft or more must also incorporate solar panels and/or a green roof on at least 30 percent of the roof area.~~
• Commercial and mixed-use buildings that are 25,000 sq. ft. or more must meet the following solar/green roof standards:

1. Solar panels, green roof, or a combination thereof must be installed in an area no less than either:
2. Fifteen (15) percent of the gross floor area of the building;
3. Thirty (30) percent of the total roof area on the building; or
4. (For solar paneling only) an area equal to an amount required to provide one hundred (100) percent of estimated annual average electricity used at the building.

Notwithstanding the above, solar panels are not required to be roof-mounted and may be located elsewhere on site provided their area is compliant with the above percentages. **CUP (170-20B) may be used to adjust standards.*"

10. AMENDMENT

Chapter 170 of the Code of the City of Dover, entitled Zoning, is hereby amended by revising Chapter 170-12, Central Business District – Mixed Use (CBD-M) Table of Uses, by amending the solar/green roof standards as specified in the Required Building Standards, which is to read as follows:

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

1. Solar panels, green roof, or a combination thereof must be installed in an area no less than either:

2. Fifteen (15) percent of the gross floor area of the building;
3. Thirty (30) percent of the total roof area on the building; or
4. (For solar paneling only) an area equal to an amount required to provide one hundred (100) percent of estimated annual average electricity used at the building.

Notwithstanding the above, solar panels are not required to be roof-mounted and may be located elsewhere on site provided their area is compliant with the above percentages. **CUP (170-20B) may be used to adjust standards.*"

11. AMENDMENT

Chapter 170 of the Code of the City of Dover, entitled Zoning, is hereby amended by revising Chapter 170-12, Central Business District – Transit Oriented Development (CBD-TO) Table of Uses, by amending the solar/green roof standards as specified in the Required Building Standards, which is to read as follows:

"• Building designs shall be harmonious with neighboring structures in terms of mass, width, height, proportion, spacing, and setback.
• All exterior walls that front on a public way with adjacent pedestrian traffic/infrastructure must incorporate wood, brick, stone or a suitable contemporary material appropriately detailed within the first 20 vertical feet.
• Large structures shall be broken into smaller masses to provide human scale, variation, and depth.
• The design of the building shall incorporate views that are directed to the street and garden/courtyard rather than adjacent neighbors.
• Buildings shall be placed at or near the street, along the outer edge of their sites, to ensure the unity of those streets and to encourage and facilitate pedestrian activity.
• Building design shall enhance the pedestrian environment and streetscape.
• Utility elements shall be screened in an aesthetically pleasing manner.
• Solar/Green Roof Standard:
  • All buildings must be solar ready
  • ~~Commercial and mixed use buildings that are 25,000 sq ft or more must also incorporate solar panels and/or a green roof on at least 30 percent of the roof area.~~
  • Commercial and mixed-use buildings that are 25,000 sq. ft. or more must meet the following solar/green roof standards:
    1. Solar panels, green roof, or a combination thereof must be installed in an area no less than either:
    2. Fifteen (15) percent of the gross floor area of the building;
    3. Thirty (30) percent of the total roof area on the building; or
    4. (For solar paneling only) an area equal to an amount required to provide one hundred (100) percent of estimated annual average electricity used at the building.

Notwithstanding the above, solar panels are not required to be roof-mounted and may be located elsewhere on site provided their area is compliant with the above percentages. **CUP (170-20B) may be used to adjust standards.*"

12. AMENDMENT

Chapter 170 of the Code of the City of Dover, entitled Zoning, is hereby amended by revising Chapter 170-12, Gateway District Table of Uses, by amending the solar/green roof standards as specified in the Required Building Standards, which is to read as follows:

- Building designs shall be harmonious with neighboring structures in terms of mass, width, height, proportion, spacing, and setback.
- All exterior walls that front on a public way with adjacent pedestrian traffic/infrastructure must incorporate wood, brick, stone or a suitable contemporary material appropriately detailed within the first 20 vertical feet.
- Large structures shall be broken into smaller masses to provide human scale, variation, and depth.
- The design of the building shall incorporate views that are directed to the street and garden/courtyard rather than adjacent neighbors.
- Buildings shall be placed at or near the street, along the outer edge of their sites, to ensure the unity of those streets and to encourage and facilitate pedestrian activity.
- Building design shall enhance the pedestrian environment and streetscape.
- Utility elements shall be screened in an aesthetically pleasing manner.
- Use of architectural details and changes in depth are included on building elevations to increase visual interest and scale.
- Garages shall not face the street.
- Solar/Green Roof Standard:
  - All buildings must be solar ready
  - ~~Commercial and mixed-use buildings that are 25,000 sq ft or more must also incorporate solar panels and/or a green roof on at least 30 percent of the roof area.~~
  - Commercial and mixed-use buildings that are 25,000 sq. ft. or more must meet the following solar/green roof standards:
    1. Solar panels, green roof, or a combination thereof must be installed in an area no less than either:
    2. Fifteen (15) percent of the gross floor area of the building;
    3. Thirty (30) percent of the total roof area on the building; or
    4. (For solar paneling only) an area equal to an amount required to provide one hundred (100) percent of estimated annual average electricity used at the building.

Notwithstanding the above, solar panels are not required to be roof-mounted and may be located elsewhere on site provided their area is compliant with the above percentages. **CUP (170-20B) may be used to adjust standards.*"

13. Amendment

Chapter 170 of the Code of the City of Dover, entitled Zoning, is hereby amended by revising Chapter 170-19, "Non-environmental conditional use permit criteria", by adding a subsection which speaks to the CUP criteria specific to EMERGENCY SHELTERs. The additional provision shall read as follows:

A. Purpose and intent.

(1) Where a conditional use permit is being requested for relief by use or standards as allowed by this chapter, the following criteria in Subsection B shall be met.

B. Conditional use criteria.

(1) Conditional use approval for relief from the 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) That both public and private buildings and landscaping shall contribute to the physical definition of rights-of-way as civic spaces.

(b) That development shall adequately accommodate automobiles, while respecting the pedestrian and the spatial form of public areas.

(c) That the design of streets and buildings shall reinforce safe environments, but not at the expense of accessibility.

(d) That architecture and landscape design shall grow from local climate, topography, history, and building practice.

(e) That buildings shall provide their inhabitants with a clear sense of geography and climate through energy-efficient methods via a mixture of elements including windows, floor plan, and public and private space.

(f) That encourage civic buildings and other public gathering places be provided as locations that reinforce community identity and activity.

(g) That civic buildings shall be distinctive and appropriate to a role more important than the other buildings that constitute the fabric of the City.

(h) That the preservation and renewal of historic buildings shall be facilitated.

(i) That the harmonious and orderly evolution of urban areas shall be advanced by the proposed building and/or use.

(j) That if the relief is granted, the surrounding neighborhood is not negatively impacted.

(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.

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

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

(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.

(4) Conditional use approval for EMERGENCY SHELTERs 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) EMERGENCY SHELTERs housing more than ten (10) persons shall meet the following density requirements: One (1) person per 500 sq. ft. of lot area.

(b) Common spaces outside of the structure shall be adequately screened from abutting residential uses.

(c) Client admittance to the shelter shall only be permitted between the hours of 7:00 a.m. and 9:00 p.m.

(d) EMERGENCY SHELTERs shall not be less than 1,000 feet of a public or private school (pre-school – 12th grade).

(e) EMERGENCY SHELTERs are restricted to properties which are actively serviced by City water and sewer and which provide reasonable access to public transportation. Properties which are walkable, meaning sufficiently proximate to, relevant facilities/services shall satisfy this condition.

(f) EMERGENCY SHELTERs shall provide adequate bathing and restroom facilities for their sought number of clients, the final number of which shall be determined by the Planning Board and the Building Official.

(g) All EMERGENCY SHELTERs shall provide at least one (1) shared kitchen space.

(h) EMERGENCY SHELTERs shall provide sufficient storage for clients' personal belongings. All storage must be secured with a lock, accessible either to individual clients in the form of lockers, or as a sperate lockable space accessible by the facility's operators.

(i) EMERGENCY SHELTERs are required to have sufficient exterior lighting which shall not serve as a nuisance to abutting residential uses.

(j) All EMERGENCY SHELTERs shall include a bike rack."

14. AMENDMENT

Chapter 170 of the Code of the City of Dover, entitled Zoning, is hereby amended by revising Chapter 170-32.E(1), the procedural concepts section of the Residential-Commercial Mixed-Use overlay district, which is to read as follows:

"E. Procedural concepts.

(1) The developer shall prepare a development plan, which locates the proposed types of nonresidential and residential development, utilities, access roads, and public ways. The parcels comprising the development may be under separate ownership but shall be treated as one development and shall be bound by the approval granted for the entire development plan. If approval is granted, individual lots must be developed as part of the larger development plan and phasing outlined below, and not separately. The development plan must identify the percentage of the nonresidential uses, residential uses and open space. Nonresidential and/or mixed-use uses must comprise at least 55% of the total proposed floor area for the development; residential uses must not exceed 45% of the total proposed floor area for the development. ~~Nonresidential uses within projects located in the CM District must be 90% manufacturing and assembly in nature.~~ A building shall be considered "mixed-use," provided that at least 50% of the floor area of the first floor is reserved as commercial space and provided that such commercial space is located roughly in the front half of the building and extends the length of the building facade. Residential accessory uses (e.g. mechanical, storage, laundry, etc.) are permitted to be located within the back half of the first floor of any mixed-use building.

(2) A minimum of 20% of the area of the original tract shall be reserved as open space and identified as such on the development plan. Fifty percent of the required open space (as defined in § 157-60) must be usable uplands and reasonably accessible to all property owners or lessees in the project. Any open space provided above 20% may be mixed unsuitable areas and upland.

(3) Residential uses require that the calculation of permitted density shall be completed through the submission of a yield plan (as defined in § 157-60) applied to the development lot and not individually to the internal dwelling lots.

(4) For residential development that includes single-family homes over 1,001 square feet of total living area, or three- to four-family, density shall be based upon calculating one unit per 40,000 square feet of contiguous upland, and using 150 feet of frontage on a public roadway.

(5) For single-family residential homes 1,000 or less square feet of total living area, development, two-family dwellings, or multifamily dwellings, density shall be based upon calculating one unit per 10,000 square feet of contiguous upland, and using 100 feet of frontage on a public roadway.

> (a) If units are restricted so that the rent of said units conforms to the HUD Fair Market Rent rates, for Dover, published annually by the New Hampshire Housing Finance Authority, there shall be no density for said unit(s).

(6) The development plan may be phased for a term of five years. The phasing plan shall contain provisions which promote the mixed use of the site consistent with Subsection A. For the purposes of this section, development shall include:

(a) Construction of structures;

(b) Environmental remediation;

(c) Site preparation or demolition;

(d) Roadway utility or recreation and common area design and construction; and

(e) Bonding or other security for site development.

(7) The phasing plan shall provide that no more than 50% of the residential development may be occupied prior to completion of between 25% and 50% of the nonresidential structures, as negotiated between the Planning Board and the developer, and included in the conditional use approval.

(8) Provided that the developer is making reasonable efforts to develop the site, the Planning Board may extend the initial five-year phasing period, provided a request for extension is submitted before the expiration of the initial five-year phasing term.

(9) Residential development plan guidelines.

(a) The developer shall be permitted to allocate permitted density among internal dwelling lots in a flexible and creative manner. The sum total of the permitted density shall not exceed the permitted density of the development lot or legal lot, unless the additional density is derived from § 170-29, Transfer of development rights. Layouts may include individual lots or a cluster of units without lot lines.

(b) Dwelling layouts shall be so designed that parking is screened from external roadways by garages, building locations, grading or screening. Major topographical changes or removal of existing trees shall be avoided wherever possible, and water, wetlands, and other scenic views from the external streets shall be preserved as much as possible.

(c) Where possible, it is desirable and encouraged to mix residential and nonresidential uses. This may be achieved through situating the buildings close to each other, or though allowing structures to house residential, preferably on the second or above floor, with nonresidential on the first floor. Creativity and flexibility is encouraged, and the development plan may offer another option for mixing uses.

(d) All residential development must adhere to architectural design guidelines. Said standards will reflect a New England village motif and include structures with peaked roofs and architectural shingles. The guidelines for this development are included in Chapter 153, Site Review Regulations, § 153-16.

(e) All manufactured homes shall adhere to the standards outlined in Chapter 101, Manufactured Home Parks, with the exception of §§ 101-3, 101-4, 101-5, 101-6, and 101-7F, which shall be controlled by the provisions hereof and unless noted below. Where there is a difference in the requirements between this overlay district and the provisions of Chapter 101, Manufactured Home Parks, the provisions of the overlay district shall apply.

(10) Nonresidential development plan guidelines.

(a) The general character of the nonresidential structures within the development lot is intended to be a pedestrian-friendly setting, with emphasis on the natural characteristics of the site. The site design should create a sense of character and cohesiveness through landscaping, facade treatment, and signage.

(b) The guidelines for this development are included in Chapter 153, Site Review Regulations, § 153-16.

15. AMENDMENT

Chapter 170 of the Code of the City of Dover, entitled Zoning, is hereby amended by revising Chapter 170-55, "Uses permitted by special exception", by adding a sentence to clarify that exceptions granted to new or redeveloped projects for shared parking or driveways, as afforded in Chapter 153, shall also be afforded to any project requiring a special exception for a use allowed by special exception in any of the City's zoning districts. The additional provision shall read as follows:

"Any use which is permitted as a special exception in a district under the terms of this chapter (other than a change through the Zoning Board of Adjustment action from a nonconforming use to another use not generally permitted in the district) shall not be deemed a nonconforming use in such district, but shall without further action be considered a conforming use. Notwithstanding any other language herein, the relief granted in Chapter 153, Site Review Regulations, §17.C., shall apply to any use requiring special exception approval by the Zoning Board of Adjustment."

16. TAKES EFFECT

This ordinance shall take effect upon passage and publication of notice as required by RSA 47:18.

AUTHORIZATION

Approved as to Funding: Daniel R. Lynch, Finance Director

Sponsored by: TBD

Approved as to Legal Form and Compliance: Jennifer Perez, Acting City Attorney

CITY OF DOVER

CITY OF DOVER – ORDINANCE

Ordinance Number: **O – yyyy.mm.dd -**
Ordinance Title: Updating the Dover Zoning Ordinance
Chapter: 170

Recorded by: Jerrica Vansylyvong-Bizier
City Clerk

DOCUMENT HISTORY:

First Reading Date:	Public Hearing Date:
Approved Date:	Effective Date:

DOCUMENT ACTIONS:

VOTING RECORD Date of Vote:	YES	NO
Mayor, Robert Carrier		
Deputy Mayor Dennis Shanahan, Ward 5		
Councilor April Richer, Ward 1		
Councilor, Robert Warach, Ward 2		
Councilor Anthony Retrosi, Ward 3		
Councilor Debra Hacket, Ward 4		
Councilor Fergus Cullen, Ward 6		
Councilor Lindsey Williams, At Large		
Councilor Linea Nemeth, At Large		
Total Votes:		
Resolution does | does not pass.		

_____
From: Hilary Hamer <hilary.a.hamer@gmail.com>
Sent: Tuesday, April 8, 2025 1:30:38 PM
To: Planning Board - All
Subject: Agenda Item April 8: Zoning Ordinance 170 Amendments

Security Notice: External sender. Use caution with hyperlinks or attachments.
Dear Planning Board:

I wanted to comment on the proposed amendment to the Zoning Ordinance 170-15-B on the agenda tonight dealing with the minimum separation between buildings.

The current language of 170-15-B is:
"170-15-B: The minimum distance between any main building and any accessory building not structurally attached to such main building shall be not less than the height of the rear wall of the accessory building"

The amendment proposed would change this last part to, "shall comply with any and all applicable regulations as specified in the currently-adopted Fire Code."

This language is vague and has no reference to what the relevant Fire Code might be. How is the Planning or Zoning Board to understand if a project is in compliance with this regulation unless every project is subject to a TRC review or other inspection by City Staff? When I inquired about this rule, Zoning Administrator Paul Crouser indicated that the distance would depend on variables including building materials, sizes, and fire suppression systems. The flexibility here is understandable and desirable for large projects that will by necessity involve rounds of engineering and design already, but I am concerned about it as a blanket statement in terms of how it might be understood and enforced.

This language is entirely inaccessible to any layman, and I believe will create an unintended barrier to certain types of small growth and development in Dover, particularly ADUs. Mr. Crouser confirmed in response to my inquiry that this rule would govern an ADU being added to a property in Dover.

Now under this language, a person such as myself has no idea if it is physically feasible to add an ADU to their property without significant engineering or other technical help. I have no understanding if this minimum distance might be 20-feet, or 50-feet. If my lot is of a certain size, I have no idea under this regulation if I have the space to consider adding an ADU. I would be obligated to actually hire an engineering firm to consult and tell me if it was even worthwile - and ultimately, may not therefore proceed with any project.

I recommend further specificity to this amendment before passing. Perhaps at the minimum, it would be beneficial to specify a specific distance for a traditional residential property (wood frame, with or without sprinklers) that may want to add an ADU (wood frame again), or a table of reference distances for smaller projects.

Sincerely,
Hilary Hamer, OD, FAAO
91 Court St, Dover